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The 2021 – 2022 Fred Kan & Co prize for the most meritorious dissertation submitted for the degree of Master of Science (Environmental) at the University of Hong Kong was awarded to Chan Ho Ching for his dissertation titled: “A case study on the effectiveness of Community Recycling Stores in Hong Kong”, which is reviewed in this edition of the UPELQ.

The Editors

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THE IMPORTANT ROLE OF RECYCLING IN WASTE MANAGEMENT

Focus of Chan’s study

The focus and conclusion of the author’s research and dissertation are described in the abstract:

“Municipal solid waste (MSW) has been an emerging problem worldwide, causing environmental problems and human health concerns. The Environmental Protection Department of the Hong Kong Government (EPD) has established Green @ Community as a unified network for recycling and public environmental education. Limited studies have been conducted to evaluate and validate the work done by the Green @ Community. This study aims to evaluate the effectiveness, economic incentives and public awareness of community recycling stores in Hong Kong. Local questionnaire surveys were conducted between March 2022 to May 2022 with a sample size of 200 to achieve the aims of the study. Further to this, secondary data from the number of recyclables at the recycling stores (RSs) were analysed to evaluate the effectiveness of RSs in Hong Kong. The presented study found that there was a large deficit between the amount of waste generated and the quantity of recyclables. Respondents have a weak recognition of the recycling network, public awareness of community recycling networks and recycling behaviour. This study provided baseline data for the government and suggested more promotions are needed to further develop Green @ Community.”

The Abstract appears to be somewhat at odds with the dissertation’s title, in that it concludes with reference to the wider topic of Green @ Community, rather than just RSs, which are a component of Green @ Community

Recycling terms

Key terms the author uses in describing Hong Kong’s recycling system are as follows:

Green@Community

Green@Community (G@C) was established by the EPD as a “local recycling network to support recycling, send recyclables to trustable companies and promote the general public to go green and use the community recycling facilities.” Recyclable waste is collected at what the author calls “recycling hotspots” to then be “delivered to the downstream recyclers for further processing”. The hotspots are recyclable waste collection stations thinly scattered across Hong Kong.

Community Recycling Stations (CRSs)

CRSs have been operated by non-profit organisations (NPOs) since 2015. They receive recyclable waste but also feature regular “environmental educational services” to educate and promote green living to the public. Various housing estates “have connected to the stations to build a recycling network in the local district.”

Recycling Stores

RSs have been managed by NPOs since 2020. They are more conveniently located than CRSs and have longer working hours, plus self-service recycling facilities. Each RS also uses social media sites (e.g. Facebook) “to promote waste reduction and recycling which are the most preferred in the waste hierarchy”. We note that this last statement is not in accord with the waste hierarchy diagram shown in the dissertation as, in descending order of environmental preference:

- (1) Prevent
- (2) Reduce
- (3) Reuse
- (4) Recycle
- (5) Recover
- (6) Dispose

Recycling Spots

Since 2020, CRSs and RSs have between them established 110 “Recycling Spots”, mainly in smaller residential complexes. These provide small, convenient collection pt for residents who do not have recycling bins or live a long way from CRSs and RSs.

Hong Kong’s waste problem

Most in the community are well aware of the acute problem the government has in disposing of our huge volume of MSW in a very small land area.

The author notes that approximately 2.1 billion tonnes of MSW are generated across the world each year, 23% of which is contributed by East Asia-Pacific regions.

Hong Kong generates approximately 1.47kg of MSW per person per day, which is 1.5 times the rate in Seoul. For example, Hong Kong’s three landfills will reach their capacity in the near future. For this and environmental reasons (e.g. land and water pollution from indiscriminate waste disposal), we need to recycle much more of our MSW.

Recycling in Hong Kong

Failed recycling systems to date

Recycling comprises the three Rs: “Reduce, Recycle and Reuse.” For example, plastic bottles can be recycled into useful products, such as backpacks and carpets.

Hong Kong’s recycling industry is limited by a number of factors, such as scarce availability of land and relevant infrastructure. Consequently, recyclable waste is exported for treatment elsewhere (1.31 million tonnes in 2020), or otherwise dumped in landfills. Alarmingly, in 2019 only 5.4% of plastic waste was recycled; the rest was sent to landfills.

Recycling policies

The author summarises various recycling policies and programmes—all of which are based on the polluter pays principle – introduced by the government in recent years with the aim of increasing significantly the rate of recycling in our community. Several of these are referred to below.

