

**URBAN PLANNING AND ENVIRONMENTAL LAW QUARTERLY**

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In this edition we review the second of the three winners of the 2012-2013 Fred Kan & Co. Prize for a meritorious dissertation in the M. Sc. (Environmental Management) course, University of Hong Kong: A review of the effect of high fluoride content of water on health and environment and the strategy adopted for its prevention and control, with special reference to India.

The Editors

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**ENVIRONMENTAL AND HEALTH IMPACTS OF FLOURIDE IN WATER SOURCES IN INDIA**

A co-winner of the 2012-2013 Fred Kan & Co. prize (HKU), Dharmshaktu Neha, has written a lengthy and detailed dissertation focusing on strategies adopted in India to prevent or reduce harmful impacts to human health and the natural environment from high fluoride content in potable water sources.

*Objectives*

The stated aims of the study included:

- (1) a review of fluoride levels in potable water sources in various parts of the world, with special reference to India; and
- (2) an evaluation of “the strategy adopted for prevention and control of the fluorosis problem in India”, focusing on “18 endemic states in India with high fluoride levels in the drinking waters...”.

*Study background*

The dissertation begins with a summary of various studies and publications related to the proposition that excessive levels of fluoride in drinking water are likely to have an adverse effect on human health, plants and animals.

In relation to India, the author begins with the observation that:

“Currently in India, there are 230 districts in 18 states and union territories, which have been confirmed to be endemic for fluorosis (Susheela, 2002). Within these endemic districts, 66 million people have been identified to be at risk, while 25 million people are affected from the condition of dental fluorosis. Majority of the affected people (i.e., 6 million) are children who are less than 18 years of age. In all of these states, the drinking water has a high fluoride concentration but the information about the various food items and industrial emissions having a high fluoride level is not available. World Health Organisation (WHO) guidelines (2002) suggested that in moderately hot climate, the most favourable fluoride concentration in drinking water should remain less than 1 mg/L (1ppm or part per million), since during warmer climate people tend to perspire frequently and thus drinking more water. In chilly climates, people do perspire as frequently and drink comparatively lesser water. Thus, in the chillier climate. The favourable fluoride concentration could reach up to 1.2 mg/L. Taking into account both of these cases, the guideline value (permissible upper limit) in drinking water was set at 1.5 mg/L, by WHO (2002). Looking at national (Indian) level of fluoride contamination, the extent ranges from 1.0 to 48 mg/L. India lowered its permissible limit to 1 pp, from 1.5 ppm in 1998 for defining contamination level in drinking water. In addition, there are significant environment contaminations with fluoride, which are associated with unprotected mines, industrial emission, coal burning, and the use of fertilizers and pesticides.”

It is also noted that when setting “guideline values for fluoride at local or international level, it is very important to consider intake from other possible routes (e.g., from air and food) and when the total intake values are found to be >6 mg/day, it is suggested to set the guideline value to <1.5 mg/L (WHO, 2006)”.

It was recognised more than a decade ago that adverse impacts from fluoride was an endemic problem in 230 districts in India, yet to date administrations in only 91 districts have applied funds to addressing the problem, such as by providing filtered water supplies.

### Standards for fluoride levels in drinking water

The author compares maximum fluoride levels allowed in various countries. For example, the standard in South Korea is 1.5 (mg/L), but in Hong Kong it is 0.5.

The WHO recommendation is 1.5, but local conditions influence the standard, so there is no one general standard for all regions in the World. The most prudent approach is to monitor fluoride levels in the local water supply to look for signs of “excessive fluoride exposure in the local population”.

### Impact of excessive fluoride levels

Twenty five countries – including the U.K., Australia, Israel and Hong Kong (China) – artificially add fluoride to drinking water supplies. Another 28 or more countries have naturally occurring fluoride in their water. The total world population exposed to fluoride is approximately 658 million.

Excessive exposure to fluoride may cause dental and skeletal fluorosis in human beings. Fluoride is a geogenic pollutant which can contaminate ground water aquifers and natural ecosystems.

### Fluorosis in India

A few relevant facts about India are:

- it has the 7<sup>th</sup> largest land area (3.29 million square kilometres) with the 2<sup>nd</sup> highest population (1.04 billion)
- its population will exceed 1.33 billion by 2020
- water consumption will increase by 20-40% by 2020
- India possesses only 4% of the world’s water resources, to supply 16% of the world’s population
- Underground water reserves provide nearly 90% of drinking water
- Even in urban areas, only 63% of the population has access to tap water
- Approximately 50% of all villages face potable water scarcity.

High concentrations of fluoride were first discovered in 1937 in the Nellore district of Andhra Pradesh. In the early 1930s, fluorosis was reported in only four states.

Today there are 18 states with high fluoride concentrations in their aquifers. In five of these – Andhra Pradesh, Haryana, Rajasthan, Maharashtra and Madhya Pradesh – the level exceeds 10mg/L.

### Fluorosis management in India

India only recently began to tackle the fluorosis problem:

“Until 2008, there was no national programme for management of fluorosis in India. In 2008 in response to the urgency of the problem of fluorosis, the NPPCF was initiated during India’s 11<sup>th</sup> Five Year Plan (2007-2012) by the Planning Commission of India (MHFW, 2009). This national initiative has been handled by the joint collaboration of different governmental and non-governmental organisations like the MHFW, the Ministry of Drinking Water and Sanitation, the Rajiv Gandhi National Drinking Water Mission (RGNDWM) and UNICEF. Presently, data regarding prevalence of fluorosis in India is based on studies conducted by different groups over a period of time (MHFW, 2009). So far, the Department of Drinking Water Supply (DDWS), Government of India has collected baseline data of households of 196 districts in 19 States/union territories (MHFW, 2009). For the provision of safe drinking water, government of India supplements the efforts of state government and union territories by providing funds under the Accelerated Rural Water Supply Programme (ARWSP) (MHFW, 2009).

It was when the chairman of National Human Rights Commission and the Prime Minister’s Office reviewed the fluorosis situation in the country that a national programme for fluorosis control was recommended. The modality of the National Programme on Fluorosis falls under the supervision of the MHFW.”

Several government and non-government organisations have the infrastructure to enable fluorosis diagnosis. However, generally inadequate information is available to doctors regarding fluorosis.

One of the objectives of the NPPCF is the collection, assessment and use of the baseline survey data on fluorosis prepared by the DDWS.

The NPPCF is currently implemented in 100 of the 196 districts with endemic fluorosis. The programme has four phases:

- (1) Baseline data collection, carried out in 2008-2009, following which 5 selected affected districts were given technical and education assistance to diagnose and combat fluorosis.
- (2) In 2009-2010, an additional 15 districts were added to the work phase described in (1).
- (3) In 2010-2011, 40 more districts were added to that programme.
- (4) In 2011-2012, another 40 districts were added, plus the programme was evaluated by an independent organisation, following which improvements to the programme were implemented. A total of 100 districts of the total 196 endemic districts were covered by the 11<sup>th</sup> Five Year Plan under the programme.

