



Rivers in Hong Kong

Friday June 28, 2018

Dr. Cho-Nam Ng



Programme

Time	
4:00 pm	Rivers in Hong Kong (Dr Cho-Nam Ng, JC-WISE)
5:05 pm	Break
5:20 pm	How to conduct field-work along Kam Tin River (Mr Anthony Yeung, HKGA)
6:10 pm	Water Footprint (Dr Frederick Lee, JC-WISE)
6:30 pm	Workshop ends

The JC-WISE Project

- Jockey Club Water Initiative on Sustainability and Engagement (JC-WISE)
- Funded by the Hong Kong Jockey Club Charities Trust
- Hosted by the Faculty of Social Sciences, HKU
- Aims to raise the public's awareness, and appreciation, of the importance of attaining long-term water sustainability for Hong Kong

The JC-WISE Project

- Re-connecting the public with our **rivers** – enhance the understanding of the multiple values of water
- **Water Footprint** concept – recognising the impacts of consumption behavior on freshwater resources



My River, My Community

- Rivers@HK Database – The first interactive and open-access database about rivers in Hong Kong, with the application of Geographical information system (GIS).
- Train-the-trainer programme – This programme is comprised of a series of professionally designed and guided field-trips.
- Documentary and drone videos



“My River, My Community” Scheme



Shan Pui River
(山貝河)



Kam Tin River
(錦田河)



Lam Tsuen River
(林村河)



Tung Chung River
(東涌河)



Lai Chi Wo River
(荔枝窩河)



Ng Tung River
(梧桐河)



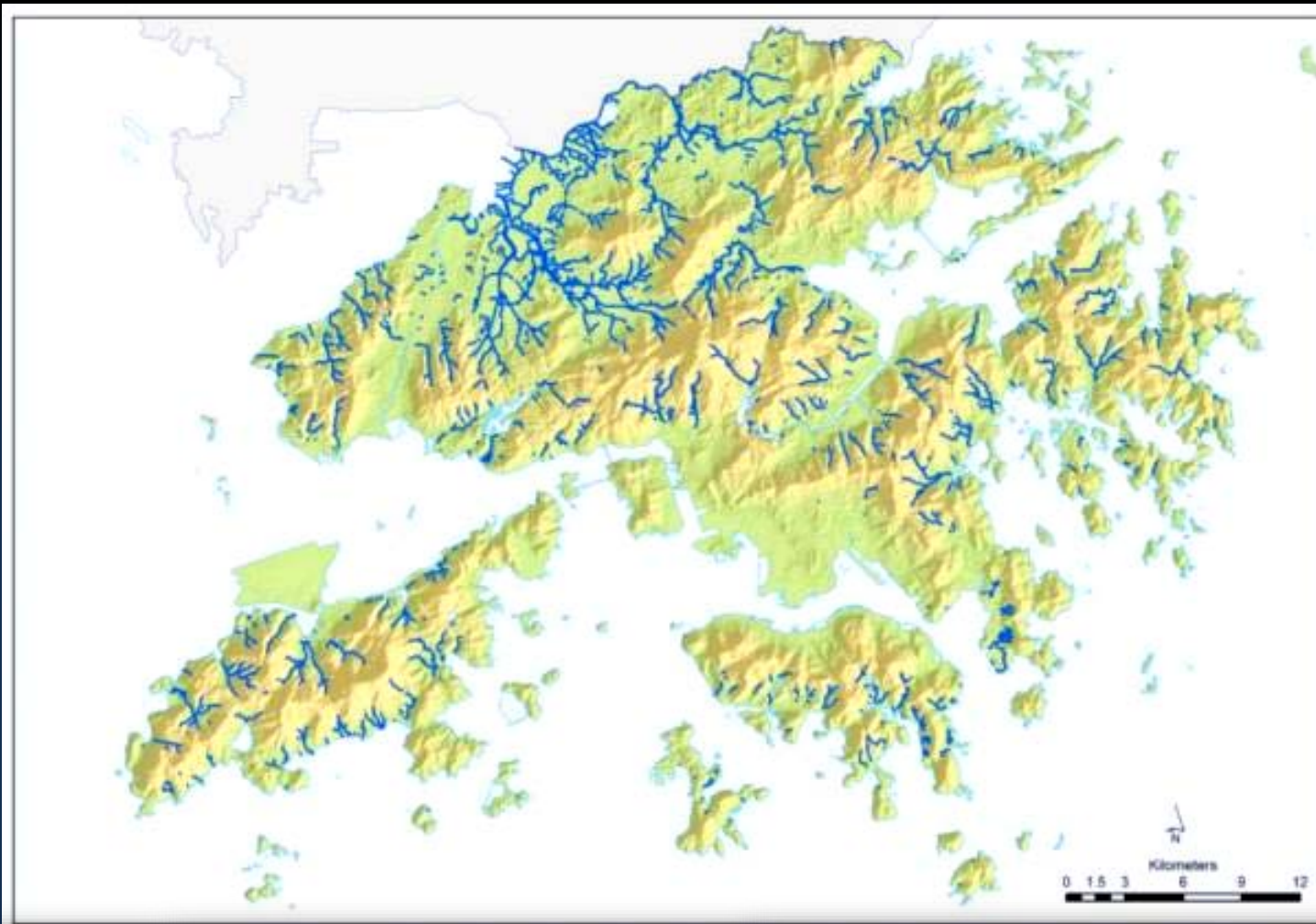
Sheung Yue River
(雙魚河)

