

URBAN PLANNING AND ENVIRONMENTAL LAW QUARTERLY

(Published since May 1992)

簡家驄律師行 · 城規環保季刊

On an almost daily basis the media remind us of the poor air quality we suffer in Hong Kong. Whilst we have not plumbed the depths of acute air pollution as Beijing and other cities on the mainland regularly do, there is no doubt air quality remains an acute environmental problem for the government and people of Hong Kong. This edition reflects on the key role air quality played in a rare “environmental case” in Hong Kong recently.

The Editors

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AIR POLLUTION REMAINS A CRITICAL ENVIRONMENTAL ISSUE

Hong Kong’s air pollution

Air quality is perhaps the single most important environmental factor in any community – it affects everyone directly. Over recent years, air pollution has become one environmental issue of which there is general public awareness and concern in Hong Kong, even while other equally serious environmental issues are largely ignored.

Hong Kong’s air quality compares unfavourably with other “world cities”; e.g.

INDEX	Central, Hong Kong	London	Tokyo	New York	Sydney	Seoul
Air Pollution	69.83	52.14	33.31	53.92	29.45	61.12
Pollution Exposure Index (10/4/15)	141.51	89.83	54.83	95.30	46.95	106.35

Air quality was a pivotal “environmental factor” in the recent HKZM Bridge litigation.

HKZM Bridge litigation

Judicial review application

HKZM Bridge Project (“**Project**”) involves building a bridge from north Lantau Island to Zuhai and Macau across the Pearl River Estuary. Three sections of the Project are situated in Hong Kong:

- (i) the Boundary Crossing Facilities
- (ii) HKZM Bridge Hong Kong Link Road
- (iii) Tuen Mun – Chek Lap Kok Link Road.

The three sections are “designated projects” under the *Environmental Impact Assessment Ordinance* (Cap.499) (“**EIAO**”) and so required approval from the Director of the EPD. Approval comprised 2 separate but obviously very closely related decisions (“**Decisions**”) of the Director:

- (i) approval of the EIA reports (“**EIAR**”): s.8
- (ii) issue of the environmental permits (“**EP**”) for each of the sections comprising the Project: s.10.

The Project proponent and developer is the HK Highways Department (**Department**). Under the EIAO, the Department had to go through the following steps before reaching the point when the Decisions could be made:

- (1) applies to the Director for an environmental impact assessment (“**EIA**”) study brief (“**SB**”): by submitting a “project profile” (“**PP**”) in accordance with the current, applicable technical memorandum (“**TM**”);
- (2) advertise the application at least once in a daily Chinese and English newspaper: S.5(2)(c);
- (3) the Director had to inform the ACE (Advisory Council on the Environment) of the application and must forward the PP to ACE: S.5(3)
- (4) within 14 days the Director could request the Department to provide additional information: S.5(4);
- (5) the ACE and the public had only 14 days (from date of advertising of the application) to comment on the PP: S5(6);
- (6) within 45 days of the application (or receipt of additional information) the Director had to issue to the proponent/Department a study brief (**SB**) containing matters to be covered in EIAR. The Department could apply immediately for an EP if the SB was not sent within 45 days.
- (7) the Department then had to prepare a detailed EIAR concerning the Project. The EIAR had to comply with and take into account (at the very least) all matters contained in both the TM and SB. No time limit for submitting the EIAR: S.6;
- (8) only one TM has been promulgated – in 1997;
- (9) SBs were duly delivered for each section of the Project by the Director to the Department by April 2008. Contents of the SBs were materially the same;
- (10) the EIARs were submitted in June and August 2009. Public inspection under S.7 was for the relatively short period of 30 days. ACE had 60 days to provide comments: S7(5);
- (11) section 8 deals with approval (or rejection) of EIARs. Director had 30 days to approve or reject the EIAR: S.8(4). He must give reasons if the EIAR is rejected;
- (12) following approval of the EIARs, the Director had to approve or reject the application for EPs: S.10;
- (13) additional information was sought by ACE and the Director concerning air quality issues. So “Air quality” was identified at the approval – process stage as a key issue;
- (14) Director approved the EIARs on 23 October 2009 and issued the EPs on 4 November 2009.

Chu Yee Wah resides in Tung Chung, which is close to the Project. Chu applied for judicial review of the Decisions (limited to two of the EIARs), seeking orders quashing the Decisions: *Chu Yee Wah v. Director of Environmental Protection* HCAL 9/2010. Hon. Fok JA (sitting as an additional Judge of the Court of First Instance) heard the application. Senior counsel appeared for both sides: Philip Dykes S.C. (Applicant) and Paul Shieh S.C. (Respondent).

The Applicant raised seven main issues, or grounds, in support of the application, described by Fok JA as follows:

- (1) *First, the applicant contends that the TM and SBs require the EIA Reports to provide a quantitative ‘stand-alone’ analysis of the projected environmental conditions without the Boundary Crossing Facilities and Link Road projects but the EIA Reports fail to do so and erroneously conclude that these projects would have no cumulative residual air quality impact.*
- (2) *Secondly, the applicant contends that the TM and SBs require the EIA Reports to explain how the input data used in the PATH model used in the assessment of air quality was compiled and verified and to disclose the results generated by it but this is not done in the EIA Reports.*
- (3) *Thirdly, the applicant contends that the assessment year selected by Ove Arup in the EIA Reports, namely 2031, does not represent the reasonably worst scenario for background air quality as required by the SBs and has failed to demonstrate how the AQOs will not be breached as a result of the HKZM projects going into operation before 2031.*
- (4) *Fourthly, the applicant contends that the EIA Reports failed properly to assess ozone as required by the TM and SBs.*
- (5) *Fifthly, the applicant contends that the EIA Reports failed to assess sulphur dioxide (SO₂) as required by the TM and SBs.*
- (6) *Sixthly, the applicant contends that the EIA Reports do not provide a quantitative or qualitative assessment of the projects’ impact on public health as required by the TM and that the omission of such an assessment means that the Director could not perform her statutory duty under s.10(2)(c) of the EIAO.*
- (7) *Seventhly, the applicant contends that the EIA Reports should have but failed to assess the health risk posed by pollutants outside the AQOs, such as toxic air pollutants (TAPs) and fine suspended particulates (PM_{2.5}) and hence, the Director did not perform her statutory duty under s.10(2)(c) of the EIAO.*

Following a hearing over three days, Fok JA found for the Applicant on issue No.1, but against her on issues Nos.2-7. He held that the absence of a “stand-alone” analysis of the projected environmental conditions *without* the Boundary Crossing Facilities and the Link Road (i.e. assuming these parts of the Project were not constructed) meant that the EIARs did not comply with the TM and SBs. Therefore, the Director had no power to approve them or to grant the relevant EPs, and so the Decisions were quashed.

Comments on the judgment

The judgment is quite detailed and complex. Time does not allow for a comprehensive review. Only Issue No.1 is of real importance.

- (1) The case concerned the application of the EIAO, not the *Air Pollution Control Ordinance* (Cap.311) (**APCO**). But, likely impacts to ambient air quality from the Project when operating was the environmental factor at the centre of Issue No. 1.

