

Local Conference of Youth Hong Kong 2021

Hong Kong Youth Statement Towards a Carbon Neutral and Just Future

Youth Collective Position Papers

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1. Introduction

By Blaire Ho

The sixth assessment report of the United Nations Intergovernmental Panel on Climate Change published in August 2021 revealed “climate change is widespread, rapid, and intensifying” (IPCC, 2021). The report was called “a code red for humanity” by the United Nations Secretary-General Antonio Guterres (UN, 2021). The vulnerable groups and the minorities are at the brunt of climate change. The repercussions of climate change are not borne equally in terms of age, race, gender, socioeconomic status, religion, and the like. However, the rights and living quality of the vulnerable groups and the minorities under climate change are overlooked during the decision-making process. Therefore, the civil societies were asking for "Climate Justice Now" at the 2021 Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26).

Glasgow Climate Pact, a new climate convention, was signed by 195 countries last year at COP26 (UNFCCC, 2022e). Instead of limiting global warming to 2 degrees Celsius by 2100, Glasgow Climate Pact aims to keep 1.5 degrees Celsius alive. For the first time, nations agree on phasing down coal and inefficient subsidies for fossil fuels. In addition, it also urges developed countries to at least double their collective climate finance for adaptation to developing countries from 2019 levels by 2025 (UNFCCC, 2022a). Moreover, parties came to an agreement on article 6 which focuses on market and non-market approaches for transfer of emission reductions (UNFCCC, 2022b). Nonetheless, the nations are still falling behind to commit the pledge of providing a \$100 billion climate fund a year by 2020 (OECD, 2021). Also, parties failed to commit to compensate for loss and damage at the conference (Megan, 2021). The most important part is we are still on track to 2.4 degrees Celsius temperature rise even if all COP26 pledges are met (Climate Action Tracker, n.d.).

In the meantime, cities accounted for 67 and 72 percent of greenhouse gases emission in 2020 (Shukla, et al., 2022). Hong Kong, as a highly developed city, also needs to take higher accountability for climate change. Besides, Hong Kong, as a subtropical coastal city, is at high risk of extreme weather and climate change. Therefore, the Hong Kong government published Hong Kong’s Climate Action Plan 2050 in October last year. It set out the vision of “Zero-carbon Emissions · Liveable City · Sustainable Development” and outlines the targets and strategies to achieve carbon neutrality before 2050 (HKSAR, 2021a). To fight against the climate crisis, promote climate justice and achieve carbon neutrality, CCIL, along with Hong Kong Youth for Climate Action (HKYCA) and Network of Environmental Student Societies (NESS), co-organised the Local Conference of Youths Hong Kong (LCOY HK) 2021 themed on “Be a Climate Justice Youth Leader!”. It provided a platform for youth to get involved in climate change, to connect and empower each other to be global, national and local climate leaders, creative problem solvers, advocates and networkers through knowledge-sharing and networking. In LCOY HK 2021, participants were divided into 10 groups to prepare and write position papers covering the climate issues they concerned the most, in order to urge for a carbon neutral and just future. The topic they covered consist of (1) Action for Climate Empowerment, (2) Adaptation, (3) Cities (2 groups), (4) Eco-Conversation, (5) Finance, (6) Food, (7) Human Rights, (8) Renewable Energy and (9) Women and Gender.

2. Action for Climate Empowerment

By Aries Tai, Cheng Tik Man, Color Cheng and Connie Lam

Education, training, public awareness, public participation, public access to information, and international collaboration are the six priority elements under the framework of “Action for Climate Empowerment” (ACE) (UNESCO, 2020). Adopted by the United Nations Framework Convention on Climate Change (UNFCCC) since 1992, the ACE elements are crucial to promoting inclusive community engagement, and fostering a better understanding of, climate change and its response.

Recommendations

National Focal Point and International Cooperation

Under the ACE work programme, National Focal Point (NFP) is seen as instrumental in coordinating and empowering all members of the society to engage in climate action (UNFCCC, 2022). NFPs designate and provide technical and financial support, as well as access to resources for ACE activities. While China is a signatory to the Paris Agreement, no NFP has been named yet. China should establish a network of FPs in cities or regions for the differences in development levels across the country. Specifically, we call on the Environment Bureau of the Hong Kong, China government to nominate an FP for Action for Climate Empowerment within its Office of Climate Change and Carbon Neutrality, which is expected to be established per Hong Kong’s Climate Action Plan 2050 (EB, 2021c). This would strengthen synergy and cooperation across relevant Parties on efforts to address climate change, as well as advance the six ACE workstreams in Hong Kong.

Education and Training

We urge the Hong Kong government to mandate minimum learning time for climate education as part of the 12-year free education scheme. In Hong Kong’s Climate Action Plan 2050 (EB, 2021c), it is stated that schools “may” strengthen learning materials relevant to climate change and provide diversified learning experiences. However, with the tight schedules of the current school curriculum, it is unlikely that teachers will have the capacity to teach students non-compulsory syllabi. Therefore, climate education should be embedded throughout the 12-year education system to raise pupils’ awareness and understanding of climate change and its causes and consequences. Mandating climate education might be rejected by a few on the grounds of further increasing pupils’ burden in the already-stressful school system. However, climate education does not have to be a separate subject with an entirely new syllabus added. Instead, and preferably, a multidisciplinary climate change knowhow could be integrated into different parts of the existing curricula. Such an approach enables students to holistically understand climate change from an early age while training students to become responsible citizens and future-ready, which are also recommended with emphasis by the Task Force on Review of School Curriculum in its 2020 Final Report (EDB, 2020).

Now more than ever, embedding climate education throughout Hong Kong’s 12-year free education system is particularly essential when the subject of Liberal Studies is replaced by Citizenship and Social Development starting in the academic year 2021. The curriculum surrounding the environment (i.e. Module 6 – “Energy Technology & the Environment”) is further trimmed to a sub-theme under the “Interconnectedness and Interdependence of the Contemporary World”, with a narrowed focus on sustainable development (EDB, 2021a). As we recognize the necessity of climate action and education, mandating minimum learning hours

of climate education for all students should be stipulated to ensure the advancement of climate literacy and empowerment among future generations.

Specifically, we further recommend modernising the syllabus of Geography under the Senior Secondary (SS) Education to include more discussions pertaining to environmental measures and issues in Hong Kong and around the world, with an emphasis on climate justice and climate action. Realising students pursuing Geography in their SS education would have a greater interest in climate and environmental issues, solution-based discussions that go beyond the theories and causes of climate change encourage students to apply knowledge learnt in classrooms to real life. This can also empower Geography students to lead climate actions in schools and their communities.

We also acknowledge Hong Kong's Climate Action Plan 2050 noted the importance of capacity building and nurturing professional talent. While allocating more resources to developing environment-related tertiary education programmes is encouraging, the government should also step up its long-term and continuous support beyond monetary terms. We call upon the government to set up a more structured and systematic aftercare mechanism for green projects and social enterprises that the government has subsidized or assisted financially. A Home Affairs Bureau survey underscored that the government should provide better capacity-building support as the survey highlighted the mismatch and discrepancies between what the government had provided and what social enterprise practitioners needed and desired (CUHK et al., 2014). A toolbox for capacity building that includes technical support, professional training, and advisory services should be readily available for eligible green projects and social enterprises, so as to keep track of their progress and empower them to grow and succeed. This would also ensure resources granted by the government are used efficiently with meaningful results.

Public Participation

Acknowledging the Council for Sustainable Development's (SDC) bottom-up and stakeholder-oriented public engagement exercise on its Long-Term Decarbonization Strategy of Hong Kong, we urge the government to accelerate the adoption and implementation of strategies recommended by the SDC, as well as to expand such engagement exercise to other government-led climate strategies and actions.