Rivers in Hong Kong



Rivers in Hong Kong

- HK has **over 200 rivers** and streams while the majority of them are **short and unnamed**.
- Many of them are “**Intermittent streams**” (flows in wet season only 季節性河流) and “**Ephemeral streams**” (flows in response to rainfall 間歇性河流、時令河)



Rainfall and runoff

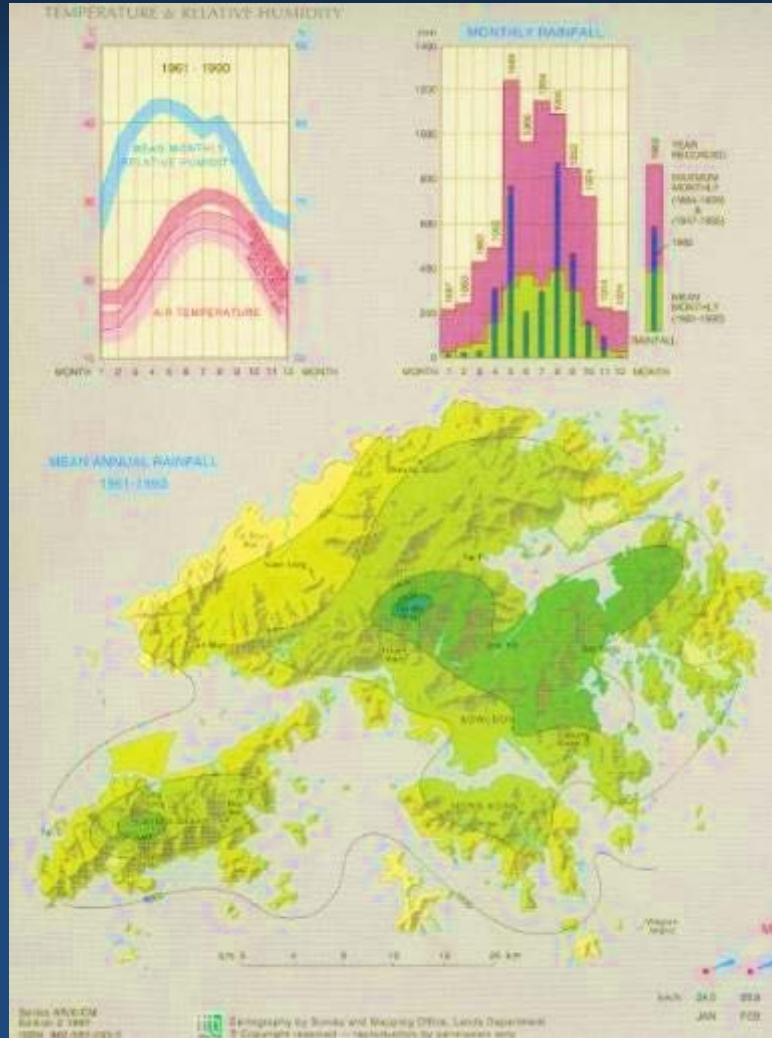


圖2： 鶴藪河盆的年降雨量和徑流
Figure 2: Annual rainfall and runoff for the drainage basin at Hok Tau