Activities undertaken under the NPPCF were:

- (i) community diagnosis of fluorosis according to village/block/cluster;
- (ii) village/block/district facility mapping from prevention, health promotion, diagnostic facilities, reconstructive surgery and medical rehabilitation;
- (iii) gap analysis in facilities and organisation of physical and financial support for bridging these gaps, according to the strategies listed above;
- (iv) the diagnosis of individual cases and providing its management; and public health intervention on the basis of community diagnosis; and
- (v) behavioural change by way of IEC materials.

### Extent of fluorosis problem in India

A person suffering fluorosis will have “clinical signs or symptoms of dental/ non-skeletal fluoroses along with fluoride concentrations >1mg/L in the urine”.

An “endemic district” for fluorosis has “the presence of any clinical sign of dental/skeletal fluorosis as well as presence of fluoride content of above 2.5 mg/L in drinking water from 25 or more than 25 habitations”.

The author adopted three categories of affected districts:

- a. Mild Endemic District: fluoride concentration in drinking water of the district is between 1 to 3 mg/L along with presence of signs of non-skeletal fluorosis in district population;
- b. Moderate Endemic District: fluoride concentration in drinking water of the district is between 3.1 to 5 mg/L along with present of signs of dental fluorosis in less than 20% of the district population;
- c. High Endemic District: fluoride concentration in drinking water of the district is more 5mg/L along with present of signs of dental fluorosis in more than 20% of the district population, or the presence of any case of skeletal fluorosis.

The dissertation also considered the fluorosis situation in other countries by way of comparison with India's problem.

### *Fluoride sources*

Fluoride is found in air, water, soil and food, due to natural and man-made causes. Natural causes include: fluoride-rich rocks, volcanic rocks and marine aerosols. Anthropogenic causes include: discharge of waste water; fumes and waste from industrial processes; use of pesticides; and deliberate drinking water fluoridation.

### *Effects of fluoride in the environment*

The author presents detailed data drawn from laboratory tests results and other research papers describing the effects on plants and animals of over-exposure to fluoride. We shall not attempt to review all of the studies and data. We note that they substantiate that animals and plants are adversely affected by exposure to excessive levels of fluoride.

Similarly, research data is reproduced in the dissertation illustrating potential harmful effects of excessive fluoride exposure to human health. For example, the author observes:

*“Long-term studies have been done on the neoplastic (cancerous) effects of fluoride on test animals, in the USA. These found that the incidence of osteosarcoma increased with increasing fluoride levels in mice and rats. However, one of these studies was confounded with the presence of retrovirus. Thus, looking at the collective data of these studies and other similar studies, it may be concluded that there is inadequate experimental data available to prove that fluoride is found to be carcinogenic to animals.*

*But it was also found that there is clear evidence of occurrence of non-neoplastic effects like – alterations in the glycosaminoglycan of cancellous bone, haematological toxic effects, bone mineralisation inhibition and reduced bone strength in rats, from experimental studies carried out in India, China and USA. Limited and inconsistent data available on the carcinogenicity of fluoride in humans based on human ecological studies carried out in the USA has lead to the conclusion that fluoride is not carcinogenic to humans.”*

Excessive fluoride exposure may also impact adversely the reproductive organs of human beings and animals. Acute exposure can cause fluoride poisoning. The author notes:

*“Based on monitoring studies carried out in the USA, adverse health effects to acute accidental exposure to 75 mg/L of fluoride has been observed in 34 patients while a dose of 150 mg/L of fluoride has proved to be lethal to one patient (Riggs et al., 1990; Gessner et al., 1994). The adverse health effects of acute exposure to fluoride include cardiac arrest, respiratory effects, tissue damage and death (WHO, 2006). In the male and female osteoporotic patients being subjected to fluoride therapy, temporary weakening of the bone and increased incidence of stress fractures has been observed at 0.99 mg/kg of fluoride, while hip fractures and increased bone density have been observed at 40-60 mg/kg and 75 mg/kg of fluoride respectively.”*

### *Observations of effect of fluoride on human systems*

From extensive data cited, the author observes that excessive fluoride intake has been shown to have adverse effects on fertility rates, as well as increasing the incidence of kidney stones. Fluoride also has significant neuro-behavioural effects on children, but more research is required in that area.

The author comments:

*“Skeletal fluorosis has been observed in children in India at fluoride level of 1.5 mg/L and increased risk of bone fractures has been documented at fluoride levels  $\geq$ 4.32 mg/L in China. Studies with similar findings of adverse skeletal effects have been carried out in USA and South Africa. It may thus be concluded that there is a clear risk of fluoride at levels of  $\geq$ 4.32 causing adverse effects to the skeletal system in humans. Based on studies carried out in UK, it has been proven that fluoride levels as low as 0.1 mg/L has been known to cause dental decay while increased prevalence of dental fluorosis in children has been found at fluoride levels  $>$ 2 mg/L in the USA, with the severity of dental fluorosis increasing with increasing fluoride levels.”*

### *Strategy for prevention of fluorosis in India*

The author surveyed people involved in implementing the NPPCF. From the responses received and other data/information sourced in India, such as replies to questionnaires sent to schools with and without fluoride in their water supplies, the author recorded a number of observations, such as the following examples:

#### *Logistic support*

Out of the total 11 districts, a laboratory was established in nine, an upgraded operation facility was provided in three districts and vehicle hiring and field-work was done in five districts. There was linkage with referral hospitals done in five districts; however, it is not mentioned whether the funds earmarked for rehabilitation are being used or not.

#### *Involvement of health care staff*

No district consultant was appointed in three districts out of 11. In four districts, field investigators have not been appointed. A data entry operator was engaged by only one district and no lab technician was appointed in three districts. Involvement of the general health care staffs of District Hospitals/CHCs (Community Health Centres)/PHCs (Primary Health Centres)/SCs is adequate in only two districts.

#### *Staff training status*

The training of targeted number of medical officers was done in two districts. Training of up to 50% of a targeted number of medical officers was done in other four districts; and no training was started in the remaining five districts. Training of a targeted number of laboratory technicians was completed in two

districts, and in the other district only one laboratory technician was trained. Training of laboratory technicians was not undertaken in the remaining eight districts.

Paramedical training (ANM (Auxiliary Nurse Midwives/Health Supervisors/MPW (Multi-Purpose health Workers)) of the targeted number of staff was done in seven districts. In one additional district it was done only in one block of the district and in the remaining three districts it has not yet commenced.

The targeted number of ASHAs (female volunteers) and AWWs (Angan Wadi Workers) has been trained in seven districts; in one additional district only one block of the district has been covered by training and in the remaining three districts training has not yet started. Training of the targeted number of punchayat members was done in three districts and was also done in one more district but only one district block was covered. In the remaining seven districts punchayat leader training has not commenced.

### *Summary of findings*

A sample of conclusions drawn from responses to the District Nodal Officers Survey is as follows.