Meanwhile, we also hope to spotlight the bureaucratic barriers of the existing support and subsidy schemes that hinder public participation in climate actions. For instance, while the Environment and Conservation Fund (ECF) encourages schools and other non-government organizations to install solar panels and other facilities that generate renewable energy, the cumbersome administrative and approval procedures impeded the installation scale and progress (ECF, 2022). While the ECF application result will normally be released within 6 months, cases are taking as much as five years to install 12 solar panels above a car park in school campus as schools are required to obtain prior approvals from the Education Bureau, Architectural Services Department, Housing Department, and Fire Services Department before applying the ECF. Only 337 applications to install renewable energy facilities were being approved in the first six years since the renewed scheme started in 2008. Such a burden demotivates public participation in climate actions despite the good intentions and initiatives launched. We call on the government to streamline and fast track subsidy applications for established entities with clarity to support and encourage public participation in climate action. Pertaining to the incentivization of renewable energy adoption in schools, the government should

assess campuses' potential in developing renewable energy systems in an active manner and provide energy-saving and green solutions correspondingly (instead of waiting for applications by schools).

Public Access to Information and Public Awareness

With the Environment Bureau website and the Bureau's Climate Ready website as the central repository for climate change resources, we recognize the government's efforts to centralise and disseminate climate information to all members of the public (EB, 2022). However, we observed that the vast information on the Climate Ready website can be better displayed, especially with the various "Useful Links" under the "Resources Centre" tab. For example, re-organising the website in accordance with the sections of Hong Kong's Climate Action Plan 2050 allows the general public to better follow and assess Hong Kong's progress in climate actions. Subsequently, the Hong Kong government should also publish progress reports regularly and adjust strategies correspondingly if the progress trajectory is not met. Ideally, Hong Kong, which ranked 4th in the United Nations Human Development Index (UNDP, 2020), should produce reports referencing the Biennial Report as stipulated under the UNFCCC for developed country Parties, and be translated to a popularised version with specific, simple, and quantifiable languages (UNFCCC, 2022d).

In short, we call on the government to publish data and progress reports on climate actions in Hong Kong periodically and transparently on the one-stop-shop platform for climate information, which we also hope to be presented in a more systematic way and in layman's terms to ease public access to information.

We also call on the Hong Kong government to optimise community outreach channels for raising public awareness and participation in climate action. The optimal public accessibility to information should not just be making information readily available when being accessed, but also making the public aware of the resources available for access. While the general public might already have a certain level of knowledge in environmental conservation and climate action, they might not always pursue such virtues proactively and consistently.

Turning awareness into actions, the government should reinforce public awareness to empower climate actions as part of their lifestyles. Existing environment-related government social media accounts, including "Big Waster" and "Wong Kam Sing", should be further mobilised to better communicate and interact with the public. Public forums dedicated to climate actions can also be set up for citizens to share opinions and tips on environmental protection. Incentive schemes such as rewards redemption programmes might also be explored to encourage actions to alleviate climate change and protect the environment in a consistent manner.

In particular, the youth should be empowered as key advocates and pioneers to promote climate information accessibility and awareness in their own communities, such as in families, schools, and offices. Voices of the youth should be amplified to bring cross-generational influence and change for the betterment of the climate and environment.

To conclude, we look forward to the actualization of Hong Kong's Climate Action Plan 2050 and its specific implementation roadmap and progress reports following the establishment of the Climate Change and Carbon Neutrality Office and Interdepartmental Task Forces. With strengthened education, training, public



awareness, public participation, public access to information, and international collaboration on addressing climate change, climate actions should be empowered to be inclusive, effective, and purposeful.

3. Adaptation

By Calvin Wong, Chan Hiu Ching, Koon Cheuk Ying, Lam Yui Ying and Tsang Ka Ki

Last year, a global red alert was issued by the Intergovernmental Panel on Climate Change of the United Nations. The report points out clearly that global warming caused by human activities has led to more frequent and intense extreme weather events. In Hong Kong, we are prone to increased numbers of Very Hot days and Hot nights, city-wide disasters brought by super typhoons, and unstable food supply. In 2021, we have recorded the highest annual mean temperature at 24.6 degrees Celsius and there are record-breaking numbers of Very Hot days (54 days) and Hot nights (61 days) (HKO, 2022b). The increased temperature is affecting people's livelihood, outdoor working environments become more dangerous, outdoor public spaces become less pleasant and small-sized housing, such as subdivided units become even more unlivable. Climate adaptation plan is pivotal for Hong Kong to secure the livelihood of the citizens.

The Hong Kong government has issued the Climate Action Plan 2050 in October 2021, allocating about \$240 million to implement mitigation and adaptation measures to combat climate change from different fronts (EB, 2021c). They include reducing flood risk, contingency plans for natural disasters, transport systems, and enhancing emergency alert systems during extreme weather events. However, a majority of governmental solutions depend on "Strengthening Infrastructure" to reach the goals that lean on reducing the impact of economic damage in Hong Kong. The livelihood of stakeholders such as elderly, low socio-economic status groups are similarly susceptible to the consequence brought by climate change, yet not being mentioned. Measures on public health, food security, housing and disaster preparedness should be addressed in the roadmap.

Recommendations

Public Urban Space and Shelter

The increasing number of hot days and nights, in addition to increased risks of floods and storm surges, make it necessary for adaptations in urban planning to make community spaces more liveable and accessible, especially to the homeless, low-income residents, ethnic minorities, and disabled people. We recommend that the government expand its shelter capacity in each district for residents to move to during the months of June-September. Currently, the government only has one shelter per district, open at night. Each district should have temporary shelter space for at least 10% of the resident population. Shelters should also be open 24/7 to accommodate different work hours of residents, and should have adequate medical support for residents suffering from heat-related illnesses or injuries from extreme weather. Currently, existing civic infrastructure, such as bus stops, parks and cycling tracks, should also be increased the ratio of shading and shelter. Low-income and neighbourhoods with marginalized communities should be prioritized when upgrading public infrastructure.

Housing

As for the housing policy, one of the ways is to provide funding for house owners to renew their buildings, including using insulation materials like paint with a high reflective rate, installing rooftop solar panels and farming systems, and arranging more vertical greening plants. For those upcoming housing programs, there should be mandatory legalized regulations requiring those buildings to include elements of adapting to

climate change. Elements should be but are not limited to using more renewable building materials, using materials with a high reflective rate at the exterior walls and rooftop, providing ventilation belt, open space and green area between buildings that increase ventilation.

Extreme Weather/Disaster Preparedness

In order for HK to become more resilient to threats posed by climate change, it is necessary for HK residents to have a greater awareness of climate disaster in their daily lives which can be achieved in the following ways. First, Hong Kong Observatory is responsible for monitoring and forecasting weather in HK and a comprehensive disaster warning system is recommended which incorporates the current very hot weather warning, very cold weather warning, rainstorm warnings and typhoon signals and an additional storm surge warning. Levels of warnings can be classified into several levels based on both scientific data and social impacts, which are of equal importance. Such information can be disseminated via current channels, including apps, websites and public broadcasting media. Also, the government is responsible for formulating a comprehensive response plan and it should be communicated to all members of the public including schools, the business sector, employers and employees, and public transport operators so that they can adjust and propose suitable measures accordingly. Moreover, education plays a pivotal role in raising the public's awareness of how the public can respond to disasters. Schoolchildren should be taught to understand the contributing factors and responses from a young age. More promotion from local green groups and non-governmental organizations are needed to motivate the general public to understand climate change impacts.

Food Security

As for increasing food security in Hong Kong, first is not to convert farmland into “metropolis” developed areas, but to preserve local farming areas. Other related examples include providing funding for developing primary industry and eco-friendly local small-scale companies, which promote self-sufficient farming. The government should also provide funding for farmers to mitigate losses due to extreme weather events. Encouraging rooftop farming and converting abandoned industrial buildings into revitalized community farms would be another feasible method to raise public attention toward local farming.

4. Cities: Urban Heat Island Effect

By Derek Tong, Michelle Fung, Rose Wang and Sze Cheong Chi

From the perspective of urban planning and urban life, our position paper initially concerns the urban heat island effect of modern cities and adopts Hong Kong as an example. After a brief background delineating the whole story of urban heat island effect, its problems and relationship with climate change and climate justice, existing policies and potential difficulties may be confronted, and the analysis for the comparison between HK Climate Action Plan 2050 and international examples, this paper eventually offers a considerable and deliberate suggestion to advocate for climate justice. Recommendations on modern climate practices will be provided with an integration of extensive research and the ideas of the local youth.