A *Green \$* scheme has been implemented, whereby points are awarded for recyclables (maximum 2kg) deposited at collection stations. The points may be used to obtain gift items.

Sixty reverse vending machines had been installed in various locations in a pilot scheme. These accept plastic beverage containers for recycling. Up to May 2022, more than 22 million containers were processed through the machines.

Private companies have operated incentive schemes to encourage people to deposit clean recyclable products at recycling collection spots; e.g. “iRecycle”, which awards *iDollars* for recycled waste.

In 2005, the *Source Separation of Domestic Waste Programme* was launched to encourage people to sort their MSW into recyclables and non-recyclables.

The EPD has implemented the *Producer Responsibility Scheme*, which imposes mandatory requirements on suppliers aimed at reducing waste and increasing resource circulation.

The *Plastic Shopping Bag Charging Scheme* began in April 2015. Apart from bags used for hygiene reasons, such as carrying meal and bread, retailers must charge customers 50 cents for each bag issued to them. In 2021, the EPD reported that disposal of plastic shopping bags had declined by 25%.

A dedicated recycling facility has been established by the EPD for receiving Waste Electrical and Electronic Equipment (WEEE). This, and specific policies for handling WEEE, resulted in an increase in WEEE recycled from 80 tonnes to 120 tonnes per day in 2018 -- 2019.

Similarly, producer responsibility schemes have been implemented for glass and plastic beverage containers, which has increased significantly the volume of these containers now recycled rather than dumped in landfill.

The overarching policy document concerning waste management generally is the *Waste Blueprint for Hong Kong (2035)*. Its objective is to reduce MSW by 40% per person and increase the “recovery rate” to approximately 55% by charging a fee to dispose of MSW. The long discussed and awaited *MSW Charging Scheme* has been legislated and will come into effect in the second half of 2023.

Recycling data/performance

Data collected by Chan mainly relate to RSs. The data paint a rather gloomy picture of our recycling performance to date. This is best summarised in the author’s own words:

“The data from RSs reflected a positive trend in the performance from 2020 season 4 to 2021 season 3, but more has to be done in order to fulfil the vision of Waste Blueprint for Hong Kong 2035. The amount collected recyclables was about 2500 tonnes only, while the amount of waste generated in Hong Kong was 5.5 million tonnes which were 2200 times the recyclables collected in RSs. The improvements of the RSs is required in order to achieve the target of zero landfills and reduce the per capita MSE disposal by 40% on or before 2035. The overall MSW and the quantity of MSW disposed of at landfills in Hong Kong have been decreased since 2018, but the major reasons were the local social unrest in the second half-year of 2019 and the start of Covid-19 that affected the local economy. It reflected a decreasing trend in the amount of MSW based on the circumstances instead of waste reduction at source. Also, the MSW generation and domestic waste disposed of at landfills have increasing trends, while the recycling rate was decreasing. It reflected that people kept generating a large amount of waste, but small amounts of them were recycled. Other reasons were most of the recyclables in Hong Kong were sent to the foreign recycling industries for further processing, and the tightened international import policies affected the overall performance of the recycling industries in Hong Kong. It led to a low recycling rate in current years. Furthermore, when the recyclables cannot be exported to other countries, they will be sent back to the landfills in Hong Kong. The growth in the amount of waste and limited recyclables exported to foreign recycling factories will increase the pressure on the three landfills in Hong Kong.”

Survey

Apart from collecting government data and reviewing literature concerning local and overseas recycling policies and practices, the author distributed on-line questionnaires to which 200 respondents replied.

Seven questions related to G@C, such as knowledge of recycling spots and functions of G@C facilities. More than 50% of respondents knew of G@C. Housewives and students were less likely to be aware of G@C.

Over half of the respondents recognised that waste-- such as plastic, glass bottles, paper and metal--could be recycled at RSs. A smaller number were aware that other kinds of waste, like electrical equipment and rechargeable batteries, can be recycled through RSs.

Only 37% knew there are the lower-key Recycling Spots at various locations across Hong Kong. Ten percent of respondents had participated in environmental educational sessions conducted by G@C.

The survey canvassed respondents’ “*recycling behaviour*”:

“This section was focused on respondents’ recycling behaviour by asking (1) percentage of recyclables in daily waste (2) frequency of recycling (3) the favourable distance between their homes and recycling facilities (4) promotions that could encourage them to recycle.

In term of recycling behaviour, 72% of respondents had recycling behaviour, while 28% of them do not. Respondents who were housewives had a higher percentage that did not have recycling behaviour. Only 3 out of 8 do had recycling behaviour.”