- (2) An EIAR must meet the requirements of the TM and applicable SBs: *Shiu Wing Steel Ltd. v. Director of Environmental Protection & Anor.* (No.2) (2006) 9 HKCFAR 478 (one of the rare “environmental cases” to reach the CFA). Fok JA described the process undertaken by the Project proponent and the Director as follows.
- (3) The Director must first decide whether the EIAR satisfies the TM and SD(s): S.6(3). If it does, the EIAR is released for public consultation and ACE comment. Then the Director must decide whether to *approve* the EIAR: S.8(3).
- (4) Even if the EIAR itself is accepted as sufficient, this does not mean the subject project is issued an EP. That is a separate decision process by the Director under S.10.
- (5) In all of these stages, the TM and SD(s) are crucial. The TM contains more general criteria whilst the SD(s) are more project-focussed. They are not subsidiary legislation, but the Director and proponent must adhere to their requirements. And the Courts will construe them as experts would interpret technical documents: *Shiu Wing Steel*.
- (6) Importantly, the purpose of the EIAO is “to provide for assessing the impact on the environment of certain projects and proposals, *for protecting the environment* and for incidental matters”: long title of EIAO, cited at para.42 by Fok JA. In interpreting the TM and the SBs, the EIAO’s purpose of protecting the environment must inform the meaning attributed to the instrument (i.e. TM and SB) created under the EIAO’s authority, per CFA in *Shiu Wing Steel* (para.25).
- (7) As to Issue No.1:
- (a) the Applicant’s case was that the EIARs were defective in not providing analysis of “baseline conditions without the projects in place” – i.e. what is referred to in USA federal environmental law as “the no-action alternative”. The Director admitted that only the cumulative impacts – that is: projected environmental impacts from the (i) Project plus (ii) existing and known future activities /developments – had been covered in the EIARs.
- (8) The TM and SBs contained specific references to the necessity to provide data concerning the environmental benefits or disbenefits of various scenarios, including “with or without the project”: e.g. TM, S.4.4.2(g).
- (9) The opposing positions argued by the Applicant and Director boiled down to this:
- (a) the Applicant said that in order to properly judge environmental effects of the Project, as well as what mitigation measures may be required, environmental impacts generated by the Project had to be analysed. That is, the situation with and without the Project had to be shown;
- (b) the Director argued that environmental data on a no-Project basis was merely background against which to assess whether regulatory AQOs under the APCO are likely to be exceeded should the Project go ahead (looking only at air quality).
- (10) The Director’s approach was described as treating the air as a bucket into which pollutants may be tipped until the bucket is full, that is, the point when relevant AQOs are exceeded. If the computer forecasts showed the Project would not (on a cumulative basis) “fill the bucket”, then that is the only analysis needed to show the Project’s effect on air quantity (in its operational phase) was acceptable.
- (11) Fok JA considered these two approaches in the context of relevant U.K. case law and decided the Applicant’s approach was correct, and that therefore the “no-action” or “no-project” scenario should have been included in the EIAR:
- “75. *In my opinion, the EIAO is to be understood as incorporating the two approaches referred to in Edwards and is not to be construed as if the only relevant yardstick is whether particular benchmarks are exceeded. If environmental protection is to be meaningful, it seems to me that it must aim to minimise the environmental impact of any project and, in the case of air quality, by minimising the amount of pollutants released into the atmosphere. It would be contrary to the purpose of the EIAO, which recognises that the environment is worthy of protection, if the statutory scheme in this jurisdiction were to be construed as if it treated the environment like a bucket into which waste may be deposited until it is full. That approach does not protect the environment. Instead, protecting the environment means endeavouring to minimise the environmental impacts of a proposed project.*
80. *In my view, it is highly material for the Director and public to know, for instance, what levels of NO₂ (one of the main air pollutants resulting from a road project) are predicted for the future at the ASRs relevant to these projects with and without the projects in place so that the Director can determine whether those increases in NO₂ levels are acceptable and the public can be made aware of the extent to which the proposed project will change the environmental conditions in the locations in question. If, as I consider the EIAO contemplates, the environment is not to be treated simply as a bucket to be filled up over time, ascertaining that the increases in a particular air pollutant do not exceed applicable guidelines, e.g. the AQOs, cannot be the sole determining factor in a decision whether to grant an environmental permit. Thus, for example, if for a particular road project the predicted levels of NO₂ without the project (i.e. the starting point) would be at 30% of the current maximum under the applicable AQO, a project that would result in those levels reaching 90% of the maximum would, in my opinion, fall to be considered differently to another project in which the starting point is 80% of the maximum. In other words, the footprint of the former (90%-30%) is much greater than that of the latter (90%-80%) and it is only by knowing the starting point (or baseline or stand alone position, to use other terms to describe the same thing) that one is able to measure that footprint.”*
- (12) There was considerable time spent by Fok JA (and on appeal) interpreting various parts of the TM and SBs. In that sense, the case was much like any other administrative law case. But from an environmental protection perspective, the most significant aspect of Fok JA’s judgment was his rejection of the “bucket-full” baseline argued by the Director.
- (13) The Court rejected each of the other six grounds advanced by the Applicant on the bases of either or both:
- (i) that the shortcomings of the EIARs (e.g. ozone was not one of the sample pollutants covered by the EIARs) were within the parameters of the proponent’s discretion or responsibilities according to the TM and/or SBs;
- (ii) or, there was no *Wednesbury* unreasonableness or irrationality in respect of the Decisions.

One other important, general “environmental feature” of the case should be mentioned. The Director argued that requirements for the content of EIARs should not make them too detailed or the process so lengthy that important developments such as the Project are delayed. That is, the Director argued that the time needed for constructing the Project was itself a factor to be considered in the context of the EIAO and the Decision. Fok JA accepted this point in principle, adopting comments of the EIA Appeal of Environmental Protection, EIA Appeal Board No.2/2000, unrep., 20.7.01, part of which were:

“*There are two main matters of public interest involved. Both are important. The first is the public interest in the protection of the environment upon which the quality of life in Hong Kong will increasingly depend. The second is the public interest in ensuring that major designated projects are brought*

to fruition in a timely and efficient manner. The time constraints put upon the Director for steps in the process and for his decisions show that the Ordinance aims to satisfy both interests.” (para.47)

Subsequently, the Court of Appeal approved this part of Fok JA’s judgment. But this approach to the administration of the EIAO is fundamentally and disingenuously flawed – and it is a flaw commonly repeated by developers and monitoring agencies throughout the world. The “flaw” is to confuse economic or similar factors with the central question of whether the proposed development is likely to cause significant environmental impacts, when assessing EIARs or considering environmental impacts in any context at all. So often developers/ agencies say, in effect: “there should be no finding of significant environmental impact because to avoid the potential impact would cost too much or would delay construction of an important development for too long”. They may not quite put it like that, but that is the essence of that flawed approach.

This approach also reflects the underlying assumption made by our agencies (and, it seems, the judiciary) when weighing environmental impacts of a proposed major development, namely: that the subject project must proceed, and the only issue is mitigation of environmental effects. That approach is not consistent with the objective of the EIAO, however. If a project’s individual environmental footprint is too damaging to the environment, it should not go ahead. The “no development” option should always be considered.

Clearly, a project’s likely environmental impacts must be analysed and reported objectively, that is, *without* regard to economic issues, such as delays caused to projects. The Director (and proponent) must fully and frankly admit that significant impacts will occur, if that is the case. Then, *if* the regulatory scheme allows it, they may override the environmental concerns on the ground the economic issues are more important. Then at least the authorities are not disguising the true, environmental position in order to give priority to the economic goals. That is, they are then being transparent in their decision regarding environmental impacts of the proposed project, as indeed they should be!

The EIAO does not expressly or impliedly require non-environmental factors to be taken into account in the preparation of an EIAR. And, certainly the objective long title of the EIAO does not mention economic factors having to be balanced against environmental protection.

Appeal

The Director appealed to the Court of Appeal regarding Issue No.1, and the Applicant cross-appealed regarding Issues Nos.3, 4, 6 and 7. The appeal was heard on 23-25 August 2011, and judgment was delivered on 27 September 2011. The Court comprised Tang VP, Hartman JA and Chu JA. The lead judgment was delivered by Tang VP. Benjamin Yu S.C. and Paul Shieh S.C. appeared for the Director and Philip Dykes S.C. (with juniors) for Chu.

Perhaps unsurprisingly, the appeal was allowed and the cross-appeals were disallowed. In short, Tang VP did not agree with Fok JA’s reasoning for upholding Issue No.1, but did agree with him in relation to the other Issues.

In essence, the Court of Appeal accepted the Director’s argument that a no-project, stand-alone analysis was not mandated by the TM or SBs and was not necessary, in a technical sense, in order for the Director to be able to assess properly the mitigation measures required for the project. Thus, the Court accepted the Director’s “bucket-full” approach to measuring the significance of likely environmental impacts from the project. As such, the Court has adopted an environmental assessment approach at odds with jurisdictions far more experienced in adjudicating environmental issues, such as U.S. federal courts.

Conclusion

Perhaps the most significant feature of the Court of Appeal’s judgment is a point the Court expressly refrained from deciding, which was articulated by Tang VP as follows:

“Mr. Yu submitted, and I agree, that we should not decide whether the Director has a discretion under section 10(2), to refuse a permit even when the Air Quality Objectives have not been exceeded and the report being otherwise compliant.”

It is to be hoped that at some stage our courts will rule that the Director does have such discretion. But even if that occurs, history suggests the Director will be loathe to use the discretion to prevent any major development from proceeding. Robust and meaningful protection of the environment is not in the EPD’s genes.

TOWN PLANNING

Release of Livable Bay Area Study

The “Study on the Action Plan for Livable Bay Area of the Pearl River Estuary” was completed in December 2014. The Planning Department promulgated the Stage 2 Public Engagement Report and the Updated Summary of Recommendations for the “Livable Bay Area Study”.

The “Livable Bay Area Study” is a study conducted jointly done by the governments of Hong Kong, Guangdong and Macau, under established town of planning co-operation mechanisms between Guangdong and Hong Kong and between Guangdong and Macau. The Study was launched in April 2010 in part to find ways of facilitating the development of the “Bay Area of the Pearl River Estuary” into a core area of quality living. Recommendations made in the Study comprised mainly of principles and directions, serving as reference for the governments of the three sides in their respective social circumstances when following their respective established mechanisms in formulating their own plans to realise the vision of a Livable Bay Area.

Two stages of public engagement for the study have been undertaken. The Stage 2 Public Engagement conducted in Hong Kong was completed in April 2014. Public views have been incorporated in the final recommendations of the Study. The views received in the Stage 2 Public Engagement generally considered that the primary focus of livable development was on the well-being of the residents and sustainable development of the Bay Area as a whole. These views are consistent with the vision of a Livable Bay Area featured in the Study and have been incorporated in the Updated Summary of Recommendations.