Urban Heat Island (UHI) effect develops when urban cooling rates are slower than rural ones. It is one of the best-known effects of urbanization, which occurs in a densely populated area. There are several main factors that may bring about the UHI effect.

1. The high heat capacity of the buildings in the urban area compared to surrounding rural areas, resulting in more of the sun's energy being absorbed and stored in urban areas.
2. The high-density buildings in urban areas block the view of the sky and reduce the heat release back to space. This is indicated by the "Sky View Factor (SVF)", calculating the relationship between urban geometry, city wind ventilation and temperature.
3. Man-made heat emissions by buildings, air conditioning, transportation and industries in urban areas.
4. Dense development in urban areas, which reduces wind speeds and inhibits cooling by convection.

Besides building geometry, the height and density of the buildings also affect temperature and air flow. Other factors relevant to UHI are wind direction and speed, vegetation cover, man-made heat sources and air-borne pollutants (PolyU, n.d.). In Hong Kong, the UHI effect is primarily a nighttime phenomenon. The UHI effect is more significant in winter and is usually best displayed on individual days with a stable atmosphere, light winds and a clear sky (Mok et al., 2006).

The UHI effect in Hong Kong can be illustrated by the number of hot nights (temperature > 28°C) recorded in Hong Kong, which is closely related to our urban development. From 1885-1914, the annual number of very hot days in Hong Kong was 2.2, while the number of very hot days jumped sixfold to 18.9 days from 1992-2021 (HKO, 2021). Annual number of hot nights also increased from 0.6 during 1885-1914 to that of 25.0 in 1992-2021. We have also witnessed a historical high in the number of hot nights (61) observed throughout 2021 in Hong Kong (HKO, 2019).

As a high-density city in the subtropics, Hong Kong is affected by the urban heat island effect due to land use, urbanization, and human activities (Wang et al., 2016). The old and frail, particularly those living in subdivided flats, will have to face an increasing number of hot nights with no air conditioning, plus very limited air ventilation. Studies report that at the peak of summer in Hong Kong, every degree Celsius rise in temperature results in several more deaths associated with excessive heat exposure.

UHI also exacerbates heat waves, increases the risks of heat stroke and exhaustion, especially among those with chronic diseases and working outdoors (PolyU, n.d.). By synergy with summertime heat waves, UHIs can foster heat stress, creating a biophysical hazard. A significantly increasing trend in the intensity of extreme UHI events in summer implies that the risk of mortality and heat-related diseases due to heat stress at night in summer, when the daily maximum UHI occurs, is also increasing significantly.

Whilst the devastating impacts of global warming grow more severe by the day, Hong Kong is witnessing an increase in frequency and intensity of extreme weather events (HKO, 2022a). Urban Heat Island effect may also contribute to climate change by increasing demands for air conditioning during extreme heat weather events. This will further contribute to the cycle of using more energy and from burning of fossil fuels, also resulting in further heat-trapping greenhouse gases.

Currently, older built-up areas in Hong Kong such as Yau Tsim Mong, Sham Shui Po and Kwun Tong are also some of the densest areas where UHI effects are most severe (PlanD, 2012). These areas also happen to be areas which are the poorest and people who stay in lower classes in Hong Kong. Vulnerable groups often bear the brunt and are more affected by these climate disasters among the general public.

In terms of materials preventing heat, there is also an unequal distribution of urban cooling resources or considerations across areas of Hong Kong, with older areas typically overlooked. Often proposed solutions to alleviate UHI only focus on new development areas and not older areas in the city. Such a serious ignorance has substantially caused an injustice of climate in our society to an even more extent. Hence, it suggests a wider climate justice problem where poorer and traditionally built-up areas suffer from UHI, and which is further aggravated by climate change.

Review of Existing Local and International Policies and Solutions

Hong Kong Planning Standards and Guidelines

Currently in the Town Planning system of Hong Kong, there is a guiding document for developments named “Hong Kong Planning Standards and Guidelines” (HKPSG) (PlanD, 2022). HKPSG is a planning tool, with the purpose of providing a general guideline and recommendations to ensure that developments across Hong Kong meet various standards and forecasts of socio-economic requirements. It also helps regulate developments by providing guidance on scale, intensity and site requirements of various developments as well as supporting facilities required.

In Chapter 4 “Recreation, Open Space & Greening” and Chapter 11 “Urban Design Guideline” of the HKPSG, there are minimum standards and recommendations of how much open space, urban greening, or wind corridors a development should provide, or the design recommendations that developments should consider (PlanD, 2022). These include creating and enhancing breezeways along prevailing wind directions (principal roads, inter-linked open spaces, non-building areas, building setbacks, over low-rise buildings [below 15m]), and to have lower scale and height, wider building separation for waterfront sites to avoid blockage of winds to allow more wind flow into the urban cores.

International Policy Directions

Currently, various cities overseas have launched policies to deal with the problems of UHI. For example, Singapore has introduced a smart bus stop and set up a pilot project in a busy area of Orchard Road, to help

passengers alleviate extreme heat and air pollution. Singapore Government has worked with local firm ST Engineering to produce this bus stop, which can release cold air as low as 24 degrees Celsius, and filter harmful PM2.5 particles, reducing pollutants emitted by cars. Singapore's Green Mark Compliant Scheme and Toronto's Green Roofs, also has legal requirements for the conservation of the built environment (Iwamoto, 2018).

Review of Hong Kong's Climate Action Plan 2050, and Comparison with International Targets

According to the policy measures of Hong Kong's Climate Action Plan 2050, the government plans to phase out power generation by 2035 and increase the development of renewable energy with net-zero power generation, energy-saving green building, green transportation, and national waste reduction as the center (EB, 2021). In terms of transportation, to implement the "Blueprint for Clean Air" and promote the use of new energy transportation vehicles (EB, 2021a). Promote the "Electric Vehicle Roadmap", and plan to stop new registration of fuel and hybrid private vehicles by 2035, with a view to achieving zero emissions in the transportation industry (EB, 2021b).

Looking at Hong Kong's policies from overseas examples, in terms of transportation, the implementation time is quite long, and the feasibility is observed, but it does not help the air pollution problem before it is fully implemented. At the same time, Hong Kong's traffic is congested, and the amount of pollutants emitted by vehicles is very high releasing massive amounts of air pollution. Air pollution negatively impacts pedestrian streets and residential buildings, thus damages health and respiratory systems of local residents. Hong Kong's high-density context also traps greenhouse gases more than other low density cities in the world. Hong Kong Government can refer to the policy directions and practices adopted in international examples.

Shortfalls of the Existing Policies

HKPSG is a document that provides general guidelines only, and the performances of developments to reduce Urban Heat Island effect are reviewed at a discretionary or case by case basis (PlanD, 2022). In other words, it is not a mandatory or statutory procedure that developments proposed must follow. Furthermore, the guideline only suggests a minimum requirement, which means that the standard requirements to reduce the UHI effect may not be effective in practice. It is understood that in a high-density city like Hong Kong, there are various site restrictions and perfect solutions may not be possible.

In Hong Kong's Climate Action Plan 2050, some policies that may alleviate UHI effects are only focused on new development areas, and traditional built-up areas are not mentioned in the Government's policy direction (EB, 2021c). For example, the implementation of District Cooling System (DCS) to reduce energy consumption and reduce UHI effects are only focused on New Development Areas (NDAs) such as Kai Tak, Tung Chung New Town Extension (East), Kwu Tung North NDA (PlanD, 2012). It is in itself a great innovative urban planning infrastructural element which can save up to 35% of electricity consumption when compared with conventional central air-conditioning systems in individual buildings. However, much of the existing built-up urban areas are not mentioned. Areas such as Yau Tsim Mong, Kwun Tong, and Sham Shui Po are some of Hong Kong's highest density locations with many old buildings which are not as effective in cooling. The negative effects of UHI in these areas are severe, and require the same if not more attention. Unfortunately, the current policy framework lacks comprehensiveness, as the policy direction will not be able to alleviate the UHI effect in older development areas.