Approximately 18% of respondents and their families do not sort their WSW or recycle; 30% do sort and recycle once per week, whilst 28% recycle daily.

In short, our recycling record appears to be trending downwards, despite the general increased awareness of environmental issues. The author comments:-

“The annual quantity of recyclables recovered from MSW from 2009 to 2020 decreased. The quantity of recovered recyclables increased by 0.5 billion tonnes between 2019 and 2010. Then, it decreased drastically to around 2 million tonnes of recyclables in 2012. The quantity of recyclables recovered form MSW was around 1.5 million tonnes in 2020.”

Recommendations

Promotion and economic incentives

The number of visitors to RSs and the amount of recyclable waste handled by G@C facilities have increased since the network was established. However, public awareness of the need to recycle and facilities to enable this are poor. So public advertisements and notices sent to schools and residential complexes should promote recycling awareness and education activities run by G@C.

Economic incentives, such as instant cash rewards or gift vouchers for recyclables deposited, could generate increased motivation to recycle.

Accessibility

More than 30 RSs now operate, but they are not as convenient as recycle bins, of which there are more than 4000 located throughout residential estates. The survey results showed that people consider recycling depots should be within 500m of their homes. Therefore, more RSs should be established in residential areas.

Conclusion

In conclusion, the author notes that RSs have played a vital role in recycling at a district level. However, there is still a very large difference between the volume of MSW sent to landfill and that which is recycled. Therefore, more promotion, education and economic incentives are required to increase Hong Kong's rate of recycling MSW.

TOWN PLANNING

Approval for Site 3 Harbourfront Plan

The Town Planning Board has approved Henderson Land Development's design plan for a HK\$73 billion (\$9.3 billion) commercial project. The design plan is for construction of a commercial complex on the 172,819 square metres (1.8 million square foot) site known as Site 3, which adjoins the IFC complex in Central.

The proposed complex will be built on a 47,967 square metre parcel of land leading to the famed Star Ferry and will include three towers--two for office use and the third for multi-purpose retail and event space. The development's commercial gross floor area will total up to 150,000 square metres, including about 85,776 square metres of retail and commercial space and 64,224 square metres of office accommodation.

The three towers will rise over a podium offering commercial and retail uses and also government, institutional and community facilities. Tower 3 north of Hongkong Land's Jardine House and across Man Yiu Street from Exchange Square.

The buildings will each stand six to ten stories high so as to allow clear views of the harbour from Central.

The development team will also consider the government's suggestion of enhancing and beautifying the connections between the harbourfront and the area behind the project and adding urban farms to the project's public open space.

[Mingtiandi, 20/02/2023]

WEST KOWLOON CULTURAL DISTRICT

The 112th Board Meeting of the West Kowloon Cultural District Authority

The Board of the West Kowloon Cultural District Authority (the "Authority") held its 112th meeting on 13 January 2023. Ms. Betty Fung, the Chief Executive Officer of the Authority presented an update regarding construction progress in various areas of the West Kowloon Cultural District ("WKCD") and the operations of the WKCD generally.

As of 2023, quarantine-free cross-boundary travel between Hong Kong and mainland China has resumed. The Authority is confident that the WKCD will be one of the most preferred attractions for mainland and overseas visitors.

One of the WKCD's key attractions, the Hong Kong Palace Museum ("HKPM"), has enjoyed great success since its opening in July 2022. The museum has welcomed more than 710,000 visitors in just six months. The HKPM's special exhibition, *Odysseys of Art: Masterpieces Collected by the Princes of Liechtenstein*, which opened in November 2022, has already attracted over 100,000 visitors in only two months. The exhibition features more than 120 masterpieces from the imperial collections of Liechtenstein, highlighting the Princes' collecting practices and the achievement of some of the most celebrated European artists.

The HKPM has already received donations of artworks and cultural treasures from various local collectors during the past 6 months. In February 2023, the museum will open its first special exhibition featuring its own collection donated by collectors Betty Lo and Kenneth Chu, owners of the Mengdiexuan Collection. The exhibition will explore the significance of gold antiquities across different eras and communities in Asia, as well as their role in cultural and artistic exchanges.

In addition to curating exhibitions, the HKPM also aims to nurture talent through its "Hong Kong Palace Museum Student Ambassador Programme." The programme, sponsored by the China Merchants Foundation, aims to recruit 100 local tertiary and secondary students and

provide them with a series of learning workshops and practical sessions. The programme seeks to cultivate an interest in and knowledge of historical artifacts and the professional museum industry among the younger generation.