[Press Release, 02/02/2015]

Green-belt home plans rejected

The Town Planning Board has rejected proposals to build flats on two green-belt sites, in a blow to the government’s push for new flats to ease Hong Kong’s housing shortage.

The schemes in Tai Po, designed to provide 1,300 private homes, collapsed when the Town Planning Board, for the first time, rejected the government’s rezoning plans to meet its new homes target yesterday. The two rejected plans were proposed for green-belt sites next to Fung Yuen village and the Nethersole Hospital. The sites have a total area of about five hectares.

The Board’s decision came after the government released details of some 150 sites selected for rezoning. The rezoning is designed to allow 40 per cent of the 480,000 new homes planned by 2019, which is the government’s ambitious target. A Board spokeswoman said the two sites were rejected as they should remain as a buffer zone around urban areas.

The Board's private deliberations yesterday focused on six major housing sites, which are intended to provide 6,350 public units and 2,875 private units. Fung Yuen is close to an area of special scientific interest and includes woodland comprising about 3,000 mature trees.

The four remaining rezoning plans approved include a green-belt site at Lo Fai Road next to a luxury estate, Tycoon Place, despite repeated protests by local residents. One green-belt site in Tsing Yi for 740 flats was also approved.

Green Sense and the Conservancy Association, two environmental groups which had been campaigning against the rezoning of the site near Fung Yuen, welcomed the Board's decision but warned that other green-belt sites were still threatened. "I am glad that the Town Planning Board was not merely acting as a rubber stamp this time, which is a rare case. This is a good start. However, there is still no comprehensive policy on the rezoning of green belts," said Roy Tam Hoi-pong of Green Sense.

[SCMP, 11/02/2015]

Report on projections of population distribution

On 18 December 2014, the Planning Department has published a report titled "Projections of Population Distribution 2014-2023", which presents the latest population distribution projections for 2014-2023.

The population distribution projections are calculated according to the latest projected overall population for Hong Kong provided by the Census and Statistics Department in July 2012, as well as the latest planning information.

It is projected that the population of the New Territories and Kowloon will increase by 459,000 and 196,000 respectively between 2013 and 2023, whilst that for Kowloon will stay at 30 per cent. The proportion of the population living on Hong Kong Island will decline from 18 per cent to 16 per cent in the same period.

The report also presents the projected population of District Council Districts. Sha Tin District, Yuen Long District and Kwun Tong District are projected to be the three most populous districts in 2023 with 714,000, 702,000 and 691,000 inhabitants respectively.

Wan Chai District is projected to be the district with the highest proportion of elderly population aged 65 or above, rising from 17 per cent in 2013 to 26 per cent in 2023.

[Press Release, 18/02/2014]

In town planning, reason must rule

The government has promised to produce 480,000 flats in the next 10 years. From rezoning lush green zones to land reclamation, officials are leaving no stone unturned to locate sites so as to be able to meet the ambitious target. However, their efforts are not always supported by the community.

In the past 18 years, approximately 80 per cent of applications by private developers to rezone green belt sites have been rejected by the Town Planning Board. However, according to a study commissioned by residents opposing a public project in Shek Kip Mei, a reverse trend has been shown in recent applications by the government, with only three in 11 vetoed. The study argued that previously the Board did not approve rezoning lightly, and that it should continue to apply the same standard when considering applications from the government.

Residents may think the study has given them ammunition to oppose the development. But, whether it would affect the Board's decision on future applications remain to be seen. It can be argued that the records do not necessarily prove the Board has used a double standard. They merely show that both the government and private developers may or may not succeed.

The Board should handle each case professionally and independently. The applicant, be it the government or the private sector, may convince the Board that requirements for traffic and the environmental protection can be fulfilled. Due to the acute shortage of housing, the government needs to explore every possible and available option to solve the problem. As long as the rezoning requirements are met, there is no reason why green belts cannot be developed.

[South China Morning Post, 19/02/2015]

WEST KOWLOON CULTURAL DISTRICT

West Kowloon Cultural District as an underground city

Some lawmakers have proposed an underground city connecting the arts hub to the neighbouring area to provide retail and other services. They believe that the HK\$23 billion basement in West Kowloon Cultural District should house people and traffic. However, the government said that this proposal would mean digging deeper into the ground and would increase the cost of the development project. It was planned that under the Foster's design the basement would house all cars, keeping 23 hectares of open space above ground free from traffic.

Lawmakers have expressed concern about the underground city proposal. They have pointed out that the basement will cost an extra HK\$23 billion, to be covered by the government, and will further delay development of the project.

[South China Morning Post, 13/01/2015]

Scale back West Kowloon project proposed

The chief executive officer of the West Kowloon Cultural District Authority, Michael Lynch, has resigned at the age of 64. He is the second chief executive officer of the authority to resign without completing his term. His predecessor, Graham Sheffield, quit just five months into the job, due to health reasons.

The personnel changes at the chief executive level suggest there may be more to the project's problems than meets the eye. The Legislative Council has allocated HK\$21.6 billion for the project which involves constructing 17 arts venues on the 40-hectare site. However, the site has yet to be turned over to the Authority due to delays in the construction of the express rail link terminus at the site.

The project is haunted by uncertainties. However, it is certain that the cost will increase. The latest estimated total cost of the project is between HK\$40 billion and HK\$50 billion. The original funding can only cover the construction costs of the facilities in the first two phases. The fate of the core items in phase three is uncertain.

The Xiqu Centre and M+ museum for contemporary visual arts are due to be completed in 2017 as part of the first phase. The Centre for Contemporary Performance, which includes several black box theatres, is targeted for completion by 2020, in phase two. The third phase of core performing arts venues has been delayed until after 2020.

[*South China Morning Post*, 12/03/2015]

Breathing space for street performers

At a joint meeting of the Legislative Council home affairs and development panels to monitor the cultural hub project, the West Kowloon Cultural District Authority proposed that performers and photographers should have to apply for permits before staging events in open spaces. Under the proposed by-laws, these spaces will include the park, waterfront promenade, Artist Square, M+ podium, Xiqu Square and the Avenue.

It is said that access to permits will be simple and straightforward. The objective of an application process is to encourage cooperation and mutual respect among street performers, businesses and other users and to ensure that street performers can perform safely and that open areas are accessible to the general public.

[*The Standard*, 24/03/2015]

HONG KONG BRIEFING

Introduction of a carbon footprint repository

An online carbon footprint repository (“CFR”), which enables Hong Kong listed companies to disclose their carbon footprints and share successful stories on carbon management and practices, was officially launched on 15 December 2014.

The CFR, which was developed by the Environment Bureau (ENB), takes the form of a website (www.carbon-footprint.hk).

At the launch ceremony (co-organised by the ENB and Hong Kong Exchanges and Clearing Limited (“HKEx”) on 15 December 2014, certificates were presented to a total of 64 listed companies to recognise their contributions and efforts in auditing their carbon footprints and disclosing their carbon data through the CFR.

At the launch ceremony, the Secretary for the Environment said that through carbon audits, listed companies could ascertain the amount of greenhouse gases emitted as a result of their operations, and this would help the companies to identify what measures are effective for reducing emissions. He said that climate change is a global challenge for everyone, and Hong Kong, being part of the international community, should contribute to the solution.

At the launch ceremony, the Chief Regulatory Officer and Head of Listing of HKEx also expressed his support for the CFR website developed by the ENB, and said that such disclosure practice is in line with the Environmental, Social and Governance (“ESG”) Reporting Guide published by the HKEx in 2012 which encouraged listed companies in Hong Kong to report on, among other things, their carbon emissions and intensity, and to describe the measures adopted in mitigating emissions and the results achieved.

[*EPD Press Release*, 15/12/2014]

Environmental Department signs agreement with contractor on landfill gas treatment

The EPD has signed a supplement agreement with the contractor for the Southeast New Territories (“SENT”) Landfill, Green Valley Landfill Limited (“GVL”) by which GVL will collaborate with the Hong Kong and China Gas Company Limited (“HKCG”) to provide on-site treatment facilities to convert landfill gas into synthetic natural gas. The natural gas will then be fed into the HKCG supply grid at the Tseng Lan Shue Offtake Station through a 12-kilometre pipeline. A spokesman for the EPD said that this agreement will help to reduce the consumption of fossil fuels for town gas production and greenhouse gas emissions.

Landfill gas utilisation schemes were commenced by the HKCG at the Shuen Wan Landfill in 1999 and at the Northeast New Territories Landfill in 2007. The landfill gas, after being treated, is transferred by pipeline to the HKCG plant in Tai Po to add to the town gas. At present, some of the landfill gas from the SENT Landfill is used to generate electricity and some for heating fuel for on-site facilities.