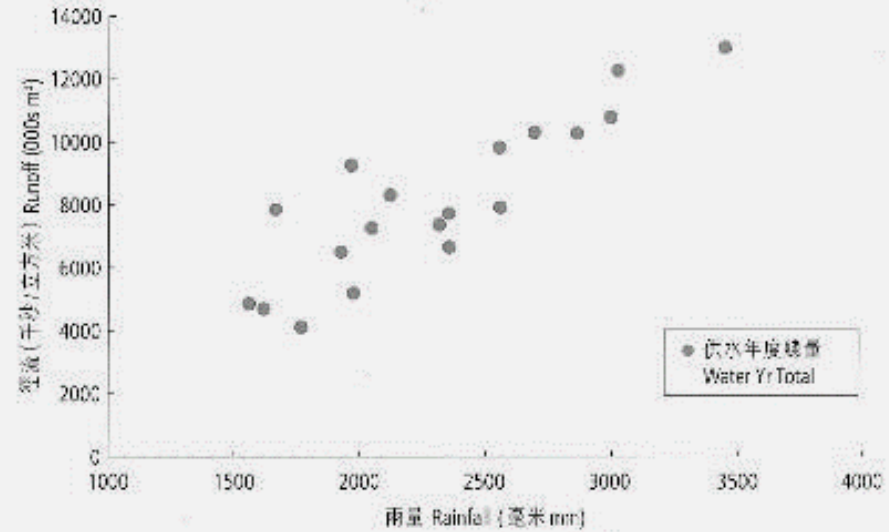
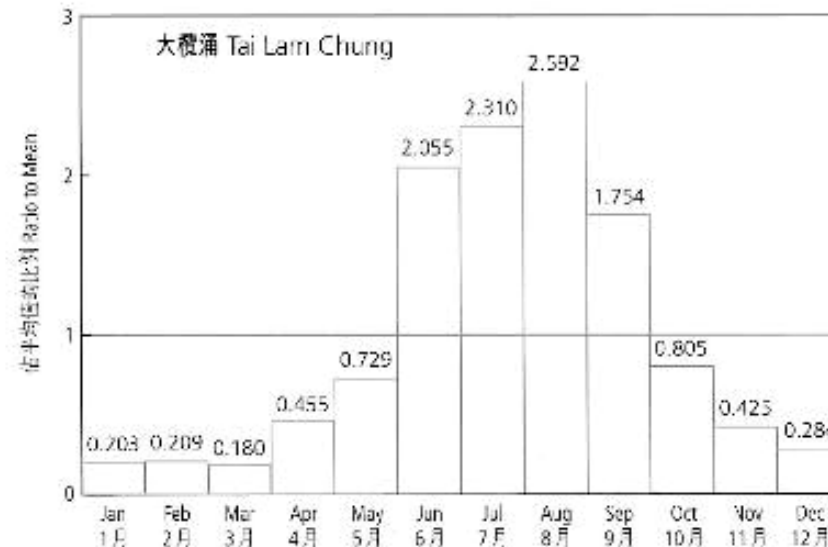
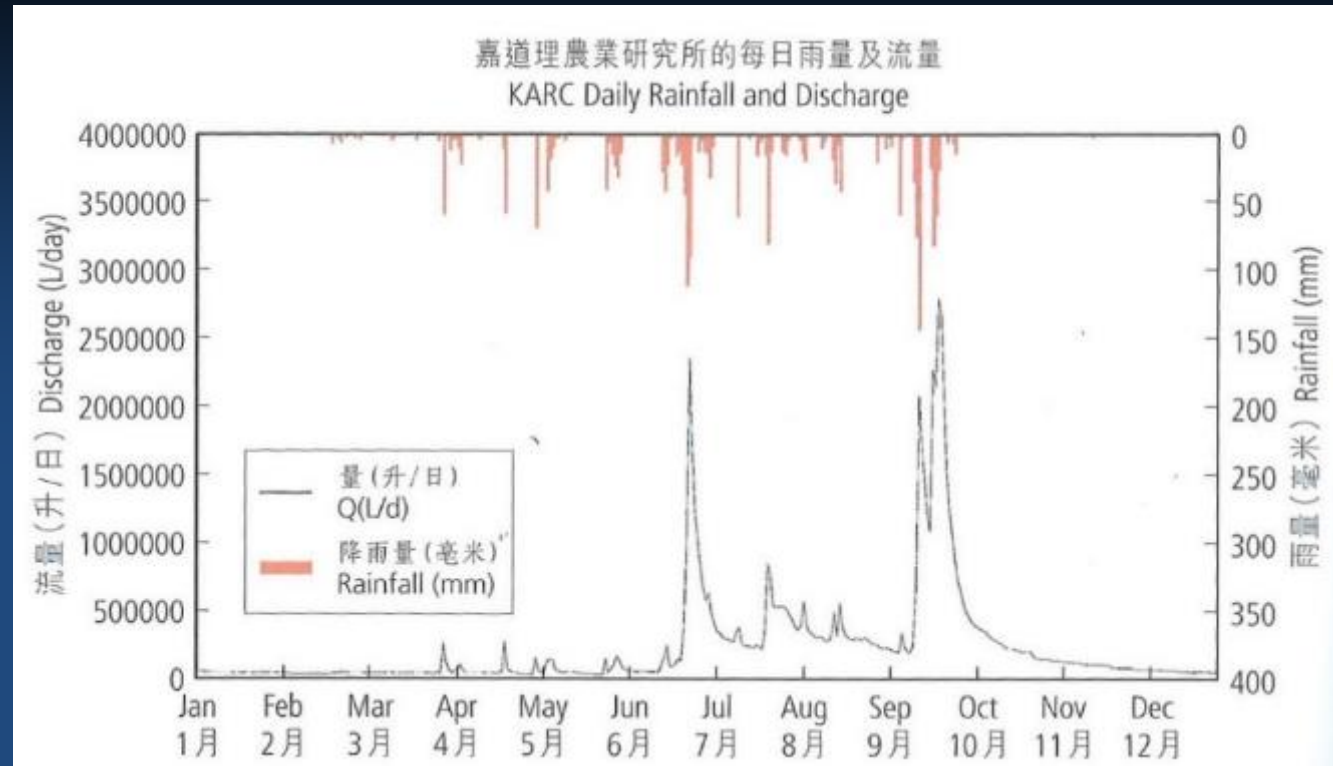


