

**URBAN PLANNING AND ENVIRONMENTAL LAW**  
**QUARTERLY**  
*(Published since May 1992)*

簡家驄律師行 · 城規環保季刊

This year's Fred Kan & Co. prize for excellence in the Master of Environmental Sciences course at the University of Hong Kong was shared between three students. The dissertations concerned different, but equally important, environmental topics: *Educating domestic helpers in Hong Kong on waste management; Student's perceptions of climate change and their implications for climate-change education in Hong Kong; and A review of the environmental effects of high fluoride content in water, especially in India.* In this and forthcoming editions of the UPELQ we review each dissertation, beginning with the one on waste management education.

*The Editors*

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**A CASE STUDY ON WASTE REDUCTION EDUCATION FOR HONG KONG'S FOREIGN DOMESTIC HELPERS**

Yvonne So's dissertation: *From awareness to action in sustainable waste management : a case study on waste reduction education to foreign domestic helpers in Hong Kong*, is a comprehensive report of her research of methods of educating Hong Kong's sizeable population of foreign domestic helpers in practical and simple ways for reducing waste generated in their daily work activities. As such, the dissertation is, perhaps, low-key, but has a very important message which, if widely adopted, could significantly improve Hong Kong's management of domestic waste.

*Waste problem and education*

The problem addressed by the author is that we generate far too much domestic waste (more than, for example, Tokyo, Taipei and Seoul) plus we have very limited landfill capacity to take the waste. She observes that environmental education (EE) is a vital component in achieving sustainable waste management. EE would be beneficial in relation to one of the single largest sectors of our community responsible for waste management: our foreign domestic helpers (FDHs). The dissertation, therefore, "looks into the current EE to FDHs and analyses how to send a green message among FDHs in an effective way".

*Study objectives*

The author's study, which is the basis of her dissertation, had five objectives :

- To identify the essential role of the FDHs played in implementing sustainable waste management in Hong Kong especially in the households
- To identify the essential elements for waste reduction education program to FDHs
- To evaluate whether the current EE to the FDHs is adequate and effective
- To build up and test a model waste reduction education programme to FDHs
- To reconfirm the need and importance of providing adequate and quality EE to the community

The key principle underlying responsible waste management is *sustainable development*, which means using our resources today in a way which does not compromise future generations' use of such resources. "Sustainable waste management" is based on the same concept. As a first priority, we must minimise the volume of waste produced. Then, when we cannot *eliminate* waste at source, we should reuse, recycle and, finally, safely collect and treat waste (such as for producing energy). These are the priorities on which the author's EE is based.

*Essential elements of an effective EE*

A number of practical factors are listed, and briefly explained, as essential features of an EE. These include :

- face to face interaction
- supplement oral teaching with printed materials
- conduct the programme in a place close to where FDHs work or frequently visit
- keep the lessons short
- provide comprehensive information concerning the environment generally,

and waste reduction/management specifically

- teach in the mother tongue
- obtain the support of employers
- create a pleasant learning atmosphere
- where possible, incorporate practical demonstrations – or by video
- set an achievable target
- provide rewards
- provide helpful feed-back

### **Hong Kong's waste**

The author summarises our rather depressing waste picture as follows :

*Hong Kong generates several types of solid waste every day. According to Environmental Protection Department (EPD), solid waste can be classified into three main types. They are MSW, overall construction waste and special waste. MSW includes domestic waste, commercial waste and industrial waste. Currently, Hong Kong relies nearly 100% on landfilling. The solid waste is mainly handled at Tseung Kwan O, Ta Kwu Ling and Nim Wan.*

A breakdown of disposal of solid waste disposed of daily in landfills in 2010 is 9,114 tonnes (66%) – municipal solid waste (MSW); 1,119 tonnes (8%) – special waste; 3,584 tonnes (26%) – construction waste.

The dissertation focuses on the problem of Hong Kong's excessive levels of MSW, which is the main source of waste disposed of in landfills. Although the government's sustainable waste management programme (introduced in 2005) has led to increased MSW recovery rates – up to 52% in 2010 – MSW disposal remains a very serious environmental problem.

### **Role of FDHs in sustainable waste management**

As FDHs are “the family caretakers” they are at the coal-face in terms of producing and disposing of MSW, and therefore they are “one of the best candidates to learn and implement sustainable waste management in Hong Kong”.

In 2010, approximately 49% and 48% of FDHs were from Indonesia and the Philippines respectively. There were a total of 285,681 FDHs in 2010.

### **Who might provide EE?**

The author comments :

*There is a wide range of stakeholders engaged in EE in Hong Kong. The key players are schools, Hong Kong SAR Government and the green groups. From reviewing publicly available information, seven players are identified as potential EE providers for FDHs. These parties are either providing EE to the community or having a potential role to play in educating FDHs, including Environmental Protection Department (EPD), Environmental Campaign Committee (ECC), green groups, employment agencies, property management companies and agency, FDHs' respective consulate generals and FDHs' employers.*

Extensive interviews of potential providers were conducted as part of the study. For example, the author's findings from her interviews with the EPD are recorded as follows :

*Since late 2010, EPD has partnered with the Consulate of the Philippines and the*

*Consulate of the Republic of Indonesia in Hong Kong to launch the “Green Induction Programme” including welcome programs and training for new FDHs. This program has now become a regular session and waste reduction is the key message conveyed to participants of this program. This program aims to enhance awareness of new domestic helpers' responsibilities as green housekeepers, and equip them with the knowledge and skills to manage household wastes and housework in an environmentally friendly manner (Hong Kong SAR Government, 2010). The EPD officials mentioned that EPD is responsible for preparing the training materials and the training is conducted by the representatives of the Consulate Generals in their respective native languages.*

*The training materials produced by the EPD are a number of self-taught training video clips. The snapshots of these video clips are included as Appendix 5-3. These clips are divided into four parts : the first part explains the importance of waste reduction; the second part introduces waste reduction principles; the third and the last parts state clearly on how to recycle wastes and ways to reduce waste during housekeeping respectively. These training materials are available in English and Indonesian. Teaching manuals are also available for instructors. The EPD officials explained that the materials are not translated into Filipino since most Filipinos could speak English. These training materials are also available to public upon request.*

Criticisms of the EPD's EE programme include the following :

- (1) The programme is not interactive, in that no hands-on experience or demonstration is provided;
- (2) The content of the programme is not comprehensive. Little time is spent on waste reduction methods; too much time is spent on introducing the notion of recycling waste. As well, there is no explanation of the environment effects of poor waste management. No practical details – such as details of recyclable waste collection points – are given. In short, “the programme fails to show a full picture of waste management”.
- (3) The timing is not appropriate, in that the programme is run on the orientation day, which is when the FDHs receive a lot of disparate information at the same time.
- (4) The teaching materials are available only in English and Indonesian. Although most “Filipino FDHs know English, teaching in their mother-tongue could improve the quality of their learning”.
- (5) The programme is limited to new FDHs.
- (6) The teaching materials are difficult to access, and are not available on the EPD's website.

The author notes that the EPD also engages in other forms of EE, such as publishing a leaflet on waste separation, namely, the *Programme on Source Separation of Domestic Waste*.

However, overall, she concludes that the EPD's EE performance is unsatisfactory, as

most of the programmes do not address “the essential elements for an effective waste reduction education program”.

Another provider, the Environmental Campaign Committee (ECC) fared somewhat better in the author's estimation :

*To sum up, ECC produces high quality work on EE to FDHs. However, the provision of educational program and publicity for FDHs is limited because of limited budget and resources. It is notable that ECC has sponsored various EE and Community Action Projects to support green initiatives in the city. From 2008 to 2013, a total of 89 general projects were approved (ECC, 2012b). These projects were conducted for a wide range of target groups such as students, teenagers, the elderly and people with disabilities. However, none of the 89 projects was tailor-made for FDHs. The need of educating FDHs has not been addressed.*

Various conservation NGOs were also interviewed. Generally, they failed the EE test in that :

*FDHs are neglected and not being considered as a priority target by most green groups when they roll out their programs. All interviewed green groups agreed that FDHs are one of the best candidates to learn and implement sustainable waste management in the households. However, none of them conduct EE program purely for FDHs at this moment. Except Greeners Action, no green group interviewed implemented EE purely for FDHs for a decade.*

The author also makes the point that “limitation of resources is the difficulty shared by most of the interviewed green groups”.

### **Role of employers**

A total of 50 employment agencies were contacted by Ms. So, but only three responded. Of these, only one provides any kind of EE to the FDHs it has on its books. The agencies said that their customers – the employers of FDHs – did not require “potential FDHs to be equipped with green housekeeping skills”.

Property management companies were also contacted; however, only four (of 30 contacted) responded. This is a fairly clear indication of the low priority given to “green housekeeping” within Hong Kong's all-powerful property industry.

Tellingly, the Housing Authority does not even display the EPD's EE materials in public housing estates. Indeed, there is apparently no cooperation at all between the EPD and the Authority on educating public housing occupants in more environmentally responsible waste generation and disposal. *[This ridiculous situation should come as no surprise to those of us familiar with the government's generally apathetic and disinterested performance in environmental protection matters.]*

The author interviewed two employers of FDHs for her study. Her findings were :

*Both of them said that FDHs with green housekeeping habits were important. However, they never voiced their concern to employment agency and property management company. They educated their FDHs in waste reduction sometimes and*

occasionally respectively. Both said that they had difficulties in educating FDHs as they neither possessed adequate knowledge in waste reduction nor had any training materials. They expected more support in this area, but no parties had provided such help.

A more extensive survey of FDHs found that 38% "received the message of waste reduction from their employers", meaning 62% received no such message or training.