The collaboration scheme is expected to be commissioned in mid-2016, and will export treated surplus landfill gas to the off-take station at Tseng Lan Shue for injection into the HKCG supply grid for an agreement period of 20 years. This project will result in an annual reduction of approximately 56,000 tonnes of carbon dioxide (CO₂) emission from the SENT Landfill, equivalent to the quantity of carbon dioxide removed by 2.4 million trees in one year.

[*EPD Press Release*, 22/12/2014]

Improvement in air quality

A member of “Friends of the Earth” questioned why only franchised buses are targeted for emission control in low-emission CBDs and not all diesel commercial vehicles are targeted. Presently, bus companies will only aim to deploy buses that meet Euro IV emission standards by the year’s end. These franchised buses account for a major portion of traffic in busy districts.

An incentive-cum-regulatory scheme to phase out 82,000 pre-Euro IV diesel commercial vehicles by the end of 2019 was commenced in March 2014. The scheme is progressing well and about a quarter of “dirty” commercial vehicles have already been replaced. It is hoped that by the end of 2019, the entire city will become a low-emission zone.

In any event, an electronic system and legislation are needed to enforce any ban on high emission vehicles. Due to the complexity of setting up these mechanisms, it may take several years at a minimum to achievement implementation of the full regulatory machinery. Thus, replacing all pre-Euro IV diesel commercial vehicles by the end of 2019 is the fastest and most effective way to deal with this whole class of vehicles.

Catalytic converters were replaced on more than 18,000 liquefied petroleum gas-powered taxis and public light buses last year. As well, more remote sensing equipment is being deployed to screen out excessive emitting vehicles.

Air quality data show that the overall air quality in Hong Kong has improved. In particular, major air pollutant concentrations in ambient air have decreased, except for ozone.

At roadside monitoring stations, nitrogen dioxide (NO²) is the only pollutant that has increased, but this already being addressed by the measures noted above. From 2013 to last year, there has been a 15 per cent decrease in roadside nitrogen dioxide levels. Particulate levels have also been lowered.

[SCMP, 29/01/2015]

Air quality worsens after Occupy protests end

The “Occupy Central” protest sit-ins were cleared in Mong Kok on 26 November 2014, Admiralty on 11 December 2014, and on Causeway Bay on 15 December 2014, following which Hong Kong’s air quality returned original levels of before the movement started. These levels are higher than the WHO standards: on a 24 hour average :- 25 µg/m3.

Clean Air Network (“CAN”) conducted PM2.5 measurements at the three cleared sites on 15 and 16 December 2014 (after clearance) to compare air pollution levels with data collected on 1 October 2014 (before clearance). The following tables show the comparative readings.

Table 1: PM 2.5 readings from Occupied Areas *before* clearance (October 1, 2014)

Road	PM2.5 Minimum µg/m3	PM2.5 Maximum µg/m3	PM2.5 Average µg/m3
Admiralty and Central (Morning)	12	63	18
Causeway Bay (Morning)	0	171	20
Mong Kok (Morning)	15	258	26

Table 2: PM 2.5 readings from Occupied Areas *after* clearance (December 15 & 16, 2014)

Road	PM2.5 Minimum µg/m3	PM2.5 Maximum µg/m3	PM2.5 Average µg/m3
Admiralty and Central (Morning)	19	204	33
Causeway Bay (Morning)	0	207	31
Mong Kok (Morning)	0	214	37

Table 3: Comparisons of percentage increase in PM2.5 averages from two periods (October 1 and December 15/16, 2014)

Roads	Pm2.5 Averages
Admiralty and Central (Morning)	+83.3%
Causeway Bay (Morning)	+55%
Mong Kok (Morning)	+42.3%

The results point towards the conclusion that air quality has declined following the clearance of Occupy protests. PM2.5 readings from all roadside monitors in the three CBDs have increased by at least 40%.

The CEO of CAN suggested that the Occupy Movement has provided the perfect argument for creating exclusive pedestrian zones. Commuters who walked to work instead of using public transport were shown to be more adaptive with their route and travel mode. These individuals are also found to be happier and less stressed.

The CEO of CAN suggested that Des Voeux Road Central is a road which is most suitable to be pedestrianised. She said this road is the perfect example of the “Street Canyon Effect”, where the street is surrounded by buildings on both sides creating a ‘canyon-like’ environment that traps emissions from vehicles inside for a longer duration.

[CAN Press Release, 16/12/2014]

Hong Kong Wetland Park celebrates “World Wetlands Day 2015”

Hong Kong Wetland Park (“HKWP”) celebrated “World Wetlands Day 2015” on 31 January 2015. The theme for the event “Wetlands for our Future” emphasises the importance of wetlands to humanity and calls for action to protect wetlands.

Global population growth had led to an ever-increasing demand for wetland resources. It is important that wetlands are well-conserved and utilised wisely.

The Director of Agriculture, Fisheries and Conservation said at the celebration ceremony that we need these wetlands for our future, and similarly, the future of these wetlands depends on our effort to protect them.

Entrusted with a mission to promote wetland conservation, the HKWP is committed to enhancing public awareness of wetlands and encouraging people to engage in conservation of wetlands through various programmes.

At the same ceremony, the Chairman of the Country and Marine Parks Board said that humans have long relied on wetlands for food and water resources, and that wetlands can mitigate climate change in the future.

World Wetlands Day commemorates the signing of the *Convention on Wetlands of International Importance* in Ramsar, Iran on 2 February 1971. The Convention is an international effort to conserve and wisely use wetlands around the world. On the same day every year, various countries organise activities to raise public awareness of wetlands’ value and benefits, and promote the conservation of wetlands.

Various inspirational exhibitions held at the HKWP, educating the public of the importance and value of wetlands. HKWP also offered guided tours to enable visitors to gain a deeper understanding of the park and wetland conservation.

[AFCD Press Release, 31/01/2015]

Introduction of new taxi model to combat air pollution?

Ford launched a new taxi model (“Transit Connect”) in Hong Kong on 4 February 2015. This new model has more luggage space, better safety standards and is more environmental-friendly. The city’s ageing 18,000-strong taxi fleet has triggered competition among carmakers to provide new models.

Ford's new taxi has a distinctive European minivan look, in contrast to the appearance of most current Hong Kong taxis. It also has a higher power (up to 162 horsepower), which is 30 per cent higher than rival taxis.

The model uses a cleaner LPG system. The managing director of Ford-CNG-Technik announced that the emissions generated by the Transit Connect could be between 50 and 80 per cent lower than rival taxis. Ford says the model is the 'cleanest' they have ever tested.

Nonetheless, the chairman of the Hong Kong Taxi Owners Association said that the price for the Transit Connect is too high (around HKD250,000, as opposed to the existing Toyota Crown Comfort, priced at HKD220,000). Apart from the higher purchase price, the Transit Connect has more airbags and this constitutes higher maintenance costs. A further problem would be that the new model's components would be difficult to find, compared to those for the Toyota Crown Comfort, which has been on the market for more than a decade. It has been suggested that this new model would probably only benefit taxi owners who do mostly airport runs, due to the increased luggage space and horsepower.

[SCMP, 05/02/2015]

Third runway to be judicially reviewed

Two Hong Kong citizens who claim the government unlawfully issued a permit for the addition of a third runway at Chek Lap Kok airport applied to the High Court for a judicial review of that decision.

The application urges the court to quash the Director of the Environmental Protection Department's decision to approve an environmental impact assessment report and issue a permit for the airport expansion project in November last year. The application also name the Airport Authority as a respondent.

The applicants state in their application: "*The nature of these decisions is of undoubted public importance. They concern one of the largest and most important infrastructure development projects in Hong Kong. It will have long-lasting environmental impact on people, flora and fauna over a wide area of Hong Kong.*"

The applicants claim that the Director unlawfully exercised power in approving a report which did not meet the requirement of assessing the noise and air-quality impact of the expansion. They also claimed the report failed to provide measures to protect Chinese white dolphins off the north of Lantau Island during the construction phase. The application also asserts that the Director failed to explain how the decision was reached in granting the permit. They claimed this cast doubt on the reasoning involved in reaching the decision to grant the permit.

Melonie Chau, assistant environment affairs manager of *Friends of the Earth*, said yesterday that the government did not try hard enough to produce an impact assessment report which actually met requirements to protect the environment. She expressed the hope that a judicial review will help to amend the system for future infrastructure projects.

The Airport Authority formulated expansion plans for a third runway at Chek Lap Kok in 2011. The Chief Executive in Council then granted approval in principle for the Authority to develop the project.

[SCMP, 07/02/2015]

Hong Kong needs higher energy-saving targets

If the Hong Kong government is serious about combating climate change, one way to do so is to include green building policies to cut energy consumption and reduce our carbon footprint. Buildings account for 90 per cent of our total electricity consumption. So by setting energy-saving targets for a majority of buildings, and lowering energy consumption in its own offices, the government would provide a good lead for society to follow.