Increased greening in urban areas is also one of the policy directions from the Climate Action Plan 2050 (EB, 2021c). However, it only contains a general statement, without clear exact number of investment, nor number of trees/amount of greening to be provided, nor detailed plans provided into how to achieve this.

Recommendations

Review and Improve Hong Kong Planning Standards and Guidelines, and to Adopt Mandatory or Statutory Requirements

We advocate for the government to adopt at least an entry level mandatory requirement of mitigation measures to alleviate UHI effect, such as a scoring system is to be adopted in Hong Kong's Town Planning System. It is understood that in a high-density city like Hong Kong, there are various site restrictions and perfect solutions may not be possible, but minimum mandatory requirements could be set at least for an entry level.

Private developments from big real estate corporations have more funding to adopt green building or sustainable urban developments. However, some private developments from grassroots, non-governmental organizations or institutions do not have the initial funding to adopt sustainable solutions. Although there are existing green loans proposed and offered from the private sector, the Government should provide further monetary incentives so that green developments to reduce UHI can be adopted in Hong Kong.

Formulate Detailed Urban Greening Strategy

The government can formulate a greening strategy to increase green coverage, e.g. providing extensive roadside tree planting, green podium, green wall and low-level green roof, is effective to alleviate the excessive heat in the urban environment. Government bodies and developers should cooperate to allow a network of connected green corridors, to provide resting points for pedestrians and more green space to improve the livability in the urban areas of Hong Kong.

A large building volume increases the thermal load, whilst reducing the radiative cooling effect in urban areas at night. Tall buildings on narrow streets also limit air ventilation, which contributes to heat trapped in dense urban areas. Town planners and architects should be more aware of the ventilation effects given the tall building morphology of urban Hong Kong.

Establish Interdepartmental Committee

The government is advised to establish an interdepartmental committee to investigate and research on the systematic promotion of UHI effect counter-measures. For example, the Hong Kong government could design maps concerning the thermal environment of Hong Kong to enable the evaluation of data. There should be a clearer and systematic design guideline regarding the counter-measures of UHI effect for the public, apart from the gross floor area ("GFA") concessions. More suggestions on the ventilation rate, vegetation cover or on heat relief measures could be made for the construction industry to make voluntary efforts to reduce UHI phenomenon.

Challenges

Bureaucratic ("Redtape") Obstructions

For long administrative procedures, human causes such as bureaucratic implementation and subjective obstruction should be avoided as far as possible. Public administration resources and restricted time and

energy deserve to be treasured gingerly. Only sustainable management can effectively promote sustainable environmental improvement and climate justice.

After the development of a relatively thorough administrative networking organization, extent and means put forward come to be the next emphasis to be considered. Quantity does not mean quality, general transformation does not imply sustainable living with the environment and climate justice of every place in this world. Respect for regional climate and social circumstances and flexible actions connected with different countries and regions produce even more achievements compared to a simply “equal” policy applied on this unequal earth nowadays.

Software Support, Building Community Capacity

For the terminal and the most comprehensive procedure, that is, education to the public and children. Fortunately, Hong Kong has a quite developed organization of local communities and basic education. Our ultimate goal is realizing a picture that is built by people in all walks of life and every class and sector in our society. Such an aspect could attain a status of “conference of people” and practice for a whole group of citizens.

Funding and Financial Support

Funding and financial support is required for actions to alleviate the UHI effect. Especially for urban renewal projects in existing built-up areas of Yau Tsim Mong and Sham Shui Po, cooling of these districts will require lots of economic contribution. The Government must carefully consider and suitably allocate financial resources to alleviate UHI effect thus achieving a sustainable development.

Sustainable development is a key component of what constitutes a developed city, let alone an international metropolis like Hong Kong. In the past 100 years or more, Hong Kong has gone through quick transformations from a fishing village to an entrepot, from an industrial hub into an international financial center; at the same time, our exploitation of the environment has also increased in exponential terms similar to our GDP. The Urban Heat Island effect is just one of the very important environmental issues that deserve the Government’s focus and community attention, and we firmly urge all stakeholders to put more emphasis on the environmental aspect while considering the socio-economic development of Hong Kong.

5. Cities: Urban Greening

By Anson Chan, Charles Lam, Tsang Ching Man and Victor Pang

In Hong Kong, there is only 20% urban greenery coverage, which is relatively low (Green Power, n.d). With the severely limited ground-level spaces in Hong Kong, vertical greening and green rooftop would be an alternative approach in the city. We, therefore, desire to make suggestions and recommendations on urban greening.

Currently, in Hong Kong, there are plans, guidelines, and schemes adopted for urban greening. The Greening Master Plans in urban areas is one of the examples (CEDD, 2019). It has detailed planning developed and has the implementations completed. Guidelines on the types of vegetation to be planted are also clearly mentioned. In addition, The BEAM Plus New Building Scheme is also an encouraging assessment tool for the new green buildings (HKGBC, 2019). Since the promulgation of the scheme, there has been increasing awareness of green buildings and more advancements in construction technology.

Policy Gap

There are 2 main policy gaps in urban greening currently in Hong Kong. To start with, the roof-top greening development is now a voluntary base only. It is essential to fill the gap in enlarging the green capacity for city further greening with different solutions like mandatory regulation or policy incentives. Secondly, the imbalance of open space establishment in town planning is found by us since the urban green open spaces are now mainly built in new towns or coastal areas. That ignores the master plan for inner cities or the old town open space development. Therefore, these policy gaps are an emergency to fill to face the carbon emergency challenge.

Recommendations

BEAM+ Criteria Change

Currently, the Government encourages green building initiatives through the BEAM Plus scheme, which is a voluntary recognition scheme aiming to increase industry standard (HKGBC, 2019). However, the development of green buildings is slow without the mandatory requirement. It is recommended that roof-top greening is a compulsory requirement for building new buildings.

Fully Utilize the Rooftop of Existing Building

For the existing building, it is recommended that the Government should take a proactive role to encourage property managers and owners to utilize their rooftops for greening projects, in which incentives shall include subsidies for consultancy and construction services.

Compulsory Roof-top Greening

Apart from private buildings, the government can also take the initiative to launch greening in government-owned buildings, such as public housing estates. Currently, 30% of greening is required in each public housing estate, yet roof-top greening is not universally adopted (HA, 2022). It is recommended that the government can set up roof-top greening in government buildings.

Urban Planning on Planting Distribution

Lastly, to cope with the problem of imbalanced development of open space, better urban planning is needed in the long term. Particularly for redevelopment projects, it is suggested to regulate the ratio of open space to the redevelopment area.

Challenges

Human Resource Deficit

First, the capacity of green building professionals needs to be improved to overcome the human resource deficit. Thus, public private partnership (PPP) can be undertaken in institutions so that more willing professionals are created for the industries. PPP arrangement can be an opportunity to improve the productivity of existing staff resources in performance-based contracts.

Inadequate Resources for Greening Services

Second, public and private cooperation needs to be further enhanced in increasing available resources for greening services. Therefore, the private sector can engage with the private sector for more cooperation in greening building technology and occupational safety practices.

Low Environmental Awareness

Third, the awareness of citizens of all ages towards reducing carbon and the impact of their lifestyles on the environment should be further heightened. The government should accept the principle of whole life costing, and an absolute commitment to the long term (15-30 years) of the carbon-reducing facility/service by the government. Standardized documentation where possible to simplify processes and reduce costs. Such practice is critical to scale up PPP in implementing the SDGs in reducing carbon. On the other hand, for the private sector, transparency is better than secrecy. The private sector should provide full information on the project to the authorities. While for-profit institutions have a right (or an obligation) to make a profit, this has to be balanced against the equally important considerations of ensuring safety, quality and equity.

