4.2 COMMUNICATING CLIMATE CHANGE MESSAGES IN HONG KONG

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1. BACKGROUND

The 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) has concluded that warming of the climate system is unequivocal and it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century. Yet how to get the message across to the mostly unsuspecting populace in a meaningful manner remains a challenge, particularly for most of the people in Hong Kong who are urban dwellers living in protected environment and working in air-conditioned buildings.

As the weather authority in Hong Kong, the Hong Kong Observatory (HKO) has taken up the challenge to promote climate change education through various activities as presented in Section 3 below. Apart from education, HKO keeps climate records for more than 130 years and conducts climate studies and climate change research with major results published online at HKO's website (Ref. [1]-[2]). HKO also translates such scientific research results for the benefits of collaborative partners and stakeholders on climate change by providing inputs to strategic planning, e.g. the "Hong Kong Climate Change Report 2015" of the Environment Bureau (Ref. [3]) and "Hong Kong Climate Resilience Roadmap for Business" of the Business Environment Council (Ref. [4]) in Hong Kong. As one of the government departments of the Hong Kong Special Administrative Region (HKSARG), HKO actively supports the policies and actions in climate mitigation, adaptation and resilience undertaken and coordinated by the government's high-level Steering Committee on Climate Change.

Visual elements in general, video in particular, offer an intuitive and yet powerful means for communication. Use of weather graphics and TV presentation are amongst the many talents of weather broadcasters. As recognized by the World Meteorological Organization (WMO), weather presenters are natural communicators, have large and dedicated audiences, are generally liked and respected, and are skilled in explaining the weather and extremes through which people experience climate variability and change (Ref. [5]). Weather presenters or broadcasters in partnership with climate change scientists could therefore communicate climate change messages to the public most effectively.

Throughout the years, TV is recognized in regular public opinion survey as the most popular channel for the general public to receive weather information, and HKO has been producing weather programmes hosted by HKO's professional meteorologists in collaboration with local TV companies since 1987. Two major types of TV programmes are produced on a routine basis: (i) morning and evening TV weather shows collectively known as "Weather On-Air" programmes; and (ii) the weekly educational TV programme series called "Cool Met Stuff" (CMS) covering a diversity of topics ranging from weather, climate, climate change, earth sciences to astronomy. The broadcast details can be found on the "Weather On-Air" webpage (Ref. [6]). HKO also conducts central news briefing on a need basis during tropical cyclone and other inclement weather situations with senior officers presenting various warning messages as one single authoritative voice.

Besides local TV channels, all video programmes produced by HKO are also broadcast on YouTube (Ref. [7]) for free viewing by members of the public. The video programmes are also accessible through the "MyObservatory" mobile app developed and provided free of charge by the Observatory. Messages will also be posted through different social media platforms, including Twitter, Weibo and WeChat, whenever there is update on its YouTube channel. On project basis, HKO has produced other in-depth video programmes through partnership with media professionals. Section 3 below describes in details how such video programmes help communicate climate change messages to the public.

2. CLIMATE CHANGE IN HONG KONG

Since the late 19th century, Hong Kong has been experiencing a significant warming trend. As summarized in HKO's pamphlet on climate change (Ref. [8]), both global warming and effects of local urbanization contribute to the warming, with the latter estimated to contribute up to 50% of the warming.

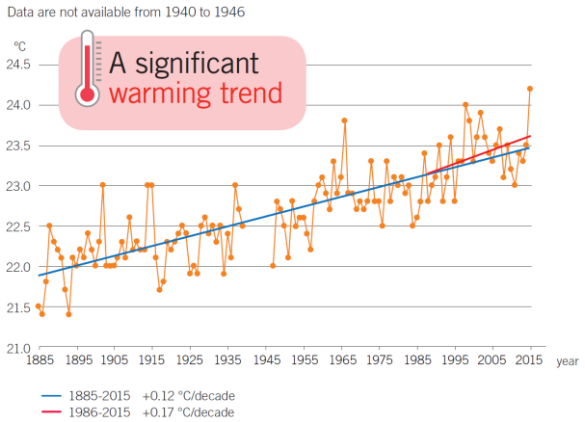


Fig. 1 Annual mean temperature recorded at HKO headquarters (1885-2015).