However, in his latest policy address, the Chief Executive announced a mere 5 per cent savings target in electricity consumption for government buildings in the coming five years – a rather low objective, to say the least.

In 2006, then chief executive Donald Tsang Yam-kuen pledged to cut electricity consumption by 1.5 per cent a year in government buildings, causing us to comment on his lack of commitment. We launched the annual "Power Smart" energy-saving contest that same year, setting a 2 per cent cut as the minimum criterion for participants to promote energy conservation in the commercial and domestic sectors.

In the same year, the Legislative Council building and the Central Government Offices competed with each other to cut energy use in a year. The results showed that the Legco building managed to cut its electricity use by 20 per cent, and the Central Government Offices achieved a 13.7 per cent saving, which were both encouraging. The contest simply demonstrated that if one is sufficiently committed, good results are possible.

Since its launch, our energy-saving contest has brought about a cumulative saving of more than 220 million kilowatt-hours of electricity. Power Smart is a voluntary scheme, but we have spread the message throughout society. The city's two power companies have supported the contest by encouraging their clients to participate, and lower electricity bills is their reward.

The top school in last year's contest was Tung Wah College, which demonstrated its success with a low-investment-with-high-returns energy conservation strategy. It invested HK\$20,000 in window films and curtains, while also monitoring and adjusting the lighting and temperature settings. Following the changes, the school cut electricity consumption by 18 per cent, which brought savings of more than HK\$40,000 per month on its electricity bill.

In accordance with the requirements of the *Buildings Energy Efficiency Ordinance*, 1,796 buildings had completed their energy audits as of last month, and are required to display prominently the relevant information.

Building owners and tenants would benefit from being able to view data on a government website, comparing building performance, which would encourage more improvements. The government should allow annual updates of the data, rather than the current practice of updating data every 10 years.

The government is moving in the right direction by setting an energy-saving target for its buildings in an effort to combat climate change. However, the target is too conservative and if it also included other buildings, the entire city would benefit substantially.

[SCMP (article by Edwin Lau, *Friends of the Earth (HK)*), 10/02/2015]

Housing estates adopt recycling programme

The EPD introduced some time ago the "Chinese New Year ("CNY") WEEE (Waste Electrical and Electronic Equipment) Recycling Collection Services" ("the Programme"). This year, 600 housing estates have signed up to help residents to properly recycle their WEEEs including computers, rechargeable batteries (and fluorescent lamps and tubs intended for disposal) as well as adopting a "Use Less, Waste Less" policy. Residents will be directly participating in the Programme.

Collected waste items will be repaired and refurbished by recognised recycling programmes and then donated to the needy. Items which are beyond repair or not worthy of being repaired will be dismantled and their reusable components and materials will be recovered.

The EPD has organised year-end clean up and recovery activities for nine consecutive years but this year the response rates were much more promising with 600 housing estates signing up. This figure is 50 per cent more than last year's enrolment of 400 estates.

Publicity materials were distributed to participating estates to help promote the programme to residents. EPD had also promulgated its messages concerning proper WEEE recycling via other publicity platforms. From 26 January 2015, EPD arranged for free collection of WEEE items from the participating estates and delivered these items to three responsible organisations for proper treatment.

The government has been promoting the proper recovery of used WEEE through various voluntary recycling programmes and collection services. It will also introduce the Producer Responsibility Schemes ("PRS") through legislation to provide for effective recycling of five types of locally generated WEEEs: washing machines, refrigerators, air-conditioners, television sets and computer products.

The government will submit to the Legislative Council ("the LegCo") a legislative proposal this year. In parallel, the Public Works Subcommittee of the LegCo gave support to the Environment Bureau on 23 January 2015 for the development of a WEEE Treatment and Recycling Facility at EcoPark in Tuen Mun to ensure sufficient handling capacity for the collected WEEE under the PRS. These steps should help to convert WEEEs into reusable components and materials, thus turning waste into resources.

[EPD Press Release, 25/2/2015]

Clean marine fuel switch in July

Clean Air Network (CAN) has been advocating for a clean fuel switch and last week came the good news: the government announced that the *Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation*, which mandates ocean-going vessels (OGVs) that use clean fuels while berthed in Hong Kong, will be tabled in the Legislative Council on 18th March and will take effect on 1 July 2015.

CAN welcomes EPD's significant move on tackling Hong Kong's number one local pollution source. If approved, this will make Hong Kong the pioneer in Asia to take this unprecedented step.

[CAN Newsletter, 16/03/2015]

Toxic marine pollution in Hong Kong

Recently, CAN, with Public Health Professor Linwei Tian, conducted a field study of residents of Kwai Chung and artists along coastal areas to observe the number one air pollution problem in Hong Kong: shipping. Cargo and passenger marine vessels have become the biggest source of sulphur dioxide and respirable suspended particulate emissions since 2011.

Fifty-seven cruise ships are scheduled to berth this year, doubling the number in 2014. They pose a great threat to the health of the people in East Kowloon, due to the proximity of wharves to residential areas.

Studies have shown that shipping related PM emissions are responsible for about 60,000 cardiopulmonary and lung cancer deaths per year globally, most of which are in coastal area in the world.

[CAN Newsletter, 16/03/2015]

EPD's inaction over wetland dumping

Residents in Pui O are at loggerheads with the Environmental Protection Dept (EPD) and a local landowner over the dumping of construction waste on wetlands.

Local residents recorded eight incidents in December 2014 and January this year. The dumping of construction rubble is taking place on land owned by a Lo Wai resident, who built a ramp onto the site across government land without authorisation. In response to complaints, Lands Department staff removed the ramp and erected a fence around the government land.

The wetlands are part of a coastal protection area preserved under the *South Lantau Coast Outline Zoning Plan*, which is intended to conserve the natural features of "beaches and their immediate hinterland". The plan states that these "scenic and ecologically sensitive coastal areas" should be protected against "landfilling, land excavation or stream diversion and encroachment by developments". But the EPD says the dumping is legal because it complies with the *Waste Disposal Ordinance*.

In a letter to the EPD, the Living Islands Movement said the Pui O wetlands was a prime natural asset whose "preservation as such is for the benefit of all Hong Kong residents".

[Life on Lantau, Feb-March 2015]

End of the Pui O wetlands?

Local residents are aghast to see construction waste being dumped on three lots of land in the middle of the Pui O wetlands, home to the last wild water buffalo herd in Hong Kong and a place of great natural beauty enjoyed by local residents, visitors and tourists from abroad.

The wetlands are zoned as a "Coastal Protection Area" – a status that clearly prohibits waste disposal, yet the Environmental Protection Department (EPD) has acknowledged the dumping and seems unable to stop it. What madness to see rubble being poured on top of a pristine habitat, one of the last stretches of wetlands left in Hong Kong.

[Life on Lantau, Feb-March 2015]

ADVISORY COUNCIL ON THE ENVIRONMENT (ACE)

Summary of minutes of the 202nd Meeting of the Advisory Council on the Environment held on 15 December 2014:

Members were informed that the Council would discuss the RDS-2014 and the Strategy Environmental Assessment (“SEA”) for the “Review and Update of the Railway Development Strategy 2000 (“RDS-2U1”) prepared by the Transport and Housing Bureau (“THB”) which provides a planning framework for the expansion of Hong Kong’s railway network up to 2031. The Chairman urged the members to take a holistic approach in examining the overall concept and strategy for railway developments of the SEA and for the seven railway projects proposed in the RDS-2014, instead of focusing on details of individual projects.

A member enquired about the background and purpose of a SEA study, the Secretary explained that for mega projects like railway developments that have considerable long term impacts on a wide range of environmental aspects under the *Environmental Impact Assessment Ordinance* (“EIAO”), the EPD encouraged the project proponent to conduct a SEA study to identify the potential environmental impacts from a macro and strategic level at an early stage. After the assessments are made, the proponent of the project will take into account any comments and insights of the ACE before proceeding with the EIA studies.

A THB spokesperson gave an overview of the RDS-2014 and another member briefed everyone on the details of the SEA and the environmental effects of the proposed railway developments. The SEA had concluded that none of the proposed new railways projects would present serious problems to the environment. Potential environmental impacts of individual projects will be further addressed and considered during their respective design and development processes. Since each of the new railway proposals would constitute a ‘designated project’ under Schedule 2 of the *EIAO*, an EIA study will be undertaken in due course and an environmental permit will be required before construction of the railways may commence. Further public consultation will also need to be undertaken before the new projects are implemented.

ACE was informed of the three-stage methodology used in conducting the SEA, and that the preliminary site walks had been carried out in the areas of the proposed options when collecting data and reviewing the assessments.

It was explained to ACE that the UK Calculation of Rail Noise (“CRN”) standards were adopted in evaluating railway noise and noise sensitive areas had been identified. These might be affected by train traffic. A calculation method similar to that in the *Guidelines to Account for the Report on Greenhouse Gas Emission and Removals for Buildings* was applied for measuring green house gas (“GHG”) emissions. The *Emission Factor* (“EMFAC”) standards were adopted to estimate air pollutant emissions, and the *Quantity of Construction and Demolition* (“C&D”) wastes was roughly calculated based on the diameter of the tunnels to be constructed.