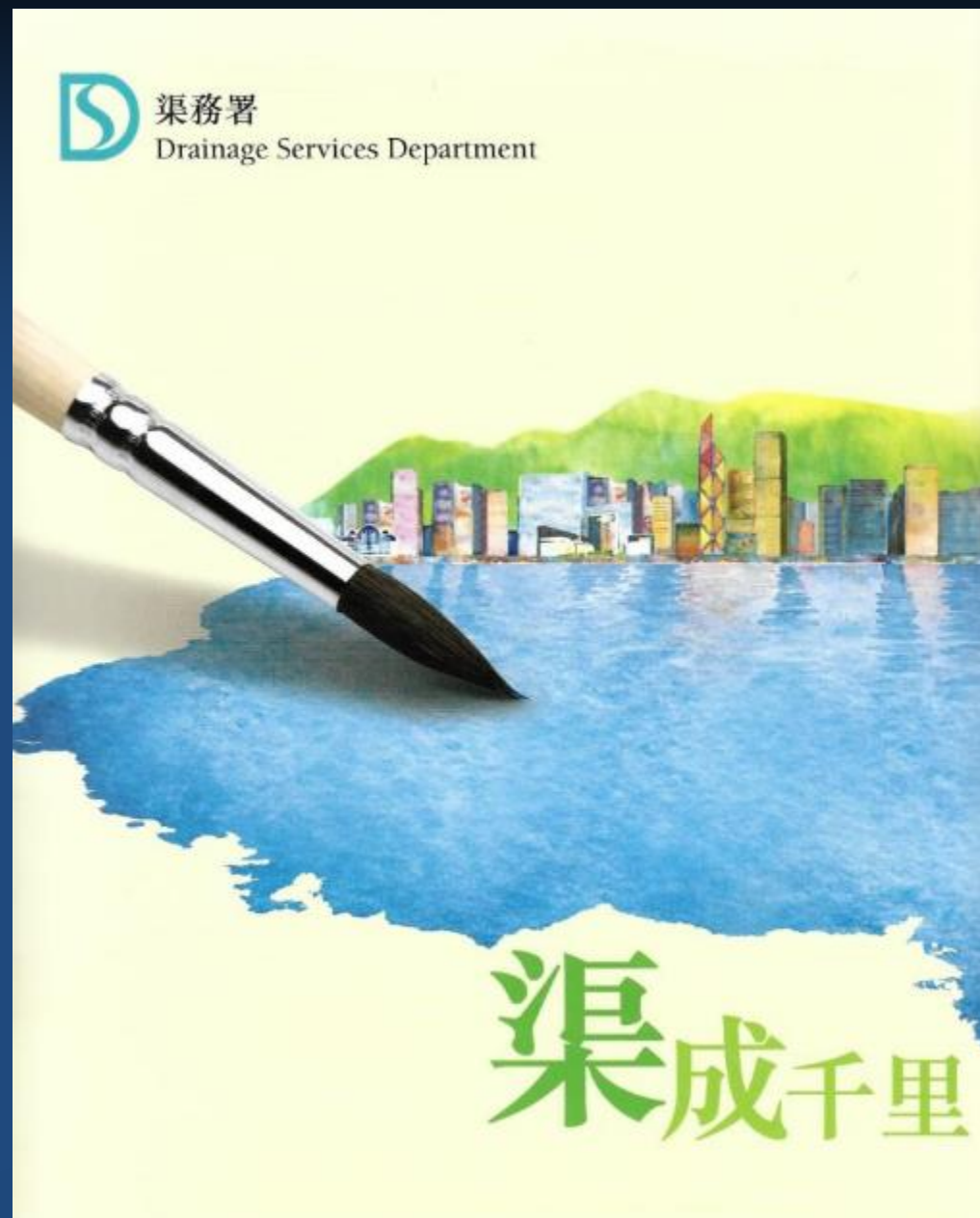
圖3(b)： 大欖涌河盆的徑流水流狀況
Figure 3(b): Runoff regime for the Tai Lam Chung basin



Daily rainfall and runoff



Who manage our rivers?



渠成千里

Beas River at Long Valley (before 1990s)



A flood plain

重要新聞版 一九九六年六月二十五日 星期二 天天日報 Tin Tin Daily News 丙子年五月初十日

今年最大豪雨五小時雨量百五毫米 新界北區大水浸成澤國



上水天平山村 三十八人被困

Villagers in uproar after homes swamped for second time



一九九八年五月二十五日 星期一 焦點新聞 A10

雨勢洶洶 話浸就浸 居民倉皇逃生



文何 記者 鄧少聰攝
「雨勢洶洶，話浸就浸，居民倉皇逃生。」這是新界北區許多村落的真實寫照。在連日來的暴雨下，新界北區許多村落被洪水圍困，居民被迫倉皇逃生。洪水淹沒了房屋、田地和道路，許多村落的交通完全中斷。居民們在洪水中掙扎，情況十分危急。洪水淹沒了房屋，居民們被迫倉皇逃生。洪水淹沒了田地和道路，許多村落的交通完全中斷。居民們在洪水中掙扎，情況十分危急。

逢雨必浸 北區叫苦 深圳又洩洪 救逾百鄉民

水鄉 饒富安攝
新界北區地區為低窪地區，每逢大雨，便是一片汪洋。由於地形低窪，新界北區地區每逢大雨，便是一片汪洋。由於地形低窪，新界北區地區每逢大雨，便是一片汪洋。由於地形低窪，新界北區地區每逢大雨，便是一片汪洋。

石湖新村逢雨必浸

每逢大雨，石湖新村便是一片汪洋。由於地形低窪，新界北區地區每逢大雨，便是一片汪洋。由於地形低窪，新界北區地區每逢大雨，便是一片汪洋。由於地形低窪，新界北區地區每逢大雨，便是一片汪洋。

