Legislative Council Panel on Environmental Affairs

Framework Agreement on Hong Kong/ Guangdong Co-operation: Environmental Protection and Ecology Conservation

Civic Exchange Submission

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LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS

Framework Agreement on Hong Kong/Guangdong Co-operation: Environmental Protection and Ecology Conservation[1]

1. Implementation of the NDRC Plan and the Pearl River Bay Area Concept.

The Framework Agreement is the first stage of implementation of the National Development and Reform Commission (NDRC)'s consultation document *The Outline of the Plan for the Reform and Development of the Pearl River Delta 2008-2020*[2] *(The Outline)*, which was released in December 2008.The Framework has a stated objective of improving regional environmental quality and transforming the Pearl River Delta (PRD) region into a "Green and Quality Living Area" (GQLA), with six stated areas of focus:

(i) taking concerted actions to prevent and tackle air pollution;
(ii) enhancing cleaner production in the region;
(iii) promoting wider use of electric vehicles;
(iv) co-operation in protecting marine water quality;
(v) promoting the development of circular economy; and
(vi) co-operation in ecology and marine resources conservation.

This paper will principally address measures to tackle cross-border air pollution, and touch briefly on cross-border nature conservation initiatives, and, although not included in this paper, the supply of fresh water to Hong Kong and the PRD. It is noted that neither climate change nor the low carbon economy is directly addressed in The Framework. These will not be addressed. For all aspects it will be essential to develop timelines, budgets and goals, and identify responsible bodies to transform The Framework from a broad agreement into measurable improvements in the environmental quality of the PRD region.

GQLA was first articulated as the core objective of the Pearl River Bay Area Concept (PRBAC) - a new concept launched under *The Outline* –in September 2009[3]. The PRBAC, which includes Hong Kong, Macau, Shenzhen, Donguan, Guangzhou and Zhuhai, has population of over 37 million people, is modeled on the San Francisco "Bay Area" and the Puget Sound Agreement (PSA)[4], which aim to reduce the impact of pollution on areas with a high quality of life.

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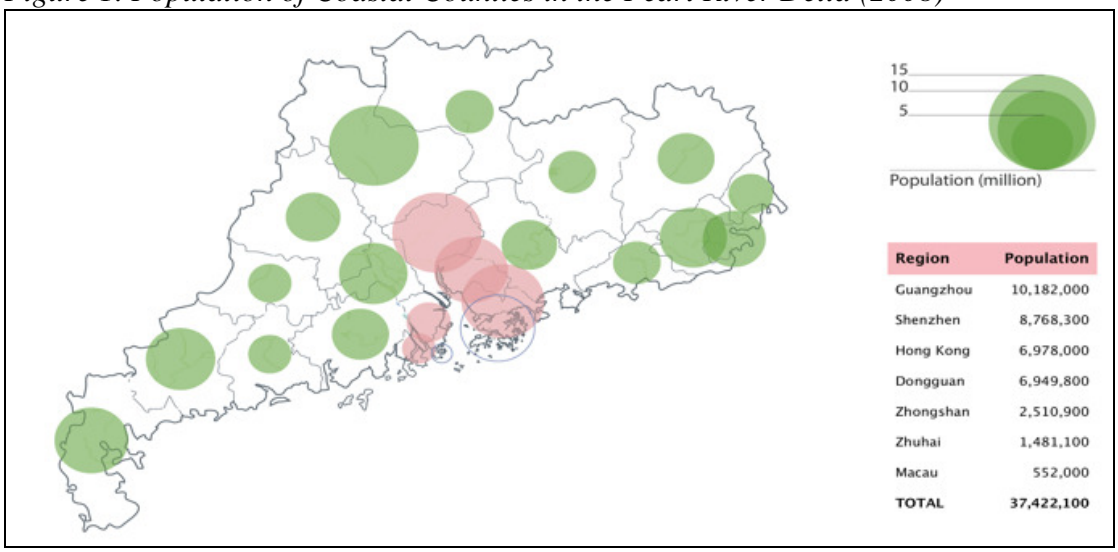
[1] Environment Bureau, (May 2010) <http://www.legco.gov.hk/yr09-10/english/panels/ea/papers/ea0524cb1-1923-5-e.pdf>, accessed: Legislative Council website 4 Aug 2010.
[2] Civic Exchange (2009) *A New Vision of Industrial Reform* <http://www.civic-exchange.org/en/live/upload/files/NDRCresponse.pdf>
[3] Zhang Shao Kang (September 2010) *The Bay Area of the Pearl River Estuary* (synopsis) Seminar on Regional Planning in the Greater Pearl River Delta Region, 20. Planning Department of the Government of the Hong Kong Special Administrative Region.
[4] The Puget Sound Agreement is also known as the Northwest Ports Clean Air Strategy (NWPCAS). It can be downloaded from: <http://www.portoftacoma.com/File.ashx?cid=2233>, accessed 29 July 2010