A member suggested that the THB should adopt a more strategic approach. Which, at the outset, highlights relevant individual projects recommendations and good practices, especially on aspects which involved cumulative impacts such as balancing the intake and output of waste materials before firming up on the alignments. Another member replied that the THB were mapping out the blueprint of the railway developments at this stage and the exact alignment of each project had not yet been decided.

A member welcomed the overall concept of RDS-2014. He opined that these new railway projects would bring positive contributions to the environment, as oppose to the traditional view that railway developments could only negatively affect the environment. The member explained that, as a result of the new railways, integrated urban designs can be implemented. The concept of new environment-friendly neighbourhoods, public open spaces as well as spatial arrangements for vehicular and pedestrian circulation could be catered for.

ACE was informed that the SEA was not a mandatory requirement; it was conducted to give a broad overview of the RDS-2014 so as to identify whether any of the new railways would present serious environmental problems. It was explained that the SEA would not be further reviewed. Instead, the next stage forward would be to conduct EIA studies for the individual projects.

Regarding the impact on the 5.6 ha of ecological sensitive habitat, a member asked whether there would be cumulative environmental impacts from other projects in the areas concerned in the future. He was also concerned that urban parks would eventually be surrendered to make way for the proposed projects. He commented that there was a lack of a strategic view to look for any alternatives to railways. ACE was told that there could be an encroachment into a part of Victoria Park by the proposed North Island Line, but affected persons would have their views considered.

A member expressed that he expected more details and sensitivity analysis in the full SEA report on the ecological impact on the woodlands, which are mostly located in the Lok Ma Chau area. He accepted that the C&D materials would present a real waste management issue for the projects, and the opportunity would be lost if the schedule of cut-and-fill works could not match construction works of other projects, such as the third runway at the airport. The member opined that the SEA was apparently unable to put the relevant territory-wide development projects into perspective. Another member replied that one of the main considerations in formulating the RDS-2014 implementation schedule was to meet the transport demand of the relevant districts.

Another member opined that when assessing the environmental benefits of the expanded railway networks, the emission from power plants due to the increased use of electricity by the railway system, compared with the reduction of roadside vehicle emissions, should be considered. The member’s comment was noted, and it was mentioned that the two electricity companies were mandated to use cleaner energy for power generation, as well as more stringent emission caps on power plants in the coming years. The Committee noted that the more travellers shifted preference to rail transport for daily commuting, the more significant will be the beneficial impact the projects bring to the environment.

A member explained the view that the EPD should take control of the environmental performance of the projects, such as imposing certain baselines for air emission and waste generation of the proposed projects. This was agreed by another member, who further suggested that a list of overarching principles and criteria for the implementation of the RDS-2014 be set out. The purpose of the list is to identify and address key environmental issues at the outset.

One member said that the responsible policy bureau should draw up a strategic growth areas plan for the future, so that it is possible to review the railway service vis-à-vis overall public measures introduced to alleviate congestion problems.

A member asked about the statutory role of ACE in addressing the SEA study. She commented that the study had not shown a need for the railway developments, nor had it proposed any alternatives. It was suggested that other considerations should also include maximising the re-use of the C&D waste onsite, planning an integrated urban design and creating positive visual impacts for the affected community.

CLIMATE CHANGE

Climate shift in the Pacific may accelerate global warming

According to the United States National Oceanic and Atmospheric Administration (“NOAA”), a preliminary measure of surface temperature differences in the Pacific shifted to a positive reading in the five months to November 2014, the longest such run in almost 12 years.

Known as the “Pacific Decadal Oscillation” (“PDO”), the El Nino-like pattern normally lasts for 15-30 years and operates like an accelerator on global surface temperatures during its positive phase and a brake during its negative phase, as the ocean takes up fluctuating amounts of the extra heat being trapped by rising greenhouse gas emissions.

A professor at the University of New South Wales (“UNSW”)’s Climate Change Research Centre said that this could be the start of another positive phase.

The last positive phase of the PDO (also known as the Interdecadal Pacific Oscillation) ran from about 1978 to 1998. During that time, there was a rapid increase of surface temperatures. Since then, the increase had stopped, despite an increase in greenhouse gas emissions, as the oceans have taken up more of the excess heat.

Even with the negative phrase, both 2005 and 2010 topped the 1998 record annual global temperatures. The first 11 months of 2014 were the warmest on record.

A fellow UNSW research fellow said that the current situation is certainly consistent with what they have seen in the tropics. In the positive phrase of the PDO, the tropical Pacific is relatively warm north of about 20 degrees latitude, whereas it should be cool. He said that during the positive phrase, one would expect temperatures to keep climbing before any shift becomes clear.

It is appear that a positive phrase is already on its way.

[*The Age*, 29/12/2014]

Beijing to play crucial role in Paris climate talks

“Beijing has a crucial role to play in international climate talks to be held in Paris in December”, French Prime Minister told the Chinese media on 28 January 2015, saying that it was the key issue up for discussion between the two countries.

“By committing to reducing greenhouse gas emissions last November, China has already taken the first step”, he added.

An ambitious agreement to help secure the planet’s future was signed at the end of the conference, seeking to limit global warming to 2 degrees Celsius (3.6 degrees Fahrenheit) over pre-industrial levels.

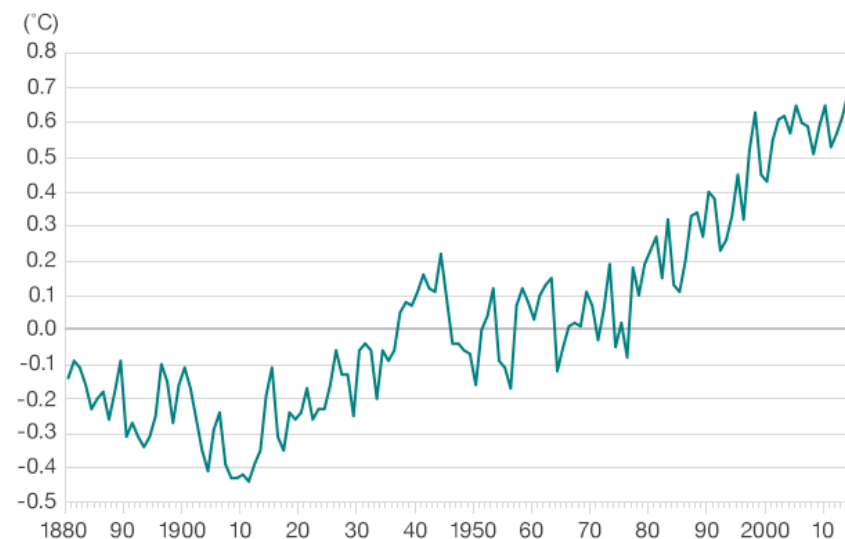
He added that the Franco-Chinese partnership focuses on tackling one of the key issues :- “green growth”. He said that France has expertise and knowledge in areas such as “sustainable urbanism” and dealing with ageing populations, and that such expertise and knowledge can be of use in current developments taking place in China.

[*SCMP*, 28/1/2015]

Warmest year on record

A US government scientist disclosed that year 2014 was the warmest year on record, with global temperatures 0.68 degrees Celsius (1.24 Fahrenheit) above the long-term average (calculated from data collected between 1951 and 1980). This result was published on 23 January 2015 by National Aeronautics and Space Administration (“NASA”) and National Oceanic and Atmospheric Administration (“NOAA”) researchers.

Global average temperature anomaly (1880-2014)



Source: NOAA

The director of NASA’s Goddard Institute for Space Studies had explained that, “while the ranking of individual years can be affected by chaotic weather patterns, long-term trends are attributable to drivers of climate change that right now are dominated by human emissions of greenhouse gases.”

NASA and NOAA maintain two of the three global datasets of global temperatures. The third is maintained by United Kingdom's Met Office. Data from all three are used by the World Meteorological Organisation ("WMO") and formed the basis of its provisional figures in December.

The director of NASA revealed that it had clearly been the warmest year on record in the oceans. Combined with the land temperature records, it could be seen that 2014 was the warmest year on record since at least 1951.

During a presentation of the two agencies' reports, the director of NOAA's National Climatic Data Center said although there were a number of areas where highest temperatures were recorded, not all parts of the globe recorded temperatures above the long-term average; in fact, some portion of the globe recorded temperatures cooler than average. Nonetheless, the far greater portion of land and ocean areas that was much warmer than average pushed the average temperature of 2014 to be the warmest year on record.

During its review of extreme weather during 2014, the WMO observed also a number of record-breaking events, such as significant increase in rainfall in the Balkans, Turkey, Morocco, and western Japan, while other parts of the globe - such as the Western, Central and Southern parts of the United States and parts of China - endured persistent drought. Tropical storms and cyclone activities were lower than the average.

