

**URBAN PLANNING AND  
ENVIRONMENTAL LAW  
QUARTERLY**

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Water – or, rather, the scarcity of fresh water – is set to become the world’s most volatile resources issue, if it is not already. In this edition we look at aspects of Hong Kong and China’s deepening water crisis which our government largely ignores, as with most environmental problems.

*The Editors*

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**HONG KONG FACES FRESH WATER SUPPLY CRISIS**

*World water insecurity*

“Water security” can be defined as: the reliable availability of an acceptable quality and quantity of water for health, livelihood and production.

*Un-Water*, the United Nations water specialist agency, estimates the world’s total usable fresh water supply for ecosystems and human use is about 200,000 km<sup>3</sup>, which is approximately 1% of all freshwater resources. A major difficulty in creating water security for all communities is the high cost of establishing the infrastructure necessary for delivering water to consumers. Experts estimated that in the period 2010-2015, US\$800 billion had to be spent on construction of water-delivery infrastructure; nothing like this sum was expended, however.

The world’s consumption of water is increasing at twice the rate of population increase. Withdrawals from water sources are predicted to increase by 20.5% in developed countries and 18% in developed countries within the next few years. By 2025, 800 million people will be living in regions with absolute (that is, constant) water scarcity and over 60% of the world could be under stress conditions.

Water insecurity not only has obvious dire direct consequences for the affected community, but also always is accompanied by one or more other serious issues, such as: war; poverty; reduced development of women and children; and environmental degradation.

The availability of fresh water, and how to deliver adequate volumes of water to consumers without significant environment damage, are critical issues all responsible governments need to address and constantly monitor. This is starkly illustrated by China’s recent and current attempts to secure water supplies for vast areas of its huge territory which otherwise live with water insecurity as a day-to-day reality. The gigantic (and environmentally dubious) south-north water division canal is a high profile example of the government’s attempts to combat China’s water problems.

Unfortunately, our own government has yet to realise water availability and over-consumption are serious lifestyle and environmental issues which require strong management measures.

*China’s water problems*

It would take more time and space than we have to detail China’s enormous water supply problems. A number of key points are:

- *Pollution*: China has a 5 levels scale for measuring water quality, Classes I-V. Class I is the best quality: fit for drinking, habitat for rare species of fish and spawning grounds for fish and shrimps. Class II is: fit for drinking, as spawning grounds/habitat for common fish, and for human recreational purposes. Classes III-IV are: polluted, but may be used for irrigation. Class V is highly polluted and unusable.

As an example, in 2009 the *State of the Environmental Report* revealed that of 33 sections of the Pearl River monitored, 84.9% was assessed as Class I-III, 12.1% as Class IV and 3% as Class V or worse.

However, the real picture is that overall, more than 70% of China's rivers and lakes are significantly polluted.

- *Droughts:* China regularly experiences droughts, some of them severe. In 2011, the Xijiang River (a major tributary of the Pearl River) decreased in volume by more than 30% due to drought. More than 900 ships were stranded in the river in December 2011.
- *Industrial consumption:* More than 85% of China's water supplies goes to industries. Rapid industrial expansion since China opened its economy to market forces has resulted in a huge jump in consumption of China's already challenged fresh water supplies. In 2011 Beijing issued a "No.1 Policy" document which foreshadows a national water consumption limit of 670 billion M<sup>3</sup> by 2020.

### *Hong Kong's water issues*

In 2008-2009 our fresh water consumption was 957.31 million M<sup>3</sup>, giving a daily average of 2.62 million M<sup>3</sup>, with a highest daily usage of 2.86 million M<sup>3</sup>.

Hong Kong has 16 reservoirs drawing on a catchment of 300 km<sup>2</sup>, about 30% of our land area. The largest reservoir is Shek Pik (20.49 million M<sup>3</sup>) and the smallest is Tai Tam Byewash (80,000 M<sup>3</sup>).

Water is treated before being piped to households. Treatment is mainly by sedimentation, filtration, chlorination and fluoridation. The largest treatment works is at Sha Tin; others are at Ma On Shan, Tai Po and Tuen Mun.

Hong Kong's water requirements are supplemented by using seawater for toilets. In 2008/2009 seawater consumption was 271.08 million M<sup>3</sup>. More than 75% of the territory's toilets use seawater. This is one aspect of Hong Kong's water policies which is to be applauded.

As our population increased rapidly following the 1950s it became obvious that we could not be water self-sufficient, so the colonial government turned to our neighbour. We began importing water from China in the 1960s. In 1989 Hong Kong and Guangdong signed a long-term agreement under which Hong Kong draws from Guangdong 70-80% of its fresh water requirements. However, this off-shore supply option has not been handled well by the authorities. The combination of comparatively cheap (for a rich region as Hong Kong), seemingly unlimited water from China, and our government's typical inertia in implementing responsible water supply policies, has resulted in a completely inappropriate water supply system.

In an article in the *South China Morning Post* (21 March 2015) Professor Asit K. Biswas, a respected world water expert, explained this rather shameful situation.

*"Over the past several decades, Hong Kong's water supply and wastewater management practices have been on an unsustainable path. Poor planning, absence of sustained interest from its top policymakers, an uninformed public, lack of regular media scrutiny and a series of poor policy interventions have ensured that, today it lags behind nearly all cities of similar levels of economic development in its management of water.*

*Hong Kong is a net water importer. Currently, 70-80 per cent is imported from Guangdong's Dongjiang through multiple agreements. The Audit Commission reported in 1999 that the planners had so badly overestimated city water requirements in the 1989 agreement that some 716 million cubic metres of water literally went down the drain, which cost taxpayers, between 1994 and 1998, HK\$1.7 billion.*

*Even after this sad performance, the next agreement was even worse. The requirement was again another overestimate. Consequently, between 2006 and 2012, the city had to pay for seven years of water imports but in reality used only about six years of water. This overestimation cost the taxpayers another HK\$2.8 billion.*

*As an adviser to 19 governments, I am not aware of a single city anywhere in the world which has consistently overestimated water requirements so badly for over two decades.*

*Not only has overestimation been a serious problem, but also no serious policy measures were taken to manage domestic and industrial water demands. At present, average water use in Hong Kong is about 220 litres per capita per day, a figure that is higher than in 2003. This is bad management since in nearly all similar cities of the world, the usage trends are generally declining because of better management practices and increasing awareness of the people that water is a scarce resource.*

*Accordingly, inhabitants of cities like Hamburg and Barcelona use about half that of an average Hongkonger. In Singapore, per capita water use has steadily come down in recent decades. It is now 152 litres per capita per day, which is still on the high side. An average Hongkonger uses 45 per cent more.*

*One of the reasons for this very high usage is because water and wastewater provisioning has been subsidised at higher levels with each passing year. The water tariff has remained the same since 1995, but costs of services have gone up steadily. This has resulted in some ridiculous situations, like the city providing private bottled water companies with highly subsidised water, which at the retail level is being sold at over 1,000 times the cost of city water.*

*The present pricing structure means that around 14 per cent of Hong Kong residents do not pay for water and sewerage services. Each household now receives completely free 12 cubic metres of water every four months irrespective of their ability to pay. This is in contrast to Singapore, where its national water agency, PUB, not only completely recovers its costs but also makes a profit.*

*Furthermore, in Hong Kong, there have been no consistent attempts to educate the citizens on the importance of water as a strategic resource. This is again in sharp contrast to Singapore, where the population is regularly made aware of the value of water. The interactive permanent exhibitions of wastewater treatment and water management at its NEWater Visitor Centre and Marina Barrage have become major tourist destinations.*

*When compared to other Asian cities of similar levels of per capita gross domestic product, like Singapore, Tokyo or Osaka, urban water management in Hong Kong comes out very poorly. But even when compared to some cities in developing countries, like Cambodia's Phnom Penh, Hong Kong does not fare well.*

*For the past 15 years, the Phnom Penh Water Supply Authority has outclassed Hong Kong. Like in Hong Kong, Phnom Penh residents receive clean water which can be drunk straight from the tap. Both the poor and the rich pay for water at affordable prices, and no one receives free water, as in Hong Kong.*

*Phnom Penh's water authority, a public-sector autonomous corporation, has been consistently profitable for over a decade and receives no subsidy. All its performance indicators have been consistently better than Hong Kong's, with many of them better than in London or Los Angeles. Its planning and execution have also surpassed Hong Kong's. For example, Phnom Penh's bill collection ratio is almost 100 per cent, and unaccounted-for losses from the water system are about 6.5 per cent, compared to about 17 per cent in Hong Kong.*

*The question the Hong Kong public and policymakers need to ask and answer is: how did a third world city like Phnom Penh, which has limited technical and administrative capacities, no private sector to speak of, inadequate educational and management facilities and poor governance practices, manage to leapfrog a world-class city like Hong Kong so thoroughly in little over a decade?"*

Water is supplied to Hong Kong under a "package deal", whereby we pay a lump sum (increased in 2014 to HK\$13.4 billion and increasing in 2016/2017 to HK\$4.7 billion) for a fixed entitlement of approximately 600 million M<sup>3</sup> per annum currently. This is a significant reduction on the volume taken a few years ago, which is commendable.

The Water Supply Department has not increased water charges since 1995!! The charge is about HK\$5.00 per M<sup>3</sup> (untreated water). Water supplied to Hong Kong from the Mainland comes from the Dongjiang River, a tributary of the Pearl River. The Dongjiang also supplies 7 other significant cities, including Shenzhen, Guangzhou and Dongguan. The WSD is, apparently, reluctant to agree with Guangdong a system of paying only for what we use – which would help focus the government's attention on water consumption practices – because WSD considers that might put us at a bargaining disadvantage with other major users of water from the Dongjiang River.