Figure 1. Population of Coastal Counties in the Pearl River Delta (2008)



Region	Population
Guangzhou	10,182,000
Shenzhen	8,768,300
Hong Kong	6,978,000
Dongguan	6,949,800
Zhongshan	2,510,900
Zhuhai	1,481,100
Macau	552,000
TOTAL	37,422,100

Source: Guangdong Statistical Yearbook 2009[5]

2. Concerted actions to prevent and tackle air pollution

While both of these provide a worthy aspirational objective for the PRD, the latter specifically provides a tried and tested model of cross-border collaboration for improving air quality without compromising the competitive advantage of competing industries (ports and shipping lines) in either jurisdiction. Hong Kong and Guangdong have already taken a pioneering role in establishing China's first Regional Air Quality Monitoring Network, and have been working to implement the Regional Air Quality Management Plan, which is due to be renewed in 2011.

It is noted that emissions of pollutants from major sources are falling, and will likely fall further in both Hong Kong and Guangdong as the installation of flue gas desulphurization and the closure of smaller coal-fired power stations come into effect. Increasing use of nuclear power and natural gas will further reduce emissions of sulphur dioxide, fine particles and nitrogen oxides.

However, pollution concentrations in Hong Kong and the PRD remain far above the World Health Organization's Guidelines. Emissions from diesel vehicles, marine transport, and factories in the PRD are the principal sources that must be addressed to reduce this risk and truly justify branding the PRD as a GQLA.

Policy recommendations:

A key value in enhancing cleaner production and promoting wider use of electric vehicles is in contributing to improving air and water quality. Specific measures to reduce emissions from these sources could include:

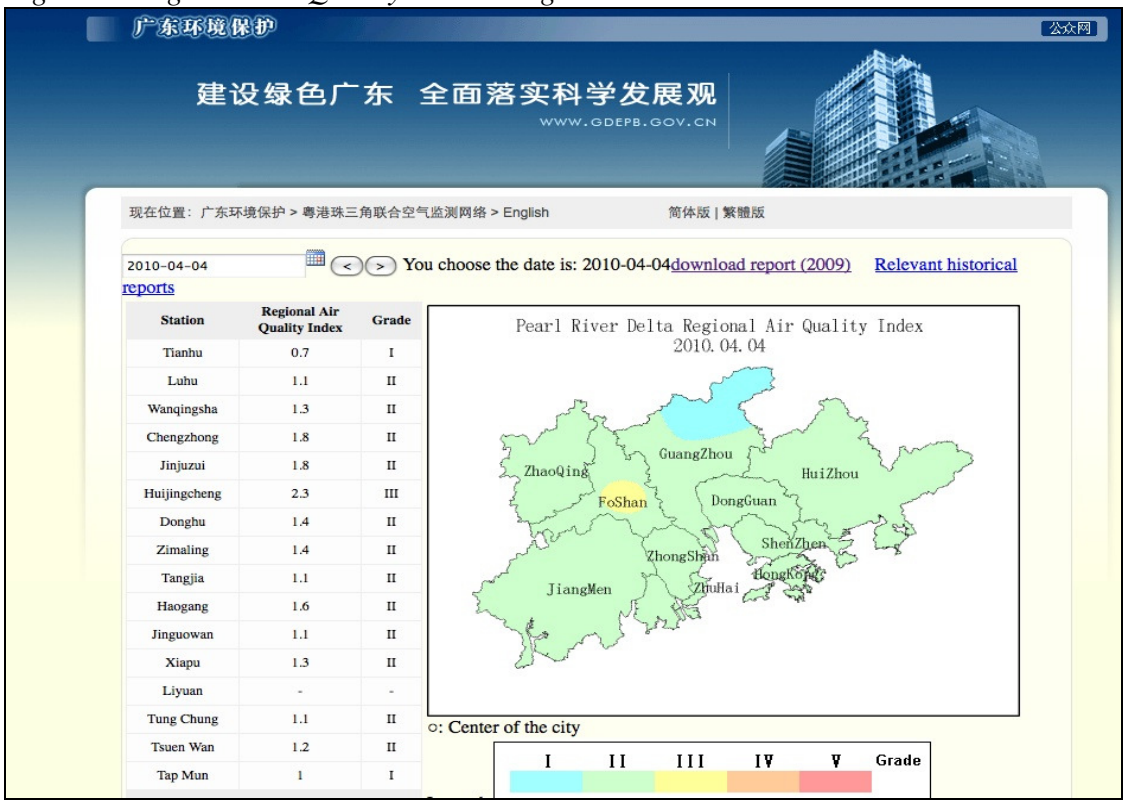
[5] Statistics Bureau of Guangdong Province *Guangdong Statistical Yearbook 2009*, Peoples' Government of Guangdong, <http://www.gdstats.gov.cn/tjnj/table/5/e5_1.htm>, accessed June 2009.

(a) Accelerating the retirement of aging diesel vehicles though a co-ordinated combination of incentives (perhaps for early adoption of hybrid or fully electric buses) and disincentives according to a specified timeframe.

(b) Making the Western Crossing and Hong Kong-Zhuhai-Macau Bridges into low emissions zones, with access restricted to vehicles with Euro IV engine performance or better.

(c) Looking beyond Hong Kong factory ownership to identifying locations or industries with high or especially harmful cumulative emissions. Data from the Regional Air Quality Monitoring Network consistently shows higher concentrations of pollutants from Foshan and monitoring stations downwind[6]. Research to determine the causes of such blackspots could play a key role in reducing ambient concentrations throughout the PRD.

Figure 2: Regional Air Quality Monitoring Network website



Station	Regional Air Quality Index	Grade
Tianhu	0.7	I
Luhu	1.1	II
Wanqingsha	1.3	II
Chengzhong	1.8	II
Jinjuzui	1.8	II
Huijingcheng	2.3	III
Donghu	1.4	II
Zimaling	1.4	II
Tangjia	1.1	II
Haogang	1.6	II
Jinguowan	1.1	II
Xiapu	1.3	II
Liyuan	-	-
Tung Chung	1.1	II
Tsuen Wan	1.2	II
Tap Mun	1	I

Source: Guangdong Environmental Protection Bureau Website[7]

[6] Guangdong Provincial Environmental Monitoring Centre, Environmental Protection Department, HKSAR *Pearl River Delta Regional Air Quality Monitoring Network. A Report of Monitoring Results in 2009.* Available: <http://www.gdepb.gov.cn/gsgg/200710/P020100429536280667936.pdf>.

[7] Guangdong Environmental Protection Department. Pearl River Delta Regional Air Quality Index <http://www-app.gdepb.gov.cn/raqi3/RAQI_en.htm>, accessed 25 July 2010.