At HKO headquarters, temperature readings are available since 1885, except for a break during World War II from 1940 to 1946. As shown in Fig. 1, there has been an average rise of 0.12°C per decade in the annual mean temperature from 1885 to 2015. The rate of increase in average temperature has increased in the latter half of the 20th century, reaching 0.17°C per decade during 1986-2015. In fact, 2015 was the warmest year in Hong Kong on record with an annual mean temperature of 24.2 degrees, 0.9 degrees above the 1981-2010 normal, and 18 high temperature records were broken during the year (Ref. [9]). Over the last century, the numbers of hot nights (daily minimum temperature ≥ 28°C) and very hot days (daily maximum temperature ≥ 33°C) in Hong Kong have increased by manifold while the number of cold days (daily minimum temperature ≤ 12°C) has decreased significantly, as shown in Fig. 2.

As shown in Fig. 3, extreme precipitation events have become more frequent. The hourly rainfall record at HKO headquarters was broken several times in the last few decades, whereas it used to take several decades to break the record in the past. The mean sea level in the Victoria Harbour of Hong Kong as plotted in Fig. 4 also reflects an unambiguous rise since 1954.

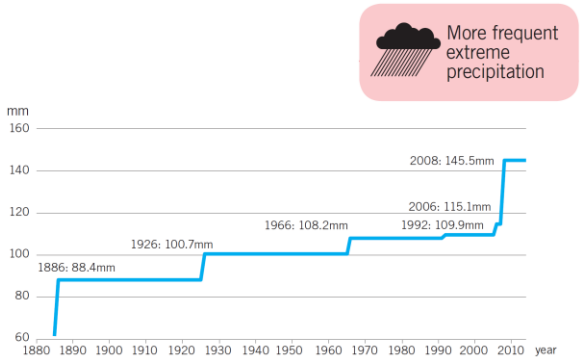
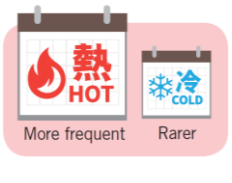


Fig. 3 HKO's hourly rainfall records (1885-2015).



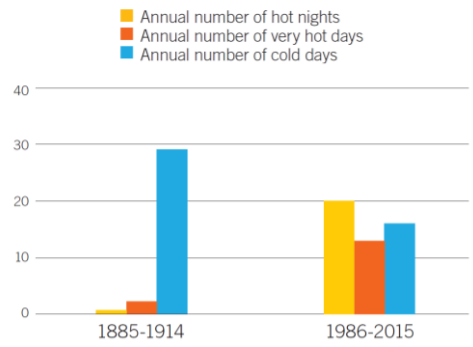


Fig. 2 Changes in the annual number of hot nights, very hot days and cold days based on temperature recorded at HKO headquarters.

As summarized in HKO's climate change pamphlet "Hong Kong in a Warming World" (Ref. [8]), a rise of 1.5 to 3.5°C (relative to 1986-2005) in the decade of 2091-2100 is projected for Hong Kong, assuming that the emission reductions as agreed at COP21 could be achieved. Even then, the annual rainfall in Hong Kong is expected to generally increase towards the end of this century and the occurrence of extreme rainfall will become more frequent. The mean sea level in Hong Kong and over its adjacent waters is expected to rise further in the 21st century, enhancing the storm surge threat brought by tropical cyclones.