[West Kowloon Cultural District Authority, 13/01/2023]

HONG KONG BRIEFING

Glass supplier registrations to start

The producer responsibility scheme for glass beverage containers will come into full effect on 1 May 2023. The Environmental Protection Department has announced that it is now accepting registrations from glass beverage container suppliers, along with applications for exemption from payment of container recycling levies and applications for container waste disposal licences.

From 1 May 2023 all suppliers of glass-bottled beverages, including manufacturers and importers, must register with the EPD as a certified supplier before distributing any glass-bottled beverages in Hong Kong. Failure to do so will constitute an offence.

Certified suppliers must fulfil their statutory obligations, which include: submitting returns; keeping records relating to the returns; paying container recycling levies; and submitting annual audit reports. Suppliers with a recovery and reuse arrangement for the glass containers of their beverage products may apply for a levy exemption from the department.

From 1 May 2023 any person who stores, treats, reprocesses, or recycles glass container waste must obtain a waste disposal licence, and those who import or export such waste must obtain a relevant permit.

The EPD strongly recommends that suppliers and practitioners in the recycling industry submit their applications as soon as possible to comply with the scheme's legal requirements. This will ensure that the continued distribution of glass-bottled beverages and proper disposal of glass container waste in Hong Kong is maintained.

[News.gov.hk, 31/01/2023]

Carton recycling tenders planned

The Department for Environmental Protection (the "Department") has announced its plan to procure the services of a recycling contractor through an open tender process in the first quarter of this year. The contractor will be responsible for processing and recycling all beverage cartons collected at GREEN@COMMUNITY facilities from 1 July, while the Department will transfer the cartons to the contractor's factory.

The Department has been engaged in discussions with the trade to identify and evaluate various cost-effective and technically viable methods for treating beverage cartons. These efforts are aimed at responding to public demand for beverage carton recycling.

Beverage cartons are typically made up of lignocellulose, plastics and aluminium, and the Department has identified different methods for recycling the cartons based on their composition of raw materials. The service contract will allow for a range of technologies to be employed, provided they are environmentally sound and offer cost-effective and diversified recycling solutions.

The Environment & Ecology Bureau has also proposed the implementation of a *Producer Responsibility Scheme* that will regulate the collection and recycling of beverage cartons and plastic beverage containers. The Scheme will require beverage suppliers to take on the environmental responsibilities for the abovementioned packaging in the future.

[News.gov.hk, 14/02/2023]

Green City Strategies Proposed

The 2023-24 Budget presented by Financial Secretary Paul Chan outlined several green initiatives aimed at improving the livability of Hong Kong. In his speech, Mr Chan emphasised Hong Kong's commitment to achieving carbon neutrality by 2050 and proposed several measures.

To promote a green transport system, the government will allocate \$200 million from the New Energy Transport Fund to collaborate with franchised bus companies and other stakeholders to commence trials of hydrogen fuel cell electric double-decker buses and heavy vehicles this year. Additionally, \$350 million will be set aside to provide subsidies to four in-harbour ferry operators for the construction and trials of electric ferries and related charging facilities. A loan scheme with a 100% guarantee will also be introduced to incentivise taxi owners to replace their existing vehicles with electric taxis, which is estimated to involve a loan guarantee fund of approximately \$6.4 billion.

To reduce food waste, the government will allocate an additional \$62 million to expand the scope of food waste collection to cover more public and private premises, including food establishments, markets, hotels, and large shopping malls. The food waste collection trial scheme for public rental housing estates will also be extended to cover 100 blocks, involving approximately 150,000 residents.

The Agriculture, Fisheries & Conservation Department (“AFCD”) will gradually enhance facilities in country parks and explore ideas such as providing treetop adventures, repairing wartime relics, and turning them into open museums to promote countryside conservation.

In the fisheries industry, the AFCD plans to designate four new fish culture zones this year, providing an additional development area of approximately 600 hectares. Several new deep sea cages with modern mariculture equipment will also be provided in phases for renting to fisheries associations to lower their startup costs. The Environment & Ecology Bureau will collaborate with the industry to formulate a blueprint for its sustainable development, promoting the upgrading, transformation, modernisation and sustainable development of the agriculture and fisheries industry.

[News.gov.hk, 22/02/2023]

Marine park draft map gazetted

The government has published a draft map of the proposed North Lantau Marine Park (NLMP) for public inspection for 60 days.