天平山村農作物盡毀 數月後才可種植蔬菜

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Flood prevention measures

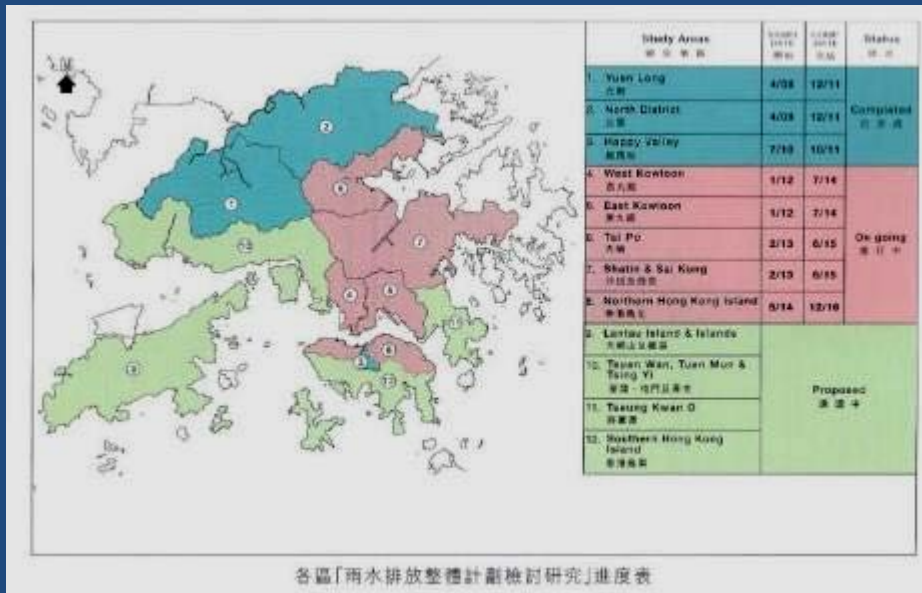


表4：香港的防洪標準

Table 4: Flood protection standards for Hong Kong

排水設施類型 Types of Drainage	再現時段（年） Recurrence Interval (Years)
市區主幹排水系統 Urban drainage trunk systems	200
市區分支排水系統 Urban drainage branch systems	50
主要鄉郊集水區排水渠 Main rural catchment drainage channels	50
鄉村排水設施 Village drainage	10
密集使用的農地 Intensively used agricultural land	2-5

Kam Tin River: then (1963) and now



What have been done to our major rivers in recent time:

For flood control and drainage purposes, rivers have been

- straightened
- level
- deepened
- over-widened
- lined with foreign materials
- diverted
- altered in a manner to decrease their natural function and stability



梧桐河 => ‘唔同’河



old channel



new channel

very few original lowland river channels left – the ‘River Heritage’

the remaining Kam Tin River channels



Bin Mo Bridge (便母橋)
- a recognized heritage site



near West Rail ducts

* management issues - the hydrology, water quality etc.

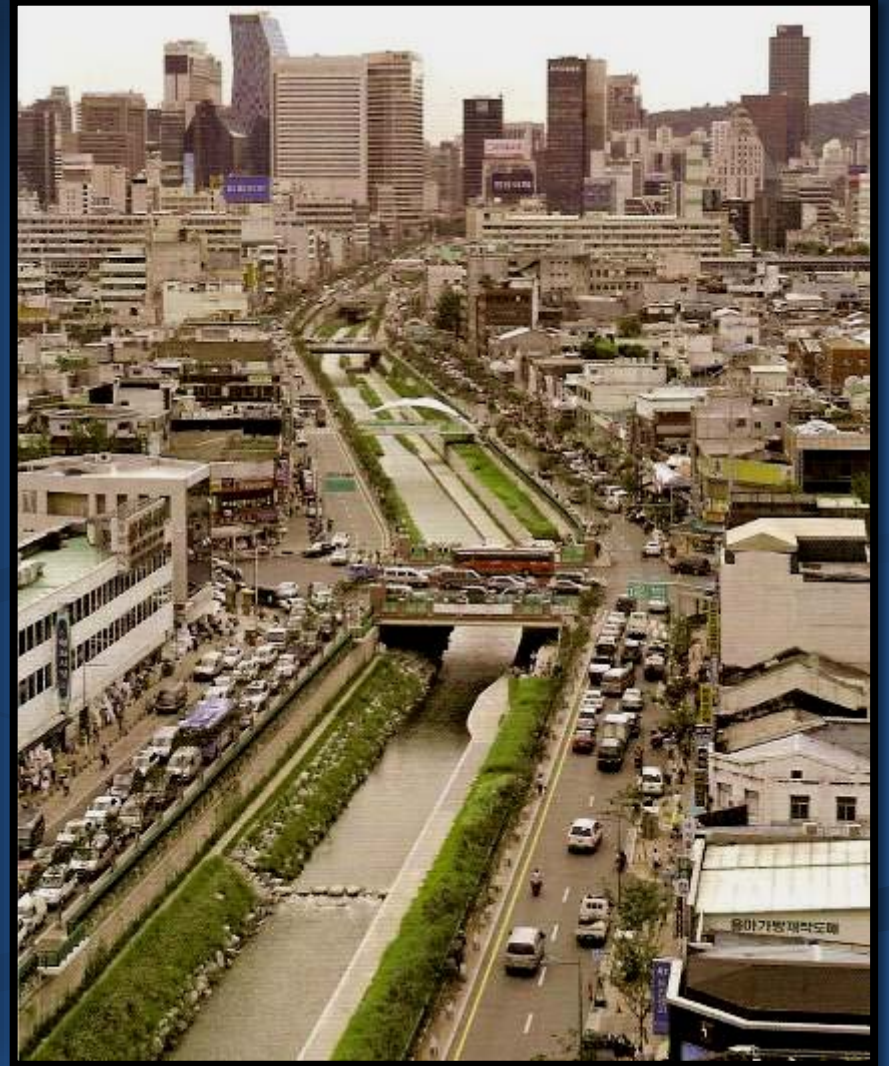
the original Shenzhen River channel at Lok Ma Chau



The global trend ...