- Eleven districts had been implementing the NPPCF
- All districts had received funds (to implement the NPPCF) but utilisation of funds and rate of implementation of the NPPCF varied significantly
- Provision of medical treatment was inadequate in 8 of the 11 responding districts
- Some districts had not carried out adequate population and school fluorosis surveys
- There was inadequate supervision and monitoring of programmes in a number of districts
- Defluorodation of groundwater is being done in only two of the responding districts
- Prevalence of skeletal fluorosis ranged from 0.70 to 42.00% in the 11 responding districts

### **Conclusion**

The dissertation contains many pages of statistical data which we have not attempted to summarise or review. This is a well written and painstakingly researched dissertation, for which we congratulate the author.

[Note : for the sake of brevity we have not included in the quoted passages the author's attributed sources.]

## LEGISLATION DIGEST

### *Shipping Legislation (Control of Smoke Emission) (Amendment) Ordinance 2014*

Smoke Emission from vessels is a pollutant which can cause fatal diseases when inhaled. At present it is an offence for a non-local vessel or a local vessel to emit smoke in Hong Kong waters in such quantity that constitutes a nuisance under *Shipping and Port Control Ordinance* (cap. 313) (SPCO) and *Merchant Shipping (Local Vessels) Ordinance* (Cap. 548) (MSLVO) respectively. The law, however, does not define the extent of emissions which constitute a "nuisance".

To improve public health and the environment, the Shipping Legislation (*Control of Smoke Emission*) (*Amendment*) Ordinance 2014 (Amendment Ordinance) was passed by the Legislative Council on 17 July 2014. The Amendment Ordinance amended the SPCO and MSLVO to enhance the control of emission of dark smoke.

Some major amendments introduced by the Amendment Ordinance are:-

- (1) adding "dark" before "smoke" in the SPCO and MSO and defining "dark smoke" to mean smoke which would appear to be as dark as, or darker than, shade 2 on a specified chart;
- (2) introducing an objective benchmark for taking enforcement and prosecution actions, and defining "specified chart" in the SPCO and MSO to mean a shade chart of the type known on the commencement date of the Amendment Ordinance as a Ringlemann Chart, which includes a Micro-Ringlemann Chart;
- (3) the maximum fines for non-local vessels was increased from HK\$20,000 to HK\$25,000 for the first offence, and from HK\$20,000 to HK\$50,000 for any subsequent offence;
- (4) maximum fines for local vessels will remain unchanged, which is HK\$10,000 for a first offence and HK\$25,000 for any subsequent offence.

## TOWN PLANNING

### **The first Summer Planning School**

The Planning Department and the City Gallery organised the First Summer Planning School -- "Be a Town Planner"--- in this summer. The programme comprised a general introduction to town planning and specific planning topics by professionals, field trips and workshops. The programme aims to increase students' knowledge of town planning in Hong Kong, such as consideration of different aspects in the planning process, and to encourage students' interest in participating in planning the future development of Hong Kong.

Participants in the Planning School comprised two groups, namely the Teen Planners Group (for senior secondary school students) and the Little Planners Group (for senior primary school students). By increasing students' interest in town planning through this programme, organizers hope that young generation will be more proactive in participating in future town planning activities.

Participants' work will be exhibited at the City Gallery, which is the first permanent planning and infrastructure gallery in Hong Kong. It offers a host of interactive exhibits to showcase the uniqueness of Hong Kong' past and future, as well as to share with the public the vision for city planning and infrastructure projects.

[*Press Releases, Planning Department, 09/08/2014*]

### **Stage 3 Public Engagement for Tung Chung New Town Extension Study launched**

The Planning Department and the Civil Engineering and Development Department launched the Stage 3 Public Engagement for the Tung Chung New Town Extension Study on August 15 to collect comments from the public on the draft Recommended Outline Development Plans (RODPs).

The study aims to identify development potential and opportunities to further develop Tung Chung into a distinct community that can fulfill housing, social, economic, environmental and local demands. In the Stage 2 Public Engagement completed in July last year, the public generally supported the further development of Tung Chung New Town.

Under the draft RODPs, land in both Tung Chung East and Tung Chung West would be reserved in the new town extension for an all-round development. Approximately 48,000 housings are planned to be provided in the extension areas. Various business facilities would be built in Tung Chung East to foster Yung Chun's development into a regional office node and to create more job opportunities. Tung Chung West would adopt a lower density of development to preserve its rural character. Recreational and community facilities will be built in order to meet the needs of residents.

The Stage 3 Public Engagement will last for two and a half months. Members of the public are invited to make their comments on or before October 31. Activities such as a public forum, briefings and roving exhibitions will be conducted.

[Press Releases, Planning Department, 15/08/2014]

### **Residents reject Hopewell hotel project**

Kennedy Road residents have lashed out at a developer for submitting an amended town planning application for a hotel project that they say "reneges on their agreement".

At stake is the Hopewell Centre II project on Queens Road East, which developer Hopewell Holdings says will be a conference hotel with more than 1,000 guest rooms, a retail podium and several large-scale "hotel-related convention facilities".

The application reintroduces the slab-like design, which the residents claim will worsen air quality in the area and present a barrier to air flow.

[CAN Newsletter, 26/08/2014]

### **Well deserved criticism of our planning system**

Those who take the time and effort to object to planning applications at the Town Planning Board (TPB) have long been angered by the unfairness of the process. It is routinely criticised for rubber-stamping developers' applications, no matter how awful their impact on the community.

But it will be interesting to see how the TPB reacts to an objection letter by retired High Court Judge William Waung Sik ying. He has recently become a member of the Kennedy Road Protection Group, which has had to stir itself following a respite of five years since the recent planning application by Hopewell Holdings for what it calls "minor refinements and enhancements" to its Hopewell Centre II project in Wan Chai's Queen's Road East that extends up to Kennedy Road. The group had fought Hopewell's plans for more than 10 years because vehicular access to this monster development was to be via Kennedy Road.

The project has been before the TPB five times in one form or another since 1994. In 2004, Hopewell applied to build a 93-storey hotel with convention and exhibition facilities, which was rejected by the TPB and again when it was reviewed. A subsequent appeal was withdrawn when a deal for a scaled-down project was done with the government in 2008, and approved by the TPB in 2009.

However, to the dismay of residents, Hopewell is now trying to reinsert the bits of the plan it lost under the Lam deal. Mr. Waung moved to Kennedy Road a few years ago and has now become embroiled in the planning process. He does not like what he sees, especially the piecemeal way in which Hopewell has proceeded.

Mr. Waung wrote to the TPB that Hopewell's approach was a "vexatious abuse of process" in resubmitting similar plans, which the TPB has ruled against. He maintains that given the time and cost involved in the TPB's applications by government departments and the public, successive applications by the same developer should be rejected unless there was an exceptional change in circumstances.

He also criticises Hopewell for the lack of details in its plans and for "the totally unacceptable practice of being indecently vague again and again and...the frequent promises to give fuller details later".