Responding to the report's findings, the policy and communication director at the Grantham Research Institute on Climate Change at London School of Economics said the myth that global warming has stopped would now reveal to be certainly untrue. He said that there is evidence all around the world to prove that our planet is warming and the climate is changing in response to rising levels of greenhouse gases in the atmosphere.

The Head of Climate and Energy Policy at World Wildlife Fund (United Kingdom) ("WWF-UK"), said there were reasons to be optimistic that the international community would act to reduce emissions. She said that there is still time to reduce emissions and keep the rise in global temperature under 2 degrees Celsius (3.6 degrees Fahrenheit) by the end of this century.

[BBC News, 16/01/2015]

Global warming sceptics cherry-pick the data

Professor Wyss Yim's letter published on 29 January ("Hottest year? Not in Hong Kong") argued that urbanisation is the culprit of all the warming that is observed, and that the global temperature actually decreased during the period from 1998 to 2014.

This is typical of climate skeptics who often cherry-pick data to argue that the globe is not warming. If urbanisation were the only reason for the observed warming, why has the Arctic sea ice shrunk by about a third since 1980? Why have significant amounts of ice melted in many of the glaciers? Why has the ocean temperature continued to increase? In these places, very few people live, and surely no urbanisation exists.

Yes, urbanisation enhances warming in the cities but the increase in temperature is global and not confined to the cities. According to the World Meteorological Organisation, the weather authority within the United Nations, the average temperature over land and ocean in 2014 was 0.57 degrees Celsius above the 1961-1990 average. Note that the average temperatures over land include all temperature records and not only those in the cities. Just because the temperature in Hong Kong is not the highest does not imply global warming is not occurring!

As to the "pause" in the warming, the climate system is very complex and the global temperature will always be affected by many factors that occur on relatively short time scales. Yes, there was short-term downward trend in temperature during the period from 1998 to 2013, but this also happened in the 1970s. And, yet, after the brief downturn, the temperature rose again.

What we are talking about here is a long-term trend and not a short-term one. While there might be periods during which the global temperature decreases, it is still increasing if you examine the record covering a longer period of time.

Climate skeptics should not cherry-pick data to argue that human-induced global warming is not occurring. There is overwhelming evidence that their argument is invalid. If we continue to say that human activity has nothing to do with the observed increase in temperature, and therefore nothing needs to be done to reduce our greenhouse emissions, our earth as we know it will be doomed.

Johnny Chan,
Dean and Chair Professor of Atmospheric Science,
City University of Hong Kong

[published in SCMP, 05/02/2015]

Jury is in on climate change

As a Nobel Prize winner, I travel the world meeting all kinds of people. Most of the policy, business and political leaders I meet immediately apologise for their lack of knowledge of science. Except when it comes to climate science. Whenever this subject comes up, it never ceases to amaze me how each person I meet suddenly becomes an expert.

Facts are then bandied to fit an argument for or against climate change, and on all sides, misconceptions abound. The confusion is not surprising – climate science is a very broad and complicated subject with experts working on different aspects of it worldwide. No single person knows everything about climate change. And for the average punter, it's hard to keep up with all the latest research and what it means. More surprising is the supreme confidence that non-experts (scientists and non-scientists alike) have in their own understanding of the subject.

I am a full-time scientist whose area of expertise intersects with certain aspects of climate science. I, too, am not an expert on climate science. But I do understand how science works. I understand that the current consensus has been reached by thousands of scientists working for decades. And I understand that the vast majority of scientists and scientific bodies, including the Australian Academy of Science, have reached broadly the same conclusions.

The Academy's *The science of climate change: questions and answers* report – a document written and reviewed by Australia's most expert climate scientists – explains what we know, what we don't know and how we might mediate future changes.

These are the real experts on climate change and this is what they're saying:

- *Earth's climate has changed over the past century. The atmosphere and oceans have warmed, sea levels have risen, and glaciers and ice sheets have decreased in size.*
- *The best available evidence indicates that greenhouse gas emissions from human activities are the main cause.*
- *Continuing increases in greenhouse gases will produce further warming and other changes in Earth's physical environment and ecosystems.*

My own scientific opinions in my areas of expertise are consistent with their conclusions.

Does that mean the Academy's view above is endorsed by every expert? No. Like all areas of science, ideas are meant to be contested. The facts and conclusions in this document will be challenged – this is the scientific process that has served humanity so well. But this scientific process has led to a lot of confusion and, in some cases, I dare say, delusion within the broader community.

The body of evidence on climate change is not contained in one paper, one set of observations, or by one person – rather it encompasses thousands of people's ideas and observations. This is why it is so important for the country's pre-eminent scientific body to write this document, synthesising all of this disparate information into a coherent assessment of the science. It's much like getting a medical diagnosis from a panel of the country's best doctors. And while some might search around for a different opinion until they get the answer they want to hear, that is not the best way to treat the underlying problem.

Having this information in one place means that the nation's decision-makers have the best scientific opinion on the subject, so that they can stop arguing about the science, and instead focus on their job, which is figuring out the most appropriate policy response to climate change, given the best available knowledge.

The evidence is clear: human activities are changing the Earth's climate, and what we do now and into the future will strongly influence the world's weather in the decades and centuries to come. For the future health of our world and our country, let's quit self-diagnosing on climate change, and act on the expert opinion.

[Brian Schmidt, a Nobel Laureate and Academy of Science fellow and council member.]

[*The Age*, 16/02/2015]

China helps stall the world's emissions

China burned less coal and generated more electricity from renewable sources last year to help global carbon dioxide emissions from the energy sector stall. It was the first time there has been such a halt in 40 years during a period of economic growth, the International Energy Agency said. The slowdown came thanks to “changing patterns of energy consumption in China and OECD countries”, it said.

China, which is the biggest emitter of carbon dioxide, used more renewable energy last year such as hydropower, solar and wind, while it burned less coal, the IEA said. Carbon dioxide emissions – by far the main culprit in global warming – stood at 32.2 billion tonnes last year, unchanged from the previous year, it said.

Countries which are members of the Organisation for Economic Co-operation and Development, which include the United States and several European nations, had intensified efforts to be more energy-efficient and use more renewable sources, the IEA said.

In the 40 years since the IEA was formed in France, after the 1973 oil crisis, there have been only three other times when emissions stalled or fell. “All were associated with global economic weakness: the early 1980s, 1992 and 2009,” the IEA said. “In 2014, however, the global economy expanded by 3 per cent.”

However, the IEA said the world could not afford to relax. Maria van der Hoeven, the IEA's executive director, said: “The latest data on emissions are indeed encouraging, but this is no time for complacency – and certainly not the time to use this positive news as an excuse to stall further action.”

A key climate change conference will be held in Paris in December. Tasked with trying to limit the rise in global temperatures to 2 degrees Celsius over pre-Industrial Revolution levels, nations have until March 31 to announce their commitment to cutting greenhouse gas emissions. The EU has formally adopted a 40 per cent cut by 2030; the US plans to cut 26 to 28 per cent of its emissions in 2025 compared with their level in 2005.

[*SCMP*, 17/03/2015]

Thirty years of consecutive warmth

Back in February 1985, *The Heat Is On* by US rock legend Glenn Frey was near the top of the music charts and unwittingly has become something of an anthem for the global climate ever since. Last month capped 30 years during which average monthly temperatures worldwide have been warmer than the average for the 20th century. That's 360 consecutive months. And that warming trend, which scientists say is mostly the result of a build-up of greenhouse gases in the atmosphere, remains strong - although there are finally signs that carbon emissions may be peaking.

February 2015 was either second or third warmest on record for the month, depending on US or Japanese government data. It was also warm enough to make the past 12 months the hottest such period in records going back to 1880, according to US space agency NASA, and comes after 2014 was declared the warmest calendar year recorded.

Malte Meinshausen, an associate professor at the University of Melbourne's school of earth sciences, said 30 years is a common period used by climate scientists to gauge trends beyond natural variations. “We had a warming trend detected all through the 20th century ... and then it really kicked off in the 1970s,” Professor Meinshausen said. Global surface temperatures have been rising at about 0.2 degrees a decade, and recent research predicts that rate is accelerating, he said.

Climate change will likely remain a key issue this year. International talks are scheduled for Paris, France later this year to hammer out a new global treaty to curb greenhouse gas emissions. Vanuatu President Baldwin Lonsdale has publicly blamed climate change for enhancing the power of Cyclone Pam that slammed his Pacific island nation recently. Scientists say warming will increase the likelihood of more powerful storms.

If February marked 30 years of consecutive record warm months, there was a more positive development with the International Energy Agency declaring over the weekend that 2014 was the first year in the past 40 in which carbon emissions did not increase.