The NLMP is intended to be established in the north Lantau waters as the eighth marine park in Hong Kong, with the aim of enhancing the conservation of Chinese White Dolphins and other marine life. The proposed NLMP covers an area of approximately 2,400 hectares and is situated between the Sha Chau and Lung Kwu Chau Marine Park and the Brothers Marine Park.

The government has highlighted that the proposed NLMP, alongside two existing marine parks, will form a larger marine park network in north Lantau waters that will better protect important habitats for Chinese White Dolphins and support marine environment and biodiversity conservation efforts.

The draft map can be viewed at designated government offices until 1 May, and copies are available for purchase at the Agriculture, Fisheries & Conservation Department headquarters located on the 5th floor of the Cheung Sha Wan Government Offices.

Those wishing to oppose the draft map may submit a written statement of objection and proposed alterations to the department's headquarters within 60 days of the notice being published.

[News.gov.hk, 03/03/2023]

ADVISORY COUNCIL ON THE ENVIRONMENT (ACE)

Summary of the Minutes of the 255th Meeting of the Advisory Council on the Environment on 7 November 2022

The Secretary for Environment and Ecology and the Environment and Ecology Bureau (“EEB”) briefed members concerning major policy measures adopted by the EEB and the Environmental Protection Department (“EPD”) in relation to environmental protection and other relevant issues raised in the 2022 Policy Address.

Decarbonisation

\$240 billion will be allocated to support measures aimed at mitigating and adapting to climate change. This funding would primarily be directed towards the development and enhancement of infrastructure, including drainage systems, district cooling systems, and waste-to-energy facilities.

The Northern Metropolis

The development in the Northern Metropolis has raised concerns about balancing environmental conservation with development. The Secretary stated that the government will implement a *New Proactive Conservation Policy* under the Northern *Metropolis Development Strategy* framework. This policy will identify key conservation areas and areas of development to meet the needs of both conservation and development. A management plan would also be devised to protect species and enhance the quality of habitats and biodiversity in conservation areas. The Secretary and the chairman agreed that the government’s commitment to reserving for conservation approximately 2,000 hectares of land in the Northern Metropolis demonstrated the weight of nature conservation in government policy.

Nature conservation

The Secretary said that the total area of country parks in Hong Kong had continuously increased over the years, and the ratio of country park areas to the total land area of Hong Kong will further increase with the designation of the Robin’s Nest Country Park. The chairman added that there should be an approximate 1% increase in the total area of country parks after the designation.

Biodiversity Strategy and Action Plan (“BSAP”)

The Secretary explained that the BSAP would be updated with reference to the global biodiversity framework, which would be discussed at the United Nations Biodiversity Conference, postponed due to the pandemic. The current BSAP includes various action plans for marine conservation, such as designating new marine parks, enhancing fisheries management measures within marine parks, and conducting surveys of priority marine habitats and species. Marine conservation measures would be further examined in the next BSAP.

Air Quality

The EEB will explore the possibility of enhancing energy savings and improving indoor air quality in older buildings under the Building Environment Assessment Method (“BEAM”) Plus Scheme.

The GBA air quality laboratory and meteorological monitoring facility will monitor the level of air pollutants, such as Volatile Organic Compounds, to provide a scientific foundation for formulating policies to improve the regional ozone problem and, in turn, contribute to the improvement of air quality in Hong Kong.

Odour and Noise Control

Concerning the odour problem near the Tsing Yi Rural Committee, the Secretary explained that measures, such as territory-wide underground sewers replacement and rehabilitation, will help tackle the overall odour problems of Hong Kong. Measures would be taken to proactively investigate and trace the major pollution sources in stormwater drainage systems at the seafront of the Tsuen Wan district and to follow up on the rectification of sewer misconnections.

Waste Reduction and Recycling

Concerns have been raised regarding the capability of downstream recycling facilities to handle the anticipated increase in recyclables collected from the community. The Secretary indicated that the proposed regulation aims to reduce the use of disposable plastic tableware by prohibiting the sale and free distribution of such products. To ensure proper handling of collected recyclables, contractors will be required to recycle and transform them into useful materials.

Streamlining the Environmental Impact Assessment (“EIA”) Process

A member enquired about consolidating minor EIA projects for an integrated assessment to streamline the procedures. The Secretary explained that larger-scale development projects must undergo a consolidated and comprehensive EIA process under the *EIA Ordinance*.

To achieve carbon neutrality, a member suggested that EEB use the current review to introduce new requirements on climate change impact and carbon emissions in EIA reports.