Mr. Waung is also unhappy with the way Hong Kong's town planning process is structured. "The whole town planning process in Hong Kong is a classroom example of inequality of arms, with the developer having the huge resources, with professionals working for long periods to prepare and advance the development project, but on the other hand with ordinary persons in the community, generally in isolation, without the necessary resources or professional assistance to be able to properly scrutinise the development application within the short time scale provided to respond. In reality, the developers prevail practically every time on the uneven playing field of town planning in Hong Kong," he says.

"The ordinance which purports to advance and protect the community interests, in fact, gives to the developers the weapon and the means to destroy the protection of community interests."

Mr. Waung says it is incumbent on the TPB to protect the community's interest since, under the statutory scheme, only the developer applicant has the right of review and appeal to the Appeal Board. Objectors do not have a right of appeal.

[SCMP, 28/08/2014]

### **Draft Sha Tin Outline Zoning Plan approved**

The Chief Executive in Council has approved the draft Sha Tin Outline Zoning Plan (OZP) which provides a statutory land use planning framework to guide development and redevelopment in the Sha Tin area.

The planning scheme area covers approximately 2,777 hectares. Its inner core is located at the bottom of the Sha Tin Valley, which is separated from Kowloon by a range of hills dominated by Lion Rock and Sugar Loaf Peak. Ma On Shan lies to the north-east of the planning scheme area.

Approximately 984.93 hectares are zoned "green Belt" to restrict urban and suburban development areas by natural features, to contain urban sprawl and to provide passive recreational outlets.

Whilst approximately 249.27 hectares are zoned "Residential (Group A)" to develop high-density residential, approximately 193.39 hectares are zoned "Residential (Group B)" to develop medium-density residential.

An area of approximately 296.7 hectares is zoned “Government, Institution or Community” for the provision of government, institution or community facilities; and approximately 253.97 hectares are zoned “Open Space” to provide outdoor open-air public space for active and/or passive recreational uses for local residents and general public.

An area of approximately 190.3 hectares is zoned “Village Type Development” for designating both existing villages and areas of land for village expansion. Approximately 205.17 hectares are zoned “Other Specified Uses” for railway station and railway depot development, business, cemetery and columbarium proposes.

[Press Releases, Town Planning Board, 05/09/2014]

## WEST KOWLOON CULTURAL DISTRICT

### Concept Design for future park revealed

A place full of artistic, cultural and recreational wonder is about to be born in the West Kowloon Cultural District (“WKCD”). The West Kowloon Cultural District Authority (“WKCDA”) has revealed a concept plan for the future park in the WKCD.

It is envisioned that the Park will create a quality green open space at the heart of its urban city. It will become a waterfront park which will entertain its visitors with open-air performances and cultural programmes. The Park was conceived by an international team of experts and an international award-winning design consultant. The design team has been working closely with the WKCDA since their appointment in February 2014.

It is expected that the design will provide spaces for creative programming of all genres. The main attractions of the Park consist of an Arts Pavilion, a Black Box and an Outdoor Stage, and a large flexible-use lawn area in the western area of the Park capable of accommodating over 10,000 standing visitors. The extension of the Park will run through the heart of the District. The team of experts who work alongside WKCDA is hoping to achieve a brand new public space devoted to the promotion and enjoyment of arts and culture for our busy metropolis.

In the past two years various events such as the West Kowloon Bamboo Theatre, Mobile M+: INFLATION!, Clockenflap, BloHK Party and Freespace Fest were held at the Park site. These events are important to the development of the WKCD as they paved the opening of the major venues and encouraged a greater engagement with the District’s arts and culture. Earlier this year, the first automated bicycle rental system in Hong Kong was also installed on the Park site.

[West Kowloon Cultural District Newsroom news, 22/07/2014]

### Freespace performances

The WKCDA has presented two programmes, namely *Decade* and *Take a Swing*, leading up to the commissioning of Freespace (an unconventional performance facility (scheduled for completion in 2016) at the WKCD. Apart from allowing the public to have fun, the programmes also gave the public a rare opportunity to take part in creating masterpieces of their very own.

An interactive online platform of *Decade* was launched on 7 July 2014, having being presented and produced by the WKCDA and co-curated by Fieldwork Productions and the Hong Kong Film Archive. This digital project featured ten 5-minutes historical films paired with ten new solo Chinese and Western instrumental soundtracks composed and performed by ten local musicians. Each piece of artwork, consisting of both music and film, is unique, in the sense that they represent a Hong Konger’s history from 1898 when Thomas Edison took the first moving image of Hong Kong to the glimpse of modern urban days.

The online platform of *Decade* interacts with its audiences by allowing them to create their own digital masterpieces simply rearranging the film clips and music accompaniments. The Head of Artistic Development (Theatre) of WKCDA said *Decade* is one of WKCDA’s pre-opening projects which involve the collaborative effort of the curators, musicians and the wider public to make art in a collective fashion. Anyone can create their own unique version of *Decade* and share it with others online.

The other programme which the WKCDA presented is *Take A Swing*. As Hong Kong’s first free outdoor live music and street dance event and the second programme of the Freespace Series, *Take a Swing* is a performance featuring a combination of live funk, neo- soul music and street dance performed at the Yau Ma Tei Community Centre Rest Garden on 26 July 2014. On the evening of the event, the garden was transformed into a Cantonese Disco Party with DJ mix featuring the best records of the 70s to 90s Canto-pop music.

*Take A Swing* was an attempt to explore the relationship between contemporary performing arts and the community outside WKCD. It was a collaboration between pop musicians, DJs, street dancers and community members of all ages.

[West Kowloon Cultural District Newsroom news, 07/07/2014]

## HONG KONG BRIEFING

### Marine vessels cause air pollution

Ocean-going vessels are Hong Kong’s number one pollution source. They are like moving power plants. Over 30% of PM10 and over 50% of SO2 in Hong Kong come from marine vessel emissions, according to latest figures from the Environmental Protection Department.

Clean Air Network has created an animation in order to raise the public awareness on the issue, and to urge both Hong Kong and Guangdong governments to set up an emissions control area (ECA) in the Pearl River Delta, along with an array of measures to reduce air pollutants and protect public health.

[CAN Newsletter, 26/08/2014]

### New marine parks proposed

The Agriculture, Fisheries and Conservation Department (AFCD) has announced a plan for the designation of Southwest Lantau Marine Park and Soko Islands Marine Park.

The proposed marine parks off Southwest Lantau and Soko Islands cover about 660 hectares and 1 270 hectares of waters respectively. These waters are major habitats for Chinese white dolphins and finless porpoises. Designating the waters as marine parks is conducive to the long-term conservation of the local marine environment.

Since 2000, the government has been implementing a conservation programme for Chinese white dolphins in Hong Kong through management, public education, research and cross-boundary co-operation.

Recently, the public showed their concern over the protection of Chinese white dolphins. In response to this, the government aims to proceed with the designation plan expeditiously in order to enhance and support the Chinese White Dolphin Conservation Programme administered by the AFCD. The overall long-term goal of the programme is to enable Chinese white dolphins to continue to use Hong Kong waters as part of their population range and to enhance the continued survival of Chinese white dolphins' population inhabiting the Pearl River Estuary.