Recently the government announced a proposal to build a desalination plant at a cost of HK\$9 billion to augment our fresh water resources. The announcement was not accompanied by any proposal to *reduce* consumption by, for example, implementing water charges more in line with an advanced society in the 21<sup>st</sup> century. On this, Phillip Bowring, a veteran Hong Kong journalist, commented (*SCMP*, 22 March 2015):

*"Which brings us to the desalination plant said to cost HK\$9 billion and provide possibly 5 per cent of water needs. This is supposedly because of looming drought/water shortages in southern China. That is itself a dubious proposition.*

*But assuming it is true, why not spend a much smaller amount on recycling so-called grey water, now on the agenda in many cities, including Singapore? Is Hong Kong too squeamish for such modern methods, even if the recycled water is mixed with 90 per cent fresh water (if any water from a Guangdong river is ever thus)?*

*How about spending to cut the high water wastage due to damaged pipes and bureaucratic neglect? Or increasing water charges, which are set at a level that ensures wastage and a low return on public investment? Where are the comparative studies? Unfortunately, all we can expect are solutions that are neither smart nor efficient, or commercial, but which put public money into a few hands."*

### **Conclusion**

Our water policy (or lack of one) is yet another individual element of Hong Kong's treatment of our natural environment which has been – and continues to be – seriously mismanaged by the government. Surely it cannot be too difficult for our water supply and environmental agencies to bring a degree of informed and progressive thinking to the very real problem of Hong Kong's potential water insecurity. After all, as Professor Biswas concluded:

*"Urban water management is not rocket science. There is no reason why any city of more than 200,000 people cannot have a good water system. It is high time for Hong Kong to do some serious soul-searching and find solutions which can radically improve its present urban water system."*

## **TOWN PLANNING**

### **Draft Ko Lau Wan Outline Zoning Plan approved by the Town Planning Board ("TPB")**

The draft Lau Wan Outline Zoning Plan ("OZP") was approved on 21 August 2015.

A spokesman for the TPB explained that the OZP provides a statutory land use planning framework to guide development and redevelopment of land within the Ko Lau Wan area.

The OZP covers an area of approximately 35.91 hectares, bounded by Sai Kung East Country Park ("SKECP") to the east and south, Long Harbour to the west and South Channel to the north. The general planning intention of the area is environmental protection and preservation of landscapes.

Approximately 2.96 hectares of land is zoned "Village Type Development", in recognition of existing villages, of Ko Lau Wan and Tan Ka Wan, as well as to provide land suitable for village expansion.

The "Green Belt" zone, which is a buffer between the development areas and the SKECP, comprises 28.85 hectares.

Approximately 3.82 hectares of land along the coastal areas is zoned "Coastal Protection Area", the objective of which is to conserve, protect and retain the natural coastlines and the sensitive coastal natural environment.

An area of 0.23 hectare is zoned "Government, Institution or Community" to reflect existing uses. The existing Ko Lau Wan Public Pier, with an area of about 0.05 hectare, is zoned "Other Specified Uses", annotated "Pier".

[Town Planning Board Press Release, 11/08/2015]

### **Draft Kwun Tong (South) OZP approved**

The draft Kwun Tong (South) OZP was approved on 21 August 2015.

The planning scheme area is located within the Kwun Tong District in East Kowloon and covers about 387 hectares. The area is separated into two main portions in terms of land use: the south-west, which is the Kwun Tong Business Area ("KTBA") and the residential development area in the north-east.

All the industrial sites in the KTBA are zoned "Other Specified Uses", annotated "Business", to encourage transformation of the area into a business district, comprising a mixture of commercial, office and non-polluting industrial uses. This zone also covers sites for specific uses including petrol filling stations and a sewage treatment plant. Seven sites in the KTBA are zoned "Commercial (1)" and together, these two zones are approximately 46.82 hectares and 1.21 hectares respectively.

To the north-east of Kwun Tong Road are two Urban Renewal Authority Development Scheme Plan ("DSP") Areas: the Kwun Tong Town Centre ("KTTC") and the Yuet Wah Street Site, of approximately 5.06 hectares. These sites are rezoned "Comprehensive Development Area (1)" and "Comprehensive Development Area (2)", the main purpose of which is to develop/redevelop the area for residential, government and/or commercial uses and to provide open space and other community and supporting facilities.

Approximately 137.51 hectares and 14.46 hectares are zoned “Residential (Group A)” and “Residential (Group B)”, 45.15 hectares are zoned “Government, Institution or Community”, and 41.43 hectares are zoned “Open Space” for both active and passive recreational uses. The “Green Belt” zone is 28.5 hectares and the balance of about 67.26 hectares, is reserved for road and nullah uses.

[Town Planning Board Press Release, 21/08/2015]

### **Hung Shui Kiu to open up job opportunities**

The Hong Kong town planning chief considers that the proposal to build a new town in Hung Shui Kiu can improve the environment and create jobs for residents.

The Director of Planning said that the area is currently home to machinery repair workshops and storage facilities. It is planned that 714 hectares of Hung Shui Kiu will be turned into a new town with high-rise housing and commercial developments.

The Director said that because of its close proximity to the Kong Sham Western Highway, which leads to Shenzhen, companies wanting quick accesses to mainland China would be attracted to establishing their office there.

It is expected that about 60,100 new flats will be built in this area, accommodating 173,000 people. The development will create 150,000 jobs.

[SCMP, 07/09/2015]

### **Development in wetlands opposed**

A proposal to build more than 2,500 flats in part of Nam Sang Wai wetlands is strongly opposed by Yuen Long residents.

The proposal involves turning a 178.7 hectare area at the Nam Sang Wai wetlands into a development site for more than 2,500 residential flats as well as a 99 hectare wetland enhancement area. It is expected that the development will consist of 140 three-storey houses, 29 apartment blocks of 25-storeys, two clubhouses, a shopping mall, and a centre for the elderly.

A Yuen Long district councillor launched a three-day campaign against the proposal; 1,581 letters in opposition were received.

The main reason for opposition is that a wetland as big as Nam Sang Wai is very rare in Hong Kong and residents have no confidence that even if the developer proposes to have a nature reserve and wetland enhancement area that such area would be adequately protected and preserved.

A spokesman for the developers said that the proposal will improve Nam Sang Wai’s ecological environment and promote its ecological value, as he explained that the work would involve rearranging fish ponds, removing waste dumps, as well as reducing or removing pond bunds.

The Rural and New Town Planning Committee on 21 August 2015 deferred consideration of the proposal on the request of the applicant, pending submission of further information by the applicant.

[SCMP, 25/07/2015]

### **Keep the trams!**

At least 3,000 tram lovers have signed a petition to keep trams on Hong Kong Island and for Des Voeux Road to be a pedestrian-and-tram only zone.

A former planning department official has proposed that trams be abolished on Hong Kong Island. Over 15,000 submissions were received by the Planning Department from the public to keep the trams.

A campaign was organised by the *Save the Tram Alliance*, consisting of several green groups. The Alliance pointed out in its submission that trams hold valuable collective memories for Hong Kong and its people, and that instead of blaming trams as the cause of road congestions, the issue of illegal parking, being the true cause should be addressed. The Alliance expressed the view that the priority of pedestrians is often sacrificed to the development of road networks.

The chief executive of *Clean Air Network* (“CAN”) said that she believes a tram with two decks is more efficient than private cars in transporting large numbers of people.

According to a study conducted by the Hong Kong Institute of Planners last year, more private cars have made Des Vouex Road crowded and polluted. CAN notes that the Central-Wan Chai Bypass will be finished by the end of 2017, giving car drivers an alternative route to going through Central.

[The Standard, 01/09/2015]

### **The harbourfront battle continues**

The public outcry over government-business collusion over the harbourfront in Tsimshatsui East continues.

The administration assures the public that its deal to let New World control the harbourfront for two more decades is actually great for taxpayers. Taxpayers, however, have much reservation about this.

On 7 September 2015 the government was reported to have bypassed the Harbourfront Commission to table New World Development’s plans directly with the Town Planning Board for approval. The Board’s vice chairman expressed the controversial view that officials need not listen to the Commission because it is only an advisory body.

Public perception is that proper procedures have not been followed, in that a public tender process was not undertaken. Had the authorities adhered to the usual procedure, the outcry would have been avoided, or at least lessened.

A local resident has applied for judicial review to challenge the government’s decision to renew New World’s control without going through a public tender. If leave is granted for a hearing, the judicial review process may go on for several years.

In its defence, the Leisure and Cultural Department stated that New World will not be making any profits out of the harbourfront project. However, the investment by New World is HK\$1 billion. This is a very large sum, and it makes little sense that New World is prepared to undertake a loss-making project costing HK\$1 billion without the expectation of a return on investments.

It has been said that the harbourfront project is to be used by New World as a magnet for the promotion of several other major projects developed by New World in this area. In other words, the long-term gains will be expected to outweigh the short-term losses on the harbourfront, if indeed there are any losses.

The Town Planning Board has so far received 340 objections to this proposal. The Home Affairs minister told the media that the authorities will consult the stakeholders, without specifying who these 'stakeholders' are.

[*The Standard*, 08/09/2015]

## WEST KOWLOON CULTURAL DISTRICT

### The second Freespace Happening

Building on the success of the first "Happening" in August 2015, the second "Freespace Happening" took place at West Kowloon on 13<sup>th</sup> September 2015 from 2:00 to 7:00 p.m. The West Kowloon Cultural District Authority ("WKCD") has worked in concert with the programme partner, "Youth Outreach", in offering a collection of several activities like workshops, music, sport performance, street dance, handicraft markets, and a special immersive theatre experience inspired by "Alice in Wonderland".