Environmental Education

Recognising the importance of public cooperation and support for environmental policy measures, a member proposed that the EEB should develop a comprehensive plan for enhancing environmental education under the new Office of Climate Change and Carbon Neutrality. The chairman supported this suggestion. The Secretary explained that existing policies on public education include extracurricular activities in schools and various campaigns coordinated by the Environmental Campaign Committee to promote environmental awareness and emphasised that the EEB will continue to explore ways to further enhance public education efforts.

CLIMATE CHANGE

Global warming could increase UK flood damage

Annual damage caused by flooding could increase by more than a fifth in today's terms over the next century. Even if climate change pledges are met and global temperature increase is kept to no more than 1.5C by the end of this century, parts of the world, including south-east England, north-west England and south Wales, are likely to experience more huge floods.

Calder Valley in West Yorkshire is one of the areas at particularly high risk from flooding caused by heavy rain. During the 2015 Boxing Day floods, more than 3,000 properties were flooded in the Calder Valley, causing damage of an estimated £150m.

After the clean-up of following the floods, volunteers in West Yorkshire created their own flood-prevention measures. They created speed bumps for the water running down the hillside and stuffed the channels with branches. Apart from that, they also dug diversion channels to divert and slow water flows. Calderdale is a flood hotspot in the UK.

Even though there are in place some flood prevention measures throughout the UK, there are many locations which will see very little change when it comes to flood risk. Those include swathes of north-east and central England as well as eastern and northern Scotland.

[BBC, 07/03/2023]

Climate change affects trees in Sierra Nevada

Some of the tall trees in California's Sierra Nevada are no longer compatible with the climate. Researchers suggest that as the trees die out, they will be replaced naturally with other kinds of vegetation better suited to the changing environmental conditions.

Due to climatic change and persistent hot weather, the research team in California estimated that about 20% of all Sierra Nevada conifer trees in California are no longer compatible with their climate, which has altered due to climate change and its attendant hot weather patterns, and are in danger of disappearing. The researchers say these trees are now "zombie forests."

Higher temperatures and less rainfall in these lower-elevation areas, as well as human activities, such as logging, and an increase in the number of wildfires, are all factors adversely affecting the famous conifer forests.

The average elevation of the trees in Sierra Nevada has increased over the past 90 years, moving 112 feet upslope. This is because lower-elevation conifers have died while conifers at higher elevations where the air is cooler have been able to grow. But the conifers' uphill trek cannot keep pace with the dramatic increase in temperatures.

The researchers estimated that the number of Sierra Nevada conifers incompatible with their environment could double in the next 77 years.

[NPR, 13/03/2023]

IPCC'S Sixth Assessment Report

On 20 March 2023, the Intergovernmental Panel on Climate Change ("IPCC") released its Sixth Assessment Report.

The IPCC was established by environmental agreement and cooperation in 1988 to investigate climate change and provide scientific analysis to underpin environmental policy related to the climate crisis.

The Report, the sixth in a series of heavily researched and detailed scientific reports published since 1990 by the IPCC, is a *"comprehensive review of human knowledge of the climate crisis (which) took human of scientists eight years to compile and runs to thousands of pages, but boiled down to one message: act now, or it will be too late"*

The Report is the scientists' "final warning" to national governments that only swift and drastic action can avert irrevocable damage from rising temperatures caused by increasing greenhouse gas emissions. UN Secretary general, Antonio Guterres said: *"This Report is a clarion call to massively fast-track climate efforts by every country and every sector and on every timeframe. Our world needs climate action on all fronts; everything, everywhere, all at once."*

The IPCC has issued its final warning. We *"have failed to reverse the 200-year trend of rising greenhouse gas emissions, despite more than 30 years of warnings from the IPCC"*.

The "safe level" of CO₂ in the atmosphere is 350ppm. In March 2023, the CO₂ level was 418.6ppm. Global temperatures have already risen 1.1C above pre-industrial levels.

Guterres has called on all nations to take drastic action to reduce emissions by investing in renewable energy and low-carbon technology.

[The Guardian, 21/03/23]

REGIONAL & INTERNATIONAL

CHINA

Experts pin hope on CCUS

During the recently concluded environmental discussion session, an adviser called for more carbon reduction projects, including carbon capture, utilization and storage (CCUS), to be included in the *China Certified Emissions Reduction Programme* (CCERP) to boost the nation's efforts to cope with climate change.

CCUS technology will play an essential role in achieving the national dual carbon targets. It is urgent to invite more carbon reduction projects to participate in the carbon trading market, while improving relevant support mechanisms at the same time.