Cheong Gye Cheon (Seoul)



Futian River (Shenzhen)



Bishan-Ang Mo Kio Park, Singapore



Policy Address 2015

181. Water-friendly Culture and Activities

We will adopt the concept of revitalising water bodies in large-scale drainage improvement works and planning drainage networks for NDAs so as to build a better environment for the public. In the completed widening works of Ho Chung River in Sai Kung, ecological features were also included to beautify the river and enhance river biodiversity.

2015 Policy Address

**Uphold the Rule of Law
Seize the Opportunities
Make the Right Choices**

**Pursue Democracy
Boost the Economy
Improve People's Livelihood**



A paradigm shift in HK ...



‘Stay Away from Rivers Culture’

=> ‘River Friendly Culture’

To achieve a River Friendly Culture, we need to ..

... re-affirming the value of our rivers



Rivers have multiple functions



Source of irrigation water



Lai Chi Wo (1963)

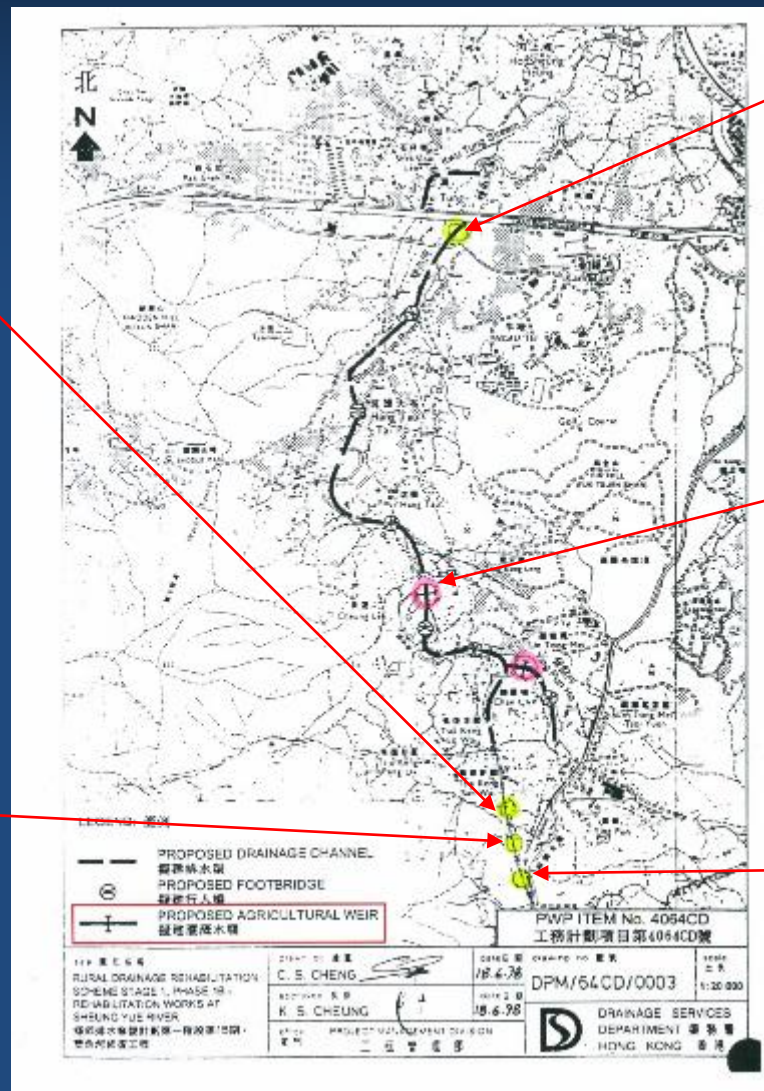
Irrigation system at Sheung Yue River - agricultural weirs



Ying Pun



Ta Shek Wu (2) partly deflated



Kwu Tung



Cheung Lek, deflated



Ta Shek Wu (1), deflated

Navigation-cum-cultural function - Kam Tin River at Nam San Wai



Wild life habitats

- A total of **166 species** of wild bird in HK, including resident and migratory species, using river and associated wetlands habitats
 - Ardeids 鷺
 - Plovers 鵲
 - Sandpipers 鶺鴒
 - Snipes
 - Kingfishers 翠鳥
 - Jacanas 水雉
 - Rails 田雞
 - Coots 水雞
- Amongst them **~54 species** are freshwater dependent



©J Ho



©H Lui



©M Ho



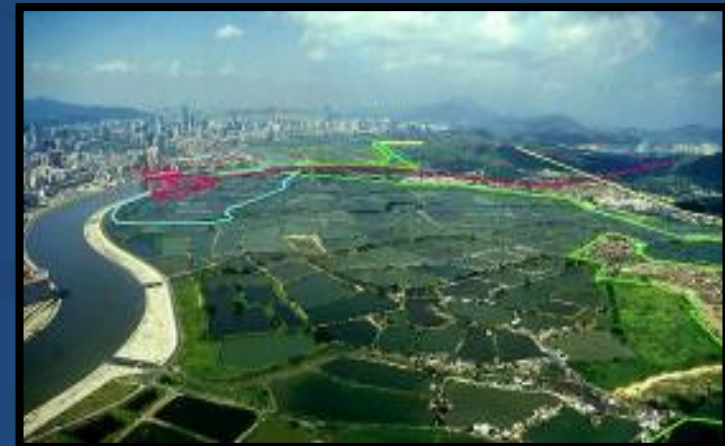
Important ecological sites are linked by the Shenzhen River