To be prepared for future hazards and impacts as a result of climate change, government departments in Hong Kong have taken actions with partners and stakeholders in mitigation and adaptation measures to enhance the city's resilience. Fig. 5 and Fig. 6 show the works done respectively by the Civil Engineering and Development Department

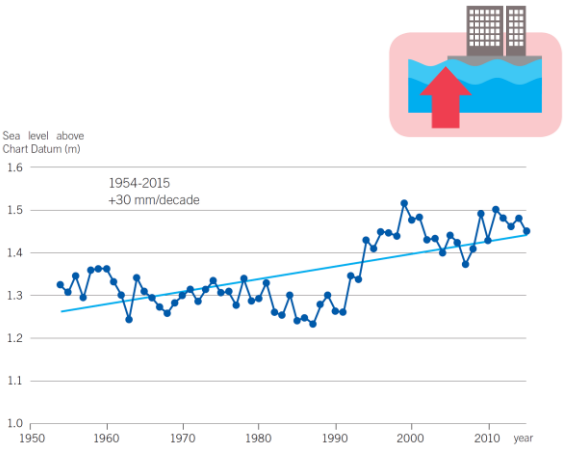


Fig. 4 Annual mean sea level in the Victoria Harbour.

Fig. 5 Adaptation work by CEDD - (top) constructing check dam to prevent debris flow and (bottom) wave wall to strengthen coastal protection. (Photo credit: CEDD)

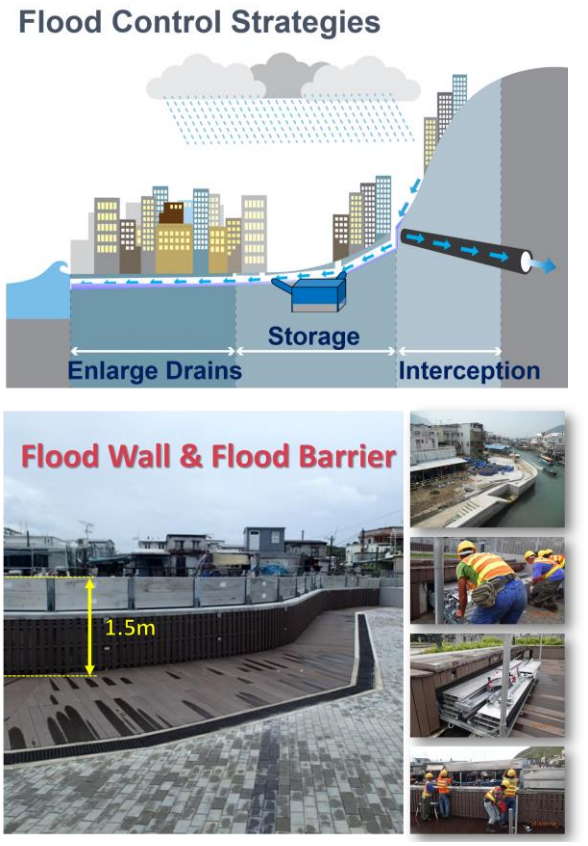


Fig. 6 Adaptation work by DSD - (top) flood control strategies and (bottom) flood wall and barrier to guard against storm surge. (Photo credit: DSD)

(CEDD) and the Drainage Services Department (DSD) in response to the projected mean sea level rise and the likelihood of more extreme weather in Hong Kong.

3. GETTING THE MESSAGES ACROSS

Hong Kong has just experienced a year of record-breaking high temperatures in 2015, followed by a month of cold and wet extremes in January 2016 (Ref. [10]). As such, it is not just a matter of trying to put together a convincing story about events that would only happen many years down the line; it is just as important and may be even more relevant to sound the alarms about the clear and present danger associated with global warming. Debunking myths about climate change are also crucial in this information age when misleading speculation and rumours may easily spread.