An official also suggested strengthening the top-level design of CCUS projects and formulating regulations and industry guidelines to encourage enterprises to carry out voluntary emissions reduction projects while reducing the implementation costs of joining the carbon trading market for enterprises with emissions control.

The CCERP, a voluntary scheme in which participants can trade carbon credits, was suspended several years ago. The CCERP, which is an important supplementary mechanism for the country's carbon trading market, is expected to reduce carbon reduction costs and spur the development of renewable energy sources.

It has been suggested that the government should draw on international experience to introduce various policies to improve the norms and institutional and regulatory frameworks of the CCUS industry while exploring the formulation of tax and subsidy incentives for CCUS at the same time to achieve carbon neutrality.

While CCUS technology will play an essential role in helping China achieve its national carbon neutrality targets, large-scale application of the solution has yet to be developed in the absence of methodology and trading mechanisms. According to a report on the outlook of CCUS released by the Center for Energy and Environmental Policy Research of the Beijing Institute of Technology in January, the main challenge lies in creating conditions to support substantial investment in large-scale CCUS, particularly as a solution to industrial decarbonization.

[China Daily, 16/03/2023]

BRAZIL

Collectors of recyclable materials

Collectors of recyclable materials are omnipresent in Brazil and other developing countries, and their work has long been a critical part of waste management, disposal, and recycling. Working individually, in families or groups, or as part of an association, they pick up materials from households, businesses, and other locations, separate and sell them to recycling firms. Because they increase the volume of materials directed away from landfill to the recycling sector, collectors are crucial agents in creating a more sustainable environment around the world.

In 2018, approximately 79 million tons of solid waste were generated in Brazil and under 60% of solid waste was collected for transit to controlled landfills, while the remainder went to garbage dumps.

In Brazil, only 4% of what could be recycled actually is, a rate far lower than that of countries with similar income and economic development levels. As a comparison, Chile, Argentina, South Africa, and Turkey have an average of 16% recycled waste.

There is a strategic relevance of collectors as key intermediaries connecting homes and businesses, that produce waste, and recycling facilities. These workers are crucial because they have two primary skills. First of all, collectors generally have impressive knowledge of material components, citizens' disposal practices, and the environment. They acquire this deep knowledge partly through observation of, and discussion with, city residents, and also sharing information with other collectors.

Moreover, collectors are often equipped with homemade wheelbarrows, and they are able to reach households everywhere, including those that are out of reach to motorised vehicles. In so doing, they create a capillary network of routes to recycling materials and then back out to where they'll be processed.

Many recyclable materials collectors develop bonds with city residents, and so can play an influential role in educating them on the separation and disposal of waste. They can thus help build awareness and be helpful agents during large-scale public events. Their educational work helps residents think more clearly about what they consume and facilitate better disposal practices, leading to a more humanised and efficient recycling process.

[*Phys.org*, 15/03/2023]

EUROPE

Managing the systemic use of chemicals

Chemicals are embedded in practically every single manufactured object in the EU. On the one hand, chemicals play a key role in ensuring quality of life and offer new solutions to deliver the green and digital transitions. On the other, increasing reliance on chemicals leads to serious environmental problems.

The chemical industry is intrinsically bound to Europe's production and consumption systems as an upstream supplier to all economic sectors; in particular: manufacturing, agriculture, energy and healthcare. Virtually all manufactured goods contain chemicals. Chemicals are key components of: plastics textiles; cosmetics; cleaning products; paints, glues and a broad range of other consumer products. Therefore, the chemical sector plays a key role in improving quality of life in Europe.

At the same time, chemical pollution in the environment continues to degrade biodiversity and jeopardises clean water, pollination and healthy soils. The pervasive use and release of chemicals means that today, the bodies of European citizens are contaminated with a large number of chemicals of concern — some at levels damaging to health.

In 2020 the European Commission published the *Chemicals Strategy for Sustainability*, setting an ambitious and progressive roadmap for managing chemical risks in Europe. In line with the precautionary principle, the strategy aims to ban the most harmful chemicals in consumer products — allowing their use only when essential. Key elements in the strategy specifically aim to tackle the risks posed by high volumes and the diversity of chemicals in an efficient and timely manner. These elements will overcome the weaknesses of past time-consuming processes designed to assess and manage the risks related to single substances.

The European Commission has also committed to grouping chemicals for risk management (rather than regulating them one-by-one) to expedite protection. In 2022, the Commission published their *Restrictions Roadmap* under the *Chemicals Strategy for Sustainability* as a step towards this goal.