The handicraft market featured over 40 stalls, offering to the public a wide range of original design products and art works, as well as providing DIY workshops for the public to create 'living paintings' with plants and 'uncycled kaleidoscope'.

Frisbee workshops were held by the Hong Kong Ultimate Frisbee Association. Professional players gave public demonstrations basic techniques and the public were invited to participate in a game of Ultimate Frisbee.

The "Street Workout" crew demonstrated their body strength in a breathtaking street workout battle. The public was invited to join and workout with them.

Apart from all these activities, music and dance were the main focus of the day. Various musicians attended and performed at the event. The Hong Kong School of Hip Hop delivered to its fellow Hong Kongers exciting dance performances and jams.

The public were also invited to dive into an Alice-in-Wonderland-inspired Immersive Theatre experience, run by Banana Effect, which took the audience (in a team of 30) to the Nursery Park to take on a magical tour.

The "Freespace Happening" is a recurring event. The first cycle and "Freespace Happening" will last till March 2016.

[*WKCD Newsroom News*, 01/09/2015]

### West Kowloon Cultural District should 'float like a butterfly and sting like a bee'

Hong Kong is one of several major world cities trying to create a 21<sup>st</sup> century cultural district. With the expected establishment up of the M+ visual culture museum in 2019 and the Xiqu Centre in 2018, Hong Kong is competing well against the likes of Berlin and Oslo.

However, international experts consider that in order to excel, WKCD should adopt public policies which encourage the growth of culture. This involves building places for workshops and inexpensive living spaces for young people because they will be the ones who invent new technologies.

Experts are of the view that one of the impacts of cultural districts is to help increase liveability in a dense environment and increase real estate values. If real estate becomes too expensive, this forces creative people to move to more affordable cities.

The Chairman of London-based consultancy "Made In China" said that all cultural institutions must become entrepreneurial and the WKCD should think regionally and globally, not just about Hong Kong. Guangzhou, Shenzhen and Hong Kong will eventually merge and become a big city, creating a great opportunity for the WKCD to be a hub in this region. Instead of being a monument, WKCD should be an always-changing entity, that is flexible and light, so should "floats like a butterfly and stings like a bee".

[*SCMP*, 17/08/2015]

### Vision of WKCD cannot be realised without the artists

"It is the artists, not the buildings who need the funding to turn the WKCD into an artistic hub", said a freelance writer and playwright recently.

The WKCD project will soon be getting a new CEO, but the government has turned down its request for more funding.

Since 2008, the project has received a total sum of HK\$21.6 billion from the government. Given that the Hong Kong Arts Development Council ("HKADC") awarded an average of about HK\$45,000 for an emerging artist (drama) in 2014, the WKCD's funding is enough to support about 480,000 artists under the HKADC scheme. But do we have funding for that many artists?

Instead of putting more funding into buildings and asking artists to pay heavy rental fees for them, the government could build rehearsal spaces within the new theatre complexes. An artist residency programme could also be established to fund four to six artists and enable them to collaborate and create an actual piece of work in the course of a year.

[*SCMP*, 04/08/2015]

### Ex-gratia payment application for pre-Euro diesel commercial vehicles to close on 31 December

In order to improve roadside air quality, the EPD launched its programme to grant ex-gratia payments to eligible truck owners to buy a new vehicle scheme in March 2014 with the aim of phasing out by the end of 2019 some 82 000 pre-Euro IV DCVs, including goods vehicles, light buses and non-franchised buses. The application deadline is December 31, 2015.

An EPD spokesman said that by 31 July 2015, about 31 000 or 38 per cent of the eligible DCVs were retired under the scheme, of approximately 18 000 eligible owners of pre-Euro DCVs, about 72 per cent of them had scrapped their vehicles and submitted ex-gratia payment applications.

[EPD Press Release, 25/08/2015]

### Mobile machinery required to meet emission rules

The Environmental Protection Department (“EPD”) reminded non-road mobile machinery related trades that from 1 September 2015, regulated machines to which the *Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation* applies must have the approval of the EPD when they are offered for sale or lease for use.

The Regulation covers mobile machines or transportable industrial equipment powered by an internal combustion engine with a rated engine power output greater than 19 kilowatts (kW) but below 560 kW, such as excavators, air compressors, mobile generators, and crawler cranes.

The EPD announced it launched a dedicated online application system on 1 June 2013 for handling applications for approval or exemption for non-road mobile machinery (NRMMS). The spokesman explained that when an application is accepted, the EPD will issue the approval label or exemption label through the system and the public can also check whether an NRMM has been approved or exempted by the EPD and verify the essential information through the online system.

The Regulation requires new regulated machines to comply with Stage IIIA emission standards of the European Union (EU) and new non-road vehicles to comply with prevailing Euro V emission standards for newly registered road vehicles. The Regulation also empowers the EPD to issue approval labels to new NRMMS complying with the above emission standards and exemption labels to existing NRMMS.

Applications for exemption labels for existing NRMMS should be made between 1 June and 30 November 2015.

[EPD Press Release, 30/08/2015]

### Plastic bag levy encourages sustainable packaging

In April this year the government implemented the second phase of its plastic bag levy scheme. All retailers are now required to charge customers for plastic bags.

Reducing the use of plastic bags is a small fraction of a broader programme to conserve the environment; the bigger goal is to minimise environmental impacts of all packaging in the long term. Whilst it is difficult, if not impossible, to get rid of all plastic packaging, sustainable packaging may go some way towards achieving that goal.

Sustainable packaging is not only about the packaging itself but also the packaging’s whole life cycle - from the material source and manufacturing process to transportation and recycling.

The goal of sustainable packaging is to use thorough research, through the collaboration of the private and public sectors, to determine the environmental impact of packaging so that we might adopt measures to reduce impact of harmful packaging.

The concept of sustainable packaging is by no means new to Hong Kong. In 2008, the Environmental Protection Department issued the *Environmental Guidelines on Mooncake Packaging Design*. An example that some progress is being made is the retailing of mooncakes. By adopting environmentally friendly packaging, mooncake manufacturers provide add-on value for their products by optimising various factors during the design stage, such as environmental protection, hygiene, shelf life, transportation, appearance, brand image and costs.

It is important for Hong Kong consumers to understand the concept of sustainable packaging so that they can make wise purchasing decisions. Consumer preference will help drive companies to further improve their packaging and become more sustainable and environmentally friendly.

[SCMP, 01/09/2015]

### Schools Recycle WEEE programme

The Environmental Protection Department (EPD) invites all primary and secondary schools to sign up to the new round of *Schools Recycle WEEE* programme, which encourages the proper recycling of computer products and other electrical or electronic products that are retired from use at the start of the school year.

An EPD spokesperson said that it is the third year that they are organising the recycling programme for schools at the start of the school year. Whilst public awareness towards waste reduction and recycling has been rising over time, they hoped that the programme would be useful for schools and at the same time step up publicity about the proper recycling of waste electrical and electronic equipment (WEEE). It should also help to pave way for the implementation of the mandatory producer responsibility scheme which is in the legislature pipeline.

In 2014, the Schools Recycle WEEE programme drew participation from 172 schools and over 7,700 items of WEEE were collected. This year, the EPD will continue to provide support for participating schools to publicise the programme on campus and will send collection vehicles to them in October and November to take away the WEEE recovered. After sorting, the WEEE collected will then be distributed to *WEEE Go Green*, organised by St James’ Settlement, and the recycling programme managed by the Hong Kong WEEE Recycling Association, for proper treatment.

In addition to managing the *Schools Recycle WEEE* programme, the EPD also encourages members of the public to recycle WEEE through the following programmes and outlets:

- *Community Green Stations*: the first two facilities have been commissioned in Sha Tin and Eastern District. The operators liaise with residential housing estates, institutions and schools within the districts and establish collaboration. They also are expanding the service network to enhance recycling support for the collection of WEEE and other recyclables;
- *Computer Recycling Programme*: there are about 900 residential collection points and 400 non-residential points for collection of used computers from the public;
- *Rechargeable Battery Recycling Programme*: collection bins have been placed at more than 1 400 residential collection points and more than 1 300 non-residential collection points in commercial and industrial buildings, MTR stations and fast food chains for the recycling of used rechargeable batteries;
- *WEEE Go Green* run by St James' Settlement: there are 16 collection points, and regular WEEE collection services are also provided at about 500 housing estates; and
- *Mobile WEEE Collection Centre*: mobile collection services are provided at weekends in rotation in 18 districts.

[EPD Press Release, 03/09/2015]

### Tracking air pollution online in near real-time

Scientists working at the University of California, Berkeley and Nanjing University have mapped hourly pollution data from over 1,500 sites across China – including Hong Kong – to produce a comprehensive smog map of the country's heavily populated eastern provinces.

During the period covered by the scientists' paper, from April to August 2014, 92% of the population surveyed experienced at least 120 hours of unhealthy air, according to the US environmental protection agency standards, and 38% experienced unhealthy air on average.

Hong Kong was relatively green, although it has had its share of choking smog, according to the latest air quality index report from the Environmental Protection Department. Pollutants, including nitrogen dioxide, ozone and PM2.5, exceeded government limits in various areas of Hong Kong last year, the report said.

[SCMP, 05/09/2015]

### Central rezoning plan wins business support

Under a proposal submitted by the Clean Air Network, the Conservancy Association, Designing Hong Kong and Friends of the Earth, the lanes adjoining either side of the tram tracks along a one-kilometre stretch of Des Voeux Road Central would be set aside for pedestrian use only. The proposal counters a controversial submission by retired planner Sit Kwok-keung to rip up tram tracks in Central and Admiralty to create more space for cars and buses.