#### What of the FDHs themselves?

The author conducted apparently extensive interviews with randomly selected FDHs by visiting popular meeting places on FDHs' days off. The interviewees were given a questionnaire (37 questions) and were encouraged to expand on their written answers. They remained anonymous; 50% were Indonesian and 50% from the Philippines.

The responses demonstrated that the vast majority of interviewees (93%) agreed that waste reduction can reduce pollution from waste, and expressed concern for the well-being of Hong Kong's environment generally. They also were aware of "global warming", "sustainable waste management" and similar environmental terms, and their significance.

However, the survey results showed "that few FDHs have had green housekeeping habits. Relatively small numbers of respondents reported reducing waste every day. Only 32%, 14%, 35% and 26% were "recycling", "buying products with less packaging", "preparing meal in suitable portion" and "using handkerchief instead of facial tissue" every day respectively. A large majority of respondents seldom (on a few days, once only or never) carried out behaviors towards sustainable waste management ("recycling" (48%), "buying products with less packaging" (66%), and "using handkerchief instead of facial tissue" (52%))."

#### Principles of the EE programme for FDHs

The author proposes a programme consisting of three half-hour lessons in the FDHs' native language at or near their work place spread over three weeks.

The main principles on which each programme would be based are:

- (1) face-to-face communication
- (2) supplement with written materials
- (3) hold the lessons at the FDH's work place or work place neighbourhood
- (4) keep the length of each lesson short
- (5) provide comprehensive information
- (6) teach in their mother-tongue if possible
- (7) obtain the support of employers of the participants
- (8) cultivate the feeling of self-worth
- (9) create a pleasant learning atmosphere
- (10) learn/teach by hands-on experiences, like playing a recyclable material sorting game
- (11) foot-in-the-door technique (i.e. begin with small changes in waste-handling practices, then move on to more serious ones)
- (12) set an achievable target
- (13) require a visible commitment, such as signing a pledge
- (14) provide rewards
- (15) provide feedback
- (16) regularly evaluate the effectiveness of the programme

A pilot training programme was run. The two participants were from the Philippines and Indonesia. The objectives of the three lessons were:

- |               |   |
|---------------|---|
| First lesson  | <ul style="list-style-type: none"><li>• Provide basic understanding on environmental problem and sustainable waste management</li><li>• Identify the participants' roles in saving the environment</li><li>• Introduce the ways to recycle</li></ul>                        |
| Second lesson | <ul style="list-style-type: none"><li>• Reinforce their skills, values and attitudes towards recycling</li><li>• Cultivate their green housekeeping habits</li></ul>  |
| Third lesson  | <ul style="list-style-type: none"><li>• Reinforce their skills, values and attitudes towards sustainable waste management</li><li>• Encourage them continuing the waste reduction practice after the completion of the program and spread green message to others</li></ul> |

The author then details the main aspects of each of the three lessons, such as the use of educational videos and having the participants make products from recyclable materials. At the end of the programme, each participant received a certificate "in recognition of their green efforts".

Following the pilot programme the author had the participants and their employers complete post-training questionnaires. The feedback was generally positive. In particular, the participants strongly agreed they had learned a lot about waste management, which will make them "aware of the importance of taking part in waste reduction and the channels through which they could be involved".

As a result of this case study, Ms. So identified five key principles for an effective waste reduction education plan:

- (1) obtain support from employers of participants
- (2) teach in participants' first language
- (3) provide comprehensive information
- (4) teach by practical demonstrations or creative games, such as making handcrafts from recycled materials
- (5) provide feedback to the participants.

The author summarised her extensive research, case study, plus surveys with two principal observations:

- (1) it is imperative to increase individual household employers' awareness of waste management issues, and their desire to minimise waste-generation, as this will in turn directly influence the behaviour of FDHs and the attitudes of potential EE providers, such as property management companies; and
- (2) there is a clear need for the government to greatly increase funding to "promote green housekeeping habits to FDHs".

#### Conclusion

The author concludes her interesting and thorough dissertation as follows:

*The waste management problem facing us is imminent. This study confirms that FDHs are one of the best candidates for taking actions on waste reduction in Hong Kong. Through providing appropriate training*

*incorporating the indicators identified, FDHs are enabled to proceed from having the right awareness to taking action in the households. The need and importance of provided EE to FDHs are identified. The success of the pilot EE program to FDHs also gave us an insight into the importance of adequate and quality EE to the community. To achieve a sustainable future, everyone should be involved in waste reduction. By providing appropriate and effective education to the community, zero waste in Hong Kong is in prospect.*

## LEGISLATION DIGEST

### Pesticides (Amendment) Ordinance (Cap. 133)

At present, pesticides available in Hong Kong have to be registered under the *Pesticides Ordinance* (Cap. 133) with the Agriculture, Fisheries and Conservation Department ("AFCD"). However, existing legislation does not regulate the use of pesticides or restrict access to hazardous registered pesticides.

In view of the government's limited control over the use of pesticides, the Legislative Council passed the *Pesticides (Amendment) Ordinance* on 17<sup>th</sup> July 2013. The amendments will take effect on 27<sup>th</sup> January 2014.

The amendments update certain provisions relating to the regulation of pesticides. In particular, the amendments amend the Ordinance to fulfill the requirements of the *Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade* ("Rotterdam Convention") and the *Stockholm Convention on Persistent Organic Pollutants* ("Stockholm Convention").

China has ratified these two Conventions to deal with the control of hazardous pesticides. The Conventions aim at protecting human health and the environment from harm caused by hazardous chemicals and persistent organic pollutants.

Pesticides controlled under the Conventions are listed in two schedules to the *Pesticides (Amendment) Ordinance*. Schedule 1 lists pesticides under the *Rotterdam* and *Stockholm Conventions* and Part 1 of Schedule 2 lists pesticides under the *Rotterdam Convention*.

A person may not import into or cause to be imported into Hong Kong, export, manufacture, sell or offer or expose for sale, supply or offer to supply, be in possession of, or use any of the scheduled pesticides except under a Pesticide Permit issued by the AFCD.

The *Pesticides (Amendment) Ordinance* also provides exemptions for scheduled pesticides not exceeding 10g or 10ml in weight or volume that is contained in an individual package or container and is used or intended to be used indoors for laboratory research, chemical analysis or as a reference standard from the Pesticide Permit requirement.

[<http://www.afcd.gov.hk> and *Background Brief* prepared by the Legislative Council Secretariat for the meeting on 12 July 2011, *Pesticides (Amendment) Bill* (LC Paper No. CB(2)2305/0-11(07))]

## TOWN PLANNING

### Shouson Hill and Repulse Bay Outline Zoning Plan approved

The draft Shouson Hill and Repulse Bay Outline Zoning Plan (OZP) was approved on 15<sup>th</sup> November 2013. The approved OZP serves as a guide to land use planning and development and redevelopment within the Shouson Hill and Repulse Bay areas.

The planning area covers about 440 hectares of land situated at the southern part of Hong Kong Island and bounded by Aberdeen Country Park and Tai Tam Country Park to the north and east, Wong Chuk Hang Road and the Aberdeen Tunnel to the west, and Middle Island.

The area will be divided into residential, commercial, government, institution or community areas. Designated “open space” zones will provide outdoor areas for active and passive recreational use for local residents and visitors.

Sites zoned “Other Specified Uses” include the existing golf course and club in Deep Water Bay, the Royal Hong Kong Yacht Club on Middle Island, a historical building preserved for restaurant and retail uses near Repulse Bay, the Seaview building and the ex-Lido site in Repulse Bay.

The main characteristic of the plan is that the about 263 hectares of land, comprising hill slopes and most of Middle Island, are included in the area zoned as “Green Belt”. Other environmental preservation areas include undeveloped parts of natural coastlines and the “Country Park” zone.

[Government Press Release, 15/11/2013]

### Fung Lok Wai wetland

The government’s town planning advisers have recently given conditional approval for a housing project on one of the last remaining pieces of wetland in the northwestern New Territories, Fung Lok Wai.

The site for development is near the Mai Po Reserve. According to the developer’s proposal, 5 percent of the 80-hectare wetland will be developed into 19 residential towers; the balance will become a wetland reserve.

The approval has 17 conditions imposed by the Town Planning Board, which must be fulfilled before the project can start. Most of the conditions compel the developer to submit supplementary documents on various issues; for example, the developer must submit a master layout plan, habit conservation plan and funding for the wetland reserve.

The developer has sought and gained deferrals of compliance with four of the conditions. The original deadline expired in August.

Numerous environmental groups have raised concern regarding the development proposal. *Conservancy Association Campaign* expressed the concern that the public will be deprived of the chance to monitor the project. *WWF Hong Kong* said that the approval was given without the Board’s knowing whether the developer has sufficient expertise and experience to adhere to the conditions.

[South China Morning Post, 23/11/2013]

### Elderly care homes

There are currently insufficient elderly care homes in Hong Kong. Town Planning Board records show that it received only 10 applications for building residential care homes in the last five years. Commentators suggest that the shortfall of care homes in Hong Kong is due to height restrictions imposed on residential care homes and nursing homes.

Under existing legislation, no residential care home is permitted to reach more than 24 metres from ground level, for fire safety reasons. As well, any nursing home which has doctors and nurses on-site has to be built on land designated for hospital use.

The Social Welfare Department’s statistics show that approximately 3,200 age-over-65 elderly died last year while on the waiting list for a place for “care and attention homes. In addition, another 2,000 died while waiting for “nursing homes”. In view of the shortage, the Social Welfare Department is considering relaxing the height restrictions to encourage more developers to build residential care homes in Hong Kong.

[South China Morning Post, 09/12/2013]

### Yi O Development Permission Area Plan approved

The draft *Yi O Development Permission Area Plan* was approved on 18<sup>th</sup> October 2013. The planning scheme area covers a total area of about 23.34 hectares which is surrounded by the Lantau North and Lantau South Country Park.