To ensure the protection of both human beings and the environment from chemical mixtures, a mixture assessment factor in chemical risk assessment is foreseen. This should be accompanied by provisions to account for mixture effects in other relevant policies, such as legislation relating to: water; food additives; toys; food contact material; detergents and cosmetics.

Arguably, the most ambitious and important goals of the *Chemical Strategy for Sustainability* are transitioning to chemicals that are safe and sustainable by design and ensuring that the most harmful chemicals are used only when necessary, by implementing the essential use concept. These upstream measures have the potential to drive a transition in how chemicals are produced and used across society and to support the zero pollution ambition of no harm to the environment and health by 2050.

[*European Environment Agency*, 08/03/2023]

WORLD

Wardrobe crisis

The fashion Industry needs to take a good, hard look in the mirror. That's the view of Wardrobe Crisis founder Clare Press, a fashion journalist, author and presenter working towards a fairer, greener and cleaner fashion future for the world.

"If we continue on the current trajectory, the global fashion industry could account for 25 per cent of the world's emissions." Clare says. "Isn't that insane? We've gone from producing 50 billion garments a year in 2000 to over 100 billion today. Think of all the resources that go into that – not least, fossil fuels."

Wardrobe Crisis includes a chart-topping podcast and online courses in sustainability. Clare founded the platform after a career in fashion.

"I was working in magazines such as Vogue and Marie Claire when I learnt about the fashion industry's environmental impacts and problems with ethical working conditions. I was shocked. How had I been working in fashion for years without knowing this stuff? We need to slow down, buy less and buy better. After all more than half our clothing is polyester. We need to extend the life of the clothes we already own."

With 1.5 million podcast downloads, her third sustainability book due out in October and the knowledge that 900 students have studied her Sustainable Fashion 101 course, Clare notes *"momentum is building"*.

"I love seeing new business ideas that tackle things like clothing waste and plastic pollution." She says, "I'm inspired by RePlated's takeaway containers, fashion rental sites like The Volte and made-to-order T-shirts by Citizen Wolf. Also, textile recyclers Upparel in Melbourne are amazing."

"We need to fall in love with our clothes again and not consider them disposable. Some easy ways to fight fashion waste? Repair it, share it, swap it, upcycle it".

Clare says sustainability starts with a sense of connection. If you truly love the forest, you won't chop it down. If you connect with our ocean ecosystems, you won't drop your plastic on the beach. The same goes for fashion waste. Extending the life of a garment by just nine months of active use can reduce its carbon, waste and water footprint by up to 30 per cent (according to WRAP – Worldwide Responsible Accredited Production).

"Obviously, fast fashion (high turnover and trend driven) doesn't help but I'd like to get people thinking that we're all part of this problem – whether it's school uniforms, men's workwear, sports kit, whatever. It all adds up."

[Sunday Mail, 04/03/2023]

Treaty offers new hope for marine environment

Following nearly two decades of planning and negotiations members of the United Nations have agreed on an international treaty to protect biodiversity in international waters. The treaty will cover nearly two thirds of the world's oceans.

The treaty lays the foundation for international collaboration to address persistent and serious marine environmental threats, such as biodiversity loss, pollution (especially from micro-plastics), climate change and overfishing. The treaty is a step toward the goal of protecting 30% of all oceans by 2030.

The four main objectives of the treaty are:

- Establish large-scale marine protected areas, covering approximately 30% of the ocean, in which environmentally destructive practices – such as commercial fishing and oil/gas drilling -- are prohibited or limited.
- Regulate countries and companies in accessing and exploring marine genetic resources.
- Make research conducted in international waters more accessible and inclusive, especially for developing countries.
- Set global standards for environmental impacts assessments of commercial activities in the ocean, with an emphasis on assessing cumulative and incremental impacts resulting from different activities.

[NPR, 07/03/2023]

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**Convictions under environmental legislation:
January to March 2023 (February and
March 2023 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:

January 2023

Eighty-seven convictions were recorded in January 2023 for breaches of legislation enforced by the Environmental Protection Department.

Twenty-four of the convictions were under the Air Pollution Control Ordinance, eight were under the Noise Control Ordinance, 25 were under the Public Cleansing and Prevention of Nuisances Regulation, 26 were under Waste Disposal Ordinance, and four were under the Water Pollution Control Ordinance.

A company was fined \$30,000, which was the heaviest fine in January, for contravening the provisions of a licence.