

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

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*In keeping with the healthy rivers theme of the March edition of the UPELQ, this edition provides an overview of the serious degradation of most of China's river systems due to pollution, in one form or another.*

*The Editors*

## CONTENTS

FEATURE:	Page
THE STATE OF CHINA'S RIVERS .....	1
TOWN PLANNING.....	4
DIGEST OF LEGISLATION.....	5
WEST KOWLOON CULTURAL DISTRICT (WKCD).....	6
HONG KONG BRIEFING	6
ADVISORY COUNCIL ON THE ENVIRONMENT (ACE).....	7
CLIMATE CHANGE.....	9
REGIONAL & INTERNATIONAL.....	12
PROSECUTION STATISTICS.....	18

### THE STATE OF CHINA'S RIVERS

#### *China's rivers and lakes*

A brief official description of China's vast freshwater systems-- its rivers and lakes - (although we are principally concerned here with rivers) was provided by The State Council Information Office of the People's Republic of China in April 2017.

*China abounds in rivers. More than 1,500 rivers each drain 1,000 square kilometres or larger areas more than 2,700 billion cubic meters of water flow along these rivers, 5.8% of the world's total. Most of the large river find their source in the Qinghai-Tibet Plateau, and as a result China is rich in waterpower resources, leading the world in hydropower potential, with reserves of 680 million kilowatts.*

*China's rivers can be categorised as exterior and interior systems. The drainage area for the exterior rivers that empty into the oceans accounts for 64% of the country's total land area. The Yangtze, Yellow, Heilongjiang, Peral, Liaohe, Haihe and Lancang rivers flow east, and empty into the Pacific Ocean, boasts the Grand Yarlunzangbo Canyon, the largest canyon in the world, 504.6 kilometres long and 6,009 meters deep. The Ertix River flows the Xinjiang Uygur Autonomous Region to Arctic Ocean. The drainage area for the interior rivers that flow from into inland lakes or disappear into deserts or salt marshes make up 36% of China's total land area. The Tari River, 2,179 kilometres long, in southern Xinjiang, is China's longest interior river.*

*The Yangtze River is the largest river in China, and the third longest in the world, next only to the Nile in northeast Africa and the Amazon in South America. It is 6,300 kilometres long, and has a drainage area of 1,809 million square kilometres. The middle and lower Yangtze River's warm and humid climate, plentiful rainfall and fertile soil make the area an important agricultural region. Known as the "golden waterway", the Yangtze River is a transportation artery linking west and east.*

*The Yellow River is the second largest river in China, 5,464 kilometres in length, with a drainage area of 752,000 square kilometres. The Yellow River valley was one of the birthplaces of ancient Chinese civilization. It has lush pastureland and abundant mineral deposits.*

*The Heilongjiang River is north China's largest. It has a total length of 4,350 kilometres, of which 3,101 kilometres are within China. The Pearl River is the largest river in south China, with a total length of 2,214 kilometres.*

*In addition to those endowed by nature, China has a famous man-made-river- the Grand Canal running from Beijing the north to Hangzhou in the south. Construction work of the Grand Canal first began as early as in the fifth century BC. The Canal flows past Beijing, Tianjin, Habel, Shandong, Jiangsu and Zhejiang and links five major rivers – the Haihe River, Yello River, Huaihe River, Yangtze River and Qiantangjiang River. With a total length of 1,794 kilometres and a drainage area of 4,583 square meters, the Grand Canal is the longest as well as the oldest man-made waterway in the world Topography.*

Alongside of abundant rivers, China also has lots of lakes. There are more than 2,800 natural lakes, each having a surface area of over one square kilometres, and over 130 lakes, each coving more than 100 square kilometres. There are also a large number of artificial lakes (reservoirs). With different salt content, the lakes are classified as saltwater and freshwater lakes. Large lakes are mainly distributed in the middle and lower reaches of Yangtze River and on the Qinghai-Tibet Plateau. The Boyang Lake in the south of the Yangtze River is the largest freshwater lake in China while the Qinghai Lake on the Qinghai – Tibet Plateau is the largest saltwater lake. Determination of river water quality according to Adolfo Arranz (SCMP Information, 16/6/2020).

However, the ecological condition of China's freshwater sources is not good and faces increasing challenges. The State Council noted:

*China is home to one of the world's greatest ecological challenges: how to stop the rampant deviation of the rampant degradation of its rivers system. Rapid industrialisation has led to unprecedented transformation of the environmental. River premonition and pollution are affecting a vital resource and threatening thousands of species whose survival depends on river water.*

#### *Deterioration of river water quality*

According to one researcher, Adolfo Arranz (SCMP Info graphic, 16/6/20):

*China is home to one of the world's greatest ecological challenges: how to stop rampant deterioration of the country's river arteries. Rapid industrialisation has led to unprecedented transformation of the environment. River fragmentation and pollution are affecting a vital resource and threatening thousands of species whose survival depends on river water.*

Arranz says most urban and industrialised regions have heavily polluted (river/lake) water. His research concluded that of the 14 river basins rivers investigated, only one, in the Northwest, was 100% fit for human use – and even it was on the margin of being declared unfit for use. The others were to varying degrees unfit for human use: e.g. Lake Tai Basin – 75%; Southeast Basin - 25%.

Water pollution is a persistent problem in China, in part, because local governments fail to implement water quality standards set by the national government and fail to implement water quality standards set by national and provincial authorities. These higher authorities often lack regular information about the immediate and long-term achievements of remediation targets. Accordingly, central authorities have encouraged non-governmental organisations to monitor local governments' remediation efforts.

#### *Addressing river water pollution*

According to Proceedings of National Academy of Sciences of the USA (PNAS,12/7/2021), approximately 70 % of China's rivers and lakes are unsafe for human use.

It is recorded in PNAS:

*Recent estimates suggest that water pollution causes more than 100,000 deaths and USD 1.46 trillion in economic losses each year in China (1). Water pollution has been regularly featured in the nationwide Five-Year Plan, the central government's policy document that establishes priorities for all government units. Local officials have been mandated to reduce water pollution (2) and have been granted authority and resources to enforce environmental standards (3). A key requires local governments to remediate severely polluted waterways.*

To prepare PNAS, researchers considered the effectiveness of “nongovernmental monitoring of urban water- ways water quality by facilitating oversight of local governments or instigating public action for remediation”. Thus, the underlying hypothesis of the study was that wider dissemination of river pollution information could prompt local authorities and the general public to implement more effective measures and practices to reduce river pollution.”

The authors commented:

*Reducing water pollution and then maintaining water quality has proven difficult, in part, because local governments do not always have strong incentives to achieve remediation targets when monitoring is incomplete. Among the waterways identified as “black and smelly” and slated for remediation, the achievement of water quality targets has often been partial or temporary. For example, a special campaign of on-ground inspections in 2018 by the central government, corresponding to the start of this study, found that, of the 458 water bodies reported as remediated by local governments across several provinces, 37 no longer met remediation targets. Independent baseline data on “black and smelly” waterways in this study, showed that 91% were not in compliance with standards.*

*These shortfalls may result from a lack of regular, central monitoring of remediation efforts. Central and provincial inspections of remediation efforts are infrequent and haphazard, especially for small waterways that are the focus of this study. Since local officials are most interested in achieving targets that can be observed by higher authorities, incomplete monitoring creates oversight problems. Indeed, most improvements to water quality in China are located upstream of monitoring stations that allow central authorities to observe water quality continuously, rather than downstream. Because of the vast number of polluted water bodies, central authorities in China have encouraged monitoring by nongovernmental organization (NGOs) as a supplement to official efforts.*

PNAS researchers thought that NGOs providing local and provincial government officials information regarding the progress of pollution remediation programmes “might improve water quality”.

It was expected that “with more regular information about water quality, higher-level governments may enforce standards more stringently, on local officials might speed and maintain remediation efforts to advance their careers on avoid penalties”.