Limitation of the Building Structure

Last but not least, regarding the limitation of the building structure, when granting Gross Floor Area (GFA) concessions in new building development, the Building Authority should, where appropriate, take into account the compliance with the Sustainable Building Design (SBD) Guidelines, including site coverage of greenery. The SBD Guidelines are set out in BD's Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) APP-152 – Sustainable Building Design Guidelines. Further details on the prerequisites for granting GFA concessions are set out in PNAP APP-151 – Building Design to Foster a Quality and Sustainable Built Environment.

We understand the compulsory measures might be laborious to adopt. Regarding the solution, we believe it is pivotal and effective to furnish financial support as compensation, and fundamental incentives for the building owners or infrastructures to build urban greening components in existing buildings. Additionally, long term regulations are still needed to maintain the advocated rules and actions proposed. Continuity of government and private sectors' cooperation is required for implementing the actions and mutually monitoring one another.

From the above shown, it is important that various policy adjustments should be done by the local

government in Hong Kong. Addressing the BEAM+ criteria, helps enhance the popularity of rooftop greening. Furthermore, PPP can support fully utilizing the rooftop of the existing building in society. Better urban planning policies such as vertical greening in public housing and provision of public open space is also important in improving urban greening in Hong Kong.

Despite the various challenges that might arise, namely resource deficiency and limitations in building structure might hinder the development of urban greening, financial support and adjustment on long-term regulations can be done in maintaining the advocacy rules in the future. It is hoped that in the near future, the climatic standards and goals on local greening can be met by the Hong Kong government.

6. Eco-conservation

*By Au Hiu Ching, Fu Hoi Man, Fung Kwan Chak,
Lam Yee Wah, Liu Ying Cong, Yannick Yeung and Yim Yuk See*

Ecological coastlines are man-made ecosystems that combine dykes with different kinds of nearshore marine organisms and microorganisms. The ecological shoreline serves not only to safeguard the coast, but also to provide a safe haven for various species of marine life as shelter and feeding ground.

Due to overpopulation and demand for land, the Hong Kong government needs solutions for land supply. Reclamation with ecological coastlines is one of them. Nonetheless, not only does it exacerbate the pressure on the ecosystem of the shore due to long term construction works, it is also doubtful whether artificial shorelines can replace the natural habitats.

The Impact of Reclamation on ecosystem

Land Reclamation is an effective way to create new land in coastal cities with mountainous terrain. This technology is used to generate flat land in several large coastal cities, including Tokyo, Macau, and Tianjin. The sand for the construction of Queen's Road in Hong Kong was dumped into the sea after Hong Kong's harbor was opened in 1842. Hong Kong has continued to reclaim the sea since then. The reclamation area has grown to 67 square kilometers in the last century, accounting for more than 6% of Hong Kong's total land area (Feng & Xu, 2021). The reclamation provided more flat land for housing and other purposes in Hong Kong. It turned out to be a land project that benefited Hong Kong's development, but the reclamation also created an ecological problem in the city.

The Lantau Tomorrow Vision, which is also the most expensive infrastructure project in Hong Kong's history, is the most recent large-scale reclamation project by the Hong Kong government as of September 2019 (Zhao, 2019). This project not only depletes the government's coffers and threatens Hong Kong's marine life, water nearby was also polluted as a result of the large-scale construction.

Besides, Greenpeace estimated that the Lantau Tomorrow project costs 624 billion dollars and will take 15 years to complete (Greenpeace, 2022). However, the reclamation operation will devastate the marine ecosystem and threaten the endangered Chinese white dolphin. If only brownfields are developed, the land costs 33.3 billion to construct, and it can be developed as soon as the land regulations are abolished. It is obvious that reclamation is not cost-effective for long-term development and will cause damage to marine ecosystems.

Furthermore, scholars from the mainland China have studied Xiamen's reclamation development plan, employing the idea of ecosystem services to estimate the impact of reclamation projects on the marine natural environment (林琛琛 et al., 2014). According to the study, every square meter of land reclamation results in an annual loss of CNY ¥9.73 to CNY ¥14.72 in ecosystem services. According to the research, we would lose an ecosystem of estimated HKD\$140 million with the scale of the Lantau Tomorrow project.

But some environmental organizations suggest that although artificial coastline helps restore some of the

natural tidal zones, some areas that are damaged by reclamation, like deep sea habitat, can never be replaced. Taking the reclamation project in Tung Chung as an example, the improved coastline does not change the fact that it is only one kilometer away from an ocean protection zone (CEDD, 2020). Moreover, reclamation affects the living habits of marine animals, and can lead to a decrease in biodiversity in the nearby area.

If extreme weather continues to increase in the future, the sea level will continue to rise. This will cause damage to Hong Kong's coastal areas and affect residents' living conditions. Flooding will also occur more frequently, while reclaimed areas are more vulnerable to floods. For example, Typhoon Mangkhut devastated Hong Kong in 2018, especially in low-lying areas like Heng Fa Chuen (HKO, 2020).

Furthermore, the breakwater of Hong Kong's shoreline is mainly composed of artificial sea walls made of concrete and granite, in order to provide cost-effective coastal structure protection. These materials' surfaces are relatively smooth, which makes it difficult for organic matter and microorganisms to attach to and grow on. It causes intertidal species to dehydrate or die during hot season or low tide.

The Hong Kong government hopes to create an ecological coastline to minimize the impact on ecosystems. Nevertheless, it is not addressing the root cause in our opinion.

Local Feasibility Research of Artificial Coastline

The Hong Kong government installed eco-shoreline features at the seawalls in Sai Kung, Lung Kwu Tan and Ma Liu Shui for field trials in 2020 to assess suitable external habitat conditions, such as moisture, humidity, temperature, pH value and surface roughness (CEDD, 2021). There are dual purposes for ecological coastlines which are to protect the coasts and conserve ecosystems, as well as protecting marine biodiversity. The ecological shoreline can also become a public space for people to enjoy coastal activities and for environmental education if humanized landscape design is utilized.

Barangaroo Reserve in Australia

With the development of cities, the natural ecology has become more fragmented. Originally, the coastal area would drive a mangrove-like ecology when the tide ebbs and flows, but the vertical coastline hinders such ecological space. Instead of the construction of traditional vertical seawalls, the Sydney government is more inclined to use ecological coastlines for coastal conservation. In order to reduce the impact on the natural environment and create more ecological living space, they are planting mangroves in front of seawalls, placing reef balls, building stepped slopes and so on. It increases the survival and reproduction rate of marine animals, provides more shelter space for wetlands, creates a buffer between coastal ecology and artificial buildings, and also increases the biodiversity and stability of the microbial ecology on the shore.

Recommendations

Avoid Reclamation, Development of Country Parks' Periphery and Wetlands

The ecological coastline is merely a remedial solution for the harm caused by the reclamation. Artificial remedial measures are insufficient to restore the natural coastline's original biodiversity and ecological functions. Reclamation poses threats to the environment and biodiversity, causing irreversible harm to the natural environment. To that end, the government should avoid reclamation, development of country parks' periphery and wetlands when planning land development projects.

In Hong Kong, the Big Four developers own about 100 million square feet of agricultural land. Developers have been accumulating land for years, but the government has ignored citizens' demands to use the Land Resumption Ordinance to develop agricultural land, allowing resources to stay unutilized. Furthermore, according to the government's brownfield potential research, only about 30 hectares of brownfield sites with considerable development potential will be developed for housing or other infrastructure required. Rather than continuing with reclamation, the government should first consider the existing resources in Hong Kong. The government can also roll out a long-term plan to achieve sustainable development that maintains the ecosystem's balance and stability.

Conduct Long-term Territory-wide Biodiversity Surveys and Monitoring

The most recent habitat map compilation in Hong Kong was carried out in 2008, and it is based on the 1998 Habitat Classification System (AFCD, 2021). The government can promote research of the habitat by actively renewing important data, updating maps and knowledge, and providing the most updated instructions.

Previously, the AFCD solely kept track of marine mammal and coral communities, while other organizations kept track of marine ecosystems and conducted species surveys. Due to the knowledge gap, the AFCD should conduct baseline surveys, collaborate with universities and professional organizations, and expand long-term monitoring to additional key marine ecosystems and species, like ecological coastlines.