3. Unregulated marine emissions continue to rise and threaten public health

Marine emissions is one source of air pollution that, fuelled by rising traffic at the PRD's container ports, continues to rise. In 2008 these ports handled some 57 million containers – more than 11% of global container throughput[8].

Figure 3. World's busiest ports (thousands of TEUs)

Rank	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	Singapore 15 100	Hong Kong 16 211	Hong Kong 18 098	Hong Kong 17 826	Hong Kong 19 144	Hong Kong 20 499	Hong Kong 21 984	Singapore 23 192	Singapore 24 792	Singapore 27 936	Singapore 29 918
2	Hong Kong 14 582	Singapore 15 945	Singapore 17 087	Singapore 15 571	Singapore 16 941	Singapore 18 411	Singapore 21 329	Hong Kong 22 602	Hong Kong 23 539	Shanghai 26 152	Shanghai 28 006
3	Kaohsiung 6271	Kaohsiung 6 985	Busan 7 540	Busan 8 073	Busan 9 453	Shanghai 11 280	Shanghai 14 557	Shanghai 18 084	Shanghai 21 710	Hong Kong 23 998	Hong Kong 24 494
4	Rotterdam 6011	Busan 6 440	Kaohsiung 7 426	Kaohsiung 7 541	Shanghai 8 610	Shenzhen 10 650	Shenzhen 13 626	Shenzhen 16 197	Shenzhen 18 469	Shenzhen 21 099	Shenzhen 21 417
5	Busan 5946	Rotterdam 6 400	Rotterdam 6 275	Shanghai 6 340	Kaohsiung 8 493	Busan 10 408	Busan 11 442	Busan 11 843	Busan 12 039	Busan 13 261	Busan 13 426
6	Long Beach 4 098	Long Beach 4 408	Shanghai 5 612	Rotterdam 6 096	Shenzhen 7 614	Kaohsiung 8 843	Kaohsiung 9 714	Kaohsiung 9 471	Kaohsiung 9 775	Rotterdam 10 791	Dubai 11 827
7	Hamburg 3 550	Shanghai 4 210	Los Angeles 4 879	Los Angeles 5 184	Rotterdam 6 506	Los Angeles 7 179	Rotterdam 8 281	Rotterdam 9 287	Rotterdam 9 600	Dubai 10 653	Guangzhou 11 001
8	Los Angeles 3 378	Los Angeles 3829	Long Beach 4 601	Shenzhen 5 043	Los Angeles 6 106	Rotterdam 7 107	Los Angeles 7 321	Hamburg 8 088	Hamburg 8 862	Kaohsiung 10 257	Ningbo-Zhoushan 10 846
9	Antwerp 3 266	Hamburg 3 750	Hamburg 4 248	Hamburg 4 689	Hamburg 5 374	Hamburg 6 138	Hamburg 7 003	Dubai 7 619	Dubai 8 783	Hamburg 9 890	Rotterdam 10 784
10	Shanghai 3 066	Antwerp 3614	Antwerp 4 082	Long Beach 4 463	Antwerp 4 777	Dubai 5 445	Dubai 6 429	Los Angeles 7 485	Los Angeles 8 470	Qingdao 9 466	Qingdao 10 377

Source: Maritime Trade 2009, UNCTAD 2009[9]

There are no effective controls on emissions from ocean-going vessels (OGVs), which directly affect some 37 million people in the PRD's coastal counties alone. OGVs burn marine bunker fuel that typically has a sulphur content[10] of 3.7%. In contrast, road vehicles in Hong Kong are required to burn Euro V fuel[11] (0.001% sulphur) and Guangdong will soon set a Euro IV equivalent (0.005%) standard[12].

Overseas, concerns about the public health impacts of marine emissions have led to the establishment of a Emissions Control Areas (ECA) covering the Baltic Sea and the North Sea (including the English Channel)[13], which limits the sulphur content of marine fuel to 1%, while under European Union regulations, ships at berth must burn fuel with no more than 0.1% sulphur content[14](0.1% fuel).