Possibly, wider dissemination of relevant data could also increase public demand for firmer government action to address the problem and “norms against lettering might be strengthened by increasing residents' knowledge of poor water quality.”

PNAS researchers “worked with a partner NGO to disseminate information from the monitoring programme to multiple levels of government, the public, on both in randomly assigned treatments during a 2 years period”. Relevant local officials were also surveyed to “document the oversight pressures and public demands (to address pollution issues) that they experienced.”

The results of this extensive exercise were less than spectacular. PNAS records that rivers investigated experienced an average 19% improvement in water quality. However, there was no detectable effect on the amounts of floating materials (e.g. litter) pollution, or improvement in the public’s “littering behaviour”.

#### *Generally poor river water quality*

In May 2023 a detailed report, *The patterns of water quality in China’s river and their associated drivers*, written by a team of 8 scientists, was published in *Nature*.” (in partnership with King Fahd University of Petroleum and Minerals) Some of the key points made in this report are briefly summarised below.

*China’s rivers have suffered profound water quality impairments due to the undeniable pressure of economic development on the environment since China’s Reform and Opening-up in 1978. Water pollution in China has been confirmed to be a major cause of 40 billion cubic meters of water shortage in China per year. The elevated input of anthropogenic nutrients is a critical cause of reduced water quality in Chinese rivers. According to estimates from multi-scale models, the total dissolved nitrogen (TDN) and total dissolved phosphorus (TDP) input to rivers in China in 2012 were 28 Tg and 3 Tg, respectively. Furthermore, excess nutrients from rivers were transported to lakes and the ocean, resulting in frequent episodes of blooms and red tide, endangering human and aquatic health and ecosystem services. Fortunately, inland water quality across China displayed marked improvement or was maintained at favourable levels nationwide from 2003 to 2017, which is attributed to reduction in nutrient discharge.*

*In 2022, a national investigation of 3641 sampling sites in rivers, lakes, and reservoirs across China showed that 12.1% of sampling sites had water quality lower than Class III according to the China Surface Water Environmental Quality Standard (GB3838-2002), while 0.7% of sites had a more severe condition at worse than Class V.*

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#### *Identifying water quality pattern*

The authors state that to understand and deal with pollution in rivers, it is essential to identify water quality patterns and underlying mechanisms in the rivers in order to develop referenced information for river quality protection.

Whilst in recent years several studies have been carried out with this objective, “there are still gaps in understanding the spatial temporal variation and underlying mechanisms of water quality of China’s river over the past 40 years. Factors which have influenced this situation are:

- *Lack of long term, regular frequently nationwide monitoring data; Traceable data only extends from 2003.*
- *Identification of the driving mechanisms are dependent on valuable factorial models.*
- *It is “challenging to budge the business to scientific research and management applications, and apply the understanding of his temporal river quality variation and driving mechanism to future water quality management and the achievement of the sustainable development goals.*

#### *Study data/model*

The authors assembled data from 613 riverine water quality monitoring sites obtained over 16 years (2003-2018), as well as “watershed characteristics”, such as: longitude, certitude, land use patterns; and net anthropogenic (N/P inputs). This information was used to create “a set of stacking machine learning models.” to simulate and predict annual and monthly variations of river water quality during the period 1980-2018. Two future scenarios were then applied to predict trends in water quality during 2020-2050.

Comparison between measured and predicted values in the 10 large river basins on which the study was focused indicated that the models were generally able to recreate actual water quality conditions; e.g. as to the extent of nutrient contamination – with a low predictive bias:

The report describes in great detail the authors’ steps taken to draw conclusions as to the extent to which various specified chemicals or nutrients exist in the subject rivers (as examples of China’s entire rivers system). We shall not attempt to canvas all these details, but limit our comments to some of the report’s conclusion(s).

The authors’ conclusions included the following. The list is not exhaustive, as there were many individual findings resulting from the extensive monitoring programme which was the basis for the report.

1. Nitrogen concentrations “*exhibited significant spatial variations*” with poorer water quality in eastern China between 1980 and 2018, Other nutrient concentrations, such as phosphorus, and chemical oxygen demand did not vary significantly between basins.
2. Total nitrogen concentration “*represents a relatively serious pollution problem in most regions of China under the current water quality standards*”
3. *Due to differences in geographical conditions among the watersheds, changes in nutrient concentrations differed between basins during the period 1980-2018.* However, there was a decrease in some pollution factors; such as chemical oxygen demand, in most regions in recent years.
4. In 2000 the central government implemented the *Total Amount of Pollutants Control Plan*, using chemical oxygen demand as one of the control indices of 12 major pollutants. Renewable reaches have been achieved. In 2008 *the Law of the PRC on Water Prevention and Control of Water Pollution was enacted,*” which strictly tightened the regulation of water environmental protection. However, *nutrient concentrations are not expected to decrease under the influence of future human activities and climate change. Thus, the smooth implementation of these policies and action plans is still needed to gradually decouple economic growth from its environmental impacts.*
5. The results of the research, “*make it clear that human activities and climate change will significantly influence riverine nutrient concentrations, especially within the Yellow, Huaihe and Haihe rivers*”

### Conclusion

China’s regulatory framework for riverine environments has so far not succeeded in preventing or significantly reducing the serious degradation of river water quality which has been the negative legacy of the nation’s remarkable economic performance of the past 50 years. It is to be hoped that the relevant authorities have the required political and practical will to redress this acute imbalance in the near future.

## TOWN PLANNING

### Approved Discovery Bay Outline Zoning Plan amended

On 12 April 2024, the Town Planning Board announced amendments to the e approved Kwu Tung South Outline Zoning Plan (OZP).

The amendments mainly involve:

1. rezoning a site to the north of Discovery Valley Road from "Other Specified Uses" ("OU") annotated "Staff Quarters (5)" to "Residential (Group C) 12" ("R(C)12") for residential development; and
2. incorporation of two sea areas in Nim Shue Wan into the planning scheme area, zoning the sea areas and rezoning the adjoining site near Nim Shue Wan from various zones to "R(C)13", "R(C)14", "R(C)15", "OU" annotated "Residential Development with Service Area Below", "OU" annotated "Sports and Recreation Club (4)" stipulating as Area B and "OU" annotated "Helicopter Landing Pad" for residential development with servicing facilities, sports and recreational facilities, and a helipad.

[Town Planning Board Press Release, 12/04/2024]

### Approved Tin Shui Wai Outline Zoning Plan amended

On 12 April 2024, the Town Planning Board announced amendments to the e approved Kwu Tung South Outline Zoning Plan (OZP).

The amendments mainly involve:

1. rezoning a site in Tin Shui Wai Area 14 from "Other Specified Uses" annotated "Bus Depot", "Government, Institution or Community" ("G/IC") and area shown as 'Road' to "Residential (Group A)2";
2. rezoning two sites in Tin Shui Wai Areas 115 and 112 from "Comprehensive Development Area" ("CDA") to "Residential (Group B)3" and "Residential (Group B)4" respectively;
3. rezoning a site at the junction of Tin Yip Road and Tin Kwai Road from "Other Specified Uses" annotated "Telephone Exchange" to "G/IC"; and
4. rezoning two strips of land in Tin Shui Wai Areas 112 and 115 from "CDA" to area shown as 'Road' to reflect the as-built conditions.

[Town Planning Board Press Release, 12/04/2024]

### Approved Kwu Tung South Outline Zoning Plan referred back for amendment

On 26 April 2024, the Secretary for Development referred the Kwu Tung South Outline Zoning Plan (OZP), approved by the Chief Executive in Council in March 2024, to the Town Planning Board for amendments to reflect the latest land use proposals.

The OZP incorporating the amendments will be exhibited for public inspection under the provisions of the *Town Planning Ordinance*.