Ivan Ko Kwong-woon, the chairman of the Hong Kong chapter of the China Real Estate Chamber of Commerce, said the proposal would give fresh air to Central and provide a safer environment for pedestrians and will improve the area.

According to this proposal, the centre part of Des Voeux Road would still be open for trams and environmentally friendly buses. The rezoning proposal has been submitted to the Town Planning Board.

Proponents of this radical change agree that the rezoning will not result in serious traffic jams in Central, given that the government is making huge investments to improve the city's transport infrastructure, such as the recently opened MTR West Island Line and the imminent opening of the Central-Wan Chai Bypass, the MTR South Island Line and the Sha Tin-Central railway line.

[SCMP, 09/09/2015]

## ADVISORY COUNCIL ON THE ENVIRONMENT (ACE)

*Summary of minutes of the 207<sup>th</sup> Meeting of the Advisory Council on the Environment held on 13 July 2015:*

The Chairman of the ACE briefed the meeting that the Airport Authority Hong Kong ("AAHK") sought Members' views on the marine travel routes and management plan for high speed ferries ("HSFs") operated by SkyPier (the "SkyPier Plan"). The plan was one of the submissions required by the Director of Environmental Protection ("DEP") when he granted the Environmental Permit ("EP") for the project *Expansion of the Hong Kong International Airport into a Three-Runway System* (the "3RS"), following having consideration of the comments from the ACE.

Pursuant to the EP conditions, AAHK prepared a comprehensive operational plan to implement speed restrictions and route diversions for HSFs operated by in SkyPier ("SkyPier HSFs") and the capping of daily maximum HSF movements on top of the annual daily average.

A Member was concerned that the proposed route diversion of SkyPier HSFs to the north of Sha Chau and Lung Kwu Chau Marine Park ("SCLKCMP") would pass through known habitat of Chinese White Dolphins ("CWD"). Mr. Peter Lee, the General Manager, Environment, explained that the impact of the proposed diverted route to the north of SCLKCMP had been assessed in the Environmental Impact Assessment ("EIA") report which was approved. As the waterway between SCLKCMP and the 3RS land formation area would be greatly constrained during the construction phase, this would inevitably increase the risks and impacts faced by to CWDs, including being hit by moving vessels. Mr Peter Lee explained that the approved EIA report had clearly identified the recommended alignment of the diverted route and provisionally identified the portion of the diverted route to be subject to the speed limit of 15 knots, based on the CWD abundance data available when preparing the EIA report.

Another Member asked about the feasibility of devising an alternative route for SkyPier HSFs to avoid passing through CWD habitat. Mr Lee explained that the approved EIA report had clearly identified a recommended alignment for the diverted route.

A Member pointed out that the proposed diverted route in the EIA report should not be taken as the only feasible routing since AAHK had not presented detailed information on CWD hotspots, particularly those within the Pearl River Delta ("PRD") waters when the route diversion proposal was discussed by ACE last year. In reply, Mr. Lee repeated his clarification that AAHK had used the updated available CWD abundance data to refine the north diversion route alignment as well as updating the section of the north diversion route alignment to be subject to the 15 knot speed limit.

Mr. Lee further explained that SkyPier operated for approximately 12 hours a day. SkyPier HSFs to/from Macau and Zhuhai took a westerly route while those to the PRD would travel north. The diverted routes detailed in the SkyPier Plan would only involve SkyPier HSFs to/from Macau and Zhuhai (i.e. approximately 40% of all SkyPier HSF movements) which would travel north of SCLKCMP and then detour westwards before entering the PRD waters. The remaining HSFs for the PRD would continue taking the customary northerly direction.

As to the aggregate number of vessels currently navigating north of SCLKCMP and Urmston Road, Mr Lee said the total number of HSFs using Urmston Road in 2021 was estimated at 140, as presented in the EIA report.

A Member asked about the feasibility of re-locating SkyPier to the west of the airport. The response was that, based on an earlier assessment, re-locating SkyPier to the west was not operationally viable as the water was comparatively shallow and would necessitate access channel dredging and subsequent regular maintenance dredging to support SkyPier in that location.

Under the plan, HSFs are subject to the proposed 15-knot speed limit outside the boundary of SCLKCMP and 10-knot when entering the marine park. Mr. Lee said that this was considered to be a reasonable compromise for the protection of CWDs. Speed reduction below 15 knots would generate difficulties in manoeuvring HSFs, especially when making sharp turns, and hence creating concerns for marine safety and passenger comfort. Mr Dick Choi, Senior Marine Conservation Officer (West), Agriculture, Fisheries and Conservation Department, said that the captains of HSFs must comply with the *Marine Parks Ordinance* (Cap.476) and navigate at a speed not exceeding 10 knots at any time inside a marine park, which is consistent with the SkyPier Plan.

Mr. Lee advised that a maximum daily cap of 125 movements was proposed so as to allow operational flexibility. AAHK had taken into account the Hong Kong-Zhuhai-Macau Bridge operation when conducting the EIA assessment of the 3RS, and projected that the annual daily average of the SkyPier HSF movements would reach 130 by 2030, as presented in the EIA report. AAHK was committed to capping all SkyPier HSFs at an annual daily average of 99 movements prior to designation of the proposed marine park. Despite the increased movements of HSF, there was currently no plan to build additional berth(s), he said.

Mr. Lee assured Members that the measures had been proposed in consultation with overseas dolphin experts. Several studies on dolphin activities had been conducted for the EIA of the 3RS. In addition, there was a six-month survey following the EIA to monitor the activities of CWDs. He added that they had included in the Environmental Monitoring and Audit (EM&A) Manual that monitoring data would be collected and used to monitor the effectiveness of the mitigation measures proposed.

## CLIMATE CHANGE

### Climate change threat on par with nuclear proliferation and terrorism

On 13 July 2015 an international group of scientists, energy policy analysts, and risk experts from the financial industry and the military released an independent assessment of the risks of climate change. They concluded that the risks should be assessed in the same way as risks to national security or public health. According to the report, *Climate Change: A Risk Assessment*, such a risk priority means focusing on understanding what is the worst that could happen, and how likely it is to occur.

The report identifies thresholds beyond which ‘the inconvenient may become intolerable. These include limits of human tolerance of heat stress, and limits of crops’ tolerance of high temperatures, which if exceeded could lead to large-scale fatalities and crop failure; as well as potential limits to coastal cities’ ability to adapt to rising sea levels.

It suggests that in future, these thresholds could become increasingly likely to be crossed; an extreme event that may be very unlikely at one point in time could be highly likely at some later point.

This will especially be the case if global emissions of greenhouse gases continue to rise, as the report suggests they will in the absence of stronger political commitment and faster technological development. The report recommends that climate change risk assessments should be updated regularly and communicated to political leaders at the highest level.

In total, the report includes contributions from over 40 scientists, as well as from experts in security, finance, and economics, from eleven different countries. Fiona Morrison, President of the Institute and Faculty of Actuaries, a co-sponsor of the report, commented that as the report shows, adapting to, and mitigating the risk of, climate change is of vital importance for governments. One of the most important goals of climate change policy should be to recognise the possibility of very bad outcomes, and a full risk assessment of all possibilities is the best way to achieve this.

[*Business Spectator*, 14/07/2015]

### Warming index gives governments climate change flexibility

Professor David Frame of Victoria University, Wellington, N. Z. was one of four authors of a paper recently published in the international scientific journal *Nature Climate Change*. He is calling for an overhaul of the way climate change pledges are assessed to avoid “indefinite procrastination” on the design of efficient mitigation policies.

The paper argued that the “pledge and review” approach, which will form the basis of commitments made at the United Nations climate change negotiations in December, presented an opportunity to explicitly link mitigation goals to the evolving climate response.

The researchers recommended an adaptive strategy based on an index of warming attributable to human influence, drawn from observed temperatures. At the end of 2014, the rise in global mean temperature that could be attributed to the impact of people was calculated to be 0.91 degrees centigrade. The recommended index is not subject to high variability year to year, does not require complex modelling and could be updated annually, allowing governments to regularly review their pledges to reduce greenhouse gas emissions.

The paper concluded that the index could be a simple way to ensure consistency between changes in climate, individual countries' pledges, and the overall goal of reducing emissions.

Professor Frame said the creation of an agreed index of global warming would be a useful tool to assist policymakers to work out where we are in terms of achieving the main aims for climate policy. The index could help governments by reducing opportunities for diversionary arguments based on selective use of data, and offer a way to evaluate climate policies that tackles the uncertainty of climate response, which to date has stalled progress of mitigation strategies.

[*Xinhua*, 04/08/2015]

### Experts call for climate change action

More than 70 climate change experts across Africa and representatives from international organisations as well as the private sector participated in the recent United Nations Framework Convention on Climate Change (UNFCCC) event in the Rwandan capital, Kigali. Rwanda was chosen to host the meeting because

of its proactive approach incorporating climate change policies in its long-term national development strategy. The experts called on world leaders to act now to prevent climate change impacts which could be catastrophic for human health.

The meeting aimed to strengthen *Nationally Appropriate Mitigation Actions* (NAMAS) as a tool for pre-2020 and post-2020 climate change action. Faustin Munyazikwiye, a climate change expert at Rwanda's Environment Management Authority said climate change interferes with human life. Delegates called on world leaders to apply the Climate Change Convention principles, as well as measures for mitigation of, and adaptation to, the impacts of climate change.

Early this month, Rwanda was accredited by the Global Green Climate Fund (GCF) to access project-based climate finance from GCF, which is the world's largest climate change adaptation and resilience fund. In April this year, Rwanda was ranked among the top twenty of the world's greenest places for 2015, according to *World Travel Guide*, an international travel guide for adventurous travellers.