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[8] United Nations Convention on Trade Development Secretariat (UNCTAD/RMT/2009) *Maritime Trade 2009*, chapter 5, 109-113.

[9] Ibid.

[10] Sulphur is the source for highly toxic sulphur dioxide emissions when bunker fuel is burned

[11] *Amendments to Air Pollution Control (Motor Vehicle Fuel) Regulation Gazetted.* Hong Kong SAR Government press release. May 2010. <http://www.info.gov.hk/gia/general/201005/07/P201005070178.htm>, accessed 29 July 2008.

[12]Guangdong Environmental Protection Bureau (November 2009) 车用柴油（仅用于实施第四阶段国家机动车污染物排放标准的车用柴油）（DB44/ 695-2009) <http://www.gdepb.gov.cn/hjbz/dfbz/200911/t20091118_73685.html>, accessed 29 July 2010.

[13] International Maritime Organization Prevention of Air Pollution from Ships <http://www.imo.org/Environment/mainframe.asp?topic_id=233#amends>, accessed 28 July 2010.

[14] European Union (July 2005) *Directive 2005/33/EC of the European Parliament and of The Council of 6 July 2005*

A new ECA, which comes into force in 2012, will also cover most of the North American coastline out to 200 nautical miles[15]. The ports of Long Beach and Los Angeles, as well as those covered by the Puget Sound agreement, earlier applied emission control measures on vessels in national waters[16].
As a result, many of the ships calling at PRD ports are fully equipped to burn less polluting fuels, but do not do so, because no regulation or legislation requires it.

Availability of fuel is another key issue. At present, 0.1% fuel is not available in the PRD and must be sourced elsewhere. This will limit the feasibility of fuel switching for ships that do not call at ports where 0.1% fuel is available. However, as emissions controls expand in scope, a greater volume of cleaner fuel will be required, creating a new business opportunity for local refiners and suppliers.

Stakeholder support
However, the Hong Kong Ship Owners Association (HKSOA) announced in November 2009 that it had no objection to mandatory emissions controls covering Hong Kong and PRD waters. Informal discussions with a range of stakeholders have also revealed that, in addition to being technically feasible, the costs of fuel switching are rather low, and would not impose an onerous burden on either the shipping lines or their customers. However HKSOA members have a strong preference for mandatory measures to swiftly reinforce any voluntary initiatives.

Policy recommendations
Introduction of control measures in three stages are proposed. These are consistent with clause 1 paragraph 1 of chapter 6 of the Framework Agreement: "Guangdong and Hong Kong will progressively adopt . . . fuel and emission standards for . . . vessels that are higher than other places in the Mainland."

(a) Mandatory switching to fuel with 0.1% sulphur content for OGVs at berth in PRD ports would bring immediate reductions in exposures and associated health risks to communities living close to the ports.

(b) Establish a pilot low emissions zone (LEZ) requiring all OGVs entering PRD waters to switch to fuel of 1% or 0.1% sulphur content (consistent with requirements in other jurisdictions)[17].

(c) Building on the experience of the pilot PRD LEZ, establish an ECA covering the entire coast of China, and potentially collaborate with neighbouring countries to establish ECAs for the Yellow Sea and South China Sea.

(d) Encourage and assist local refiners and suppliers to be ready to meet the newly emerging demand for cleaner fuels.

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amending Directive 1999/32/EC Official Journal of the European Union L 191 p59-69 <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:191:0059:0069:EN:PDF>.

[15] International Maritime Organization. Marine Environment Protection Committee, 59th session: 13-17 July 2009 <http://www.imo.org/Newsroom/mainframe.asp?topic_id=109&doc_id=11123>, accessed 28 July 2010.

[16] Galbraith, V.; Curry, L; Loh, C. (2008). *Green Harbours: Hong Kong & Shenzhen – Reducing Marine and Port-related Emissions*. (Hong Kong: Civic Exchange). <http://www.civic-exchange.org/eng/upload/files/200806_Gports.pdf>.