As regards the Southwest Lantau Marine Park and Soko Islands Marine Park, the AFCD has been conducting patrols and dolphin surveys in these waters to collect information for the designation of the proposed marine parks. The AFCD has also been consulting with different interested groups, including fishermen and the local community.

The AFCD will continue working on the earlier preparatory work and will have further discussions with various stakeholders. The department will launch another round of public engagement in 2015 and take other necessary steps to complete the statutory procedure for the designation by early 2017.

The AFCD will consult the Country and Marine Parks Board on the draft maps at a suitable time before they are gazetted for public inspection in accordance with the statutory process under the Marine Parks Ordinance.

[Press Release, Agricultural, Fisheries and Conservation Department, 01/09/2014]

### **Food Wise Hong Kong Campaign to promote food waste reduction**

The Secretary for the Environment officiated at a launch event for the Food Wise Hong Kong (FWHK) Campaign roving exhibition and related district activities. The Campaign aims to further promote food waste reduction at the district level and bring a "Food Wise" culture to the whole community.

"A Food Waste & Yard Waste Plan for Hong Kong" was unveiled at the launch ceremony. It outlines the current situation of food waste and yard waste in Hong Kong. It also maps out a future direction for the public to tackle waste problems using a multi-pronged approach, including the target of reducing food waste by 5 to 10 per cent by 2018. All sectors are called on to collaborate in food waste reduction.

In the launch ceremony, the Secretary for the Environment also presented certificates of appreciation to award-winning tenants involved in the Food Waste Reduction Pledge scheme organised by MTR Malls to commend their efforts in implementing food waste reduction plans and reducing food waste by 15 per cent or more over the year.

Since the launch of the FWHK Campaign, a series of promotional activities have been organised to encourage households and different sectors and industries to value food and reduce food waste. The Campaign will continue to hold different district activities, such as: roving exhibitions; community engagement events; food donation; and collaboration with relevant sectors in order to deepen the awareness of members of the public and organisations on the issue.

The FWHK Campaign will stage 10 roving exhibitions in various districts from September. It aims to bring the message of food waste reduction to the local community and to encourage the public to reduce food waste at source. Apart from the exhibitions, the Campaign will also organise district activities and join different housing estates to encourage residents to participate in the Food Wise Ambassador Scheme and other waste reduction activities.

The first roving exhibition will be held on the ground floor of Telford Plaza I. There will be various display panels showing food waste reduction tips and highlighting the efforts and achievements of organisations from various sectors, such as housing estates, schools, food premises and food donation organisations.

The FWHK Campaign encourages behavioural changes in the community through various food waste reduction programmes, including the Food Wise Charter, the FWHK Ambassador Scheme and a series of promotional and educational activities. There are over 370 organisations which have signed the Food Wise Charter and pledged to put into practice food waste reduction measures in their daily operations. The FWHK Campaign encourages relevant industries to sign the Food Wise Charter proactively and to make efforts to reduce food waste. About 1,300 Food Wise Ambassadors have received training and have assisted in spreading the Food Wise message throughout the community.

Apart from reducing waste at source, food donation is one of the important measures promoted by the FWHK Campaign. Donations of unwanted food achieves the dual purposes of caring for the community and reducing waste. The government has earmarked HK\$100 million in the Environment and Conservation Fund (ECF) for financing approved organisations to implement projects on waste reduction, of which one-third will be allocated to projects relating to food waste treatment and reduction. At the same time, the ECF has set aside \$50 million for food waste recycling projects at housing estates.

[Press Release, Environmental Protection Department, 18/09/2014]

## **ADVISORY COUNCIL ON THE ENVIRONMENT (ACE)**

Summary of the paper discussed in the 127<sup>th</sup> Meeting of the Advisory Council on the Environment held on 21 July 2014:

1. The Environmental Impact Assessment Subcommittee (EIASC) considered the EIA report on "Tai Shue Wan Development at Ocean Park" (the Project) under Section 6(2) of the *Environmental Impact Assessment Ordinance* (EIAO) on 23 June 2014.
2. Members were asked to consider the opinions of the EIASC and advise on the way forward for handling the EIA report.
3. The existing Tai Shue Wan theme park of Ocean Park, with facilities such as Middle Kingdom, Aviary, Bird Paradise Pond and Flamingo Pond, was closed in January 2011. The Ocean Park Corporation (the Applicant) has proposed constructing and operating a new Water Park at the Tai Shue Wan site, which is planned to be opened in mid- 2017.
4. The applicant advised that the Project is necessary to meet increasing popularity of Ocean Park and to enrich the overall tourism appeal of Hong Kong. The Project will also attract family visitors from the Mainland and Hong Kong.
5. The major environmental benefits with the Project in place will include:
  - (i) improved landscape, visual appearance and environmental setting of the Tai Shue Wan area;
  - (ii) promotion of the use of environment friendly designs.

6. The Director of Environmental Protection (DEP) and other relevant authorities believe that the EIA report has met the requirements of the EIA Study Brief and the Technical Memorandum of EIA Process. In deciding whether to approve the EIA report under the EIAO, DEP will take into consideration comments from ACE and the public.
7. EIASC agreed to recommend that the full Council endorse the EIA report with conditions and recommendations as set out below.
  - (i) In the first phase of the construction, the Applicant shall develop the Ecological Enhancement Area at the southwestern end of the project site for the purpose of establishing an alternative roosting site for ardeids and other wild birds in order to improve the overall ecological benefits of the Tai Shue Wan Development.
  - (ii) Although there will be a condition requiring submission of the Woodland Compensation Plan to be approved by DEP, it is suggested that the Applicant should advise the Director of Agriculture, Fisheries and Conservation and set out the reasons for choosing flora species to be used in the Woodland Compensation Plan. The purpose of such plantings is to provide better quality and more diversified secondary woodland areas within the project site.
  - (iii) The applicant should provide favourable conditions and settings in the Ecological Enhancement Area for ardeids to roost once construction work at the project site has been completed.
  - (iv) The applicant should improve the green design of the Project, such as the use of non-reflective materials to reduce glare and adoption of an earth-tone colour scheme to allow buildings and facilities to blend well with the surrounding natural environment.
  - (v) The applicant should cooperate with the Water Supplies Department to implement water saving measures to be used at the project site.
  - (vi) The applicant is encouraged to pursue the opportunity to incorporate programmes on nature conservation in the overall design of the Project for public education purpose.
  - (vii) The applicant should introduce green transportation within the site, such as the use of electric vehicles for a guest shuttle service.

## CLIMATE CHANGE

### Atlantic Ocean soaks up heat to slow global warming

The pace of warming at the level of the earth's surface has slowed since about 1998. This puzzled climate scientists because the slowdown conflicted with data showing rising greenhouse gas emissions during the same period, especially from emerging economies, led by China and India. Recently, scientists stated that they believed that the occurrence of this phenomenon was due to the Atlantic Ocean masking global warming by soaking up vast amounts of heat from the atmosphere in a shift likely to reverse from around 2030, which will then spur fast temperature rises

A study published in the journal *Science* suggested that the Atlantic was the driver of the hiatus. An Atlantic current carrying water north from the tropics sped up this century and sucked more warm surface waters down to 1,500 metres, part of a natural shift for the ocean that typically lasts about three decades. But, a change in salinity levels may have caused more heat to be transferred to the depths. The author of the study believed that a return to a warmer period, releasing more heat stored in the ocean, was likely from 2030.