Research, conducted by Rwanda's Environment Management Authority in 2011 showed that the country faces a problem of air pollution caused by vehicular emissions, resulting from poor maintenance and use of second hand vehicles.

In 2008, Rwanda, a small central African nation, passed a law banning the importation and use of polythene bags, and making possession or smuggling of them into the country an offence attracting heavy penalties.

[Xinhua, 17/08/2015]

### Severe sea level rises for Asia

Sea levels are rising around the world, and the latest satellite data suggests that one metre or more is unavoidable in the next 100 to 200 years, Nasa scientists have concluded. Ice sheets in Greenland and Antarctica are melting faster than ever, and oceans are warming and expanding much more rapidly than they have in years past. Rising seas will have "profound impacts" around the world, said Michael Freilich, director of Nasa's earth science division. "More than 150 million people, most of them in Asia, live within one metre of present sea levels," he said.

[SCMP, 30/08/2015]

### Fourth climate change meeting held in Hong Kong

The Hong Kong/Guangdong Joint Liaison Group on Combating Climate Change (JLGCCC) held its fourth meeting in Hong Kong on 31 August 2015. When progress of cooperation in 2014/15 was renewed, and a work plan agreed for 2015/16.

According to the JLGCCC, the achievements last year include:

- The Hong Kong Observatory and the Guangdong Meteorological Bureau exchanged and compared climate projections for the Pearl River Delta region in June 2015 and issued a report on the results;
- The Environment Bureau and the Guangdong Development and Reform Commission exchanged information on the progress of climate change adaptation work;
- The Environment Bureau and the Electrical and Mechanical Services Department held a seminar on measures and technologies on energy conservation and building efficiency last October; and
- The China Quality Certification Centre Guangdong Branch and the Chinese Manufacturers' Association of Hong Kong jointly commenced in 2014 a study of a Guangdong-Hong Kong mutual recognition scheme for carbon labeling. In July 2015 the Hong Kong side shared with the Guangdong Development and Reform Commission details of the operation and experience of Hong Kong's carbon footprint repository.

The work plan for 2015/16 includes:

- Carrying out exchanges on techniques of short-term climate forecast to enhance the relevant capability of both sides. The scope of discussion covers average temperatures, rainfall recording and frequency of occurrence of extreme weather events;
- Carrying out assessments of the risks and other potential impacts of climate change on influenza, thus facilitating Guangdong's development of models for climatic warning and indicators of different risk levels of influenza;
- Carrying out further exchanges on urban drainage system design;
- Carrying out further exchanges on slope safety management;
- Continuing support for exchanges on low-carbon products certification; and conducting exchanges on carbon labeling for construction materials;
- Jointly participating in a "Greenhouse Gas Measurement, Reporting and Verification Workshop" to be held in Hong Kong, to enhance government departments' competence in greenhouse gas emission information management.
- The JLGCCC was set up under the Hong Kong/Guangdong Cooperation Joint Conference in 2011, with a view to cooperating on combating climate change, coordinating relevant measures and activities, and promoting related scientific research and technology development. Under the JLGCCC, two working groups have been established to initiate and enhance exchanges on adaptation to climate change impacts and mitigation measures.

The government bureaux and departments which attended the 4<sup>th</sup> meeting included, from Hong Kong: the Environment Bureau; the Environmental Protection Department; the Agriculture, Fisheries and Conservation Department; the Civil Engineering and Development Department; the Drainage Services Department; the Department of Health; the Electrical and Mechanical Services Department; the Hong Kong Observatory; and the Transport Department and the Water Supplies Department. From Guangdong attendees were: the Guangdong Development and Reform Commission; the Provincial Department of Science and Technology; the Provincial Department of Land and Resources; the Provincial Environmental Protection Department; the Provincial Communications Department; the Provincial Water Resources Department; the Provincial Department of Agriculture; the Provincial Health and Family Planning Commission; the Provincial Forestry Department; the Provincial Administration of Quality and Technology Supervision; the Hong Kong and Macao Affairs Office of the People's Government of Guangdong Province; the Provincial Meteorological Bureau; and the Provincial Academy of Sciences.

[EPD Press Release, 31/08/2015]

### Rise in sea level threatens "catastrophe"

In a paper entitled *Historical Change and Future Scenarios of Sea Level Rise in Macau and Adjacent Waters*, researchers from Hong Kong and the mainland predict the former Portuguese enclave would be hit hard due to its flat topography and high proportion of reclaimed land. Sea levels could rise by as much as 1.2 metres in the Pearl River Delta by the end of this century, with catastrophic consequences for Hong Kong and Macau.

Hong Kong's situation may be better due to its mountainous terrain, but the impact on heavily populated areas could be far worse, the study says. Both territories would suffer from coastline erosion.

According to the study, sea levels in the area rose by an average of 1.35 millimetres per year from 1925 to 2010, but a much faster rate of 4.2mm per year from 1970 to 2010, outpacing the global average rise in sea levels.

Professor Lan Jian, a marine physicist with the Ocean University of China who was not involved in the research, said the work by Huang's team was important and that their results would be of great use in scientific studies of the South China Sea. But Lan said the scenario of a 1.2-metre rise in sea levels should be treated with caution. The models used are still in need of further improvement, and feeding different data to the models can produce very different results.

The UN's Intergovernmental Panel on Climate Change predicted that the mean of global sea levels would rise by one metre by 2100 if changes to carbon emissions were not made.

Meanwhile, a 2010 study by the Hong Kong Observatory showed that coastal low-lying areas would be at greater risk of being inundated, while "extreme sea levels" would become more frequent due to storm surges caused by typhoons.

Huang said his team planned to continue its research to find more precise models and answers so that it could offer useful guidelines to the local authorities for city planning and infrastructure projects. These guidelines could be applied to other cities along China's south coast.

[SCMP, 16/09/2015]

### **Businesses in China and U.S. agree on carbon reduction roles**

Chinese State Councilor Yang Jiechi addressed the closing ceremony of the first US-China Climate Leaders Summit in Los Angeles on 16 September 2015. The conference, involving business leaders from China and the United States, was held in Los Angeles to discuss their roles in fighting climate change, and the opportunities for driving green, low-carbon development.

Theodore F Craver Jr, CEO of Edison International said innovation, ingenuity, private capital and well-functioning markets make it possible to meet both objectives of environmental protection and economic prosperity.

Li Chunguang, president of Sinopec Corp, said his company has realised significant reductions in carbon emissions, while also keeping production steadily expanding. In 2013, they launched an environmental protection drive and set a goal of investing \$3.8 billion in low-carbon programmes.

Elizabeth Sherwood-Randall, U.S., Deputy Energy Secretary, said business-to-business collaboration is as important as government dialogue, as it can produce the technologies, business models and policies needed to fulfill the climate change commitments.

Su Wei, Director General of the Department of Climate Change of China's National Development and Reform Commission, called on companies from both sides to incorporate climate-change issues in their operations and marketing practices.

Gene Sykes, co-head of Global Mergers and Acquisitions and co-chair of the global technology, Media and Telecom Group said services and products encompassing low-carbon, green technologies are expected to be the largest market in the future.

[China Daily, 17/09/2015]

### **Analysts examine measures for reduction**

As the United Nations climate negotiations drew to an end, international attention was on Paris, where global leaders will gather from 30 November 2015 to seal what is meant to be a new, ambitious and legally binding agreement to combat and reduce harmful effects of global warming.

Before that, 196 countries, including China, being the parties to the *UN Framework Convention on Climate Change*, had to submit their post-2020 greenhouse gas emissions reduction pledges.

Recent analysis by *Climate Action Tracker*, a consortium of climate research organisations, revealed that the promises governments have made to limit their national greenhouse gas emissions are insufficient to limit warming to the 2 C maximum increase (by end of the 21<sup>st</sup> century), which experts consider is necessary to avoid catastrophic increase in sea levels, and other harmful environmental consequences. China, the world's biggest emitter of greenhouse gases, accounts for 30 percent of global emissions, almost double that of the second largest, the USA.

China has committed to a 60 to 65 percent reduction in CO2 emissions by 2030 compared with 2005 levels, with 20 percent of energy coming from non-fossil fuels by 2030. Efforts undertaken by the Chinese leadership have brought "significant" results. The country has emerged as the world's leader in renewable energy investment, coal use has dropped and carbon intensity has fallen by more than 30 percent.

With new 2030 targets submitted on 30 June 2015, China has committed itself to increasing the share of non-fossil fuels in its energy mix by about 20 percent, reaching a peak in emissions before 2030. China will also increase its forest stock volume by about 4.5 billion cubic metres from the 2005 level. The pledge builds on the historic US-China announcement on climate change in November 2014, when China, a fierce advocate of "common but differentiated responsibilities", agreed, for the first time on the world stage to cap its emissions before 2030.

Nevertheless, despite the impressive achievement of the new national energy strategy, a Friends of Europe study concludes that "much remains to be done" to reduce China's heavy dependence on coal and to bring about a genuine reduction in its greenhouse gas emissions.

[China Daily, 18/09/2015]

## **REGIONAL & INTERNATIONAL**

### **AFRICA**

#### **The impact of savanna fires on Africa's rainfall patterns**

The millennia-old tradition of burning the savanna and woodland for pastoral land is an annual occurrence across Africa to date. However, the majority of human agro-pastoral ignitions have shifted to the dry season instead of the summer wet season.

In the past, smoke from the burning has exceeded 6.7 million tonnes per annum, of which 375,000 tonnes are dark particulates, known as black carbon, which interact with clouds and climates in numerous ways.