Futian National Nature Reserve

Bird Life International's
Important Bird Area
(Lok Ma Chau and Long Valley)



Mai Po &
Inner Deep Bay
RAMSAR Site
– a wetland of
international
importance



Revitalizing river – eco-design channel



past



present

Lam Tsuen River



trained

Eco-design channel – fish ladders



Artificial channels => Eco-design channels

東涌明渠擬還原天然河道

將發展河岸公園 環團：須做紓緩措施

14.9.2014



▲土木工程拓展署長鍾錦華展示兩項活化水體工程構思圖，包括東涌河道還原天然河道（左）及安達邨道人工湖（右）。（馬耀森攝）

▲土木工程拓展署計劃將東涌河下游一段數百米的明渠，還原為天然河道，並同周邊土地一併劃為河岸公園，加強保育東涌河。（馬耀森攝）

【明報專訊】特首於2015/16年《施政報告》提及，將在大型排水改善工程及新發展區的排水規劃中，加入活化水體概念；今年5月上任的土木工程拓展署長鍾錦華接受本報專訪，透露為配合東涌新市鎮擴展計劃，將加強活化東涌河，初步構思將下游一段約數百米的明渠，還原為天然河道。由於該河道同時具排洪功能，暴雨期間水位可能迅速暴漲，政府參考外國經驗，將在河道兩旁設立全港首個警報系統，並在河道上方興建行人設施，讓市民在安全情況下近距離接觸天然河道。

最快6年後建成 須立會撥款

東涌河是本港碩果僅存的天然河流，孕育逾30種本地淡水魚品種，包括罕有的北江光唇魚及米魚，東涌河也是東涌水鳥及水生植物的重要棲息地。





The more natural substrate the better

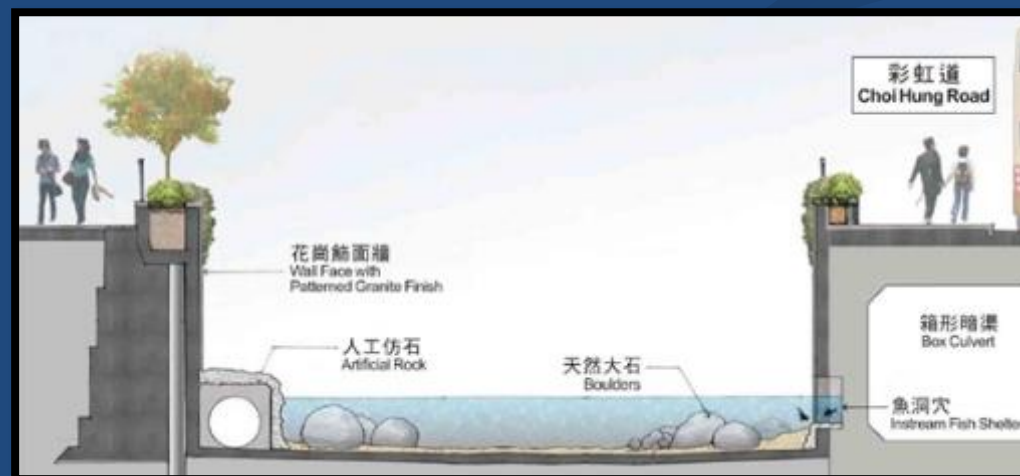
©H Lui



In-stream vegetation provide roosting opportunities for wetland-dependent species

Natural bottom substrate provide foraging opportunities for wetland-dependent species

Kai Tak Nullah => Kai Tak River





JS
啓公眾參與活動動靜

Stage 1 Public Engagement
Conference within 2017

渠務署
Drainage Services Department

活化翠屏河
Revitalisation of Tsui Ping River

我們期望在加強翠屏河防洪功能的時候，為它注入生氣和活力，營造生機，並加強河邊與周邊地區的連接，為公眾帶來一個全新的近水休憩設施。

We aspire to create a Tsui Ping River that is revitalised environmentally and ecologically, and well connected with the neighbourhood, to serve the dual purposes of not only an upgraded drainage infrastructure, but also a water-friendly public amenity.

從許多年前已經開始「改造和再造」的香港，在過去五十年，它的土地規劃，是作為發展為一片綠洲。我們計劃把它改造成為「翠屏河」，不僅是「水」的改造，而且也是「地」的改造。它不僅是「水」的改造，而且也是「地」的改造。它不僅是「水」的改造，而且也是「地」的改造。

To many, maybe "King Yip Street Nullah" is a more familiar name. This is to be expected as the facility has, for the past 50 years, been serving its primary function of discharging sewerage. The conversion into "Tsui Ping River" will involve enhancement in multiple aspects, among which are water quality, aesthetics, ecology, amenity, accessibility, etc.

活化翠屏河計劃
第一階段公眾參與
Revitalisation of Tsui Ping River
Stage 1 Public Engagement

「翠屏河」在哪兒？
Where is "Tsui Ping River"?

在香港談及河流，大家想到的都會是咸魚河、維多利亞港、沙田河等。它們大都位於新界或較偏遠的地方，或者西貢地區。但九龍新市中心的維多利亞港，亦稱作「新河」，這與位於新界及較偏遠的維多利亞港，性質截然不同。

A river in Hong Kong? When asked this question, one may think of Shing Mun River, Kan Tin River or Lam Tsuen River - typically one in a rural setting. What about a river in the urban area, especially one in a busy district like Kowloon? Has it ever occurred to you that the watercourse along Tsui Ping Road and King Yip Street, known at present as "King Yip Street Nullah", can be transformed into a green river?