Several previous studies have suggested that the larger Pacific Ocean was the likely site of the "missing heat" from man-made greenhouse gases, perhaps linked to a series of La Nina cooling events in the Pacific in recent years. Other suggestions for the slowdown in warming have included a rise in industrial pollution that is blocking sunlight. Some scientists are studying how and if these ideas are connected with the Atlantic theory.

According to the estimation of the United Nations, even though global warming has slowed, 13 of the 14 warmest years on record have been this century. Almost 200 governments aim to agree on a deal to combat climate change at a summit in Paris late next year. Delegates will discuss whether there is an urgent need for an immensely expensive shift from fossil fuels to renewable energies.

[SCMP, 22/08/2014]

### Greenhouse gas levels rising at fastest rate since 1984

In measuring concentration of the warming gases in the atmosphere, the *Greenhouse Gas Bulletin* of the World Meteorological Organisation (WMO) measures the amount of warming gases remaining in the atmosphere following the complex interactions that take place between the air, the land and the oceans instead of measuring emissions from power station smokestacks.

According to the *Greenhouse Gas Bulletin's* new figures, even though about half of all emissions are taken up by the seas, trees and living things, the globally averaged amount of carbon dioxide in the atmosphere reached 396 parts per million (ppm) in 2013, an increase of almost 3ppm over the previous year. It shows that, far from falling, the concentration of carbon dioxide in the atmosphere actually increased last year at the fastest rate for nearly 30 years.

The WMO believed that it is crucial that we reverse the trend of rising greenhouse gas levels by cutting emissions of CO<sub>2</sub> and other greenhouse gases. The latest figure highlights the need for a global climate treaty. However, the United Kingdom's energy secretary said that any such agreement might not contain legally binding emissions cuts, as has been previously envisaged.

On the other hand, since global average temperatures have not risen in concert with the sustained increase in CO<sub>2</sub>, it leads to some claiming that global warming has paused. However, the reason for the slowdown of the global average temperatures is that the climate system is neither linear nor straightforward. The heat is actually going in the oceans. WE need to be looking at the temperature profile of the oceans instead of considering only atmospheric temperatures.

Apart from the emission of greenhouse gases in the atmosphere, the *Greenhouse Gas Bulletin* suggested that in 2013 the increase in carbon dioxide was also due to a reduced carbon uptake by the Earth's biosphere. The last time there was a reduction in the biosphere's ability to absorb carbon was 1998, when there was extensive burning of biomass worldwide, coupled with El Nino conditions. However, in 2013, there were no obvious external impacts on the biosphere. Therefore, the increase in carbon is more worrying, in particular when scientists are not certain whether this is a temporary or permanent state. Indeed, the biosphere may have reached its limit.

The *Greenhouse Gas Bulletin* includes data on the acidification of the seas caused by carbon dioxide for the first time. According to the WMO, the oceans take up about four kilograms of carbon dioxide per person every day. It believes the current rate of acidification is unprecedented over the last 300 million years.

The above evidence of the atmosphere and oceans reveals the need for urgent and concentrated political action to tackle the problem. With knowledge and tools, we can take action to try to keep the increase in temperature within 2C (by the end of this century) to give our planet a chance and to give our children and grandchildren a future. It is hope that the United Nations and the world's political leaders will be able to reach a more ambitious legally binding agreement over the emission of greenhouse gases and to start a massive transition to low carbon energy production around the world.

[BBC News, 09/09/2014]



## Ozone layer showing 'signs of recovery'

A report from the United Nations (UN) shows that there are early signs of thickening in the ozone layer after years of depletion. The ozone hole that appears annually over Antarctica has also stopped growing. Scientists believe that such recovery is entirely due to the political determination in phasing out the man-made chlorofluorocarbons (CFCs) gases which destroy the ozone layer.

According to *UN Environment Programme* (UNEP), the 1987 Montreal Protocol that banned or phased out ozone-eating depleting chemicals, including CFCs once widely used in refrigerators and spray cans, will prevent approximately two million cases of skin cancer annually by 2030. It will also help preventing damage to wildlife, agriculture, peoples' eyes and immune systems.

World Meteorological Organization (WMO) believes that international action on the ozone layer is a major environmental success story. This should encourage the world to display the same level of urgency and unity in tackling climate change, which is an even greater challenge.

However, tackling a gas like carbon dioxide, which is central to so many facets of human life, is of a completely different order to reducing a few chemicals for which substitutes can be found, which is well illustrated by the fact atmospheric greenhouse gases have reached a record high recently.

[BBC News, 10/09/2014]

## REGIONAL & INTERNATIONAL

### CHINA

#### Sulphur plant contaminates fresh water

More than 50,000 villagers near Chongqing were deprived of fresh water as traces of a chemical compound from a sulphur processing plant were released into a reservoir in Chongqing, Wushan county.

The pollutant chemical compound is sodium ethyl xanthate. This compound is frequently used in the mining industry, and repeated exposure to this chemical can cause damage to a person's central nervous system, liver and kidneys.

A local resident of the Miaoyu township reported that the water in the reservoir appeared to be grey and had a strong smell. Wastewater that smelled like chemicals was seen pouring into the reservoir through a 1.5 metre-wide drainage pipe.

The China News Service also reported that the iron level contained in the water sample collected from the reservoir was more than 30 times higher than the national safety standards.

As a result of the contamination, water supply to four townships was suspended and the reservoir was sealed to stop the spreading of the contamination to other water sources. The sulphur plant which was allegedly responsible for this incident was also shut down and an investigation was carried out by the local authorities.

Residents of the Miaoyu township had not been informed as to why the township's fresh water supply had stopped.

[SCMP, 08/08/2014]

#### Guangdong pollution reports not fully disclosed

Two Hong Kong funded air pollution studies in the Pearl River Delta region have not been fully disclosed to the public in Guangdong. According to Guangdong authorities, full disclosure of these studies was forbidden on the ground that "confidential information" they contained would be available to the public.

Reports of the studies provided a scientific basis for setting new cross-border environmental protection targets for emissions cuts for 2015 and 2020 and for enhancing the air-quality monitoring network. The reports of the studies were filed with the commissioning body, the Environmental Protection Department, in June 2011. However, it was only in May this year that the summary reports, of 11 and 15 pages, were discreetly uploaded by the department to its website.

According to a department spokesman, Hong Kong had a binding agreement with Guangdong not to release the reports, which allegedly contained confidential information collected in the economic zone of Pearl River Delta.

A spokesman for the Guangdong Environmental Protection Bureau claimed that the prohibition was necessary, on the basis that the reports contained data about some enterprises which should not be revealed to the public. Instead, it published a simplified version of the necessary findings from the study.