Satellite measurements of Africa from the Multi-angle Imaging Spectroradiometer and the Moderate Resolution Imaging Spectrometer show consistent results with similar studies worldwide. The data showed that very low cloud cover coincided with spikes in fire ignitions and emissions, suggesting there may be a positive feedback loop, whereby fires reduce cloud cover, thus rainfall.

The theory is that savanna's rainfall is dependent more on convection but less on condensation. Convection in turn is dependent on the vertical mixing of air. As the emitted black carbon particulates suspended in the air absorb heat from sunlight, they heat the air nearby to create a warm layer of air, preventing air from the Earth's warmed surface from rising above it. The net result is the intervention with the upward motion of air interferes with formation of clouds, resulting in a notable suppression of rainfall in the region.

[*The Conversation*, 02/09/2015]

## CHINA

### Recent reports detail severe water pollution in China

According to a report by China's Ministry of Environmental Protection this March, its first nationwide large scale research reveals over 280 million residents use unsafe drinking water, and 110 million residents are in the vicinity of highly polluting factories. The Ministry of Water Resources adds that fluorosis is commonly found in most provinces in China.

Similar observations were made by the Hebei Province authority this July, when it reported over 17 million residents regularly consume unsafe drinking water, of which more than 5.7 million are drinking brackish water high in fluoride.

Prolonged exposure to high fluoride water has reportedly caused fluorosis, which damages teeth and bones, resulting in crippling deformities of the spine and major joints.

The Hebei report has identified three major causes of deterioration of water quality: heavy metals in industrial wastewater; household waste being directly dumped in rivers; and discharge of unprocessed excrements. For instance, last March in Huangpu River in Shanghai, 10,395 dead pigs were directly dumped into rivers by farmers to save costs of disposal. Generally in China, water pollution scandals, including one this April in Lanzhou City of Gansu Province involving a petrochemical plant broke, are not infrequent.

To combat water pollution, this July the National Development and Reform Commission authorised water pollution control projects in 20 provinces, involving a total investment of 29.64 billion yuan (US\$4.9 billion).

[*Epoch Times*, 26/07/2015]

### China explores alternative energy solutions to beat pollution

The central government of China has begun to phase out coal-burning power plants as the solar energy production cost continues to fall and the deadline to increase the nation's non-fossil fuel share of its energy consumption to 20% by year 2030 comes closer.

The central government has raised its solar energy target to add approximately 2.5 times the capacity that the United States added last year. This year, China's National Energy Administration reported more than 5 gigawatts of solar capacity was added in the first quarter, more than in first 2 quarters of 2014 combined.

In line with the central government's policy and to raise public awareness, Hanergy Holding Group, the biggest producer of solar energy in China, plans to increase its user experience centres to 1,500 worldwide by 2017.

The Group is optimistic household consumption of solar power will increase. It predicts future power generation will be from micro-scale power plants near the point of consumption, such as rooftop and building-integrated generation. The Group envisages an era of 'mobile energy', where every household has the potential to generate enough power for its needs.

China has shown promising progress in this direction in recent years, with new installations of renewable power sources surpassing new installations of traditional sources. With the reduction in burning of coal for power, which is the main contributor to air pollution worldwide, the Group is optimistic of rediscovering blue skies across China.

[*SCMP*, 04/05/2015]

### Study finds pollution in China causes 1.6 million deaths a year

Air pollution is costing China dearly. According to a study conducted by researchers from *Berkeley Earth*, a non-profit climate research organisation, the deaths of about 1.6 million people every year, or about 4,400 per day, can be attributed to air pollution. This is in line with other studies revealing between 1.2 to 2 million people die due to pollution in China each year.

The most deadly pollutant, according to the study is the tiny particles emitted by power plants, domestic fossil fuels consumption and heating factories. These particles can enter human's lungs and bloodstream, resulting in illnesses ranging from asthma to heart disease.

According to the study, 92% of the China population experienced more than 120 hours of unhealthy air during the four months study period and 38% experienced average concentrations that were unhealthy according to the U.S. Environmental Protection Agency standard.

[*Time Magazine*, 13/08/2015]

### China's villagers reject their own polluted crops

In Yuanshi county's Beisu village in Hebei province, the villagers do not eat the crops they grow nor drink their local water, as their soil and groundwater have been severely polluted by nearby chemical plants.

The villagers claim the biggest polluter is a nitrate plant that produces as much as 2 billion yuan (HK\$2.4 billion) worth of the substance per year, contributing to a quarter of the county's revenue. The manager of the plant, however, answers that the company has environmental certification and enjoys a good reputation for its products.

Propaganda officials said five deep wells were dug in the county in 2013 to solve the water usage problems. Additionally, the county's environment bureau head said more than 100 million yuan was spent on curbing pollution in the county, and more compensation was paid as pollution worsened.

[SCMP, 17/08/2015]

## TAIWAN

### Nationwide rallies decry air pollution

Approximately 10,000 people in nine cities and counties (Changhua, Nantou, Yunlin, Chiayi, Tainan, Kaohsiung, Pingtung, Taichung, and Taipei) around Taiwan took to the streets in protest against air pollution. The protesters demanded that the government impose an energy tax and raise flags to warn of high levels of air pollution in schools.

The protest organisers, citing a report by the World Health Organisation, said particles less than 2.5 micrometers in diameter (PM2.5), otherwise known as "fine particles", can be inhaled into the lungs, the risk of which is especially high during activities such as running, hiking and cycling. The inhalation of such particles is a known health risk.

[The China Post, 07/06/2015]

## JAPAN

### Japan's renewable revolution at risk

Prior to the Fukushima disaster in March 2011, nearly 30% of power came from nuclear generation. Following the disaster, all of Japan's 48 other nuclear reactors were shut down. Although the predicted black out did not eventuate, Japan was forced to explore alternatives, including fossil fuels and renewable energy.

Japan is now the world's biggest importer of liquefied natural gas, a fossil fuel, resulting in a significant rise of greenhouse gas emissions.

As to renewable energy, Japan is a mountainous island nation with a sunny climate and lots of active volcanoes. This suggests there is great potential for renewable energy generation: hydro, wind, tidal, solar and, more importantly, geothermal.

Following the Fukushima disaster, a "feed-in tariff" was implemented by the government to encourage its residents to put solar panels on their rooftops to fuel the power grid, for which the power companies have to pay a generous fee of 40 Yen per kWh. The generosity of the scheme was met with dramatic responses. In 2011 Japan had 4.9 gigawatts of installed solar capacity. At the end of 2014, that had leapt to 23 gigawatts, placing Japan as the third largest solar energy producer in the world.

However, the solar trend came to a halt towards the end of 2014, when the power companies said they could take no more electricity. Almost simultaneously the government dropped the tariff to 27 Yen per kWh. The government also pushed for a return to nuclear power, claiming the need for cheap reliable "base load" power that only nuclear energy can provide.

[BBC, 06/05/2015]

### Japan restarts first nuclear reactor since Fukushima disaster

Since the Fukushima disaster in March 2011, all of Japan's 48 nuclear reactors were gradually taken offline. Since then, the island nation has imported huge amounts of expensive natural gas and coal to meet its energy needs.

Japanese Prime Minister Shinzo Abe has pushed for a return to nuclear energy, arguing it is essential to the country's economic recovery. However, opinion polls have consistently shown public opposition to a nuclear restart.

An earlier attempt to reactivate reactors 3 and 4 of the Kansai Electric Power Company's Takahama nuclear plant was met by a petition to the court in Fukui Prefecture, where the plant is located, to block the move. Today, Kyushu Electric Power Company has reactivated the first reactor at its Sendai nuclear power plant in Kagoshima Prefecture, on the southern island of Kyushu, since the Fukushima disaster.

According to Greenpeace Japan, the Nuclear Regulation Authority and Kyushu have not applied a robust enough risk assessment in which they have disregarded seismic and volcanic risks involved. As well, the reactors at Sendai are old. Chief Cabinet Secretary Yoshihide Suga insisted that the Japanese government is placing priority on safety over anything else, and the country's new regulations governing the operation of nuclear plants are the world's toughest.

[CNN, 13/08/2015]

## AUSTRALIA

### Investing in Australia's battery storage market

The Southern Cross Renewable Energy Fund has invested AUD 6.3 million in Brisbane based Octillion Power Systems Australia to further develop advanced lithium-ion battery storage solutions.

Australian Renewable Energy Agency ("ARENA") CEO Ivor Frischknecht claimed reliable battery storage will enable more renewable energy to enter Australia's electricity markets. To achieve a competitive price, Octillion will tap into the global manufacturing capabilities of Sinoelectric Powertrain Corp (SinoEV).

The investment is targeted to resolve challenges such as local grid constraints, high ambient temperatures and significant annual temperature fluctuations in Australia and South East Asia.

[Australian Renewable Energy Agency, 01/07/2015]

## Seaweed helps in starfish battle

Under attack from hordes of ravenous starfish, Pacific coral is getting help from an unexpected source: seaweed. Seaweed is no friend of the fragile ecosystems of coral reefs, researchers say. It pumps out harmful chemicals, blocks life-giving sunlight, and rubs up against and damages threatened marine invertebrates. But it turns out the plants also fend off coral-munching crown-of-thorns starfish, which pose an even bigger threat, according to a study published in *Proceedings of the Royal Society B: Biological Sciences*. AFP

[SCMP, 30/08/2015]

## New weapon to eradicate crown-of-thorns starfish

Queensland researchers are close to completing work on an autonomous robot that will cruise the Great Barrier Reef and inject the destructive crown-of-thorns starfish with a toxic solution.

The starfish is no bigger than a dinner plate, but collectively it represents one of the biggest threats to the Great Barrier Reef. It has already destroyed approximately 40 per cent of the reef from Cooktown to the Whitsundays.