Maintain the Connection Between Natural Habitats

Natural habitats that are connected to one another are significant because not only they help wildlife migration, but also enable plants and animals to accommodate to the impact climate change brings. Since the seas of Hong Kong, Mainland China, Macau, and other areas are interconnected, the government should work across borders to conserve the environment, maintain water quality, and improve natural habitat connectivity.

Hong Kong is one of the cities with the highest level of urbanization and population density. Nevertheless, this tiny place contains high biodiversity, and avoiding biodiversity loss is a challenge for Hong Kong due to all the land development projects. Reduction of reclamation construction works are essential to conserve and monitor the natural marine habitat, as well as the biodiversity of Hong Kong.

We hope Hong Kong's diverse biodiversity could be acknowledged, maintained, restored, and managed sustainably, in order to maintain the local ecosystem's balance and stability. Making Hong Kong a responsible coastal city with environmental sustainable development plans.

Combining various aspects and facts, ecological coastline is a possible way to avoid ecological degradation. It provides a better ecological shelter for marine organisms than a standard vertical seawall, yet it cannot completely replace a natural shoreline. This method can be used to repair damaged coastlines, but it shall not be used to justify the reclamation construction work of creating new artificial coastlines.

7. Finance

By Lo Long Ching and Tam Ngai Hei

The climate change crisis is looming, and countries are committed to moving towards a green, low-carbon and climate-resilient economy, and the global carbon market is expected to usher in significant growth. Chinese President Xi Jinping delivered a speech at the general debate of the 75th United Nations General Assembly, proposing that China will strive to achieve carbon peak by 2030 and carbon neutrality by 2060 (Xie, 2021). According to Hong Kong's Climate Action Blueprint 2050, Hong Kong will strive to achieve carbon neutrality by 2050 (EB, 2021c). As an international financial center, Hong Kong plays an important strategic role in financing capital to support the achievement of carbon neutrality. Our initiative will focus on the two major issues of carbon markets and carbon taxes.

In the 2021 Policy Address, the Hong Kong government proposed to support the Hong Kong Exchange and Clearing and Guangzhou Futures Exchange to cooperate on carbon emissions trading-related financial products, and the Steering Group conducted a preliminary assessment of Hong Kong's carbon market opportunities (HKSAR, 2021b). In addition, HKEX signed a memorandum of understanding with Guangzhou Futures Exchange in August 2021 to promote the development of a green and low-carbon market in the Guangdong-Hong Kong-Macao Greater Bay Area (Greater Bay Area), in areas such as clearing, technology, market promotion and investor education. exchanges and cooperation to jointly support sustainable development (HKEX, 2021). However, the Hong Kong government has yet to announce the exact implementation plan and details.

In Hong Kong, there is an absence of a carbon market in the financial system, and there is no channel for investors to enter the carbon market in Hong Kong or China. The local carbon emission industry in Hong Kong is relatively single and concentrated, and the total amount of carbon emission is relatively small, making it difficult to build a local independent carbon trading market. According to the 2019 Hong Kong Air Pollutant Emission Inventory Report, 65% of carbon emissions come from power generation facilities (from CLP and HK Electric), while the remaining 18% and 7% are mainly from transportation and waste treatment facilities respectively.

There is a lack of uniform charges for carbon emissions in Hong Kong, such as vehicle fuel tax, aircraft fuel surcharge, and fixed parking penalty for turning off the engine. There is no clear policy to promote the centralized and systematic handling of carbon emissions-related charges. According to the Civil Aviation Department, the current fuel surcharge is based on the current month's oil price to adjust the fuel surcharge for the next month (like the cargo fuel surcharge in March 2022 will be a maximum of HK\$3.8 per kilogram), rather than carbon emissions to determine the price (CAD, 2022).

Recommendations

Establishment of a Unified Carbon Market in the Guangdong-Hong Kong-Macao Greater Bay Area

Due to the small size of Hong Kong's economy and total emissions, the independent construction of a mandatory carbon market will face the bottleneck of insufficient liquidity. Hong Kong has a large number of international investors who are interested in carbon market opportunities. Hong Kong can jointly design with

Guangdong Province and Macau the Greater Bay Area carbon market plan and research will gradually cover major emission companies in Guangdong, Hong Kong and Macau.

Expansion of Local Carbon Market

The local carbon market can be expanded from the two major electricity generating firms to other industries, including gas, LPG, aviation, concrete, incineration facilities, aviation and transportation industries and the like.

Also, the carbon market can expand from major enterprises to individuals by combining gasoline taxes, and other fees into a carbon tax. It can adopt internationally recognized carbon emission calculation standards, standardize carbon pricing, and cut direct carbon emissions.

8. Food: Food Waste

By Brian Ng, Chen Jie, Inky Ip and Mok Meo Suet

Food waste refers to the disposed food, which could be the uneaten fruit peel or bones, or anything that is left after cooking. Yet, the food waste usually mixes with complete leftovers. Leftovers could feed people, but when it is not, putting them into the food waste recycling bin would be a waste of food.

Food waste remains the biggest component of MSW in 2020 (EPD, 2022). In 2019, the daily amount of food waste in Hong Kong was as high as 3,600 tons, accumulating more than 1.3 million tons in one year, which is almost equal to the weight of more than 100,000 double-decker buses. Throughout the food waste sent to landfills, most of it is still edible, that can be avoided. Domestic food waste accounts for about 70% of all food waste. Hong Kong is the city with the highest food waste disposal in Asia, but its recycling rate is lower than that of neighbouring countries. In terms of household food waste in 2011, Hong Kong ranked first in Asia, with twice the daily household food waste per capita as Seoul and Taipei.

The government targets to reduce daily food waste by 40% by 2022, which is 2,100 tons (EB, 2013). From 2018 onwards, the first phase of the organic resource recycling centre in O-PARK1 would be established, enabling 200 tons of food waste to be converted into electricity after about three weeks (Opark, n.d.). Also, Shaling Organic Resource Recovery the 300-ton centre is expected to be completed in 2022 (EPD, 2017).

The Environmental Protection Association has received about HK\$10 million from the recycling fund under the Environmental Protection Department to implement a smart recycling bin promotion plan. Among them, 15 sets of smart three-colour bins and food waste recycling bins have been set up in Heng Fa Chuen. The rest of the site can be used by the public to recycle vegetable, fruit and vegetable residues, and meat scraps. The EPD claimed that the pilot scheme is around a period of 30 months, and has collected more than 11 tonnes of food waste so far. Citizens can collect food waste once a day with their registered "Green Rewards" points card, through tapping the card to use the food waste recycling box, and exchanging 10 points for the Green Rewards once a day.

The first phase of the O-PARK1 started operation in July 2018. It was originally scheduled to process 200 tons of food waste from hotels, restaurants, food factories and other industrial and commercial sectors every day. It implements various technologies to convert food waste into renewable energy. However, the recycling volume of the O-PARK1 has not been up to the standard since it was in operation. In 2019, it received only 30,000 tonnes of food waste, which was more than half less than the initial commitment to collect 73,000 tonnes of food waste annually.

The time and resources spent dealing with food waste cannot be reversed, whether it is personal, social or environmental, thus the best way is to start from each individual and gather the strength of everyone to be more successful. From the successful experience of other international cities, food waste treatment also depends on the support of the citizens. Whether it is a chain group, an independent restaurant, an environmental protection organisation, they can utilise different methods to encourage all walks of life, and the whole people will work together to face the remaining food waste issues.

Recommendations

1. Increase the total funding for the Sustainability Fund to \$500 million, enabling various schemes to solve the problems in Hong Kong
2. Expand the scale of the current smart recycling promotion programme to public housing estates, so as to reduce the average recycling cost, maximise the effectiveness, and at the same time build up residents' awareness of environmental protection
3. Encourage retailers and supermarkets to participate in leftover and food waste recycling, and encourage them to train their front-line employees, raising awareness to change habits
4. Strengthening manpower at O-PARK1 to speed up recycling

9. Food: Carbon Label

By Brian Ng, Chen Jie, Inky Ip and Mok Meo Suet

Hong Kong is one of the largest meat consumers in the world, with a per capita consumption of about 5.5 times the international average. It is also the largest importer of beef to Brazil, where cattle raising contributes to the deliberate deforestation of the Amazon rainforest. In a 2018 study by the Department of Ball Sciences at the University of Hong Kong, Hong Kong ranked seventh in the world in per capita emissions of the 113 regions examined. The city's growing consumption of imported meat and dairy products is considered a major factor of Hong Kong's carbon footprint.