The aim of the *Plan* is to protect Yi O’s high conservation and landscape value and the rural settings which complement the overall natural character and the landscape beauty of the surrounding Country Parks.

The *Plan* also recognises the importance of preserving the existing village of Yi O. As such, about 0.19 hectares of the area is zoned “Village Type Development”. The remaining 23.15 hectares of land will be designated as “Unspecified Use”.

The approved *Plan* provides planning guidance and imposes development controls within Yi O. Detailed analysis of the land use pattern, study of infrastructural provisions and examination of development options for the formulation of an outline zoning plan will be conducted for Yi O according to the *Plan*. The results of the analysis will be used to determine land uses suitable for the “Unspecified Use” zone.

[Government Press Release, 18/10/2013]

### Pak Shek Kok (East) Outline Zoning Plan approved

The draft *Pak Shek Kok (East) Outline Zoning Plan* has been approved. The aim of the *Plan* is to provide a statutory land use planning framework to guide development and redevelopment in the Pak Shek Kok (East area).

The *Plan* covers about 71.9 hectares of land along the waterfront of Tolo Highway in the south-eastern part of Tai Po New Town and to the north of Ma Liu Shui.

About 30.45 hectares of land are zoned “Other Specified Uses” and designated for a science park, sewage pumping station and pier uses. Another 13.25 hectares of land are zoned “Residential (Group B)” with five sub-areas for medium-density residential developments. About 4.23 hectares of land are zoned “Government, Institution or Community”, which includes the existing Marine Science Laboratory of the Chinese University of Hong Kong, a refuse collection point and an electricity substation.

In addition, there is an “Open Space” zone which occupies about 10.69 hectares of land in the *Plan*. This zone consists of a waterfront promenade and a cycle track. The aim of the Open Space zone is to provide outdoor-open-air public space for active and/or passive recreational uses serving the needs of local residents and the general public.

[Government Press Release, 18/10/2013]

### Tai Tan, Uk Tau, Ko Tong and Ko Tong Ha Yeung Development Permission Area Plan

The *Draft Tai Tan, Uk Tau, Ko Tong and Ko Tong Ha Yeung Development Permission Area Plan* has been published.

The *Plan* aims to protect the high conservation and landscape values of the rural area. The *Plan* also reflects the importance of maintaining the existing recognised villages of Tai Tan, Uk Tau, Ko Tong and Ko Tong Ha Yeung.

The *Plan* covers about 70.79 hectares of land and incorporates two main zones. The first, “Village Type Development”, occupies about 3.04 hectares of land encompassing the existing villages area. The second zone, “Unspecified Use”, comprises the remaining 67.75 hectares of land. Land uses in this zone will be determined once detailed analysis and studies on potential uses have been completed.

[Government Press Release, 08/11/2013]

## WEST KOWLOON CULTURAL DISTRICT

### Train rumblings might annoy patrons of West Kowloon arts hub

Underground rumbling from passing trains might disturb patrons of facilities at the West Kowloon Cultural District (“WKCD”). An environmental impact assessment indicates that noise from two railway lines running under the arts hub will exceed the specified maximum noise level for three key revenues. An art critic added that vibration from these railway lines could cause an even bigger concern. The West Kowloon Cultural District Authority (“WKCD”) in response says that the problems will be offset by the design of the buildings.

It has been assessed that maximum noise levels from the West Rail line in the Xiqu Centre for traditional opera will reach 32 decibels, against a specified maximum level of 25 decibels. The Tung Chung Line will generate up to 56 decibels of noise at the M+ Museum and Lyric Theatre, against the specified maximums of 35 and 25 decibels respectively.

An engineer familiar with rail work commented that 56 decibels could be

compared to the noise at construction sites without pile-driving, whilst 32 decibels should be relatively quiet. All three venues meet the requirements for continuous noise level, but not the maximum level.

The WKCD says ground-borne noise-control measures are incorporated into the designs and construction of the cultural facilities built above the railways. Given the railways' proximity to the arts hub, at-receiver noise and vibration control measures, such as building isolation or box-in-box installations, will be required in the design of relevant arts and cultural venues. It is added that there will entail no extra development costs for the WKCD.

On noise and vibration level concerns, some members questioned the appropriateness of the location of the M+ Museum. The Authority responded that the problems could be alleviated by improving the MTR tracks or laying noise-absorbing material in the venues. With either method, the cost should not be too high and should be shouldered by the Authority. The MTR says it would contact the Authority for more information on the issue.

[*South China Morning Post*, 14/09/2013]

#### WKCD abandons winning design

The WKCD has shelved the design which won the international competition for the master-plan for the 40ha WKCD. Forster + Partners' competition-winning City Park entry, will, however, not be adopted, despite its potential to transform Victoria Harbour's reclaimed edge into an important Asian hub for artistic exchange.

According to the WKCD, the government has decided to seek interest in an alternative approach that would transform the fully landscaped park into quality green open space with a cluster of modular arts and cultural facilities and 'pop-up' catering facilities, so that the Park could be delivered in much more compressed program. These facilities will include a modular theatre, a Black Box theatre and an outdoor stage.

[*Arch Daily*, 13/08/2013]

#### West Kowloon Cultural District could be downsized

Following construction of the first facilities in the WKCD, it is highly possible that the project will be downsized for pragmatic reasons.

The WKCD has committed to using the original HK \$21.6 billion in funds approved by the Legislative Council to fund five anchor cultural facilities and a park. But, there is only a firm commitment to fund the first phase of construction: the Chinese opera centre; M+; the eastern portion of the West Kowloon park, including an arts pavilion to be used by M+; Freespace; a black box theatre and an outdoor stage in the form of an acoustic shell; and a supposedly temporary modular performance venue seating 1,200 people. Without any guaranteed future funding, which will have to be approved by the LegCo, the second phase of construction could be stuck in limbo.

The WKCD estimates that the project is likely to be downsized for pragmatic reasons. An early criticism by the arts community was that any planned cultural district should

be allowed to grow organically. Facilities could be added to the site over time, as and when needed.

The lack of public transportation to the site itself is the main logistical obstacle to establishing the WKCD. The MTR owns a large area of the site near Austin Road to build its own infrastructure for the high-speed cross-border rail link. This was played down when the funding for the train project was passed by Legco.

It is suggested that the government may propose a longer timeframe to develop the site, similar to the arts community's original demand for an organic approach. This approach would provide a world-class museum, some smaller but useful performance venues and the possibility of an enlarged and magnificent harbour-side park, all with the flexibility for change in the future.

[*South China Morning Post*, 09/07/2013]

## HONG KONG BRIEFING

### Schools' recycling programme

The "School Recycle WEEE" programme organised by the Environmental Protection Department (EPD) has completed. More than 5,500 pieces of waste electrical and electronic equipment (WEEE) were collected. A total of 145 schools participated and shared the "Use Less, Waste Less" message with teachers and students.

Students, teachers and alumni took their used computers, small electrical appliances and rechargeable batteries to schools according to arrangements made by individual schools. The EPD then arranged for a free collection service to transfer the collected items to three recycling facilities supported by the department for treatment. They are the Computer Recycling Programme and the Rechargeable Battery Recycling Programme managed by the Hong Kong WEEE Recycling Association, and the WEEE Go Green programme organised by St James' Settlement. Refurbished and repaired items will be donated to the needy, while the remainder will be dismantled so that reusable components and materials can be recovered.

To tackle the severe waste problem in Hong Kong, the government will continue to reinforce the work on waste reduction and recycling, including the implementation of various mandatory producer responsibility schemes (PRSS). Currently the government is working on a legislative proposal for WEEE for submission to the Legislative Council (LegCo) to ensure that locally generated WEEE can be properly recycled in Hong Kong. Simultaneously, the EPD will report to LegCo on the public consultation results and the way forward concerning the PRS on recycling glass bottles. According to *Hong Kong: Blueprint for Sustainable Use of Resources 2013-2022*, the government will progressively study the need for PRSS for other recyclable items, including rechargeable batteries.

[*Press Releases, Environmental Protection Department*, 10/11/2013]

### New milestone for Harbour Area Treatment Scheme

The breakthrough of the Harbour Area Treatment Scheme (HATS) Stage 2A sewage

tunnel (North Point – Wan Chai section) has marked a new milestone for the project and further improvement of the water quality of Victor Harbour. The tunnel is the deepest one in Hong Kong.

The HATS was commenced in 1994 in order to improve the water quality of Victoria Harbour by collecting and treating sewage generated from both sides of the Harbour. At a total cost of over \$20 billion, HATS is the largest sewerage infrastructure project in Hong Kong.

Since their commencement in 2001, the facilities in HATS Stage 1 have provided daily treatment for about 75 per cent of sewage generated on both sides of Victoria Harbour, significantly improving water quality in the eastern and central parts of the Harbour. Stage 2A will collect sewage from the northern and south western parts of Hong Kong Island and convey it to the Stonecutters Island Sewage Treatment Works (SCISTW).

The works under Stage 2A have progressed since July 2009. They comprise construction of a 21-kilometre sewerage tunnel with sections depths varying from about 70 metres to 160 metres below sea level. A drill-and-blast method has been adopted for drop-shaft excavation works and deep tunnel construction. The first blast for the North Point – Wan Chai section was carried out in July 2011 and the breakthrough was completed on October 26.

For this project, the department has trained 13 blasting supervisors and 87 competent persons to supervise delivery of explosives. Currently, the project team aims to complete the remaining parts of the project, such as the expansion and upgrading of the SCISTW and eight preliminary treatment works in Hong Kong Island. Major engineering works of Stage 2A are scheduled for completion in late 2014.