[Town Planning Board Press Release, 26/04/2024]

### Approved South Lantau Coast Outline Zoning Plan amended

On 31 May 2024, the Town Planning Board announced amendments to the approved Kwu Tung South Outline Zoning Plan (OZP).

The amendments mainly involve:

1. rezoning a site to the south of Kam Hang Road and east of Hang Tau Road from "Recreation" ("REC") and "Agriculture" to "Residential

- (Group B)" with stipulation of building height restriction for residential development; and
2. rezoning a site to the north of Kam Hang Road from "REC" to "Government, Institution or Community (1)" with stipulation of building height restriction for a private residential care home for the elderly.

[Town Planning Board Press Release, 31/05/2024]

## DIGEST OF LEGISLATION

### Regulating use and disposal of plastic products

On October 18, 2023, the Legislative Council passed the *Product Eco-responsibility (Amendment) Bill 2023*, amending the *Product Eco-responsibility Ordinance* (Cap. 603), aimed at regulating disposable plastic tableware and other plastic products while enhancing two existing producer responsibility schemes (PRS).

Implementation of the law is divided into two phases: the first on 22 April 2024 and the second on 2025.

#### *Disposable Plastic Tableware*

Local sale of nine kinds of disposable plastic tableware will be banned and catering premises prohibited from providing these items to customers. The regulated items include::expanded polystyrene tableware; straws and stirrers; cutlery; plates; cups and cup lids; and food containers and food container covers.

##### *1. First Phase*

From 22 April 2024, the sale of expanded polystyrene tableware and four other types of small, hard-to-recycle disposable plastic tableware has been banned. Additionally, providing such tableware to takeaway customers is prohibited. All nine kinds of disposable plastic tableware are banned for dine-in customers at catering premises.

##### *2. Second Phase*

In 2025 the ban will be extended to prohibit the sale of all nine kinds of disposable plastic tableware to end-customers and their provision at catering premises for both dine-in and takeaway customers.

#### *Other Plastic Products*

The bill also regulates the manufacture, sale, and distribution of various disposable plastic products in two phases.

##### *1. First Phase*

From 22 April 2024 the sale and provision of cotton buds, balloon sticks, inflatable cheer sticks, glow sticks, party hats, oxo-degradable plastic products, umbrella bags, food sticks, and plastic toothpicks are prohibited. Hotels and guesthouses are also barred from providing free disposable toiletries and in-room plastic-bottled water. The distribution of non-medical use transparent gloves and plastic-packaged tissue paper for promotional purposes is banned, as is the manufacture, sale, and free distribution of oxo-degradable plastic products.

##### *2. Second Phase*

In 2025, the sale and free distribution of multipack rings, tablecloths, and plastic-stemmed dental floss will be prohibited, as will the free distribution of ear plugs.

#### *Trade Facilitation and Public Information*

To aid in the transition, the Environmental Protection Department has commissioned the Quality Assurance Agency to establish the *Green Tableware Platform*. This platform serves as a resource for the food and beverage industry, tableware suppliers, and the public, listing over 400 non-plastic disposable tableware products and providing information on tableware rental and cleaning services to encourage the use of reusable tableware.

Additionally, the department is creating an information platform relating to disposable plastics to educate the public about the characteristics and pros and cons of various alternatives, thereby helping them to make informed choices.

To promote the use of personal containers, the department launched the *Bring Your Own Containers Eateries Scheme* last month, which now includes over 350 participating restaurants.

[Press Release, The Government of the Hong Kong Special Administrative Region, 18/10/2023]



## WEST KOWLOON CULTURAL DISTRICT

### Hong Kong West Kowloon Cultural District summit

On 24 March 2024, the West Kowloon Cultural District Authority (WKCD) hosted a signing ceremony for Memoranda of Understanding (MOUs), marking the beginning of impactful, long-term partnerships with 21 leading arts and cultural institutions worldwide. This milestone aligns with WKCD's vision of transforming Hong Kong into an international arts and cultural hub and fostering East-meets-West cultural exchanges.

The MOU signatories include: international museums; conservation and art research institutes; art centres; film archives; theatres and theatre associations from 11 countries across Europe, East Asia, West Asia, and the United States. Notable partners include M+ in Hong Kong, the Leeum Museum of Art in Seoul, Tate in London, and the Sharjah Art Foundation in the United Arab Emirates.

These MOUs will facilitate collaboration in several key areas, including co-producing and organising touring exhibitions, sharing collections to enhance public access and knowledge, and undertaking joint conservation efforts to preserve and protect artworks. Additionally, institutions will collaborate on digitising collections and conducting scientific research, while developing educational and exchange programmes for art administrators and artists, particularly involving the Hong Kong Palace Museum, M+, and the performing arts division of WKCD.

WKCD's chairman expressed optimism about the collaborations, highlighting their potential to elevate global arts and cultural discourse and spark a new era of creativity and cultural connectivity for Hong Kong. These partnerships reinforce WKCD's vision of establishing Hong Kong as a strategic East-meets-West centre for international cultural exchange.

The signing of these MOUs represents a significant step forward for WKCD, promising to enrich Hong Kong's cultural landscape and bolster its global standing. The upcoming Hong Kong International Cultural Summit will be a pivotal moment for these institutions to formalise their commitments and embark on transformative collaborations.

[Art Asia Pacific, 15/03/2024]

[West Kowloon, 24/03/2024]

## HONG KONG BRIEFING

### Waste Reduction and Recycling Charter for private residential premises

The Environmental Protection Department (EPD) recently launched the Waste Reduction and Recycling Charter. Targeting property management companies, owners' corporations and residents, the Charter aims to foster a culture of waste separation and recycling.

By signing the Charter, owners of private residential premises commit to establishing and maintaining convenient recycling facilities to facilitate the recycling of recyclable materials including paper; metals; plastics; glass containers; beverage cartons and food waste. Additionally, the Charter mandates the engagement of reliable recyclers for processing the collected materials. Participants must also keep detailed delivery records of recyclables, organise educational activities to promote waste reduction at source and clean recycling, and report recycling data to residents quarterly to enhance recycling management.

As a recognition to participants, the EPD will publish online the list of housing estates/buildings that have signed the Charter, and issue Waste Reduction and Recycling Certificates and stickers. To further support the Charter, the EPD's Green Outreach will offer technical support, such as the availability of free recycling bins, provision of relevant recycling bin suppliers, collection services for recyclables, promotional and educational information on clean recycling, and co-organising waste reduction and recycling promotion activities.

As an incentive, each household in residential premises that signs up by 30 November 2024 will receive 20 free designated bags per month for 6 months. This encourages residents to minimise waste by effectively utilising recycling facilities and the limited number of bags provided.

An EPD spokesman emphasised the department's ongoing commitment to expanding waste reduction and recycling efforts. The EPD will continue to collaborate with all stakeholders, including chambers of commerce, community groups, and schools, in strengthening publicity and education concerning waste reduction and recycling for all.

[Press Release - the Government of the Hong Kong Special Administrative Region, 03/06/2024]

### EPD's expanding efforts in food waste recycling

In response to recent media reports, the Environmental Protection Department (EPD) has outlined its efforts to implement food waste recycling measures across Hong Kong.

#### *Expansion of Food Waste Collection Network*

The EPD has been expanding the food waste collection network. It currently operates approximately 900 collection points and collects 210 tonnes of food waste per day, a 40% increase over the previous year. This expansion of services includes support for food waste collection in both the business/ industrial premises and residential areas.

### *Public rental housing (PRH) initiatives*

Collaborating with the Housing Department (HD) and the Hong Kong Housing Society (HKHS), the EPD has been extending food waste recycling services to PRH estates. As of now, 530 food waste-smart recycling bins (FWSRBs) have been installed in 70% of the PRH estates. The EPD plans to install 700 FWSRBs across all 213 PRH estates by August 2024, covering approximately one-third of Hong Kong's population.