Many people are not aware of the carbon emissions of products, and lack knowledge in this aspect. These consumers are not well aware of the carbon footprint and life cycle assessment of products, which may make it difficult for consumers to make reductions in their daily life and consumption. Commitments and actions on carbon and protecting the environment become more difficult under this circumstance.

The UK is the first country in the world to implement a carbon labelling system for products. The Carbon Trust, a non-profit organisation funded by the British government, proposed the carbon label in 2006 and launched the first batch of carbon label products after a trial in 2007, ranging from potato chips to shampoo.

France is the first country to write the product carbon label into the Code. In 2008, the carbon emission value was introduced on the merchandise and checkout of some supermarket chains. In April 2021, the French National Assembly passed the amendment bill "Adding a "Carbon Emission Score" to Products.

Japan is the first Asian country to implement a product carbon labelling system. A three-year program started in 2009, in which a total of 73 types of product categories were formulated, and 495 products (about 100 companies) were authorised to use carbon labels, of which food and electrical products accounted for a large proportion. In April 2011, the carbon labelling system for agricultural products was implemented, requiring the agricultural products sold in stores to pass carbon labels to show consumers the carbon dioxide emissions emitted during the production process.

Product carbon label is an environmental label, which aims to alleviate climate change, reduce greenhouse gas emissions, promote low-carbon emission technology, and put commodities in the whole life cycle (generally including the whole chain from raw materials, manufacturing, storage, transportation and waste to recycling). The amount of greenhouse gas emissions emitted is indicated on the product label with a quantitative index, which informs consumers of the carbon information of the product in the form of a label. This method can guide the public's green and low-carbon consumption preference, thereby incentivizing the environmental protection behaviour of enterprises, promoting enterprises to improve production processes, optimise new product designs, select suppliers, and voluntarily internalise environmental costs to reduce product carbon emissions.

Recommendations

Carbon Label

Carbon labels aim to alleviate climate change, reduce greenhouse gas emissions, and promote low-carbon emission technologies through informing the consumers about the carbon emission of products.

Generally, consumers have low knowledge of product carbon emissions and insufficient awareness of product life cycle, carbon footprint and carbon labelling. The government should strengthen promotion and education on the importance of carbon reduction. and product life cycle for multi-faceted and in-depth research and education promotion, including (1) basic knowledge, (2) social value impact and (3) personal quality and behaviour, hence citizens can carry out different environmental protection in their daily life. Carbon reduction activities are subtle, in order to reduce the impact of greenhouse gases and carbon emissions on the environment.

The government should also introduce policies and measures to manufacturers and retailers, and finally consider legislative regulation on carbon emissions and product carbon footprint.

10. Human Rights

By Ashley Wong, Laurence Lai and Mandy Ng

According to the Universal Declaration of Human Rights, Article 26 stated “Education shall be directed to the full development of the human personality and to the strengthening of respect for human rights and fundamental freedoms” (UN, n.d.). We strongly believe that everyone has the right to be equipped with knowledge of climate change as it is an important global issue that is extremely impactful.

Olav Fykse Tveit, The General Secretary of the World Council of Churches said in the COP21 article, “These are basic issues of justice” (UN OHCHR, 2015). Climate Change affects all human beings worldwide, but it seems more impactful to those populations who are underprivileged and found no accessible remedy to climate change (Oxfam Hong Kong, 2021). To be specific, we found that in Hong Kong there are many people who do not know how climate change is affecting their daily lives, such as the subdivided flat residents. The Oxfam Hong Kong released a research report in 2021 Nov entitled “Impacts of extreme weather on subdivided flat residents”, only 20% of interviewed Hong Kong citizens thought that they have the ability to adapt to the negative impacts of climate change.

The report revealed that nearly 60 percent of the surveyed subdivided flat residents in Hong Kong experienced extreme weather more acutely, even at home. Temperatures in their flats were even higher than the outside, and over a quarter saw damage to their flats during typhoons and rainstorms, while landlords rarely paid for repairs (HK01, 2021). It is obvious that climate change is endangering citizens' right to live and endangering citizens' health.

Besides, it is known that the extreme weather is also affecting the working environment of the cleaners, they have to work under hot weather and will get heatstroke easily.

However, society seems to know very little on this aspect, the media and schools seldom cover this topic so the students and society have low awareness of how climate change is harming our life (PORI, 2020). To conclude, we hope to increase education on climate change.

Hong Kong has a generally high education level with the HKSAR Government providing 12 years of free education to students in Hong Kong (EDB, 2021b). However, it has come to our attention that there is inadequate education on climate change. Students were not able to acknowledge the adverse impact of climate change, therefore they are unwilling to implement green living.

The majority of students in Hong Kong are being educated under the HKDSE curriculum, we will mainly focus on it instead of other international schools' curriculum. Currently, the HKSAR Education Bureau has included climate change in the curriculum for Secondary School students. It is under Module 6: Energy Technology and Environment in the Liberal Studies subject in which students were required to critically analyze and evaluate several international collaboration attempts in solving climate change issues. However, the focus is only limited to recognizing the current attempts instead of alleviating it, thus students were then unable to recognize the exact solutions towards it. Additionally, Liberal Studies will be canceled for the following

cohorts. Therefore, education on solutions to climate change should be implemented.

Recommendations

Module of Climate Change

With regards to the shortfall of the curriculum mentioned above, we have a suggestion that we hope the Government will put in place.

It is our conviction that the Government should add a module under the Moral and Civil Education curriculum regarding climate change. The aim of the curriculum is to build up correct values for the next generation. It is worth mentioning that the curriculum also emphasized social and national issues. There is no doubt that climate change has already brought adverse impacts on our daily life, thus it is a social issue that is compatible with the curriculum. The content of the module should cover the topic of climate change, such as the origin, attempts in alleviating and potential solutions and the like.

The implementation of such a policy will allow students to understand the topic instead of only certain parts. Students' climate change awareness will improve significantly thereafter and exercise green living.

There's no doubt that hassle will be invoked after implementing the policy. And we will address each of them here.

To start with, teachers might fail to convey the knowledge that the curriculum requires due to their insufficient information on the topic. We thus suggest that the Government host courses and workshops on the introduction of the topic to educators. This ensures that teachers know what to do during lessons about climate change.

Also, there is currently no specific committee responsible to follow up climate change education in Hong Kong. It would be difficult to set out collective objectives and action plans, as well as to trace the working progress. We suggest the government form a task force together with the Education Bureau officials and professionals for better coordination of related policies.

Many people would criticize that adding climate change as a learning subject means deteriorating students' academic pressure, especially in Hong Kong where it is famous for its tight learning syllabus. To strike a balance between climate education and minimizing pressure, we would suggest replacing some of the existing topics of Liberal Studies module with climate courses, or simply adding climate education as a non-examination course.

Education is the most vital element in shaping our next generation. We must instill a green living mindset through education so that they will be able to live and enjoy the resources of the world in the future. We have to acknowledge the urgency of climate change and the shortfall in green education in Hong Kong. Reform and amendment are needed before it's too late. We sincerely hope that the Government will legislate policies on sustainable agreements and the EDB will organize workshops for educators.

Climate change is a pressing global issue that we are all facing. It is no doubt that if we ignore the gravity of the issue, we will all have to suffer from the consequences of our neglect. Our hands are tied, we have to



tackle the problem head-on. It is now, or never.