[*Press Releases, Environmental Protection Department*, 08/11/2013]

### Replacing old buses will save hundreds of lives

The result of a recent study show that 1,260 lives can be saved in the next 13 years if the city's 5,170 buses, built to Euro I, II and III standards, are replaced with cleaner Euro V models.

The study also reveals that replacement of the buses would generate HK\$26 billion in "net economic benefits" for Hong Kong by 2026, including lower hospital costs and regained productivity, at an estimated cost of HK\$ 15 billion shared equally between the government and bus operators.

The figure was based on a 2010 study by the Boston-based Health Effects Institute which found that natural-cause mortality in Hong Kong would increase 0.9 and 0.6 per cent respectively for every nitrogen dioxide and PM10 increase of 10 micrograms per cubic metre of air. An average of 39,900 deaths from natural causes between 2008 and 2010 was recorded by the Hospital Authority data. The Hedley Environmental Index estimated there were 195 premature deaths and 400,000 doctor visits in August 2013 and eight million doctor visits in 2011 as a result of bad air.

The government already proposes to eliminate all pre-Euro V buses within 18

years; under the current plan Euro IV models would stay on the roads in the meantime.

Academics and environmentalists consider the proposal has merit, but its feasibility is doubtful because it would require bus companies to find HK\$8 billion on top of the government's HK\$ 6 billion subsidy to replace non-Euro V buses.

[*South China Morning Post*, 17/09/2013]

#### Air pollution reaches "very dangerous" levels

Air pollution in Sham Shui Po yesterday reached levels considered "very dangerous" by the World Health Organisation.

The Environmental Protection Department's website showed that the concentration of PM2.5 pollution – tiny particles in the air which are particularly hazardous to health – reach 91.7 micrograms per cubic metre of air in Sham Shui Po at 3 p.m. yesterday. WHO guidelines say any reading above 75 is "very dangerous".

The level of PM10 pollutants – bigger particles less likely to lodge deep inside lungs, but still hazardous – was at 115 micrograms per cubic metre of air at 3 p.m.

The actual levels remained hazardous. The Air Pollution Index (API) reached a "very high" level at two roadside monitoring stations yesterday – 127 in Central and 118 in Causeway Bay. The city strives to keep API below 100. At higher levels, the department's guidelines advise those with heart or respiratory illnesses to avoid exposure to heavy traffic and reduce physical exertion.

The department said that the pollution was exacerbated by a monsoon that had swept over southern China and would persist for a few more days.

[*South China Morning Post*, 11/12/2013]

#### Harbour pollution off the scale

Water quality in Victoria Harbour is far below the worst grade in the government's rating system, a study has found. Water from 10 locations across the harbour contained more than 2,000 units of *E. coli* per 100 ml of water. Under the government's system, water quality is "very poor" if there are more than 610 units of *E. coli* per 100 ml. Waste from old residential buildings and sewage produced by factories in the past that had accumulated at the bottom of the harbour were cited as the main causes of the pollution.

[*South China Morning Post*, 11/12/2013]

#### Careless divers damage coral colonies

Local divers are harming the city's sensitive coral reefs without realising it, according to a research biologist.

A study by Dr. Chung Shan-shan, assistant professor in Baptist University's biology department, found that more than 70 per cent of divers came into contact with coral when they were underwater, and she warned that this behaviour could lead to irreversible damage. She called for restricted areas to be established to protect marine creatures.

Chung's study surveyed and observed 80 divers at seven popular diving spots near Sai

Kung and found that each person touched coral 14.7 times on average in each dive. The majority of those were inexperienced or carrying cameras, and contact was unintentional and mostly caused by their hands and fins.

Chung found nearly 40 per cent of divers said they made contact with coral because they lost control of their buoyancy; 8.6 per cent said that they were taking pictures; and 6.2 per cent just found the coral convenient to hold on to.

The study showed that camera-carrying divers made contact an average of 23.8 times per dive, compared with 11.6 times for others. It counted 81 damaged coral colonies in the seven spots, of which 19 were in the Sharp Island area, 18 near Shelter Island, 16 off Bluff Island and 13 in Long Ke.

Chung suggested that restricted areas be set up in popular and sensitive spots such as Sharp Island and Hoi Ha, and bans be imposed on divers and snorkelers until the coral could recover.

[*South China Morning Post*, 11/12/2013]

#### Mountains of rubbish collected

Styrofoam fragments, broken glass and plastic bottle caps are the three main waste materials found along Hong Kong's coastline.

The Green Council organised the International Coastal Cleanup with about 3,000 volunteers from 11 schools and 51 firms and non-governmental organisations from 21 September to 9 November 2013.

Approximately 5,300 tonnes of rubbish from Hong Kong's shorelines were collected from 70 clean-ups at 35 sites. Of these, bits of styrofoam made up 20.8 per cent of the rubbish, while 6,324 glass fragments were collected, accounting for 9.6 per cent of the total refuse. A total of 3,993 plastic bottle caps were picked up, making 6.1 per cent of the total refuse.

Also collected were 3,619 cigarette butts and more than 13,000 styrofoam fragments, almost double the 7,000 collected last year.

Green Council said the increase can be blamed on rises in recreational and commercial fishing activities, and marine transportation.

[*South China Morning Post*, 16/12/2013]

#### Public support for waste disposal fee

More than 60 per cent of Hongkongers support a pay-as-you-throw-away policy under which each household would be levied a waste disposal charge according to the amount of waste it produced, a recent study found.

The findings were released amid a four-month public consultation launched by the Council for Sustainable Development which has put forward three models of waste-disposal charging in order to reduce the volume of garbage generated by Hong Kong.

Options include making individual households buy rubbish bags of a specific kind and requiring them to dispose of them at a designated time and place; charging fees for each residential building by weight or volume and making occupants share the cost;

or a combination of both, depending on the type of residential building.

The latest survey, commissioned by Friends of the Earth and conducted by the Institute of Asia-Pacific Studies at the Chinese University, involved a random sample of 504 adults between 14 and 19 November. It found that 63.2 per cent of respondents preferred the first model, while 30.4 per cent preferred the second.

Friends of the Earth urged the government to implement the first model of charging, which had wider support in the survey and which it considered fairer and more effective in reducing waste.

The study also found the proportion of respondents who supported waste charging in principle had risen, from 51.7 per cent in a survey in February last year to 65.2 per cent in November last year, and to 66.6 per cent last month. Yeung said this might be due to heightened awareness of the city's difficulty in dealing with urban waste amid debate over the expansion of landfills and the building of incinerators.

Waste charges have long been mooted as a solution to poor recycling rates. Hong Kong's landfill sites will reach capacity within six years, and plans for expansion and for a facility to burn waste face fierce opposition.

The survey had a margin of error of 4.37 percentage points.

[*South China Morning Post*, 16/12/2013]

#### Air Quality Health Index

The Environmental Protection Department will introduce the "Air Quality Health Index" (AQHI) on 30 December 2013. The current Air Pollution Index (API) has come under criticism for failing to meet international standards and guidelines of the World Health Organisation. The AQHI will be ranked on a scale of 1 to 10 and above with pollution levels divided into five different categories from low to serious, and providing the public with health advice under different quality circumstances.

Clean Air Network believed implementing the new index is not enough. It has urged the EPD to work with the labour, health and education departments to establish contingency measures which could be taken on days of serious pollution.

[*CAN press release*, 16/12/2013]

### ADVISORY COUNCIL ON THE ENVIRONMENT (ACE)

#### Summary of river and marine water quality in Hong Kong

The Environmental Protection Department ("EPD") has released its latest annual report (the "Report") on river and marine water quality. In summary, the Report indicated that:-

#### River Water Quality

1. The rate of compliance with the statutory Water Quality Objectives ("WQO") was 89% and 88% for the years 2012 and 2011 respectively.

The overall water quality of Hong Kong's rivers continued to rate well due to implementation of pollution control legislation, including the *Water Pollution Control Ordinance* and the Livestock Waste Control Scheme, and extension of the sewerage network to local villages under the Sewerage Master Plans and the gradual connection of village houses to the new sewers.

2. The Water Quality Index ("WQI") indicates the general health of our inland water courses. In 2012, 66% and 20% of the river monitoring stations were graded "Excellent" and "Good" respectively. The stations were mainly located on Lantau Island, and in eastern and south western New Territories and Kowloon.
3. 33% of the 82 monitoring stations still recorded high (over 10,000 cfu/100mL) to very high (over 100,000 cfu/100mL) levels of E. coli bacteria. These stations were mostly located in the north western part of the New Territories; some were in North District and eastern New Territories.

#### Marine Water Quality

4. The overall WQO compliance rate was 78% and 75% for the years 2012 and 2011 respectively. The increase in the rate was mainly due to improvement in compliance rates with the dissolved oxygen ("DO") objective (from 69.7% in 2011 to 90.8% in 2012) and the ammonia-nitrogen ("NH<sub>3</sub>") objective (from 97.1% in 2011 to 100% in 2012) in some Water Control Zones ("WCZs") during the period.
5. Five WCZs had higher overall compliance rates in 2012, whilst two WCZs had lower overall compliance rates. Improvement in overall compliance rates in Victoria Harbour, Southern, Tolo Harbour and Mirs Bay WCZs was mainly due to a higher compliance rate with the DO objective, whereas for the Deep Bay WCZ, it was due to higher compliance rate with the NH<sub>3</sub> objective.
6. The drop in the Western Buffer WCZ's overall WQO compliance rate was mainly due to an increase in total inorganic nitrogen ("TIN") levels at three monitoring stations which marginally failed to meet the TIN objective of 0.4 mg/L in 2012; all four stations complied with the TIN objective in 2011. The increase in the TIN level could be due to a higher background TIN level caused by Pearl River discharge originating from an increase in TIN levels in many stations in the Northwestern and Southern WCZs and a gradual increase in flow from the four preliminary treatment plants located between North Point and Central during the period.
7. Likewise, the drop in the Port Shelter WCZ was due to the failure of all nine stations to meet the TIN objective of 0.1 mg/L in 2012, whilst only two stations failed to do so in 2011. The increase in the TIN level could be

brought about by a rise in shipping and port activities in the region.