In response to reports of overfilled or malfunctioning FWSRBs, the EPD explains that the automated notification system for bin replacement allows prompt replacement of the inner bins of the FWSRBs. EPD will also allocate additional resources for maintenance of the FWSRBs.

### *Private housing estates and new initiatives*

For private residential buildings, the decision to participate in food waste recycling requires consensus among all stakeholders including owners and management companies. The EPD has set up various funding schemes and has been receiving positive response for the installation of FWSRBs. For instance, the Pilot Scheme for FWSRBs for private estates has received over 150 applications as of April 2024. The EPD has expedited the approval process and will arrange meetings with applicants to determine the installation locations of FWSRBs as soon as all the required application documents have been received.

### *Public collection points and future plans*

In areas lacking space for FWSRBs, the EPD has established public FWSRBs and added 55 "Food Waste Recycling Spots" for scheduled collection services. The first public food waste collection point in Lockhart Road Market will launch soon. The potential for expansion to public markets will be based on feedback.

### *Commercial sector engagement*

The EPD has set up food waste collection points at 65 refuse collection points (RCPs) which will increase to nearly 100 in the second quarter of 2024. In addition, the EPD collects food waste from clusters of restaurants in 15 districts in Hong Kong through mobile booths or trucks, providing a convenient recycling option for restaurants.

### *Technological innovations*

The EPD has installed food waste pre-treatment systems ("Food TranSmarter") in 10 government venues and private premises. Additionally, there are approximately 20 projects under preparation. The collected food waste is converted into slurry through pre-treatment systems and can be temporarily stored for several days before being delivered to the food waste treatment facilities for conversion into energy, thereby reducing transportation costs.

[Press Release - the Government of the Hong Kong Special Administrative Region, 16/04/2024]

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

On 5 February 2024, the ACE held its 262<sup>nd</sup> meeting. The meeting focused on two major topics L: (i) a proposal to establish a common legislative framework for producer responsibility schemes; and (ii) a proposal to regulate and phase out hydrofluorocarbons for implementation of the *Kigali Amendment* to the *Montreal Protocol*.

### **Proposal to Establish Legislative Framework for Producer Responsibility Schemes ("PRs")**

#### *Presentation and Q&A Session*

Mr. Bruno Luk (Deputy Director of Environmental Protection (Waste Reduction)) briefed members on the background and details of the proposed legislative framework as well as the implementation of PRs with a "market-led approach".

#### *Scope and operational details*

Members expressed their support for the proposed legislative framework. Mr. Luk explained that stakeholders, such as manufacturers, importers, wholesalers, retailers and consumers, should share responsibility for recycling used products under PRs. For suppliers which might be the manufacturers or importers of the regulated products, they would be required to meet the recovery targets (if any) for the products sold.

Two members stressed the importance of providing adequate support to help stakeholders, such as the suppliers or recyclers, meet the recovery targets whilst sustaining their business. Mr. Luk was optimistic about the supply of recyclables for the local recycling trade as suppliers would be motivated to provide incentives for the public to return recyclables to meet the recovery targets. He also said that the legislation would provide a provision for the government to take up the collection or recycling services at charges under exceptional circumstances, such as when the market failed to operate on its own.

On a member's enquiry about the implementation of the PRs for the "second-" or "third-life" electric vehicle ("EV") batteries, Mr. Kenneth Cheng highlighted the difficulty in tracing the usage of recycled EV batteries and remarked that details of the PRs for retired EV batteries would be devised in consultation with the trade. Mr. Luk assured the meeting that the Environmental Protection Department ("EPD") would consult the ACE on details of individual PRs before submitting the subsidiary legislation to the Legislative Council ("LegCo").

A member asked whether a large part of the responsibility under the PRS would ultimately be shifted to the consumers, such as by imposing a surcharge on the regulated products. With reference to his experience of the PRS of Singapore, another member echoed that consumers' burden might increase with the implementation of PRS.

#### *Enforcement and compliance*

A member expressed concern about the monitoring mechanism to ensure compliance with the recovery targets. Mr. Luk explained that a registered supplier was required to submit periodic returns to the EPD with detailed information regarding distribution and recycling of the regulated products. Such details would need to be audited by an independent auditor to ensure their accuracy.

Considering that the cost of recycling might be lower in other places than in Hong Kong, two members enquired if there were any export controls to protect the interests of local recyclers which could help promote local circular economy. Mr. Luk responded that Hong Kong was bound by the *Basel Convention* to control the import, export and transit of hazardous waste and regulated waste plastics. For retired EV batteries, the government will put in place appropriate import and export control measures having regard to the supply of the recyclables and the capacity of the local recycling industry.

#### *Publicity and public education*

Four members shared the view that the government should strengthen publicity and education efforts to facilitate communication amongst all parties involved in the PRS. To solicit support from the general public, the government should promote the benefit of shifting from "government-led approach" to "market-led approach".

#### *Implementation timetable*

Mr. Luk confirmed that the PRS for plastic beverage containers and beverage cartons would be the first PRS to be implemented under the common legislative framework and that relevant subsidiary legislation would be introduced in the LegCo once the amendment bill on the common legislative framework was passed.

The ACE Chairman suggested that the government should minimise the time gap between the introduction of the common legislative framework and the subsidiary legislation with a view to facilitating the public's understanding of the implementation of PRS for individual products as soon as possible.

#### *Internal Discussion Session*

Whilst indicating that the implementation of PRS in Hong Kong had been discussed for over two decades and the matter should proceed without further ado, a member highlighted the importance of clear communication with the public on the implementation details before the commencement of PRS.

Another member opined that a relevant government bureau or department, such as Development Bureau or Planning Department, should consider allocating more land for the recycling industry with a view to supporting local recycling trade.

### **Proposal to Regulate and Phase down Hydrofluorocarbons ("HFCs")**

#### *Presentation and Q&A Session*

Dr. Kenneth Leung (Principal Assistance Secretary for Environment and Ecology (Air Policy)) briefed members on the control strategies to regulate and phase down HFCs as well as the related legislative amendment.

#### *The proposal*

Members were supportive of the government's proposal to regulate and phase down HFCs. Dr. Leung indicated that low global warming potential ("GWP") alternatives were already available in the market, particularly in the advanced economies.

A member questioned the reasons for not adopting a stricter standard for the GWP limit of water-cooled chiller which was ten times higher than that of Singapore. Dr. Leung explained that the GWP limit imposed should be practicable and the government would closely monitor the global market and update the GWP limits as and when appropriate.

A member was concerned about other toxicity or environmental problems brought by the low-GWP alternatives. Dr. Leung indicated it was widely accepted in the global market that the low-GWP alternatives could be used safely provided that adequate safety precautionary measures were in place. He said the Electrical & Mechanical Services Department was examining safety aspects of different types of refrigerants, with reference to international standards and/or practice. A member suggested that the government should provide a list of recommended and safe alternatives for stakeholders' reference.

#### *Recycling and disposal*

To address the Chairman's and a member's questions, Dr. Leung said that there was currently no local recycling facility for refrigerants. He pointed out that the recycling process for blended refrigerants with multiple components would be much more complicated and costly than the recycling process for refrigerants with a single component. He believed that local recycling of refrigerants with a single component would be possible in the future.

A member asked for the proper way to handle "Restricted Equipment" (i.e. certain types of air-conditioning and refrigeration (and heat pump), and fire suppression system designated by the Director of Environmental Protection) which were no longer supported by refrigerants that were subject to phasedown control. Dr. Leung replied that the PRS for Waste Electrical and Electronic Equipment provided a convenient means for



proper disposal of domestic appliances. As for larger equipment for commercial uses, use of reclaimed refrigerants, which were not subject to the phasedown control, offered an option.