However, a Democratic Party lawmaker in Hong Kong claimed that there was no justification for holding back the reports, which were already three years old. Further, without the full report, it would be difficult to monitor the government's policy decisions and measures, or to assess them.

Nonetheless, the Green Power chief executive was of the view that Hong Kong and Guangdong might be overacting about the reports, as there had not been any findings about emissions from a particular power plant.

On a brighter note, since the mainland has increased its commitment to fighting air pollution, many cities that once classed air-quality data as confidential were now willing to reveal their monitoring data, even on a real-time basis.

[SCMP, 14/07/2014]

### AUSTRALIA

#### Spider increases in size in urban habitat

A peer-reviewed scientific journal published by the Public Library of Science (NSW) has recently published a study which reveals that a specific type of orb-weaver spider living in the urban areas of Sydney is growing bigger and reproducing more than its rural counterparts.

According to researchers at the University of Sydney, this phenomenon is due to the combination of hotter temperatures -- known as the "heat island effect" -- and abundant food sources in cities for the species *Nephila plumipes*, one of the 10,000 orb-weaver spider species found mainly in the Asia Pacific region and across the east coast of Australia.

This particular species of spider belongs to a spider family renowned for their circular webs, members of which are common in all parts of the world, making up around 25 per cent of total spider species.

For the study, 222 golden orb-weaver spiders were captured in various environments throughout Sydney. Scientists observed how their physical characteristics -- such as leg size, ovary size and overall body weight -- changed with increasing levels of urbanisation (measured in factors such as paved surfaces and distance to city centre).

Despite the fact not all city dwellers welcome these eight-legged crawlies in their homes, the increase in size of the urban spiders is actually a positive phenomenon. The golden orb-weaver is responsible for making sure insect populations are well controlled and they are an essential food source for birds in our urban environments.

[*The New Zealand Herald*, 22/08/2014]

## NEW ZEALAND

### Shark finning ban brought forward

Despite the fact over one-third of the world has already banning the practice of shark finning, the current position in New Zealand as of today is that it is still legal to kill a shark only for its fins, and to then dump the body at sea. However, this will change from 1 October this year.

An announcement was made by the Conservation and Primary Industries Ministers on 20 August 2014 accelerating the ban than which was originally anticipated to apply from 1 October 2015 (all finning banned with the exception of blue sharks) and 1 October 2016 (finning banned for all sharks). The bringing forth of the ban was a response to the uproar of conservation groups in reaction to the original timelines.

It is believed that the ban will not only bolster New Zealand's strong international reputation for sustainability and protection of the natural environment, it will also assist in protecting a total of 113 species of sharks in the waters of New Zealand.

According to the current *Animal Welfare Act* of New Zealand, it is already an offence for any persons to remove the fin from a shark and return it to the sea alive. This upcoming ban will further criminalise the removal of a shark's fin dumping its carcass at sea.

The Ministry of Primary Industries is of the view that the ban will effectively eliminate shark finning in New Zealand, but assured the public that no undue impacts will be caused to local fishing operations.

The ban will be monitored on an ongoing basis and management arrangements will be refined in the future if necessary.

[*The New Zealand Herald*, 20/08/2014]

## GERMANY

### New coal power stations threaten EU's emissions target

Excavators were deployed at the Garzweiler open-pit coal mine at Jackerat, near Bergheim, as new coal power stations were set up for burning Europe's massive deposits of lignite, also known as "brown coal".

The project was met with protests from 7,500 Greenpeace protestors, who formed themselves into a large human chain across the German-Polish border on 27 August 2014 to express their dissatisfaction with the new lignite mining projects.

Lignite is an essential part of the world's energy supply. Lignite consumption in Europe remained stable since the late 1990s but due to the rise in gas prices and cuts to nuclear power in Germany, the demand for lignite began increasing in the past few years.

CO<sub>2</sub> emitted from the burning of lignite makes up to more than 10% of the European Union's total CO<sub>2</sub> emissions. Greenpeace says Europe must stop harvesting more than 10% of the carbon contained in its lignite reserves in order to continue playing its part in keeping the world within the internationally accepted limit of 2C of warming by the end of the century.

After compiling the relevant data from the Germany government, analysts from Greenpeace's Energydesk warned that burning of Europe's reserves of lignite would wipe out the EU's entire carbon budget from 2020 until the end of the century.

Notwithstanding Greenpeace's warning, lignite-fuelled power stations are still being built. There are 19 such facilities in various stages of approval, planning or construction in various countries. Figures from Greenpeace show that these new projects alone would emit almost 120 billion tonnes of CO<sub>2</sub> every year.

However, an energy sector economist at the Ecologic Institute in Germany stated that the continued burning of lignite would not represent an immediate threat to carbon targets since the net emissions of CO<sub>2</sub> will not increase. Where more power plants are being set up, they will have to compensate by purchasing emissions allowances from other sectors and therefore the net CO<sub>2</sub> emission will remain unchanged.

[*The Guardian*, 27/08/2014]

## USA

### Haboob attack

The term *haboob* (a dust storm) refers to a grand tsunami of sand so large in volume and swift in speed that it is incapable of being stopped or outran. The Arabic term "haboob" itself translates to "blowing", describing what it would feel like when the sky darkens and thick waves of dust swallow towns and cities.

A major dust storm struck Palm Springs, California in late August 2014, turning daytime into night. A driver at the time said the visibility for driving was less than 20 feet.

Dust storms strike when there is a strong wind moving out from a thunderstorm into an area where there is ample dust lying around. An accumulation of a moist coat of dust on tables, walls and floor would result from a dust storm strikes, regardless of the size of the storm or whether the windows and doors are tightly shut.

Coping with haboobs is a way of life in Southwest United States of America. Although it is difficult to be prepared for dust storms, as they strike with little warning, this is not to say that nothing can be done. Whenever dust storms strike, the public is advised to stay in their vehicles, reduce their speed, and get completely off the roadway as far as they can go. Drivers are also advised to turn off their hazard lights and any other lights in their car to avoid other drivers following their lead, thinking that they are driving along the road when in fact the vehicle had already stopped.

In order to remind drivers of the appropriate dust storm handling practice, the Transportation Department of Phoenix had come up with safety tips in creative ways and through non-traditional channels, such as to mix an ancient form of poetry with a dust storm safety message. It is expected that such innovative hazard prevention messages will be effective and linger in the readers' minds.

[*The New York Times*, 29/08/2014]

## UKRAINE

### Status of Crimea's natural reserves uncertain

Environmental Law Alliance Worldwide partners in Ukraine are concerned about the fate of protected natural areas in Crimea. "The status of Charivna Havan National Park, Yalta Mountain Forest Reserve, Cape Martyan Reserve, and three other natural reserves is uncertain," says Olena Kravchenko, Executive Director of Environment-People-Law, based in Lviv, Ukraine.

Olena explains: "The situation is complicated. These are lands owned by Ukraine, which has the right and obligation to protect them, but we keep receiving reports that rich Russians are turning parts of these parks and reserves into private estates. However, there is no possibility to handle these territories properly at present because of Russia's illegal occupation of Crimea."