8. A total of 18 red tide incidents were reported in 2012, but there was no record of any red tide-related fish kill during the same year.

[ACE Paper 17/2013]

#### Waste Diversion Plan for the Southeast New Territories Landfill

Members were briefed on measures relating to the Waste Diversion Plan for the Southeast New Territories ("SENT") Landfill to limit the landfill to construction waste, and setting out other complementary measures to facilitate diversion of waste through the waste collection system and minimising consequential traffic and environmental impacts. Complaints were received from the local community regarding the odour arising from unsatisfactory hygienic conditions of some refuse collection vehicles ("RCVs") and the SENT Landfill. Therefore efforts have been made to improve the situation. Some points relating to these are as follows:-

1. There are currently three strategic landfills in Hong Kong, namely the Tseung Kwan O ("TKO") Landfill, the Northeast New Territories ("NENT") Landfill and the West New Territories ("WNT") Landfill. All three strategic landfills currently accept municipal solid waste ("MSW"), construction waste and other special wastes, including sewage sludge.
2. In 2012, about 9,280 tpd (tonnes per day) of MSW were disposed of at the three landfills, of which about 6,290 tpd was from domestic households and the rest was from commercial and industrial ("C&I") establishments. Out of all MSW disposed of in landfills, about 63.7% went through a refuse transfer station ("RTS"). There are currently seven RTSs: West Kowloon Transfer Station ("WKTS"), Shatin Transfer Station ("STTS"), Island West Transfer Station ("IWTS"), Island East Transfer Station ("IETS"), North Lantau Transfer Station, Northwest New Territories Refuse Transfer Station and Outlying Islands Transfer Facilities. These RTSs may reduce the traffic burden and environmental problems caused by the long haulage of RCVs.
3. Hong Kong relies heavily on landfills for waste disposal. It is projected that the existing SENT Landfill will be almost completely exhausted by the end of 2015. In the long run, the government will endeavour to reduce such reliance through developing waste-to-energy capacity, but for the immediate future there is no alternative to extending the three existing landfills. The government therefore aims to re-submit to Legco a funding application for the extension proposals within the first quarter of 2014.
4. Members expressed concern that as TKO expands, newly erected residential buildings have become increasingly close to the SENT Landfill. Complaints regarding

nuisance caused by the operation of the SENT Landfill were received, especially complaints regarding the odour. Due to an increase in residential buildings in TKO, the use of the SENT Landfill may be changed to accept only construction waste to avoid odour problems. If SENT Landfill no longer accepts MSW, a considerable number of RCVs and other vehicles collecting MSW would have to be diverted to dispose of 2,000 tpd of MSW in alternative designated waste disposal facilities.

5. WKTS and STTS are located within reasonable distance from the waste sources affected when the SENT Landfill ceases to receive MSW. For operational reasons, private waste collectors would have stronger incentives to use the two RTSs. Some private waste collectors might also consider using IWTS or IETS if they operate on the Hong Kong side or serve South Kowloon.
6. In the long run, in order to further promote the use of the RTSs for MSW collection, the provision of a RTS in the eastern region of the territory is required. A site search study is now being conducted to identify a suitable cavern site for locating this facility.
7. Diverting MSW from the SENT Landfill will inevitably change the RCV traffic load in the neighbourhood of other designated waste disposal facilities. There are now approximately 530 RCVs in Hong Kong of which 150 are government vehicles operated by the Food and Environmental Hygiene Department ("FEHD"). The remaining 380 are private RCVs engaged under FEHD's refuse collection contracts or serving private clients. At present, many RCVs are unable to avoid causing nuisance, such as leachate dripping, waste spattering or dust. It is proposed to amend the *Waste Disposal (Designated Waste Disposal Facility) Regulation* so that when an RCV delivers wastes to landfills and RTSs, it is fully enclosed and properly equipped to more effectively avoid causing nuisance. Whilst all of the FEHD's RCVs and most of those operated by its contractors, should have no problem in meeting the proposed equipment standards, most of the other private RCVs have yet to meet the proposed standards. In June 2013, the government announced an intention to assist private RCV operators to retrofit their serving RCVs in order to comply with the new equipment requirements. A pilot scheme was launched as a first step for about 10% of the private RCVs which are yet to meet the proposed equipment standards to test out the technical aspects of the retrofitting process.
8. The new RCV equipment standards should be pursued as a matter of priority due to the limited working life of the existing SENT Landfill and the lead time required for diverting waste. Introduction of the change to receiving only construction waste may have an impact on the question

of funding for the extension project, which requires approval by the Legco Finance Committee. The EPD aims to submit amendment regulations to the LegCo in the near future.

[ACE Paper 15/2013]

## CLIMATE CHANGE

### Global warming a risk to food supply

Climate change will pose sharp risks to the world's food supply in coming decades, potentially undermining crop production and driving up prices at a time when demand for food is expected to soar, scientists have found.

In a departure from an earlier assessment, the scientists concluded that rising temperatures would have a beneficial effect on crops in some places, but that globally, they would make it harder for crops to thrive.

The warnings come in a leaked draft of a report being prepared by a UN panel, the *Intergovernmental Panel on Climate Change*. The report has not been finalised and could change before it is released in March.

The report also finds other sweeping impacts from climate change occurring across the planet, and warns that these are likely to intensify as human emissions of greenhouse gases continue to rise. The scientists describe a natural world in turmoil as plants and animals attempt to migrate to escape rising temperatures, and warn that many could become extinct.

The warning on the food supply is the sharpest in tone that the panel has ever issued. Its previous report, in 2007, was more hopeful. While it did warn of risks and potential losses in output, particularly in the tropics, that report found that gains in production at higher latitudes would likely offset the losses and ensure an adequate global supply.

The new tone reflects a large body of research in recent years that has shown how sensitive crops appear to be to heatwaves. The recent work also challenges previous assumptions about how much food production could increase in coming decades because of higher carbon dioxide levels in the atmosphere. The gas, though it is the main reason for global warming, also acts as a kind of fertiliser for plants.

On food supply, the report finds that benefits from global warming may be seen in some areas, like northern lands that are now marginal for food production. But it adds that overall, global warming could reduce agricultural production by as much as 2 per cent each decade for the rest of this century.

During that period, demand is expected to rise as much as 14 per cent each decade, the report found, as the world population is projected to grow to 9.6 billion in 2050 from 7.2 billion today, and many of those people in developing countries acquire the money to eat richer diets.

Agricultural risks "are greatest for tropical countries, given projected impacts that exceed adaptive capacity and higher poverty rates compared with temperate regions," the draft report finds.

[*South China Morning Post*, 03/11/2013]

### Studies show rapid global warming

Scientists have sounded alarms in a pair of studies challenging the idea that climate change is occurring gradually over the century and that its worst effects can be avoided by keeping emissions below a critical threshold.

A US National Research Council report published on 3 December 2013 states that the planet was warming so quickly that the world should expect abrupt and unpredictable consequences in a matter of years or a few decades. Among the changes already under way are the sudden decline in Arctic sea ice as well as rising extinction rates, the report found.

Scientists based their findings, in part, on the study of climate history as recorded in tree rings, ocean sediment and ice cores. They found the timeline punctuated by big, sudden changes, including ocean circulation shifts and mass extinctions.

As a result of the burning of fossil fuels, industrial activity and deforestation, the amount of carbon dioxide and other heat-trapping greenhouse gases in the atmosphere has soared to levels not seen in millions of years. The scientists say the accelerating gas levels increase the risk of reaching various "tipping points", leaving nature and society little time to react.

Even slow and steady changes in climate could have sudden repercussions, the report said. A slight increase in sea level could be enough to overtop a levee during a storm, and a tiny rise in ocean acidity from carbon dioxide could make seawater inhospitable to coral.

Scientists also call for an early warning system to anticipate sudden climate shifts. They envision a network of satellites and land-based monitors tracking ocean temperatures near polar ice sheets and methane levels in the Arctic.

A separate study published on challenges a widely held view that the world can avoid the most dangerous consequences of climate change by limiting emissions to one trillion tonnes of carbon since pre-industrial times. Staying below that ceiling would keep global temperatures from rising by more than two degrees Celsius, a threshold the United Nations-backed Intergovernmental Panel on Climate Change has endorsed.

An international group of scientists, health experts, legal scholars and economists under the auspices of Columbia University says the cap is too high. Fossil fuel emissions must be kept to half that and global warming held to about one degree Celsius to avert disastrous consequences, including sea level rises and irreversible ecological harm.

[*South China Morning Post*, 05/12/2013]

### NASA finds reducing salt is bad for glacial health

A NASA study has found an intriguing relationship between sea-ice conditions and the melting rate of Totten Glacier, the glacier in East Antarctica that discharges the most ice into the ocean. Researchers studied cold and extra salty water, brine, which forms within openings in sea-ice, and looked at the role of how ice sheets interact with the ocean. The study may improve our ability to

estimate and prepare for future sea level rises.

Satellite observations add to the ocean numerical modelling. The NASA's Jet Propulsion Laboratory developed a hypothesis that decrease in the brine volume will increase thinning and melting of Totten.

Ice loss occurs in Antarctica and is generally attributed to the rise of temperatures in surrounding oceans. But scientists are still observing these processes and hope to discover the mechanisms behind regional variations. The new study focuses on the key role of processes happening on small geographic scales in determining how global climate change can affect the stability of ice sheets.