#### *Enforcement and compliance*

Two members doubted that the one-year time gap between the prohibition of import and sale of high GWP Restricted Equipment might give the retailers leeway to import and keep stock of high GWP products for sale later. Dr. Leung explained that, based on the previous consultation exercise, the trade would unlikely keep a large amount of stock as storage would be costly.

A member sought information on the enforcement of venting of refrigerant in private premises. Dr. Leung indicated that owners of “Regulated Equipment” (i.e. any air-conditioning and refrigeration system with refrigerant charge over 50 kg) would be required to register their equipment with EPD and engage Registered Refrigerant Handling Contractors for carrying out any work (such as maintenance, refrigerant decanting or decommissioning of the Regulated Equipment) involving any refrigerant identified by a new regulation under the *Ozone Layer Protection Ordinance* (Cap.403).

In response to two members’ question about the enforcement plan for online shopping, Dr. Leung said that the import, manufacture, supply and sale of Restricted Equipment exceeding the GWP limits would be prohibited under the proposed legislation, and that online shopping would also be covered by such prohibition.

#### *Publicity and public education*

A member underlined the importance of effective publicity and communication campaigns to convey the new regulation and implementation details to the public. Two other members suggested that the government should devise a simple and easy-to-understand labelling system with grading to facilitate the public’s understanding, and one of them added that the government should raise public awareness of the matter so that consumers could avoid purchasing appliances which might not be supported by adequate refrigerants in the future. Dr. Leung agreed that wide publicity would be rolled out and labels indicating the date for the ban of sales would be required to alert the customers of the products which might become restrictive in subsequent maintenance.

A member suggested that the government should publish reports on the durability and percentage of leakage of the Restricted Equipment to help the public select products with better environmental performance. Dr. Leung opined that such information was not available as the refrigerant circuits in small-scale home appliances were hermetically sealed at factory, so there should be no leakage problem under proper installation and maintenance.

## CLIMATE CHANGE

### *April heat wave made worse by climate change*

The April heat wave that swept through Asia, bringing temperatures as high as 46 degrees Celsius in some places, was much more severe and likely to occur than it would have been in a world without climate change, scientists have concluded.

Extreme heat affected hundreds of millions across the region last month, adding to the plight of 1.7 million people displaced by the war in Gaza as well as those without access to cooling. Hundreds of people died from heat related causes, although more fatalities were likely to have gone unreported, according to the researchers.

The World Weather Attribution (WWA) group used computer models and ground observations to trace the footprint of heat trapping gases in the affected area.

*“What we wanted to know is whether such temperatures were possible in the past, and whether they will be like this going into the future,”* said Mariam Zachariah, a climate change researcher at the Grantham Institute of Imperial College London and lead author of the study.

The scientists found that in countries such as Palestine and Israel, climate change made the heat wave five times, more likely than it would have been in pre-industrial times and 1.7 C hotter.

In the Philippines, where temperatures were 1.2C higher, the researchers estimated that this year’s heat wave would have been impossible without decades of burning fossil fuels.

In South Asia, which was the focus of two such studies in 2022 and 2023, abnormal heat was found to be 45 times more likely to occur, and to be 0.85 C higher due to climate change.

The WWA researchers also looked at whether El Niño, the naturally occurring warm current in the Pacific Ocean, may have played a part in the event. They concluded that while it raised temperature in the Philippines by about 0.2 C, it did not influence the West Asian heat wave.

A separate study in 2022 found that heat may contribute to 650 billion hours a year of lost labour globally, which cost an estimated \$2.1 trillion equivalent in 2017 alone.

Heat action plans in place in countries like India, WWA scientists note, albeit not at a sufficient scale to protect the most vulnerable from temperature stress.

*“The scale of the problem and people impacted in a country like India is enormous,”* said Jaya Dhindaw, a sustainability expert at the World Resources Institute, citing the many people who lack resources to protect themselves from extreme heat. *“It is a matter of survival.”*

The reality on the ground is also complex, said Aditya Valiathan Pillai, a fellow with the think-tank Sustainable Futures Collective, who in 2023 carried out an extensive analysis of India's heat action plans at a state level.

*"Putting preparedness front and centre as a major strategy across the many thousands of local governments in this country is a very big challenge,"* he said. Funding is often scarce, but public awareness about heat exposure risks is what's still lacking in India, as people are only now starting to understand that high temperatures can kill as well as decrease productivity.

None of this is easy, he said, but getting myriad local administrators to work together *"may well result in a resiliency framework for the country which would be an example for other heat nations in the developing world."*

[*The Japan Times*, 16/05/2024]

### **The world is hotter than anytime in the last 2000 years**

It's one thing to say the Northern Hemisphere summer of 2023 was the hottest of the 150 years that people have been making measurements. This well documented claim is often dismissed by sceptics of global warming, who point out that the Earth has a long history of temperature fluctuations. That's why it's important that a new paper shows last summer was actually the hottest in the last 2000 years - and that our current temperatures are even more of an outlier than we realised.

If all we had were the few decades of temperature readings to understand the past climate, we wouldn't know whether our current warming was a major shift or a run-of-the-mill blip. However, tree rings hold records that can go back thousands of years, giving us the perspective we need to understand what's happening today. In a paper published in *Nature* this week, scientists reported on their use of tree rings to not only show long-term trends, but also to plot Northern Hemisphere summer temperatures year by year for the last two millennia. 2023 was the hottest of them all. The next hottest twenty five years have all occurred since 1996. The next runner up was way back in 246 A.D.

The world's understanding of global warming changed dramatically when scientists started to document long-term temperature trends using tree rings, ice cores, sediment layers and other natural temperature monitors. In 1998, scientists published the famous "hockey stick graph" covering the last 600 years. It showed that global temperatures rose and fell like gently rolling hills until the mid-20<sup>th</sup> century when they suddenly soared.

That gave people a graphic image of just how unusual things are today. Unable to discredit the results, some people tried to discredit the researchers by hacking into their email in 2009 and taking statements out of context to imply they'd done something wrong - creating a phony scandal called "climate gate."

Since then, there have been dozens of more detailed or further reaching reconstructions of our climate history. This latest one covers only the part of the globe that has the most trees – the mid-latitude. Northern Hemisphere – but it goes back in fine grained detail 2,000 years and highlights climate change today in the context of centuries of natural variability.

Even seemingly small fluctuations can have a big impact on human life. Take 536 A.D, dubbed "the worst year to be alive" by historian Michael McCormick. An Icelandic volcano erupted, spewing particles into the atmosphere and veiling much of Europe and Asia with a strange, dark fog. That caused cold famines and a wave of plagues that coincided with the collapse of the Eastern Roman Empire. The new *Nature* paper shows the summer temperature that year was 1.9 degrees Celsius below the long-term average and 3.9 C colder than the summer of 2023.

Volcanoes have usually been to blame for cooler years. But the cause of past warmer periods is not as well understood. The year 246 was also unusually warm. More recently, the medieval warm period, between 800 A.D. to 1400 A.D., allowed orchards and pastures to spread into Northern Europe, Iceland Greenland and also triggered mass famines and collapse of civilizations in the American Southwest.

Tree rings are allowing scientists to decipher the role of climate in that period and others throughout history. The oldest trees – bristlecone pines – can live nearly 5,000 years; scientists can extract a pencil thin core to study the rings without harming the trees. But researchers don't have to use such ancient trees to explore the distant past because they can also read information from rings in wood that's been incorporated into old buildings and ships or preserved in bogs.

Trees growing in cold conditions can reveal temperature history because temperature is the main factor limiting their growth. The year 2023 was the hottest in recorded history. The next hottest 25 have all occurred since 1996

The new study depended on such trees in nine different sites analysed by 15 different teams, said the lead author, Jan Esper of Johannes Gutenberg University in Germany.

Esper said he was interested in better understanding what the Earth's temperature was like in the pre-industrial area, before human generated emissions started warming the planet. The Intergovernmental Panel on Climate Change defines pre-industrial temperature as the average measured from 1850 to 1900. The Paris Agreement makes it a goal to keep global temperatures within 1.5 C of that pre-industrial period – a threshold we're close to exceeding already.