The COTSBot underwater robot looks like a sophisticated remote-controlled toy submarine. It has been designed to cruise around a designated area of coral reef, seeking out and destroying the predator crown-of-thorn starfish or COTS.

Using GPS technology and powerful thrusters, the robot is designed to cruise about a metre above the coral surface and, using visual recognition technology, it will identify the pests. When it sees one, an injector arm will shoot out and stab it. If the robot reaches its potential, it could be a big weapon in the fight for the reef.

The crown-of-thorns starfish is currently being tackled by a range of programmes including water quality management, monitoring and eradication, where divers hunt out the predators and inject them with a toxic solution with a single shot.

QUT research fellow and developer of the robot, Dr. Matt Dunbabin, said it was intended as a first responder system to beef up the existing programme. "We've seen the great effort that the current eradication system is doing, but they just don't have enough people," he said.

"We need a force multiplier that is actually going to make a difference on the reef, so they can scale it up and actually try and reduce the impact that this pest is having."

The robot has been 10 years in development. Dr. Dunbabin said he had to wait for technology to catch up to the initial idea. "It's only in the last year that we've been able to really hit it hard and come up with a solution that we think can really make a difference," he said. "We had a great vision system 10 years ago but the problem was the stuff you use to actually kill the starfish wasn't feasible."

The old method of killing the COTS required up to 10 injections for each starfish, but James Cook University has continued to develop the single-shot technology. Dr. Dunbabin said computing power was astronomical but "now we can actually run our algorithms on board on this vehicle".

QUT researcher Dr. Ferars Dayoub took on the task of training the COTSBot to pick out the pest from other sea life through the use of film and 3D-printed models. "The system has seen thousands of images of COTS and not COTS and now it's able to detect and decide which one is COTS and which one is not," Dr. Dayoub said.

Dr. Dunbabin said trials would start on the Great Barrier Reef in September, but to begin with, an operator will confirm that it has identified a crown-of-thorns starfish before it is allowed to inject. "The data we get will be used to refine our system – it's very robust now but it will be even better when it's finished," he said.

The COTSBot should be ready for further development in December and all that researchers will need then is an investor.

[ABC News, 31/08/2015]

## GERMANY

### Germany, the "Green Superpower"

Germany has converted from having near zero to almost 30% of its electricity grid supplied by renewable energy, all within about 15 years, thanks to the *Energiewende Project*. The crux of the *Project* was a generous "feed-in tariff" paid to individual person to encourage people to install renewable energy sources in their households, in return to receive a predictable high price for the energy generated.

Although the initial investments in tariff were expensive, the ultimate aim was to create demand to drive down the costs of renewable energy sources. With lower costs, renewable energy sources can be more affordable, and so become mainstream. The success of *Energiewende* can be seen from the 80% price drop for solar energy, and 55% drop for wind energy. In particular, the cost for zero-carbon energy is now competitive with energy derived from fossil fuels in Germany.

An ancillary benefit of the *Energiewende* may be that the energy transition in Germany has created incentive for the Chinese solar panel industry, leading to a dramatic increase in productivity and reduction in cost of production of solar panels.

[The New York Times, 06/05/2015]

### Nuclear plant Grafenrheinfeld closes symbolic

The nuclear power plant which has operated in Grafenrheinfeld since 1981 has come to a symbolic end. The plant is the first active reactor to be decommissioned since 2011, following the Fukushima Daiichi nuclear plant catastrophe in Japan.

The closure is possible thanks to Germany's push to be nuclear-free by 2022, its determination to cut greenhouse gas emissions to 55% of year 1990 levels by 2020, and large-scale introduction of alternative energy sources like solar and wind replacing the plant.

Germany's determination is not unchallenged. Under political pressure, the government was forced to back down from imposing penalties on the oldest lignite coal-fired power plants, as the proposal was denounced by 15,000 miners who travelled to the capital in April, fearing that they may lose their jobs. The

government has compromised by reducing the industry's share in efforts to reduce carbon emission by half. The difference is compensated by subsidising improvement in heating generation and power consumption efficiency.

The German government is determined to cut its greenhouse gas emissions to 55% of 1990 levels whilst increase its renewable sources to about 50% of energy production by 2030.

[*The New York Times*, 12/07/2015]

## SWEDEN

### Creating resources from waste

Sweden is a forerunner when it comes to finding innovative ways to reduce and recycle waste. Over 99% of the country's waste is either recycled or converted into energy. Metal emissions have also been reduced by 99% since 1985. This is impressive considering that Sweden now produces three times the waste that it did in 1985. Sweden also only recycled 38% of waste in 1975; so we can see that Sweden has undergone a remarkable transformation to become more sustainable.

Recycling is incredibly convenient for Swedes and recycling centres are no more than 300 metres from any residential area, meaning that everyone has access. Residents separate waste themselves and deposit it in special containers located in their neighborhoods or take it directly to the centre itself. Once the waste arrives at the recycling centres it is cleaned and recycled, transformed into reusable resources, or burned to produce energy.

Waste water is cleaned until it is potable. The smoke from burned waste is filtered until 99.9% of it becomes water and carbon dioxide. And what about the garbage trucks that transport waste? Yes, they too run on recycled electricity or bio gas.

This recycling system has become so efficient that Sweden has begun importing over 200,000 tons of waste annually from surrounding countries, saving those countries the need to use additional space for landfills. So what is next for Sweden's innovative recycling system?

Swedish company Envac has developed a new innovative way to reduce the time that it takes trash to travel from the trash can to recycling centres. Envac has begun introducing a vacuum tube system in Stockholm that connects trash cans directly with recycling centres. Once trash is placed in the can it is sucked down a vacuum tube and transported to a recycling centre. The system not only reduces the time for processing waste, it also reduces the need to use trucks that normally would transport the waste, and therefore reduces emissions.

New forms of transport are not the only initiative to reduce waste in Sweden. Burning garbage currently is used as a means to produce energy; however, Swedes are looking for ways to burn less garbage. Built on the logic that finding a way to reuse a product is far more efficient than using additional energy and resources to create a new one from scratch, the Swedish Waste Management and Recycling Association is working with authorities to look for new ways to burn less garbage and recycle more.

Sweden has made great strides towards becoming more sustainable in the past 40 years. The country has all but eliminated the dumping of waste and is continuously seeking new innovative methods to reduce waste and increase recycling. As resources become more scarce in the future, will other countries catch on to these methods or will they simply let their trash become other nations' resources?

[*Innovative Thinking System*, 05/08/2015]

## FRANCE

### Paris will stop all traffic for one day

Imagine any big city anywhere in the world without traffic just for a day. Now, if that city were Paris, imagine further the photographic possibilities, not to mention the visual, auditory and olfactory potential.

Imagine no more because on 27<sup>th</sup> September, that's just what Paris is going to do: "Une Journée Sans Voiture" – A Day Without Car, for the first time in the city's history.

City Hall calls it "a crazy gamble, but achievable." No motorized vehicle, with a few exceptions like ambulances, will be allowed to drive the streets. As Mayor Anne Hidalgo announced in March: "Paris will be completely transformed for a day. This is an opportunity for Parisians and tourists to enjoy the city without noise, pollution and therefore without stress."

[*Forbes Life*, 30/08/2015]

## U.K.

### London increases protection of cyclists

Lorries without safety equipment to protect cyclists and pedestrians will be banned from London's roads from Tuesday. Under Britain's first "safer lorry scheme", heavy goods vehicles (HGVs) in the capital must be fitted with side guards to help prevent cyclists being dragged under the wheels in the event of a collision. They must also have a certain type of mirror which will give the driver a better view of bicycles and pedestrians.

London mayor Boris Johnson hailed the scheme as a life-saver. Seven of the eight cyclist deaths in the capital this year have involved HGVs. Johnson said: "We are ahead of any other part of the UK in closing the legal loopholes that allowed many HGVs to operate without basic safety equipment and I am delighted that, over the 18 months since we announced the safer lorry scheme, the vast majority of operators have got the message and fitted safety equipment to their vehicles in anticipation of the ban. "We have, from this morning, begun vigorous enforcement action against the laggards. A very disproportionate share of cyclist deaths and serious injuries are caused by lorries and today's scheme will undoubtedly save lives."

Johnson also proposed for all lorries to be retrofitted with bigger side windows to reduce driver blind spots.

The new rules cover every road in the capital except motorways and will operate 24 hours a day. The maximum fine for each breach of the ban is £1,000. Repeat offenders risk losing their operating licence.

However, transport companies claimed the funds to launch the scheme would be better spent on enforcing previous guidelines. The Freight Transport Association (FTA), said: "FTA is pleased that there are exemptions and concessions for vehicles where this equipment is either not possible or not legal.

“However, in principle we believe that this kind of blunt regulatory tool is not the best way to improve cyclist safety. We still think that the money and effort invested in this scheme would have been better spent on increased enforcement against the small proportion of lorries that don’t comply with existing regulations. There are better ways to achieve safer roads for all users.”

[*The Guardian*, 01/09/2015]

### **Traffic fumes more deadly than road accidents**

A fatal road accident always causes unimaginable grief for the loved ones and friends of the victim. But nearly three times as many people die in Bristol each year from traffic fumes as they do in road crashes.

The latest figures show that an average nine people die each year in road accidents but 24 deaths could be directly attributed to pollution from vehicle exhaust emissions. A council report reveals that 188 people in Bristol died in 2010 as a direct result of air pollution.

But thousands more in the city suffer from breathing difficulties, heart problems and other health issues as a direct result of dirty air. The statistics could be much worse because they do not take into account the latest evidence of the effects of nitrogen dioxide which is now considered to be as dangerous as particulates.