Satellite observations revealed that Totten Glacier is thinning rapidly. It discharges enough ice into the surrounding ocean to fill Lake Erie, one of the Great Lakes of the North America, in just over a week.

The ocean around Antarctica is warmer than both the continent's icy surface and the polar air. Ice shelves melt more through contact with ocean water below them, than they do due to sunlight. Melting at the undersides of ice shelves is part of Antarctica's natural water cycle, but when glaciers start melting unusually quickly, it is a sign that something is off balance.

The ocean basin around Antarctica contains polynyas, the sizes and numbers of which vary markedly every winter without an overall trend. Computer simulations showed that these variations in the polynyas greatly affected the melting rate of glaciers.

[*National Aeronautics and Space Administration*, 05/12/2013]

### Deals at climate meeting advance global effort

Two weeks of United Nations climate talks ended on 23 November. Delegates agreed to the broad outlines of a proposed system for pledging emissions reductions and gave their support for a new treaty mechanism to tackle the human cost of rising seas, floods, stronger storms and other expected effects of global warming.

The deaths and destruction caused by the storm in the Philippines brought up the issue of "climate justice". Final agreement was held up by a thorny argument over a proposal by developing countries for the creation of a "loss and damage mechanism" under the treaty. The United States, the European Union and other developed countries opposed the measure for financial reasons.

The issue was settled when the parties papered over their differences, consenting with the United States to nest the new instrument under an existing part of the treaty dealing with adapting to climate change, but agreeing that they would review its status in 2016. The agreement shows that countries have accepted the reality of the effects of climate change, but that they seem unwilling to take concrete steps to lessen the severity of these impacts.

The Bolivian delegation commented that the agreement would relate to other issues such as technology transfer, capacity building and migration. The United States called for each country to make a public offer to be evaluated for the Paris summit meeting.

Conflicts between developed countries, led by the United States and European Union, and developing countries, led by China, India and Brazil, had stalled progress and threatened to scuttle the conference altogether.

President Obama's climate envoy reminded China that it had agreed two years ago that climate action would be "applicable to all parties," and expressed surprise that China would be assuming no commitments under the future agreement. The word "commitments" was eventually changed to "contributions" by lead negotiators to allow some room for 2015.

Treaty members remain far from agreeing on any concerted, serious step to reduce emissions. Developing countries complained that promises of financial help have not been fulfilled.

[*The New York Times*, 23/11/2013]

#### Do not delay drastic emissions cuts

Two new studies show that the world cannot afford to wait any longer to make drastic cuts in greenhouse gas emissions, because when reductions of carbon dioxide output are delayed, faster global warming will result. The climate situation would then become more difficult to counteract in future years.

The lead author of one of the studies alleges that peak carbon dioxide induced warming will increase at the same rate as carbon dioxide emissions themselves unless someone manages to compensate for the continued procrastination now. Peak carbon dioxide induced warming is at almost 2% a year, which is much faster than the observed warming. Therefore a further delay in cutting greenhouse gases emission will be dangerous.

Another study revealed that cutting the emissions of short-lived climate pollutants, such as methane and soot, could reduce the rate of warming. However, it was found that reducing emissions of short-lived climate pollutants only has a significant impact on peak temperatures under circumstances in which carbon dioxide emissions are falling at the same time. Therefore, reductions of short-lived climate pollutants need to be accompanied with strong actions on carbon emissions in order to continue to slow down the rise in global temperatures.

It is important to take action to reduce carbon dioxide emissions today. Together with this, cutting emissions of short-lived climate pollutants could result in a more significant reducing impact on peak warming.

[*The Guardian*, 21/11/2013]

#### Greenhouse gas levels hit new record high

The World Meteorological Organisation (WMO) reported that greenhouse gases hit a new record in 2012. The accelerating trend is driving climate change, making it more difficult to contain a high global warming to within 2 degrees Celsius, a goal set at the Copenhagen summit in 2009.

If the world purses its "business as usual" trajectory, global temperature increase is expected to hit the 2 degree mark in the middle of the century. This would also affect the water cycle and sea levels and cause extreme weather events.

The more we delay action, the harder it will be to stay under this target and the worse the impact will be, hence the more difficult it will be to adapt to a warmer world. Our climate system is dominated by the ocean rather than the atmosphere, and the time it takes the oceans to warm means the full impact of current emissions will only be felt later.

The volume of carbon dioxide increases in the atmosphere was faster in 2012 than in the past decade, reaching 393.1 parts per million (ppm), 41 per cent above the pre-industrial level. The amount of the gas in the atmosphere grew by 2.2 ppm, higher than the average of 2.02 ppm over the past 10 years.

Carbon dioxide (CO<sub>2</sub>) is very stable and will stay in the atmosphere for a long time. The increase in CO<sub>2</sub> is extremely likely to have been caused by human activity. The actions we take or do not take now have consequences the effect of which will be felt for a very long period.

[*CBC News*, 06/11/2013]

## REGIONAL & INTERNATIONAL

### CHINA

#### Regional think-tank proposed to curb air pollution problems

As air pollution is a regional problem rather than merely a local one, Hong Kong and its neighbours in the Pearl River Delta should establish a "regional think-tank" to work on tackling air pollution in the region.

A recent air quality study issued by Greenpeace found that 3,600 deaths and 4,000 cases of child asthma in 2011 were related to air pollution in the region, caused by 96 industrial plants in Guangdong and Hong Kong.

Although both Hong Kong and its provincial counterparts in China tried to work together in mitigating regional air pollution previously, they are now forced to lower their common reduction targets because the original targets have proved to be too ambitious. Therefore, it is proposed to form an independent think-tank which will focus on coordinating regional air pollution research and providing cost-benefit analysis on air quality policies and measures. With consolidated research results, there should be systematic and consistent support for air quality policies and measures. Long-term air quality policies and measures can then be established in the next few years.

As air pollutants travel through air without recognising borders, regional cooperation in tackling the air pollution problem is necessary. If the proposal for a regional think-tank for Hong Kong and the Pearl River Delta region comes to fruition, a similar regional think-tank could be established in other regions, such as the Yangtze River Delta area.

[*South China Morning Post*, 28/10/2013]

#### Beijing's green projects drain scarce water resources

In order to reduce choking smog that spreads over more than a quarter of China, one of the key proposed measures is to replace dirty coal with cleaner natural gas. Since China

has limited conventional natural gas and abundant coal reserves, it is feasible to convert coal to natural gas. Therefore, Beijing has invested in producing synthetic natural gas.

To power some of Beijing's central heating systems in the harsh winter months, the synthetic natural gas is converted from coal and piped 300 kilometres from Heshigten Banner in north eastern Inner Mongolia.

This measure will replace coal to cut harmful emissions of particulate pollutants. Beijing's demand for natural gas is expected to rise rapidly as all its heating systems and industrial boilers make the switch from coal to gas.

Although the coal-to-gas project is seemingly a green investment, the conversion process requires vast quantities of water, not just for production but also for cooling and the removal of contaminants. On average, the production of one cubic metre of synthetic natural gas uses 6 to 10 tonnes of freshwater. Since freshwater is a key raw material for turning coal to gas, it is impossible to reduce water usage in the process. Therefore, the water-intensive conversion process will drain already scarce water resources in the country's drylands in the northeast where coal reserves are abundant, eroding land and causing more sandstorms there.

Shanxi, Shaanxi, Ningxia, Inner Mongolia and Xinjiang possess 76 per cent of the country's coal reserves, but they have only 6.14 per cent of the country's total water resources. The coal-abundant northwest already experiences chronic water shortages. However, China's top economic planner has approved 18 coal-to-gas projects, most of which are in the arid and semi-arid regions of Xinjiang and Inner Mongolia. Eleven conversion projects are under way, slated for areas without major water reservoirs, meaning the projects will have to compete with local communities or other industries for water. This will disrupt regional water security. In particular, five of the coal-to-gas plants are planned for the middle of the Mu Us Desert near Inner Mongolia's booming city of Ordos. These projects will require 140 million tonnes of freshwater each year which is equal to 10 per cent of the area's total water supply.

The Mu Us Desert is one of the major sources of lacerating dust storms hitting the country's northern cities in spring, when the northwest wind prevails. Over the past decades, China has invested heavily in setting up green belts to prevent the desert from expanding and to protect the northern cities, particularly Beijing, from sand storms. However, extensive plantings have died from lack of water because water is taken up by the water-intensive coal-to-gas projects, and untreated wastewater is discharged from these coal-to-gas plants into the nearby land thereby polluting the soil. Water depletion has already led to deforestation, shrinking of freshwater lakes and the disappearance of some wetlands. Some sand dunes in the area may expand as well, and encroach on habitable land.

[*South China Morning Post*, 24/11/2013]

#### Guangdong to launch carbon permits market

China is the world's biggest emitter of greenhouse gases. It has committed to

reducing its carbon dioxide emissions per unit of gross domestic product by up to 45 per cent by 2020. To reach this target, Shenzhen and Shanghai launched the country's first carbon permit markets on 26 November 2013. Guangdong, the country's most populous province with more than 100 million people, will also launch a carbon permits market in December which will become the world's second biggest after the European Union's permits market.

The Guangdong Provincial Development and Reform Commission alleged that the Guangdong scheme would cap carbon dioxide emissions from 202 companies at 350 million tonnes for 2014. Most permits will be allocated for free on 10 December 2013; 29 million permits will be auctioned by the local government, but no formal floor price will be set. The Guangdong scheme will cover state-owned power companies, manufacturers and petrochemical firms.

As the central government of China is planning a national trading scheme later in the decade, these pilot carbon-trading markets will provide a valuable experience for the country to regulate hundred million tonnes of carbon dioxide annual emissions.