But measurements before 1900 were sparse and Esper says the tree rings suggest the actual pre-industrial era was a bit cooler. From 1850 to 1900, temperatures were already about a quarter of a degree warmer than the average over the previous 2,000 years. That means our current temperatures might be more abnormally warm than we realised.

Ray Bradley, a climatologist of the University of Massachusetts, Amherst, was an author of the original hockey stick paper. He said the new paper and the initial hockey stick paper use different techniques and are asking different questions, but both show us how our current era fits into the bigger sweep of time.

*“You often hear politicians – ignorant politicians – saying climate varies and it’s been warmer in the past so don’t get too excited about all this greenhouse gas we’re putting into the atmosphere,”* said Bradley. But the natural records suggest it hasn’t been this warm in 2,000 years, maybe longer, *“so that’s a pretty exceptional situation.”*

Exceptional but not hopeless – climatologists say it’s not too late to keep global warming within a manageable range. If we listen to what nature is telling us, we can keep 536 A.D. as the worst year to be alive.

[*The Japan Times*, 17/05/2024]

### Climate change could force Thailand to relocate capital

Thailand may have to consider relocating its capital, Bangkok due to rising sea levels, a senior official in the country’s climate change office said on Wednesday. Projections consistently show that low-lying Bangkok risks being inundated by the ocean before the end of the century. Much of the bustling capital already battles flooding during rainy season.

Pavich Kesavawong, deputy director general of the government’s department of climate change and environment, warned that the city might not be able to adapt, with the world on its current warming pathway. *“I think we are beyond the 1.5 (degrees Celsius) already,”* he said, referring to the increase in global temperatures from preindustrial levels.

Bangkok’s city government is exploring various measures, that include building dikes, along the lines of those used in the Netherlands, he said. But *“we’ve been thinking about moving,”* Pavich said, noting that the discussions were still hypothetical and the issue was *“very complex”*.

While a move is still a long way from being adopted as policy, it would not be unprecedented in the region. Indonesia will inaugurate this year its new capital, Nusantara, which will replace sinking and polluted Jakarta as the country’s political centre. The mammoth move has been controversial and extremely expensive, with an estimated price tag of US\$32 billion to US\$35 billion.

Thailand is suffering the effects of climate change across a range of sectors, from farmers struggling with heat and drought to tourism businesses affected by coral bleaching and pollution.

It has closed several national parks in response to recent coral bleaching and Pavich said further closures were possible; *“We have to save our nature, so we think that we will do any measures to protect our resources,”* he said.

[*The Japan Times*, 17/05/2024]

### Environmental protection funding for developing countries

In 2009 wealthy countries, including Japan, France, Germany and the United States, pledged to send USD 100 billion by the year 2020 to the developing world in support of their efforts to reduce pollution and handle extreme effects of climate change. However, the well-meaning programme in practice channelled wealth back into the developed nations through loans with interest at market rate and donations with strings attached.

The rationale behind the financial assistance is to have the developed world take responsibility and compensate for the pollution they have caused in the past, which contributes to climate change as it is today. Contradictorily, a minimum of USD 18 billion was found to be loaned at market interest rates by various developed countries, including Germany, Japan, the United States and France, when it is an international norm to grant climate-related aiding loans at low or even no interest. Similarly, conditions to hire companies or source materials from donors were attached to grants from the European Union. In effect, wealth is being funnelled back to already wealthy nations.

The developing countries are extremely unhappy with these loans and grants in disguise. Countries, like Ecuador, which are already in debt have taken on extra loans to solve environmental issues. Moreover, the hiring and sourcing conditions of these climate finance provisions are not helping the developing states’ economies. Researchers point out that the lending or donating countries benefit more than they contribute to these arrangements and the profitability reflects that these grants do not serve their original purpose: to put the developing countries in a better financial position while they combat the disastrous effects of climate change.

Developed countries maintain that the fact the receiving countries are sometimes so underdeveloped that they lack the expertise to utilise the resources provided means conditions to hire or source from lending countries with better technology are necessary. The mandatory hiring of quality contractors, however, can be burdensome on recipient countries. A study by the Organisation for Economic Cooperation and Development shows that costs can increase by 30% in order to fulfil the loan conditions.

[*Reuters*, 22/05/2024]

### Maritime court held greenhouse gases to be marine pollution

On 21<sup>st</sup> May 2024 the International Tribunal for the Law of the Sea (ITLOS) gave an advisory opinion that countries are responsible for reducing emissions since greenhouse gases absorbed by the oceans are considered marine pollution. Small island states that are currently threatened by the sea level rise as a result of global warming welcomed this legal breakthrough.

Nine Caribbean and Pacific Island nations brought the case before the ITLOS for its advisory opinion on the specific obligations of State Parties to the United Nations Convention on the Law of the Sea in relation to pollution to the marine environment. These small island nations have been neglected due to their minimal financial resources. They have limited influence in international forums, where environmental pledges made are often less than the minimum required to combat global warming.

This is the first ITLOS judgment on climate-related issues. The Court ruled that countries should take up more responsibilities than those stated in the 2015 Paris Agreement and are legally obligated to reduce emissions that cause climate change. States are required to adopt objective targets for the reduction of emissions, based on international standards and the best available science. This ruling is expected to influence two upcoming opinions relating to the climate obligations of states from the Inter-American Court on Human Rights and the International Court of Justice.

[Reuters, 22/05/2024]

### WHO makes climate change a major focus

The World Health Organization (WHO) shared in its fourteenth general programme of work (GPW-14) its plan to make climate change and the consequential impacts on health one of its major focuses from 2025 to 2028, which is in line with its priorities concerning other health issues and general improvement of healthcare systems.

In recent years, the WHO has warned of the impacts of climate change on human health, in particular non-communicable and climate-sensitive diseases. Severe adverse weather events are also seen more frequently in small island states, which are especially vulnerable to pollution, with their still-developing economies.

Developed nations, such as the United States and Japan, support the WHO's increasing attention to climate change. It is acknowledged that sustainable development goals related to health issues have not been kept on schedule, particularly after the COVID-19 pandemic. Such support from wealthy states is appreciated, given that the GPW-14 programme is estimated to cost over 11 billion USD, while the assessed contribution from member states has only met one-third of this amount.

Civil society groups, on the other hand, are sceptical of the ambitious GPW-14. Aside from criticisms over the plan's lack of attention to other health issues, such as maternal health and gender disparities in the healthcare workforce, the lack of specificity in plans to address and tackle non-communicable diseases that are caused by environmental pollution was also highlighted by civil organisations.

[Health Policy Watch, 28/05/2024]

### The United Nations advocates banning fossil fuel advertising

The Secretary General of the United Nations (UN) condemned the fossil fuel industry for its advertisements that have concealed its responsibility for causing and worsening global warming. Studies have shown the increasing rate of warming and record-breaking global temperature in the past 12 months are largely caused by human activities.

As emissions of greenhouse gases continue to increase, states that pledged to keep temperature rise within 1.5 degrees in the 2015 Paris Agreement are close to breaching the threshold. To avoid this undesirable outcome, the UN called for a political clampdown on advertising from fossil fuel corporations. They are said to be greenwashing the industry by advertising campaigns emphasising their commitment to reducing greenhouse gas emissions and pollution.

Fossil fuel advertisements are likened to those for tobacco and alcohol, which have eventually been banned by most countries due to those products' widely known harmful effects on human health. Tobacco and alcohol advertisements were also once favoured by sports events promoters, especially football, before being banned. Thereafter, football has been associated with fossil fuel producers, which are now the next target to be banned.