Olena and her staff at EPL have worked for years to protect the environment through law in Ukraine. EPL was founded by the late Professor Svitlana Kravchenko, a world expert on human rights and the environment. EPL has a staff of 13.

Whilst worried about the situation in Crimea, EPL recently celebrated a court order returning to public use similar state-owned, protected lands near Kyiv that the country's ex-President Viktor Yanukovich had closed off for his private hunting.

"This is one of the first decisions in Ukraine that returns illegally expropriated state property to the public," says Olena. "Recreation areas must be accessible by the public and not passed to private hands."

[*ELAW press release*, 20/08/2014]

## MEXICO

### Victory for Riviera Maya

An important environmental victory was recently announced on ABC News as follows:

"Mexican environmental authorities have levied a \$555,000 fine against a project to build a massive trade center south of Cancun to showcase Chinese products. The Attorney General for Environmental Protection said late Thursday the fine was for building roads through wetlands and affecting coastal ecosystems without authorization."

"The communities are saying enough is enough with out-sized development on the coast," says Alejandra. "This fine is a good first step. Our case is pending and we hope the Ministry of Environment will apply the new law of environmental responsibility and follow up on the criminal acts exposed in this case."

Last year, ELAW Staff Scientist Meche Lu reviewed the project's Environmental Impact Assessment (EIA) and revealed that the EIA lacked information about the scope and size of the project, the location of coastal wetlands within the project area, the impact of paving on the water quality of coastal wetlands, and more.

[*Elaw press release*, 28/08/2014]

## INDIA

### Increasing volumes of plastic waste in Himalayas

Piles of biodegradable plastic can be found just 4 kilometres from Shimla in the forest reserve of Lalpani. The amount of plastic and other bio-degradable waste in the Himalayas is growing at an alarming rate, causing serious damage to the Himalayan ecosystem. The build-up of waste in the Himalayas is an accumulation of the litter dumped by trekkers and tourists.

The Himachal Pradesh government realised the problem and on 2 October 2009, the use, storage, sale and distribution of all polythene bags was banned. On 2 October 2011, a blanket ban was imposed on the use and storage of non-biodegradable disposable plastic cups, plates and glasses. Violators will be fined up to Rs 5,000 for breaches of the new regulations. Despite the effort of the government to legislate against littering in the Himachal area, the new laws, with weak enforcement, have proven to be futile against litterers.

The littering problem is a serious one; not only does it create a negative image for Himachal tourism, but also, the effect caused by the litter can be rather dangerous and life threatening. As biodegradable waste absorbs heat, the waste exacerbates the effect of global warming and raises overall temperatures in the mountains. This in turn results in the melting of glaciers and creating of glacial lakes, posing the threat of glacial lake outburst flood (GLOF) in the future. This is basically a "water bomb" for the population living downstream.

According to a senior scientist at G B Pant Institute of Himalayan Environment and Development, Mohal in Kullu, in 2005, non-biodegradable waste amounted to 16.9% of the total waste in Manali and 34.8% in Kullu in Himachal Pradesh. In and around the Valley of Flowers and the Pindari valley in Uttarakhand, such waste comprised 84.5 and 66.4% of the total generated waste.

These results highlight the fact that the concentration of non-biodegradable wastes is much higher in trekking and expedition trails than the down-slope hill areas. The numbers have even increased since then.

There are 127 glacial lakes of different sizes in the Uttarakhand Himalayas, amounting to a total area of around 75 square kilometres. There are a total of 12 hydropower projects in Uttarakhand, with an installed generation capacity of 1280 mega watts which rely on the glacial lakes. It is essential for these glacial lakes to be regularly monitored to safeguard the power projects in the country.

[*The Times of India*, 28/08/2014]

### **Coke backs down**

A long-fought battle to protect the water supply of MehdiGANJ was won last week when Coca-Cola abandoned its newly built, expanded bottling plant near Varanasi, India. Hindustan Coca-Cola Beverages Private Ltd., a subsidiary of the Atlanta-based Coca-Cola Company, had sought to increase its groundwater use by five-fold, in spite of local communities suffering acute water shortages since the plant set up operations in 1999.

ELAW partner Amit Srivastava at the India Resource Center said:

*“It is absolutely reprehensible for a globally recognized company like Coca-Cola to seek further groundwater allowances from an area that has become acutely water-stressed, and that in large part due to its own mining of groundwater.”*

ELAW Staff Scientist Mark Chernaik worked with Amit to analyze the company’s water extraction plans for the bottling plant’s expansion.

*“Local farmers depend on open wells, hand pumps, and bore wells,”* says Mark. *“The area is already at risk of prolonged drought and these community water sources dry up first. Company plans failed to analyze how extracting 2.5 million cubic liters/day would impact the already fragile water table.”*

[*Elaw press release*, 04/09/2014]

## **WORLD**

### **Smartphone app warns user of local air pollution**

Smartphone app developers worldwide are working to develop an app which will inform its user of the level of air pollution, down to the street level. With the app, the user can pinpoint herself on a map, view relative levels of pollution in nearby areas to pick out the ‘cleanest’ route and so avoid highly polluted streets. The app will draw data from government sensors and weather reports.

In fact, such an app has already been developed in Israel for Android users. It uses wind direction, wind speed, weather information and other relevant factors to calculate air pollution in the user’s area, based on the GPS location of the user fixed via his smartphone. The developers say this app is capable of showing levels of air pollution, down to street level.

An English version has already been released by the developers. It is planned that the app will be made available in California, followed by the rest of the US, China, and other countries.

IBM has made a similar move on the mainland this summer, where it announced a partnership with the Beijing municipal government and created maps showing trends and severity of air pollution in China, accurate down to street level.

[*SCMP*, 01/09/2014]

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**Convictions under environmental legislation: July to September 2014 (October 2014 data not available)**

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

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

***July 2014***

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

Eleven of the convictions were under the Air Pollution Control Ordinance, 6 under the Noise Control Ordinance, 4 under the Waste Disposal Ordinance and 1 under the Water Pollution Control Ordinance.

The heaviest fine in July was \$40,000, assessed respectively against two companies that imported controlled waste without a permit.

***August 2014***

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

Six of the convictions were under the Air Pollution Control Ordinance, 11 were under the Noise Control Ordinance, 17 were under the Waste Disposal Ordinance and 5 were under the Water Pollution Control Ordinance.

The heaviest fine in August was \$20,000, assessed respectively against a person who deposited waste unlawfully and a person who discharged waste/polluting matter into the water control zone.

***September 2014***

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

Nine of the convictions were under the Air Pollution Control Ordinance, 8 were under the Noise Control Ordinance, 11 were under the Waste Disposal Ordinance and 1 was under the Water Pollution Control Ordinance.

The heaviest fine in September was \$20,000, assessed respectively against three companies that used powered mechanical equipment otherwise than in accordance with permit conditions, and a company that carried out prescribed construction work not in accordance with the conditions of a construction noise permit.

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