[*South China Morning Post*, 28/11/2013]

## JAPAN/KOREA

### China's smog concerns neighbours

Japan and South Korea are concerned about elevated levels of particulate matter and pollution brought to Japan and South Korean cities from northern China by the autumn westerly winds. This situation becomes worse when power plants in northern China burn massive amounts of coal for generate electrical power heating in winter.

Recently, the contaminant levels due to smog, in parts of northern China, especially Harbin, were up to 50 times levels deemed to be safe by the *World Health Organisation*. Consequently, the Japanese embassy held a meeting for Japanese residents in Beijing on 28 October 2013. At the meeting, a doctor told those present "the options are to go on vacation, change your residence or find a new job somewhere free from the pollution."

On 11 November 2013, the average hourly density of PM2.5 particles in the city of Ichihara, Japan, was nearly twice the official daily maximum recommended limit of 70 micrograms per cubic metre. PM2.5 particles are 2.5 microns or less in diameter and lodge deep in the lungs. One of the concerns of Japanese is that their children cannot go to the park when the air pollution is very bad, but it is not preferred to keep their children staying indoors all day long.

South Korea's environment ministry plans to cooperate with China on using environmental technology to cope with the smog. In view of Japan's environmental know-how, the Chinese government has invited a team of Japanese experts to visit to identify ways of dealing with air pollution problems at their source.

[*South China Morning Post*, 12/11/2013]

## UNITED KINGDOM

### Record number of illegal waste sites closed

The number of illegal waste sites in the United Kingdom being shut down has

increased by 70% in the past 12 months. Waste in illegal dump sites is buried or burned with no safeguards for the environment, which can lead to serious pollution incidents.

Illegal operators of waste sites usually offer to dispose of waste at extremely low prices. This has diverted up to £1 billion per year from legitimate waste and recycling businesses. Some sites are located near pivotal transport routes. Illegal operators use shipping containers to export waste illegally.

The Environment Agency deals with larger-scale dumping and illegal export of waste, whilst local authorities deal with local cases of fly-tipping. With additional resources committed to the illegal waste taskforce set up two years ago, the number of illegal waste sites being closed down is at record levels. However, construction waste continues to be a problem.

On the other hand, the number of successful prosecutions for illegal disposal of waste is down by 30%. Prosecutions are at their lowest level in four years.

[*BBC News*, 14/10/2013]

## Ships banned from discharging pollutants

The *International Maritime Organisation* (IMO), the United Nations agency responsible for the safety and security of shipping and the prevention of marine pollution by ships, has reclassified the chemical polyisobutene (PIB) as a pollutant from 2014.

Between January and May 2013, PIB, which is a lubricant used to improve engine performance of ships, was found on seabirds, mainly guillemots, in two separate instances. However, the IMO was unable to trace the vessels which caused the contamination. In the sea, high viscosity PIB becomes "glue-like". It covers birds and restricts birds' movements and their ability to feed, causing them to die from hypothermia or starvation eventually.

It is currently lawful for vessels to discharge PIBs when they wash out their tanks provided that they are 12 nautical miles away from the nearest land. In England, there were more than 4,000 birds killed or injured by PIBs between Cornwall and Sussex, and on the Channel Islands in 2013. In view of these incidents, huge public support was a catalytic factor in achieving such a quick decision to prevent harmful PIBs from being discharged. From 2014, vessels will only be able to wash their tanks and dispose of all PIB residues while in port. After the ban on dumping PIBs at sea, it is expected that these contamination incidents will cease.

[*BBC News*, 22/10/2013]

## AUSTRALIA

### Approval for massive resource development on Barrier Reef coast

Several massive resource projects have been approved for development of the Great Barrier Reef coast by the federal government. The projects will involve the dredging and development on dumping of spoil near the reef and construction of a new coal export terminal. Environmentalists have criticised the decision. The WWF and the Greens say it further industrialises the icon Reef.

The projects approved by Environment Minister Greg Hunt include the dredging of 3 million cubic metres of spoil – which will be dumped in the waters of the Reef – for the development of three coal export terminals at Abbot Point.

Approval was also given to a new processing plant for coal seam gas on Curtis Island, which includes 1.4 million cubic metres of dredging at Port Curtis and the mouth of the Calliope River near Gladstone. A pipeline to the plant – being proposed by Arrow Energy – was also approved.

In making the decision Mr. Hunt said he had imposed 148 strict environmental conditions on the Abbot Point and Curtis Island developments. They included conditions to ensure the water quality impact from the dumping of dredging spoil was offset.

Water quality is a significant problem for the Great Barrier Reef. Increasing pollutants and nutrients cause damage to corals, sea grass and other important marine habitats. There is also emerging evidence that poor water quality encourages populations of a damaging starfish known as crown-of-thorns that has plagued the reef.

The World Heritage Committee has also been alarmed by increasing development on the Reef's coast – with a number of major resource projects approved in recent years – and will consider in 2014 whether the Reef should be placed on an "in danger" list of world heritage sites.

WWF said Mr. Hunt had failed the reef and had turned his back on scientific evidence of the damage dredging will cause.

[*The Age*, 11/12/2013]

## BRAZIL

### Rate of destruction of Brazil's Amazon rainforest has risen by almost a third

After the official data covering August 2012 to July 2013 was published, Brazil's Environment Minister called an urgent meeting and demanded urgent action from regional authorities to reverse double-digit rises of as much as 52 per cent in the rate of deforestation in some Amazon regions over the past year. In particular, extensive farming and soybean production in the northern state of Para and the central western state of Mato Grosso resulted in the rise of the rate of deforestation by 37 and 52 per cent respectively.

Brazil is committed to preventing an increase in deforestation. It respects international conventions calling for a stark reduction in Amazonian deforestation, so the Brazilian government will do whatever is necessary to achieve its goal in eliminating deforestation.

Brazil's forestry code requires landowners in the Amazon to devote 80 per cent of their land to native forests. However, because the agribusiness has to feed a population of close to 200 million, the forestry code has not been adequately enforced. There are also issues regarding which areas fall under state or private ownership. Brazil is caught between environmental pressures and the interests of large-scale farmers. It struggles with weighing the demands of environmental campaigners and those working in agriculture. A revised forestry code, implemented in 2012, allows landowners to cultivate riverbanks and

hillsides that had previously been exempt. However, this new forestry code is likely to increase land price speculation and give a signal that the government will not be resolute in combating violations of the forestry code.

[*South China Morning Post*, 15/11/2013]

## EUROPE

### Air pollution “still harming Europeans’ health”

European Union nations have significantly cut emissions of a number of pollutants, including sulphur dioxide, lead and carbon monoxide. Although the *European Environment Agency* (EEA) acknowledges that European Union nations have made considerable progress over recent decades to reduce the visible signs of air pollution, air pollution still causes damage to human health and ecosystems.

An EEA report shows that up to 96% of European Union nations’ urban populations are exposed to fine particulate matter concentrations above World Health Organisation (WHO) guidelines. Even more, 98% were subject to ground-level ozone concentrations above WHO recommended levels. The EEA report also reveals that the ecosystem was subject to the pressure of air pollution, which impairs vegetation growth and harms biodiversity.

In a separate research, low birth-weight (less than 2.5 kilograms at 37 weeks of gestation) was found to be linked to exposure to air pollution. This is the finding of scientists based on studies of 74,000 births between 1994 and 2011 across 12 European Union nations. The findings show that the attributable risk estimated for a reduction (in particulate matter with a diameter of 2.5 microns or less concentration) to 10 micrograms per cubic metre during pregnancy corresponded to a decrease of 22% in cases of low birth-weight at term. Researchers explained that babies with low birth-weights were at greater risk of mortality and health problems than infants with higher birth-weights because low birth-weight has been associated with wheezing and asthma in childhood, and with decreased lung function in adults.

The current European Union legislation set the annual mean limit on fine particulate matter at a concentration twice that outlined in WHO guidelines. These microscopic particles come from a wide range of sources including road transport emissions. The European Commission aims to narrow that gap. Therefore, the EEA now lists tiny airborne particles and ozone as posing a “significant threat”. More actions and tighter binding legislation are expected.

[*BBC News*, 15/10/2013]

## SCOTLAND

### New environmental crime laws introduced in Scotland

The Environmental Crime Taskforce was established by Environment Secretary in November 2011. As well, a Waste Crime Team has been set up recently. They tackle the most serious waste crime offenders in Scotland and penalise environmental criminals.

There are a number of communities and businesses impacted by waste crimes. People living in and visiting Scotland are affected by the criminal activity which harms Scotland’s environment. Therefore, the Waste Crime Team will fight against criminals who disregard Scotland’s environment. New laws provide tougher measures to crack down criminal activities damaging Scotland’s environment. These include the power to seize documents related to suspected criminal activity, and enhanced powers of entry.

[*BBC News*, 04/12/2013]

## CANADA

### Incandescent light bulb ban starts 1 January 2014

Canada announced a federal ban on inefficient light bulbs effective from 1 January 2014. This will effectively remove most incandescent bulbs from retail shelves in favour of more expensive alternatives, such as compact fluorescent lamps, or CFLs. Greenhouse gas emissions would then be reduced by more than six million tonnes annually.

In the meantime, the government proposed allowing a newer kind of incandescent bulb, filled with halogen gas, to remain on store shelves, even though it does not meet the tough efficiency standard proposed in 2007, because halogen incandescent bulbs are less expensive than CFLs, more efficient than traditional incandescent and contain no mercury.

As the government has not yet enacted new regulations that would limit the amount of mercury contained in each CFL, it will compel manufacturers and distributors to recycle them. On the other hand, the government is developing measures that set limits for mercury content in compact fluorescent lamps and require labels about their safe disposal, and is also considering options for the management of mercury-containing lamps when they become waste. Much mercury waste winds up in municipal landfills, where it can leach into groundwater. Apart from the new energy-efficient regulations for bulbs, the government is expected to have strict rules on mandatory recycling of mercury from broken CFLs.