National governments are expected to implement such a ban, as the global carbon budget is far from sufficient in the coming 5 years if the rate of emission is not reduced. The situation is dire as the likelihood of meeting the 1.5 degrees target is decreasing as more greenhouse gases are emitted, not to mention the warming effect that scientists assess will result from past emissions.

[BBC, 06/06/2024]

## REGIONAL & INTERNATIONAL

### Canada

#### Polar bears at risk of extinction

An international team of scientists has found that polar bears face local extinction in Canada's legendary Hudson Bay by mid-century if global warming exceeds limits set under the Paris Agreement of 2015.

Climate change has sharply increased the number of days where Arctic Sea ice is too thin for polar bears to hunt seals, their main food source. Consequently, the bears are forced to spend a longer time onshore without their principal source of food.

Researchers found that if temperatures rise 2°C above preindustrial levels, the resulting ice-free period would simply be too long for many bears to survive.

Polar bear populations in Hudson Bay – where it takes longer for winter ice to form-- would be the first to become extinct

[Sunday Mail, 16/06/2024]

## Japan

### *Japan reviews basic energy plan*

Japan's industry ministry is reviewing the country's basic energy plan, at a time when power hungry data centres are increasing in number amid the spread of artificial intelligence.

The basic energy plan sets the direction of the country's medium to long-term energy policy and is updated once every three years.

The review was launched at a subcommittee for Natural Resources and Energy, which advises the industry minister.

Referring to the energy shift away from fossil fuels, such as oil and coal, industry minister Ken Saito said at the beginning of the meeting, "*Japan is in the most difficult situation since the end of World War II.*"

The government has set a goal of reducing carbon dioxide and other greenhouse gas emission to effectively zero by 2050. On Monday it began discussions on a long-term vision for decarbonization toward 2040. It aims to draw up the long-term vision and update the basic energy plan by the end of fiscal 2024, which started in April.

For decarbonization, it is essential for Japan to reduce its reliance on thermal power generation, which accounts for about 70% of the country's total power supply. The current basic plan, compiled in 2021, calls for renewable energy sources to account for 36 to 38% of the total power supply in fiscal 2030, and for nuclear power plants to account for 20 to 22%.

At the news conference, Saito noted the increasing importance of dealing with geographical risks, given Japan's reliance on imported energy resources.

According to the industry ministry, prices of liquefied natural gas jumped roughly six fold on average from 2019 to 2022 due to Russia's invasion of Ukraine. The worsening situation in the Middle East is also overshadowing Japan's energy procurement, as the country imports about 90% of its crude oil from the region.

The energy plan review is expected to include discussions on raising the proportion of power generated from renewable energy sources and the positioning of next generation nuclear power plants under development in the public and private sectors.

Meanwhile, the use of AI has spread rapidly since the 2021 update of the basic energy plan.

Generative AI, such as ChatGPT, consumes significant amounts of power when processing large volumes of information. Ensuring a stable supply of electricity is becoming increasingly important in light of projects to build or expand data centres for AI services semiconductors.

According to the Organization for Cross-Regional Coordination of Transmission Operators, which comprises electric power companies, maximum power demand in fiscal 2033 is expected to be 5.37 million kilowatts higher than in fiscal 2023, due to the construction and expansion of data centres and semiconductor factories. This is equivalent to the output of about five nuclear reactors.

Power demand could expand further if growth in the amount of information processed by advanced AI accelerates. At the same time, the effective use of AI is essential for boosting international competitiveness of Japanese industries.

[*The Japan Times*, 17/05/2024]

## Russia

### *Russia's war with Ukraine is accelerating global climate emergency*

A report has revealed that Russia's war on Ukraine has contributed significantly to the global climate emergency. The analysis, which is the most comprehensive study of conflict-driven climate impacts to date, shows that emissions resulting from Russia's invasion of Ukraine exceed the annual greenhouse gas emissions of 175 individual countries. The war has generated approximately 175 million tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) through various factors, such as direct military activities, landscape fires, forced migration, and attacks on fossil fuel infrastructure. This emissions level is equivalent to running 90 million petrol cars for a year and surpasses the emissions of countries like the Netherlands, Venezuela, and Kuwait in 2022.

Governments have historically failed to account for the climate cost of war, and official data is limited due to military secrecy. However, a recent report by the Initiative on Greenhouse Gas Accounting of War (IGGAW) estimates that Russia now faces a climate reparations bill of \$32 billion (£25 billion) for the first two years of the war. The UN general assembly has called on Russia to compensate Ukraine for the war, with the Council of Europe establishing a registry of damage that includes climate emissions. Reparations could potentially be paid using frozen Russian assets. The IGGAW emphasises that Russia should be held accountable for the climate damage it has caused, not only to Ukraine but also to other countries that will suffer the most from climate-related impacts.

The analysis reveals that one-third of the emissions result directly from military activities, including fuel consumption by Russian troops. Another third is attributed to the significant amount of steel and concrete needed for reconstruction purposes, while the final third stems from landscape fires, rerouted flights, strikes on energy infrastructure, and forced displacement. Landscape fires, in particular, have increased in size and intensity on both sides of the border since the invasion. Russian attacks on Ukraine's energy infrastructure have led to major leaks of potent greenhouse gases, exacerbating the climate impact.



Recent studies indicate that militaries contribute about 5.5% of global greenhouse gas emissions annually, surpassing the emissions of the aviation and shipping industries combined. Russia's war on Ukraine has also led to increased military spending and demand for carbon-intensive materials, further contributing to military emissions that are not adequately addressed in international climate action plans.

The findings of this report underscore the importance of measuring and addressing conflict and military emissions on an international level. Achieving a consensus on how to account for and mitigate the climate impact of wars and conflicts is crucial for effective climate action. It is essential for governments and international bodies to consider the environmental consequences of conflicts and hold responsible parties accountable for the emissions they generate. Taking such factors into account will be instrumental in addressing the global climate emergency and working towards a sustainable future.

[*The Guardian*, 13/06/2024]

## Sri Lanka

### *Court steps in to protect elephants*

Sri Lanka is home to roughly 5,000 Asian elephants, but their numbers are dwindling due to poaching, poisoning, train accidents, exploitation in commercial activities, and other threats. This month, ELAW partners at the Centre for Environment Justice (CEJ) are celebrating a victory for 48 elephants that were illegally registered and used for commercial purposes.

*"Sri Lanka's Court of Appeal ordered that the elephants, currently held by the Department of Wildlife Conservation, should not be released to their supposed owner because they were illegally adopted and registered,"* said Dr. Ravindranath Dabare, Senior Advisor of CEJ. This ruling followed outrage in September 2021 when a Sri Lankan court returned elephants to alleged traffickers.

*"The knowledge and support we received at the ELAW Meeting in 2024 were very useful in our litigation to protect elephants and in all our work to protect the environment – especially the flora and fauna,"* said Dr. Dabare.

This victory follows years of work by CEJ advocating for elephants in Sri Lanka. CEJ has contributed to several significant cases involving elephants in Sri Lanka, including the following.

In late 2019, seven elephants were poisoned in Habarana, a popular tourist destination and starting point for safaris in the nearby Habarana jungle and the Minneriya Sanctuary, which is heavily populated by elephants. No official report was filed, and findings were unavailable. CEJ called for an investigation. At the direction of Sri Lanka's Court of Appeal, in December 2023 CEJ submitted their *"Proposal to Mitigate the Human – Elephant Conflict in Sri Lanka."*

In 2022, trenches were dug in Udawalawe and Lunugawehera National Parks, allegedly to prevent human/elephant conflict. Experience has shown these trenches are ineffective and, in this case, they were a ruse to exploit minerals and timber in protected areas. CEJ challenged the government's short-sighted plans, revealing the damage trenches cause to local ecosystems and demanding that an environmental impact assessment be conducted, as required by law. In March 2023, the Supreme Court suspended digging of trenches in national parks.