11. Renewable Energy

By Cheung Yat Fung, Lau Wing Ting, Sharon Lee and Wong Wing Lam

In January 2017, the Hong Kong government announced Hong Kong's Climate Action Plan 2030+, setting out the target of reducing carbon intensity by 65% to 70% by 2030 (EB, 2017). Electricity generation is the largest contributor to carbon emissions in Hong Kong, accounting for 66% of the total carbon emissions in 2019. However, in 2018, the amount of renewable energy electricity accounted for less than 1% of our electricity consumption.

Hong Kong has been relying on imported fuel for electricity generation or imported electricity from the Mainland to meet its electricity demand.

One of the major issues of developing renewable energy is the land restriction in Hong Kong, as most of the renewable energies require a specific geographical environment such as the requirement of relief for hydroelectric energy which cannot be fulfilled by the environment in Hong Kong.

Another issue is the generally low level of community engagement in understanding the importance and necessity of renewable energy. The development of society, which consists of the development of renewable energy, is always inseparable from the citizens' support and efforts.

The China's National Energy Administration (NEA) has proposed that China should get 40% of its electricity from nuclear and renewable sources by 2030. It is clear that Hong Kong is lagging behind the target (Xu & Stanway, 2021).

Despite the fact that the Hong Kong government has been focusing on reducing coal consumption, little has been done for the actual development and implementation of renewable energy sources.

One of the major issues about the policy on renewable energy development in Hong Kong is its specification towards the public. Take Feed-in Tariffs (FiT) as an example, its purpose is to encourage the public to use the electricity generated through the renewable energy source to enhance the rate of installation of renewable energy systems (EMSD, 2019). Yet, the amount of citizens benefiting from the scheme is very limited as most of the citizens in Hong Kong are living in an apartment. This lack of specification towards the public in the policy causes the lack of effectiveness in promoting renewable energy to the public in Hong Kong.

Recommendations

Increase Expenditure on Climate Change and Environmental Protection Education in School and Public

We urge that the Hong Kong government must recognize and address the problem of climate change in this instance. In order to achieve the goal of Carbon Neutrality by 2050, the government should provide major financial support in developing renewable energy sources, such as hydropower and waste-to-energy, and implement policies regarding carbon emission reduction. In order to raise their awareness of renewable energy, the government should increase expenditure on climate change and environmental protection education in schools and the public.

From a financial perspective, the government can issue green bonds in order to obtain funding and at the same time generate a return to the public. Not only can this support the financing of RE projects, but also gains public support if the projects are profitable.

Collaboration amongst Government, Non-Governmental Organizations (NGOs) and the Public

Also, the government can reach out to the community and organize a range of events to increase public awareness of renewable energy. It can also provide incentives to NGO whose activities aim to promote the use of renewable energy.

We suggest increasing public engagement and consultation regarding renewable energy, as public participation is also essential in generalizing green energies.

12. Women and Gender

By Giselle Ng, Ng Ka Ki and Rosanne Fung

Due to climate change and high humidity, females working at home are forced to stay at home due to their need to take care of the family. With heat waves, high temperature and ineffective air circulation and other environmental problems, women's health is getting worse and various diseases emerge. Although the HKSAR has established policies to combat climate change, there are no specific policies on women's health, while no better environment, such as transitional housing, to improve their quality of life.

According to the Women's Affairs Committee of the Hong Kong Federation of Civilians and Professionals, the survey interviewed 562 clerical women. The result claimed that female problems are serious, but social-related support services are insufficient. 90% of the respondents have never contacted any family support services, while 64% think the resources are inadequate. Notwithstanding resources are provided, but the government promotion is insufficient with unclear direction.

Every caregiver is under enormous pressure, yet the community and government do not provide adequate support. We stress the need for the government to conduct a comprehensive review of the existing support services for caregivers (women), to establish specialised caregiver support services to take care of their physical and mental needs, to enhance and improve accommodation, day training services, community care services, and respite services for persons with disabilities, and to alleviate the stress of caregivers and improve the quality of life of persons with disabilities and chronic diseases.

The "issue attention cycle" proposed by the famous scholar Anthony Downs in 1972 claimed that media reports and public attention to crisis events or issues are a cycle consisting of five stages, namely: 1. Pre-problem stage 2. Terrified discovery and euphoric enthusiasm, period of heavy media coverage (attracting the greatest public attention) 3. The cost of the solution to realise the problem's public interest declines 4. The period of fading public attention to the problem 5. Public attention to the problem fades or is forgotten (Downs, 1972).

In the face of global climate change, Hong Kong cannot stand alone. The media concentrated on the influences of extreme weather in Hong Kong, especially the threat of storm surges to Hong Kong, and the increase in Hong Kong's annual hot night statistics in recent years, reaching the second stage of the "problem concern cycle". Examples include super typhoons Hato and Mangkhut in 2017, and typhoon Compass in 2021, which impacted flooding in some low-lying areas of Hong Kong and seawater intrusion in many areas. The media's intensive reporting of typhoon news, especially the one or two days after the storm hit Hong Kong, undoubtedly aroused the public's immediate attention to the climate crisis, yet only brought short-term effects.

Due to other competing prioritised or societal issues, and the long time for the planning, promotion, advocacy, resources seeking, legislation, and initiatives implementation in strengthening the protection of women, we foresee that media and public attention to the climate crisis will decrease over time, and the

public's enthusiasm eventually will shift to other fresher issues. Therefore, public awareness on women's protection needs to be further enhanced.

Recommendations

1. The Hong Kong government should set up a special working group to conduct in-depth discussions on specific issues, including strengthening support for women in addressing climate change, conducting public consultation, and formulating and coordinating plans. We recommend that the working group should be composed of representatives from government bureaus and departments, and climate-concerned NGOs. The working group should use mass media and social media in a timely manner to raise the public and stakeholders' attention to the initiative, increase the transparency of the progress and implementation of the plan, and increase public participation and support.
2. To deliver a convincing and clear messages, call on the public to take pragmatic action
3. Petitions should be held, in order to support the above initiatives, and submit them to the Legislative Council members and Legislative Council as a bill. Through various pressure groups, we can pressure and influence the government to raise awareness to the above initiatives.



13. About LCOY HK 2021 Organisers

CarbonCare InnoLab

CarbonCare InnoLab (CCIL) is an independent non-government organisation dedicated to the nurturing and development of innovative solutions in response to today's climate change and sustainability challenges. We put special emphasis on multi-stakeholder engagement and solution-oriented processes, as well as awareness-building across the community in Hong Kong. There is a need to motivate communities, and especially young people, to view the transition to a zero-carbon economy as an exciting opportunity rather than a disturbing threat. CCIL turns pessimism about climate change into an optimistic vision of a more engaged and participatory society, and a more resilient and sustainable economy in Hong Kong. There is a scope to promote a picture of the future which contains an array of possibilities and opportunities. CCIL carries the news that people can be part of the solution to climate change, not part of the problem.

Our mission is to encourage innovation that is both relevant to local needs and which contributes to solving global climate change challenges. This includes climate justice, carbon reduction, resource conservation and action that will assist adaptation and resilience building. CCIL is a charitable body registered in Hong Kong, enjoying tax exemption status under Section 88 of the Inland Revenue Ordinance.

Hong Kong Youth for Climate Action

Founded in 2020, Hong Kong Youth for Climate Action (HKYCA) is a youth climate action network to empower young people in Hong Kong to advocate and build creative solutions for climate issues. HKYCA's vision is to mobilize Hong Kong youth to take climate action in achieving Paris Agreement Goals. We provide a youth-led dedicated platform for young advocates to discuss and inspire original insights on climate issues that matter most to them. HKYCA's works revolve around 3 pillars of advocacy, empowerment, and youth action.

Network of Environmental Student Societies

Founded in June 2021, Network of Environmental Student Societies (NESS) is a youth-led climate-focus organisation based in Hong Kong. NESS aims to provide a one-stop platform for awareness raising, capacity building, connection development and driving policy changes. With a focus on the interdisciplinary nature of climate change and all things environmental, NESS hopes to inspire youth from all kinds of backgrounds to take solid actions. NESS's works currently revolve around 3 pillars - communication, partnership and events, and policy advocacy.

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