As part of Bristol being Green Capital of Europe, the council’s transport and air pollution experts are drawing up a blueprint to help cities tackle the issue. The current monitoring work in Bristol includes more than 100 sensors which record nitrogen dioxide levels as well as a further six instruments which provide hourly information on the foul smelling gas.

The council began introducing 20mph zones a few years ago to improve air quality as well as making our streets safer for pedestrians and cyclists. We have also seen the introduction of residents’ parking schemes have been aimed at banning commuters from driving into the city each day and parking free of charge on residential streets.

But there are a number of other major transport projects which are under way to reduce the amount of traffic on our roads. These include the MetroBus network of high speed buses in the Bristol area as well as the MetroWest scheme to re-open disused railway track and stations to bring back local rail services.

One of initiatives which is currently being debated is a Low Emission Zone in the city, which would ban heavy lorries that spew out large amounts of diesel fumes. The Old City – an area around Corn Street – has been earmarked for a pilot project. Instead of heavy lorries delivering to traders and businesses in the area, they would have to be serviced by smaller vehicles that would operate from a regional distribution centre.

Apart from public transport improvements, the council is working with 215 firms, 47 schools and 14 neighbourhood partnerships to encourage more cycling.

[*Bristol Post*, 08/09/2015]

### **U.K. drops grants for wind farms**

The energy ministry (U.K.) has rejected four planned onshore wind farms in Wales, it said in a statement. Earlier this year the Department of Energy and Climate Change said Britain would scrap all new subsidies for onshore wind farms from April 2016, when it closes a renewable support scheme. The department said on Monday: “Careful consideration has been given to each application, and the planning and energy issues involved.”

The U.K. decision on subsidies, which comes ahead of UN climate change talks in Paris later this year where world leaders will seek to sign a deal to curb greenhouse gas emissions, was criticised by the renewable energy industry.

More than 2,500 wind turbines, amounting to 7.1 gigawatts of electricity production capacity, are now unlikely to be built in Britain because of the fast-tracked subsidy cut outlined by the government.

Monday’s decision relates to the proposed Llanbadarn Fynydd, Llaithddu, Llanbrynmair and Carnedd Wen wind farms, which would have had a combined capacity of more than 300 megawatts. The government gave approval for Scottish Power to replace turbines at its 100 megawatts Llandinam Windfarm in Wales, but an application for connecting power lines was refused.

[*SCMP*, 09/09/2015]

### **U.S.A.**

#### **Obama vows U.S. will triple renewable energy by 2030**

As part of the broader plan to phase out fossil fuels, President Obama has vowed to nearly triple the amount of electricity generated by renewable fuel sources by 2030 to fight against climate change. The objective is to increase the amount of electricity of clean energy sources from 7% to 20% over the next 15 years.

To facilitate this endeavour, the Environmental Protection Agency implemented and manages the *Clean Power Plan* to limit carbon emissions from power plants and coals used in electricity generation. The *Plan* also serves as a long term incentive for investments in renewable energies. However, the *Clean Power Plan* is opposed by Republican-led States.

Further, the United States and Brazil governments have agreed to conserve more forests, improve agricultural and grazing lands, engage in joint energy research projects, and take other possible steps to fight global warming.

[*The Washington Times*, 30/06/2015]

#### **The renewable energy source that’s about to boom again**

Ten years ago hydropower has been taken for dead. Environmentalists dislike it for the destruction of nearby ecosystems and energy companies considered the investment not worthwhile. Not anymore. Hydropower production is anticipated to grow by more than 5% in 2016 alone, according to the U.S. Energy Information Administration.

According to Oak Ridge National Laboratory, hydropower can be a viable complement of the other renewable energies. In fact, the U.S. has some 80,000 dams, and only 2,000 are being used for electricity. Adaptations to existing dams could drive a 15% to 20% increase in total hydropower capacity whilst saving the cost of building new ones.

Considering the environmental regulatory constraints in the U.S. and Europe, building large dams that harm the environment is almost out of the question. Instead, sustainable hydropower dams, typically on a small scale, are the present focus. For instance, in the Penobscot River in Maine, conservation groups have successfully dismantled two old dams while achieving the same energy output by improving the remaining ones.

[Time, 31/07/2015]

## CHILE

### Chile declares environmental emergency over polluted Santiago air

According to Chile's Environment Ministry statement, the nation experienced one of the driest Junes in over 40 years. Together with bad air circulation conditions in the Santiago valley, this resulted in a concentration of contaminants, including small breathable particulate known as PM2.5, shrouding the city in smog.

The Chilean authorities declared an environmental emergency for the Santiago metropolitan region for 24 hours, forcing more than 900 industries to temporarily shut down and about 40% of the capital's 1.7 million cars off the roads.

[Reuters, 13/08/2015]

## MIDDLE EAST

### The strange cause of air pollution decline in the Middle East

A study published in the journal *Science Advances* reveals instability in the Middle East in 2010-2011 (i.e. the Arab Spring) may have brought a breath of fresh air to the Middle East, literally.

Levels of nitrogen dioxide, a toxic gas produced by car engines and power plants, grew rapidly in major cities like Damascus, Aleppo, Tehran and Cairo in the 2000s.

Yet, the onset of unrest caused an economic impact that led to the decline of nitrogen dioxide in the air. By evaluating satellite data tracking how nitrogen dioxide emissions changed over time in the Middle East, researchers concluded that nitrogen dioxide levels are associated with different policies and societal changes of the time. For instance, the Egyptian Revolution in 2010 caused fuel shortages and household economic problems, resulting in a decline in greenhouse gas emissions. Similarly, tightened sanctions by the United Nations in 2010 have caused a decline in emissions in Tehran.

The exception is Riyadh, which enjoys both relative stability and a decline in level of nitrogen dioxide, which researchers attributed to the implementation of better air quality legislation.

[Time Magazine, 21/08/2015]

## INDONESIA

### Three Javan rhino calves raise hope for a species in grave peril

Once they numbered in the thousands and roamed across Southeast Asia, but today the rhinoceros' population has dramatically dwindled due to poaching and human encroachment on its habitat. In particular, poaching represents a severe threat, because rhino horns fetch high prices on the black market for use in traditional Asian medicines.

Recently, three calves of the critically endangered Javan rhino were filmed in Ujung Kulon park on Java Island, Indonesia, taking to 60 the total population of the world's rarest rhino and offering hope for the creature's future. The calves were filmed with their mothers in the sanctuary within the park by cameras set up to track them. Both the parents and their youngsters looked healthy.

Creation of the sanctuary last year was opposed by local residents, demanding compensation for their farmland.

[SCMP, 10/09/2015]

## WORLD

### Oceans may be facing a 'Silent Spring'

A marine biologist at Dalhousie University has drawn an analogy between the harm wrought by the accumulation of plastics in the world's oceans and the warning about the pesticide DDT in the famous 1962 book "Silent Spring".

Scientists estimate the concentration of plastic in the oceans has reached 580,000 pieces per square-kilometre, and remains on the rise. A likely explanation is that the increase in use of disposable plastics has outgrown improvements in waste disposal systems.

The biologist stressed it takes decades for plastics to decay naturally. At present, plastic is being found throughout the water systems worldwide, and in the stomachs of wildlife such as seabirds.

On a micro-scale, plastics can attach to bacteria and toxins to poison wildlife. On a macro-scale, plastics are accumulated inside the stomachs of wildlife. Not only seabirds are affected. This March, a dead pygmy sperm whale was washed up in Halifax Harbour. Its death was likely caused by the inhalation of plastic bags which blocked its throat.

[Epoch Times, 02/09/2015]

### Rich countries fall short on promised climate finance

There is widespread recognition that rich countries will need to help developing countries, which did the least to cause climate change but will suffer the most severe consequences.

Developing countries, including Brazil, China, India and South Africa, said they are disappointed by wealthy nations' failure to make good on a promise of US\$100 billion per year by 2020 to help fight climate change, a promise made 6 years ago. By some estimates, only less than a fifth of this target was paid.

The fund is seen as a crucial element in the international community reaching an agreement for developing countries to cut greenhouse gas emissions, and prepare for sea-level rises, extreme weathers, and other consequences of climate change.

In a joint statement, the four countries expressed disappointment with the continued lack of any clear road map to provide US\$100 billion per year by 2020, as well as on substantially scaling up financial support thereafter.

[SCMP, 01/07/2015]

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**Convictions under environmental legislation: July to September 2015 (October 2015 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:

*July 2015*

Thirty-one convictions were recorded in July 2015 for breaches of legislation enforced by the Environmental Protection Department.

Nine of the convictions were under the Air Pollution Control Ordinance, 4 were under the Noise Control Ordinance, 15 were under the Waste Disposal Ordinance, and 3 were under the Water Pollution Control Ordinance.

The heaviest fine in July was \$35,000, assessed against a person who imported controlled waste without a permit.

*August 2015*

Thirty convictions were recorded in August 2015 for breaches of legislation enforced by the Environmental Protection Department.

Four of the convictions were under the Air Pollution Control Ordinance, 11 were under the Noise Control Ordinance, 12 were under the Waste Disposal Ordinance and 3 were under the Water Pollution Control Ordinance.

The heaviest fine in August was \$30,000, assessed against two companies that failed to comply with air pollution abatement notice and contravened the provisions of a licence respectively.

*September 2015*

Twenty-seven convictions were recorded in September 2015 for breaches of legislation enforced by the Environmental Protection Department.

Seven of the convictions were under the Air Pollution Control Ordinance, 9 were under the Noise Control Ordinance, 9 were under the Waste Disposal Ordinance, and 2 were under the Water Pollution Control Ordinance.

The heaviest fine in September was \$100,000, assessed against a company that used powered mechanical equipment otherwise than in accordance with permit conditions.

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