[*ELAW press release*, 13/06/2024]

## Taiwan

### *A turning point in Taiwan's river management?*

The Zhonggua Creek restoration project, led by Peter Chesson and his wife Sheue Chiou-rong, has provided valuable insights into negotiating with the government to prevent environmental destruction. The couple, who are both professors at National Chung Hsing University, took action when they discovered that a neighbouring plot of land was being sold for a campsite development that would harm the local ecosystem. Concerned about the impact on the narrow roads and natural beauty of the area, they bought the land to protect it.

Through consultations and collaboration with the Ministry of Agriculture's Agency of Rural Development and Soil and Water Conservation, a breakthrough was achieved. To help restore the environmental health of this section of the creek, a 190-metre section of concrete embankment was removed on the couple's side of the creek, followed by another 180-metre section downstream.

However, challenges arose during the restoration process. The couple discovered that waste from the construction site's temporary toilets was being discharged untreated into the creek. They also found that remnants of the concrete wall impeded floodwater infiltration and plant establishment. Despite these setbacks, Chesson acknowledged that everyone involved was learning and striving for higher environmental standards.

The restoration efforts involved the removal of weirs that trapped sediment, leading to unnatural mudflats filled with invasive elephant grass. Modifications were made to increase the flow rate and mimic natural rapids, but excessive rocks trapped fish, requiring further adjustments. The project also encountered issues with tree planting, dust suppression, and accidental rice crops.

Despite these challenges, the restoration project has yielded positive results. The removal of concrete walls and the implementation of rewilding measures have attracted a diverse array of wildlife, including: fish; invertebrates; birds, crabs; frogs; and even elusive animals like pangolins and leopard cats. Fireflies have made a comeback, and the presence of native fish species has increased.

The success of the Zhonggua Creek restoration project has introduced the concept of "river rewilding" into official discussions and has become a research and education site for environmental restoration.

The project serves as a model for negotiating with the government to protect the environment and inspires efforts to restore other areas in Taiwan. There are many ongoing environmental challenges, such as pollution from neighbouring farms, noise pollution, and light pollution affecting nocturnal animals. However, the progress made at Jhonggua Creek demonstrates the potential for collaboration between individuals, academia, and government agencies to restore and protect natural ecosystems.

[*Taipei Times*, 12/06/2024]

## Thailand

### *Thailand may move its capital*

Thailand may have to consider relocating its capital Bangkok because of rising sea levels, a senior official in the country's climate change office has said.

Projections consistently show that low lying Bangkok risks being inundated by the ocean before the end of the century. Much of the bustling capital battles flooding during the rainy season.

Pavich Kesavawong, deputy director general of the government's department of climate change and environment, warned Wednesday that the city might not be able to adapt with the world on its current warming pathway.

*"I think we are beyond the 1.5 (degrees Celsius) already", he said, referring to the increase in global temperatures from preindustrial levels. "Now we have to come back and think above adaptation. I imagine Bangkok will be under water already, if we stay in our (current) circumstance."*

Bangkok's city government is exploring measures that include building dikes along the lines of those used in the Netherlands, he said. But "we've been thinking about moving," Pavich said, noting that the discussions were still hypothetical and the issue was "very complex."

*"Personally, I think it's a good choice, so we can separate the capital, the government areas, and business areas," he said, "Bangkok (would) still be the government capital, but move the business."*

While a move is still a long way from being adopted as policy, it would not be unprecedented in the region. Indonesia will inaugurate these years its new capital Nusantara, which will replace sinking and polluted Jakarta as the country's political centre. The mammoth move has been controversial and extremely expensive, with an estimated price tag of \$32 billion to \$35 billion.

Thailand is suffering the effects of climate change across a range of sectors, from farmers struggling with heat and drought to tourism businesses affected by coral bleaching and pollution. It has closed several national parks in response to recent and Pavich said further closures. *"we have to save our nature, that we will do any measures to resources,"* he said.

Pavich's department – part of the Ministry of Natural Resources Environment – is pushing Thailand's first climate legislation. Pavich said the legislation includes provisions on everything from, carbon pricing to mitigation and adaption measures, is likely to pass into law.

Thailand is targeting carbon net 2050, and net zero by 2065.

[*The Japan Times*, 12/05/2024]

## USA

### *Alaska's rivers are turning bright orange*

A recent study has revealed that dozens of rivers in Alaska have turned bright orange due to toxic metals being released from melting permafrost. The contamination, visible from space, is a cause for concern and is expected to worsen in the future. Researchers identified at least 75 orange rivers and streams in a Texas-size area of Alaska's Brooks mountain range. Chemical analysis of the rivers showed high levels of zinc, nickel, copper, cadmium, and iron, which contribute to their orange colour. The polluted waterways were also found to be unusually acidic, with some streams having a pH as low as 2.3, similar to lemon juice or vinegar. Melting permafrost, a result of human-caused climate change, exposes previously sealed minerals to rainwater, allowing metals to dissolve into the streams and rivers. The high metal concentration and acidity are harmful to aquatic life, particularly spawning fish, and could have significant impacts on U.S. fisheries.

The researchers discovered images of orange rivers dating back to 2008, indicating that the problem has been ongoing for several years. It is challenging to determine the exact amount of metal released into the rivers, but satellite images show that the staining of the rivers is significant enough to be visible from space. Follow-up tests are planned to assess the full extent of the issue, but the researchers are concerned that increased permafrost melting caused by record-breaking high temperatures in recent years may have released even more metals. As temperatures continue to rise, the problem of metal contamination is likely to worsen. The increasing acidity of the water will facilitate the dissolution of more metals from the thawed permafrost, creating a worrying feedback loop.

The melting of permafrost also has other serious implications, including the release of more greenhouse gases, the exposure of radioactive materials, and the potential reemergence of dormant viruses, which could lead to new pandemics. The loss of permafrost coverage is a significant concern globally. The researchers emphasise the need for further investigation to fully understand the scale of the problem and its future consequences. They also anticipate that the melting permafrost will give create more new rivers in regions like Alaska and Siberia, exacerbating the issue. Addressing the challenges posed by melting permafrost is crucial for mitigating environmental damage and protecting ecosystems in the affected areas.

[*The Washington Post*, 24/05/2024]

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**Convictions under environmental legislation:  
March 2024 to May 2024 (June 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:

***March 2024***

Twenty-seven convictions were recorded in  
March 2024 for breaches of legislation  
enforced by the Environmental Protection  
Department.

Two of the convictions were under the Air  
Pollution Control Ordinance, 3 were under the  
Noise Control Ordinance, 12 were under the  
Public Cleansing and Prevention of Nuisances  
Regulation, 1 was under the Product Eco-  
responsibility Ordinance, seven were under the  
Waste Disposal Ordinance, and two were under  
the Water Pollution Control Ordinance.

A company was fined \$35,000, which was the  
heaviest fine in March, for failing to comply  
with an air pollution abatement notice.

***April 2024***

Sixty-two convictions were recorded in April  
2024 for breaches of legislation enforced by the  
Environmental Protection Department.

Seven of the convictions were under the Air  
Pollution Control Ordinance, 5 were under the  
Noise Control Ordinance, 13 were under the  
Public Cleansing and Prevention of Nuisances  
Regulation, 32 were under the Waste Disposal  
Ordinance, and 5 were under the Water  
Pollution Control Ordinance.

A company was fined \$35,000, which was the  
heaviest fine in April, for failing to comply with  
air pollution abatement notice.

***May 2024***

Twenty-one convictions were recorded in May  
2024 for breaches of legislation enforced by the  
Environmental Protection Department.

Three of the convictions were under the Air  
Pollution Control Ordinance, 3 were under the  
Noise Control Ordinance, 9 were under the  
Public Cleansing and Prevention of Nuisances  
Regulation, and 6 were under the Waste  
Disposal Ordinance.

A company was fined \$8,000, which was the  
heaviest fine in May, for failed to take measures  
to control air pollutant emissions.

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