According to the agency, carbon dioxide emissions totalled 32.3 billion tonnes last year, unchanged from 2013 even as the global economy expanded about 3 per cent. “This is both a very welcome surprise and a significant one,” IEA chief economist Fatih Birol said in a statement. “It provides much needed momentum to negotiators preparing to forge a global climate deal in Paris in December: for the first time, greenhouse gas emissions are decoupling from economic growth.”

[*The Age*, 17/03/2015]

Ancient clams record climate change

Climate change is having a “bipolar” effect in the South China Sea, warming waters up to three times faster in winter than in summer, mainland scientists say. The researchers reconstructed sea temperature records going back 2,500 years by using fossilised samples of *Tridacnidae*, giant clams that lived on reefs and grew up to 1.3 metres long. They found the speed of temperature rises “elevated” in winter while somewhat “depressed” in summer and that the differences were far more “lively” than previously known.

That was bad news for some marine creatures, said Dr. Yan Hong, associate researcher with the Chinese Academy of Sciences’ Institute of Earth Environment and lead scientist of the study. Some fish species need a significant temperature drop to lay their eggs, as cooling waters helped nutrients to rise. Warmer winters could also threaten human beings by depleting fisheries and worsening air pollution. “The impact of climate warming could be stronger and more profound than previously thought”, Dr. Yan said.

Previous studies of ancient climate change used samples of tree rings, sediment or historical records, but these were less sensitive to subtle fluctuations than the giant clams, resulting in rougher figures that often produced a “smoothened” picture of climate change.

By contrast, Yan said, the giant clam was a diligent “book-keeper” that gave a “high-resolution image” of temperature changes. Living in shallow water, it recorded even tiny changes of sea surface temperature with the growth of a new layer on its shell every day.

The scientists studied the change of chemical compositions in the shell to reconstruct the climate record in monthly periods going back 2,500 years.

[SCMP, 22/03/2015]

REGIONAL & INTERNATIONAL

CHINA

Even Beijing’s mayor says the city is unlivable

If waking up every day to grey, dreary mornings in Beijing is getting you down, you’re not alone. During a presentation at the 14th annual People’s Representative Conference, the mayor of Beijing, Wang Anshun, conceded that “Beijing is not a livable city”.

Here’s what he had to say: “*In establishing a top-tier, internationalized livable and harmonious city, Beijing is currently establishing a system of standards, something that is very important. At the present time however, Beijing is not a livable city.*”

There was no shortage of days in 2014 where the PM 2.5 reading, which measures particulate matter in the air, was above 200, which is considered hazardous. Wang blamed the city’s pollution problem on a massive influx of vehicles and an uneven distribution of industrial factories. Currently, 71.8 percent of all factories in Beijing are concentrated in just six of the city’s districts.

To address these concerns, last year Beijing got rid of 476,000 vehicles that failed to meet emission standards. The city also dismantled 36 trading centres and closed 392 factories. Yet, as bad as the city’s air quality has become, smog is not the mayor’s top priority. He’s more concerned with over population. Seeing that there is a mad rush of people flocking to the city, population control remains Beijing’s number one problem.

And so while the mayor’s speech included buzzwords like “living standards” and “greenification”, overpopulation sits at the top of the list. At 21.5 million residents, Beijing continues to grow at a feverish pace. There were 368,000 new arrivals to the city last year, and despite the poor air quality, the city is projecting similar numbers for 2015. The city has become so dense that its western area is packed with 25,700 people per square kilometre.

[*The Nanfang*, 27/01/2015]

Third of plastic in oceans is Chinese

Plastic bottles, barrels, bags, toothbrushes and even syringes are piled high around rural villages and migrant workers tasked with recycling it. They sort, clean and break up the rubbish before putting the pieces into furnaces where they are melted and remoulded, eventually to be processed into small granules. The scene is typical of many family-run plastic recycling mills clustered in rural areas of Hebei, Shandong and Jiangsu provinces, to name a few.

Yet the tale shows just one side of China’s huge plastic foot-print. A study published this week in the journal *Science* revealed China is responsible for nearly 30 per cent of the plastic pollution clogging the world’s oceans.

The environmental and health impacts of China’s unregulated plastic recycling business were immense: the cleaning process pollutes waterways, melting and burning the scraps released toxic pollutants into the air, and leftover pieces unfit for recycling were dumped directly into riverbeds, Wang said.

According to a new study, led by Jenna Jambeck, an assistant professor of environment engineering at the University of Georgia, an estimated eight million tonnes of waste plastic enters the oceans each year from the world’s 192 countries with coastlines, based on 2010 data.

China’s heavily populated coastal cities contributed between 1.3 million and 3.5 million tones of the waste, the study found.

Chen Liwen, a researcher with the environmental group Nature University in Beijing, who has focused on the problem in her research, was not surprised by the findings. “Plastic waste that has no value for recycling is either burned directly or dumped in waterways and eventually ends up in the sea. This is very common in China’s rural areas, where there is no waste management in place,” she said. Such waste includes thin plastic bags and plastic foam used for food packaging.

China banned such bags in 2008, but enforcement is lax. The prohibition on plastic foam was lifted in 2013, sparking criticism from environmentalists; but even when the ban was in place, about 15 billion disposable plastic lunch boxes were produced every year, according to official statistics.

The study found eight of the top 10 biggest contributors to the ocean’s plastic problem were in Asia: China, Indonesia, the Philippines, Vietnam, Sri Lanka, Thailand, Malaysia and Bangladesh.

[SCMP, 14/02/2015]

WORLD

World faces devastating water deficit

Without reforms, the world will be plunged into a water crisis that could be crippling for hot, dry countries, the United Nations has warned. In an annual report, the UN said abuse of water resources was now so great that on current trends, that by 2030 the world will face a 40 per cent “global water deficit”, i.e. the gap between demand for water and replenishment of it.

“The fact is there is enough water to meet the world’s needs, but not without dramatically changing the way water is used, managed and shared,” the UN said in its annual *World Water Development Report*. Measurability, monitoring and implementation” are urgently needed to make water use sustainable.

Surging population growth was one of the biggest drivers behind the coming crisis, the report said. Earth’s current tally of approximately 7.3 billion human beings is growing by about 80 million per year, and is likely to reach 9.1 billion by 2050. To feed these extra mouths, agriculture, which already accounts for approximately 70 per cent of all water withdrawals, will have to increase output by 60 per cent.

Climate change – which will alter when, where and how much rainfall occurs – and urbanisation will add to the coming crunch.

The report pointed to a long list of abuses, from contamination of water by pesticides, industrial pollution and run-off from untreated sewage, to over-exploitation, especially for irrigation.

More than half of the world’s population takes its drinking supplies from groundwater, which also provides 43 per cent of all water used for irrigation. Approximately 20 per cent of these subterranean aquifers were suffering from perilous over-extraction, the report said.

[SCMP, 21/03/2015]

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Convictions under environmental legislation: December 2014 to April 2015 (May 2015 data not available)

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

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

December 2014

Seven convictions were recorded in December 2014 for breaches of legislation enforced by the Environmental Protection Department.

One of the convictions was under the Environmental Impact Assessment Ordinance, 5 were under the Waste Disposal Ordinance and 1 was under the Water Pollution Control Ordinance.

The heaviest fine in December was \$20,000, assessed against a company that constructed or operated a designated project without an environmental permit.

January 2015

Twenty convictions were recorded in January 2015 for breaches of legislation enforced by the Environmental Protection Department.

Six of the convictions were under the Air Pollution Control Ordinance, 5 were under the Noise Control Ordinance, 1 was under the Ozone Layer Protection Ordinance and eight were under the Waste Disposal Ordinance.

The heaviest fine in January was \$80,000, assessed against a company that imported or exported ozone depleting substances without a licence.

February 2015

Twenty-two convictions were recorded in February 2015 for breaches of legislation enforced by the Environmental Protection Department.

Nine of the convictions were under the Air Pollution Control Ordinance, 1 was under the Environmental Impact Assessment Ordinance, 9 were under the Waste Disposal Ordinance and 3 were under the Water Pollution Control Ordinance.

The heaviest fine in February was \$65,200, assessed against a company that installed or altered furnaces or chimney without authorisation.

March 2015

Twenty-six convictions were recorded in March 2015 for breaches of legislation enforced by the Environmental Protection Department.

Thirteen of the convictions were under the Air Pollution Control Ordinance, 3 were under the Noise Control Ordinance, 8 were under the Waste Disposal Ordinance and 2 were under the Water Pollution Control Ordinance.

The heaviest fine in March was \$35,000, assessed against a company that contravened the provisions of a licence.

April 2015

Twenty-seven convictions were recorded in April 2015 for breaches of legislation enforced by the Environmental Protection Department

(EPD).

Three of the convictions were under the Air Pollution Control Ordinance, 1 was under the Environmental Impact Assessment Ordinance, 7 were under the Noise Control Ordinance, 14 were under the Waste Disposal Ordinance and 2 were under the Water Pollution Control Ordinance.

The heaviest fine in April was \$50,000, assessed against a company that imported controlled waste without a permit.

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