[*CBC News*, 13/12/2013]

## RUSSIA

### Mining threatens waterways

Waterways in south central Siberia’s Altai-Sayan Ecoregion are threatened by abandoned and proposed mining operations, and hydropower projects. This remote area, rich in biodiversity, sits at the junction of the mountains of Russia’s Siberian taiga, the steppes of Kazakhstan, and the semi-deserts of Mongolia.

The Buryat Regional Organization for Lake Baikal (BRO) based in Ulan-Ude, is fighting to protect the Altai-Sayan from mining industry abuses and short sighted energy-projects.

ELAW (Environmental Law Alliance Worldwide) will provide the BRO with the legal and scientific resources it needs to protect the Altai-Sayan, including ELAW’s *Guidebook for Evaluating Mining Project*

EIAs, which has been made available in four languages, including Russian.

[*ELAW release*, 31/10/2013]

## INDIA

A new jurisprudence on the environment is steadily emerging in the country and is an example for the rest of the world. Today, nearly 50-60 appeals and applications are heard each working day before the various benches of the National Green Tribunal (NGT). At a time when Environment Impact Assessment reports are a blind “copy and paste” job, where public hearings are a “mockery” and non-compliance with environmental rules and regulations are the order of the day, the NGT serves to restore faith in the “Rule of law”.

The NGT has transformed the way environmental decisions are made in India. A specialised judicial and technical body, the NGT decides on all environmental disputes and issues.

This Tribunal is currently enforcing the law to:

- halt a proposed coal mine;
- protect people living in and around the New Okhla Industrial Development Authority complex from toxic pollution;
- ban the mining of sand from within rivers and streams across India;
- close an illegal waste dump near a school campus in Bareilly; and,
- prevent the deforestation and forced relocation of communities in Jagatsinghpur to make way for a port and steel manufacturing facility.

[*ELAW release*, 07/11/2013]

## ISRAEL

### Cardboard bicycle can change the world

After a year and a half’s trial and error, Izhar Gafni, who is an Israeli inventor aged 50, successfully made a bicycle almost entirely of cardboard. Gafni was able to overcome the weaknesses of cardboard and give the cardboard bicycle its waterproof and fireproof qualities. Gafni believed that the cardboard bicycle has the potential to change transportation habits from the worlds’ most congested cities to the poorest cities.

Once the cardboard bicycle is ready for production, it will not include any metal part, even the brake mechanism. The chain will be made of a car timing belt. Its wheel and pedal bearings will be made of recycled substances. The solid tyres will be made of reconstituted rubber from old car tyres. The total weight will be around 9 kilograms while an average metal bicycle weighs around 14 kilograms.

Gafni alleged that when his own creation reached mass production, it should cost no more than about US\$20 to buy while the cost of material used is estimated to be US\$9 per unit. The cardboard bicycle does not require any maintenance or adjustment. Gafni said if the cardboard bicycle was broken, the owner could take it back to the factory and recycle it.

Gafni and his business partner plan to have the cardboard bicycle made on largely automated production lines and supplemented by a workforce comprising pensioners and the disabled. Together with the grants from the government for the

manufacturers, Gafni and his business partner believed that the rebates for using “green” materials could entirely cancel out production costs. This could allow for bicycles to be given away for free in poor countries. Money can be made from advertising.

Gafni predicted that in the future, cardboard might even be used in cars and aircraft, but there is still a long way to go.

[*South China Morning Post*, 15/10/2013]

## U.S.A.

### Woodland caribou are in danger of disappearing

In the United States, woodland caribou once ranged from Maine to Washington state, but an isolated subspecies in northern Idaho and Washington's Selkirk Mountains is all that remains. The 30 to 50 caribou of the Southern Selkirk herd have been protected by the *Endangered Species Act* since 1983, but their numbers remain well below the target population of 125. In 2011, the U.S. Fish and Wildlife Service proposed setting aside 375,000 acres as critical habitat, but snowmobilers, loggers and politicians objected. Last November, the protected area was slashed by more than 90 percent.

On 30th September, six environmental groups, including Defenders of Wildlife and the Center for Biological Diversity, filed a lawsuit against Fish and Wildlife, claiming that the abrupt reduction in habitat violates the *Endangered Species Act*. The 30,010 acres don't offer enough high-elevation old-growth forest, they say, and the reduction further shifts responsibility for the species' survival to Canada, where most of the world's woodland caribou now roam.

[*High Country News*, 28/10/2013]

### Wind turbines killed 600,000 bats last year

More than 600,000 bats were killed by wind turbines across the United States last year. The highest concentration of kills was in the Appalachian Mountains.

In a paper published in the journal *BioScience*, University of Colorado biologist Mark Hayes used records of dead bats found beneath wind generators and statistical analysis to estimate how many bats were struck and killed by generator propellers each year. The new estimate is among the highest yet for generator-related bat deaths. Previous studies have calculated mortality rates of between 33,000 and 888,000 a year. Hayes said his estimates were conservative for several reasons.

Little information on bat mortality was available for wind generators along the Sierra Nevada ranges and Rocky Mountains, he wrote, and scavenging animals likely carried away a percentage of dead bats before they could be counted.

Hayes also said that if a range of bat deaths were listed by a facility, he used the lowest one for his calculations.

There are 45 known bat species in the continental United States, but biologists do not have a firm handle on their total population. Experts say the animals' small size and nocturnal habits make them difficult to survey. Nonetheless, biologists suspect

their numbers are decreasing because of changing climate and diseases such as white-nose syndrome.

Even under the best circumstances, bat populations increase slowly, as they give birth to one pup per year, and the mortality rate for young bats is high.

Bats are not generally beloved by the American public, but perform two highly valuable services: they eat enormous amounts of flying insects, and they help pollinate crops like peaches and avocados.

[*South China Morning Post*, 11/11/2013]

## ANTARCTICA

### Russia and China block Antarctic sanctuaries

Plans to create two vast ocean sanctuaries in Antarctica to protect the pristine wilderness failed for a third time, with Russia and China blocking the bids, delegates at multinational talks said.

The proposals for two huge marine protected areas were on the table at the *Commission for the Conservation of Antarctic Marine Living Resources* meeting in Hobart, Australia, which brought together 24 countries and the European Union.

But the 10-day talks ended in disappointment with the nations unable to agree to a US-New Zealand proposal for a protected zone in the Ross Sea and another by Australia, France and the European Union for a sanctuary off East Antarctica.

Environmentalists said an ocean wilderness that is home to 16,000 known species, including whales, seals, albatrosses, penguins and unique species of fish, was at stake.

*The Commission*, which oversees conservation and sustainable exploitation of the Antarctic Ocean, also known as the Southern Ocean, has not yet made any official comment.

The sanctuaries required the support of all 25 members of the commission to be passed, and despite the scale of the New Zealand-US proposal being reduced, Russia was not won over by either proposal.

Another participant said that China also opposed the East Antarctica plan, but not the Ross Sea one.

This was the third attempt since last year to protect large areas in the Southern Ocean. Fernholm said that, while “substantial discussions” took place, Russia had reservations, believed to be linked to fishing limits.

[*South China Morning Post*, 02/11/2013]

## AFRICA AND ASIA

### Urgent steps to curb illegal ivory trade

African and Asian nations have agreed on urgent measures to tackle the illegal ivory trade, from the slaughter of elephants to the trafficking of their valuable tusks to East Asia. The deal was agreed on 3 December 2013 after top officials and experts from 30 states met in Botswana to tackle an upsurge in elephant poaching as demand for ivory

soars from countries such as China and Thailand.

Countries that are home to elephants, and those where their ivory ends up, agreed to “urgent measures to halt the illegal trade and secure elephant populations across Africa”, Botswana and the International Union for Conservation of Nature (IUCN) said in a statement.

They vowed to take a “zero tolerance approach”, which includes maximum sentences for wildlife crimes and boosting the ability of national agencies to deal with highly organised poaching syndicates.

The meeting also agreed that ivory trafficking should be classified as a “serious crime”, paving the way for international co-operation such as mutual legal assistance, asset seizure and forfeiture, and extradition.

Conservation groups at the African Elephant Summit warned that Africa could lose 20 per cent of its elephant population within a decade.

Elephants are increasingly hunted by criminal gangs and militias using sophisticated equipment, while high-level corruption helps move the ivory off the continent.

Among those who agreed to the measures were key elephant host nations such as Gabon, Kenya, Niger and Zambia, transit countries Vietnam, the Philippines and Malaysia and ivory destination states, including China and Thailand.

A report by CITES, Traffic and the IUCN estimates 22,000 African elephants were illegally killed last year, as poaching reached “unacceptably elevated levels”.

[*South China Morning Post*, 05/12/2013]

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Convictions under environmental legislation:  
October to November 2013 (December 2013  
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:

#### *October 2013*

Forty-six convictions were recorded in October  
for breaches of legislation enforced by the  
Environmental Protection Department.

Four of the convictions were under the Air  
Pollution Control Ordinance, 17 under the Noise  
Control Ordinance, 24 under the Waste Disposal  
Ordinance and 1 under the Water Pollution  
Control Ordinance.

The heaviest fine in October was \$60,000,  
assessed against a company that imported  
controlled waste without a permit.

#### *November 2013*

Twenty-three convictions were recorded in  
November for breaches of legislation enforced by  
the Environmental Protection Department.

Seven of the convictions were under the Air  
Pollution Control Ordinance, 4 under the Noise  
Control Ordinance, 10 under the Waste Disposal  
Ordinance and 2 under the Water Pollution  
Control Ordinance.

The heaviest fine in November was \$25,000,  
assessed against a company that contravened  
provisions of licence under Water Pollution  
Control Ordinance.

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