[17] Approval from the International Maritime Organisation is not required for establishing low-emissions zones that are confined to the national waters of a single sovereign state.

4. Water supply to Hong Kong and the Pearl River Basin

One of the key environmental issues not mentioned in the Framework Agreement is the supply and quality of fresh water in the Pearl River Delta. While the Pearl River Basin's supply per capita is much higher than in much of northern China, Guangdong is still classified as "water stressed" according to standards set by the United Nations Environment Programme[18].

Although Hong Kong's water supply from the Dongjiang appears secure in the short term, the security of supply is threatened by increasing demand from other PRD cities, contamination from industrial, domestic and agricultural waste, and increasing unpredictability of rainfall brought about by climatic changes[19].

It should also be noted that water in both the PRD[20] and Hong Kong[21] is priced below the cost of operational supply, and far below the capital costs of building water and sewage infrastructure.

Policy Recommendations

Pricing water to reflect the capital and operational costs offers two benefits. First a higher price is likely to encourage consumers to reduce wastage, thereby reducing total consumption. Second, it would provide a framework for more accurately assessing the respective benefits of desalination and reverse osmosis filtration, both of which are widely used overseas, and particularly in Singapore. Both of these measures would reduce the amount of water that Hong Kong needs to draw from the Dongjiang, thereby reducing supply pressure on other cities in the PRD.

Such an approach would make Hong Kong a much more welcome participant in discussions on water allocation with all the PRD cities and the Guangdong Government. While water supply may not appear to be a pressing issue, it is clear that addressing it now, before a crisis emerges, will allow for the development of a measured strategic response.

5. Co-operation in Ecology and Marine Resource Conservation

The proposal to preserve the cross-border ecological corridor in the northeast NT via the designation of Robin's Nest as a new country park to serve as the Hong Kong portion is welcomed. However, in creating an ecological corridor, it is essential to know which species will use this corridor, and what their habitat requirements are. It should be noted that, based on the habitat characteristics of the area, this corridor must serve three distinct habitat types – subtropical forest, streams, and upland grassland.

While the case for subtropical forest and streams is well understood in the context of providing linkage for a wide range of mammals, amphibians, reptiles and invertebrates, the importance of protecting grassland habitats has only recently emerged.

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[18] Sadhwani D, Chau J, Loh C, Kilburn M & Lawson A (2009) *Liquid Assets. Water Security and Management in the Pearl River Delta,* 27 (Civic Exchange).

[19] Ibid, 19.

[20] Ibid, 3.

[21] *Annual Report 2008/9*, 50. Water Supplies Department (2009).

In China, Rufous-rumped Grassbird *Graminicola benghalensis,* a species dependent on grassland, is known only from Hong Kong, Wutong Shan in Shenzhen, and one other site in Guangxi. Two recent discoveries: that a small breeding population inhabits Robin' Nest, and that the race occurring in China is in fact a full species - Chinese Grassbird *Graminicola sinicus*[22] - with a highly restricted range, have simultaneously raised the conservation significance of both this species and the proposed corridor connecting Robin's Nest to Wutong Shan. Given that this species is largely resident, in order to protect the genetic diversity of the Hong Kong population, it is important that there is sufficient suitable habitat in the area to facilitate short-distance movements.

Policy Recommendations

It is recommended that the Hong Kong and Guangdong Governments co-operate closely to:

(a) Assess the status and detailed habitat requirements of all species, including Chinese Grassbird, for which the corridor is intended.

(b) Draw up a management plan that includes provisions for the retention and enhancement of upland grassland habitat in the wildlife corridor.

Mike Kilburn
Civic Exchange
4 August 2010

[22] Leader PJ, Carey GJ, Olsson U, Baral HS, & Alström P The taxonomic status of Rufous-rumped Grassbird Graminicola bengalensis, with comments on its distribution and status *Forktail 26*. August 2010 (in press).