HKO has been actively promoting public education on climate change through a multi-pronged approach with broadcast media as a major communication channel:

(a) collaborating with public broadcaster to produce an awarding-winning TV documentary series "Meteorology Series IV" which looks into the underlying causes and impact of extreme weather phenomena with climate change as background. The four-episode series with sub-themes on typhoons, cryosphere, flooding and water resources, broadcast through major TV networks in Hong Kong in 2014, received both local and overseas recognitions. The second episode "Meltdown: Cryosphere under Pressure" won the prestigious Silver World Medal, Environment and Ecology category, at the international 2015 New York Festivals World's Best TV and Films (Ref. [11]);

(b) leveraging resources and material collected by weather enthusiasts to produce short videos on tropical cyclone hazards to raise the public's awareness on behalf of Typhoon Committee. Through real-life visual images from typhoons in recent years, including Morakot, Utor and Haiyan, the video introduces four major threats caused by tropical cyclones, namely, strong winds, rainstorms, huge waves and storm surge. The videos were premiered at the Third UN World Conference on Disaster Risk Reduction held in Sendai, Japan in March 2015, and have since been uploaded to the World Meteorological Organization (WMO) and Typhoon Committee websites. (Ref. [12]-[13]); and

(c) making use of the in-house produced CMS educational TV weather programme to promulgate climate change messages.

CMS production is an on-going effort since January 2014 with more than 130 videos produced since. At the time of writing, 17 of them are devoted to climate and climate change education.

Fig. 7 (Top) Screen shot from one of the CMS programmes on climate change featuring MIB (Minimum In Burning). (Bottom) MIB interacting with audience during a public seminar on climate change.

The complete listing can be found under the "Climate Change Educational Resources" webpage of HKO (Ref. [14]). Free footage of material from sources such as WMO, IPCC, NASA and news agency are often included in the production of CMS videos. Research on topics, preparation of contents, script-writing, on-camera presentation and video production and post-processing are all undertaken by HKO's professional staff.

To capture the eyeball attention of viewers, fresh ideas and new gimmicks are often required. One example is for HKO presenters to perform their act using the popular MIB (Men In Black) image and to bestow a new climate-relevant meaning, Minimum In Burning, to the acronym. Fig. 7 shows MIB in action in one of the CMS episodes, as well as performing a live show in a public seminar. Such outreach tactics have proven to be very popular with a lot of positive and encouraging feedback received from the public. The MIB approach has also been extended to the social media world, including Facebook, Twitter and Instagram, to facilitate interactive online communication with the public, especially the young people.

In addition to TV/video programmes, climate change messages are conveyed to different target groups of recipients through various outreach activities, including school talks and public seminars for the youth (Ref. [15]). A 6-month roving exhibition for the general public, a government-wide campaign launched in June 2016 through the collaborative effort of stakeholders and partners, serves to demonstrate how government departments and other organizations work together in different areas and specialized fields to make the city more climate-ready. Its aim is to enhance public understanding and awareness of climate change, and to encourage practical steps and actions to combat its impact for the sustainable development of the community (Ref. [16]).

4. CONCLUDING REMARKS

This paper reviews the efforts pursued by HKO in promoting climate change messages in Hong Kong and highlights the actions and activities being undertaken in relation to such efforts. Judging from the feedback collected from members of the public and collaborative partners, a multi-pronged approach with broadcast media as a major communication channel has proven to be generally effective. However, with different communication means having different strengths and weaknesses, there is also a need to explore and maximize the usage of new media to promulgate climate change messages more effectively, especially in reaching out to specific target groups such as the young people who are likely to be most affected by the impact of climate change.

Looking further ahead, for a highly sophisticated city like Hong Kong with development policies and priorities often driven by economic and social needs, a sustained public education and outreach strategy is essential to ensure that the climate change issues and considerations will remain relevant over time and not be left out in the grand scheme of things. It is also important that through such communication efforts, purposeful climate-ready targets can be suitably incorporated into the long-term planning by decision-makers, adequate preparedness and response measures can be put in place by emergency managers and operators, and fundamental changes can be effectively integrated into the mindset and behavioural patterns of the general consumers, especially among the younger generations. We need to recognize that what we can successfully convey now will ultimately contribute to a future of liveable physical environment and sustainable lifestyle.

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