「渠」？是「河」？
"Nullah"? Or "River"?

從許多年前已經開始「改造和再造」的香港，在過去五十年，它的土地規劃，是作為發展為一片綠洲。我們計劃把它改造成為「翠屏河」，不僅是「水」的改造，而且也是「地」的改造。它不僅是「水」的改造，而且也是「地」的改造。它不僅是「水」的改造，而且也是「地」的改造。

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為何要活化「翠屏河」？
Why Revitalise "Tsui Ping River"?

該河的兩端位於新界及較偏遠的維多利亞港，位於新市中心的維多利亞港，性質截然不同。我們期望在加強翠屏河防洪功能的時候，為它注入生氣和活力，營造生機，並加強河邊與周邊地區的連接，為公眾帶來一個全新的近水休憩設施。

Situated in the centre of Kowloon District adjacent to residential developments and bustling commercial and industrial areas, coupled with its inherent riverine characteristics, the watercourse is a precious space lending itself very well to being transformed into a riverside environment for public enjoyment.

「活化翠屏河」將包括甚麼工作？
What does "Revitalisation of Tsui Ping River" comprise?

- 減低水浸風險
Reducing Flood Risk
- 改善行人環境 加強區內連繫
Improving Walking Environment and Connectivity
- 活化河道
Revitalising the River
- 營造一個具活力的公共空間
Fostering a Vibrant Public Space

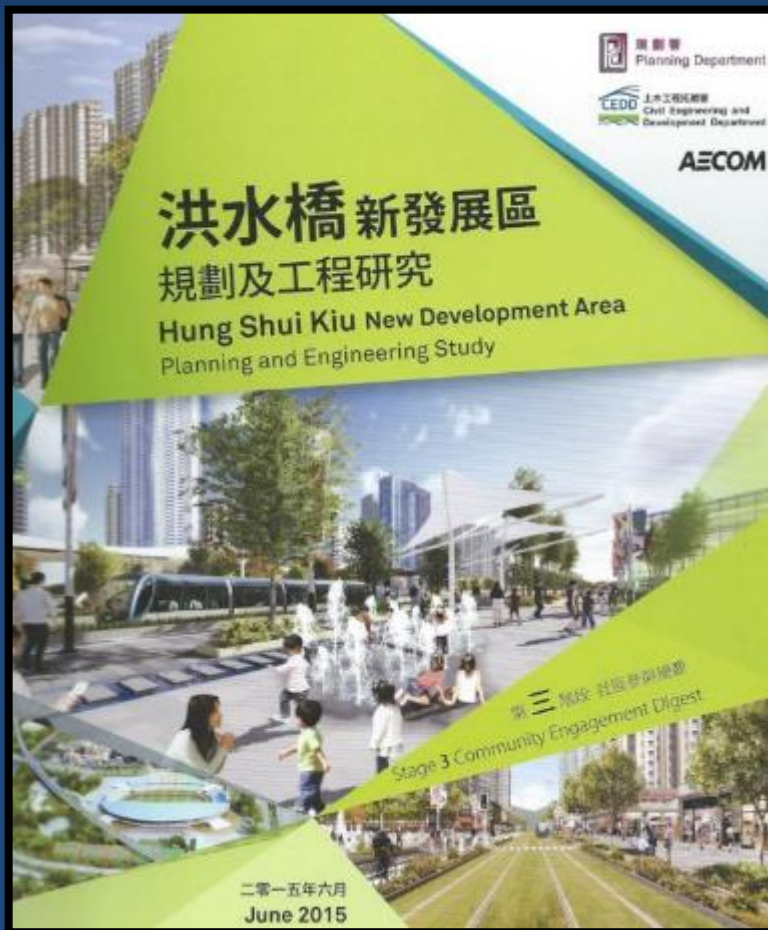
計劃的目標是將翠屏河，改造為生態與文化、環境及社會水渠。透過翠屏河，為翠屏河沿岸的社區，為社區提供一個具活力的公共空間。透過翠屏河，為社區提供一個具活力的公共空間。透過翠屏河，為社區提供一個具活力的公共空間。

Through water features, landscaping, ecological and water quality enhancement, the project is aimed at creating a green river channel with water scenery and amenity for the community. This coupled with the adjacent Tsui Ping Road (Green) and the arts and cultural space between the Kowloon Bypass River will offer synergy and add cherish to the Kowloon District.

「活化翠屏河」如何與周邊發展聯繫？
How does "Revitalisation of Tsui Ping River" connect with the surrounding developments?

政府在2015年發佈「起動九龍東概念規劃計劃5.0」，提出了多個發展重點，「活化翠屏河」是其中一個主要發展項目。我們期望在加強翠屏河防洪功能的時候，為它注入生氣和活力，營造生機，並加強河邊與周邊地區的連接，為公眾帶來一個全新的近水休憩設施。

The Government launched the "Energising Kowloon East - Conceptual Master Plan 5.0" in 2016, and "Revitalisation of Tsui Ping River" is one of the focal points. We will collaborate closely with various developments in the vicinity to turn Kowloon East into a lively, vibrant and green central business district.

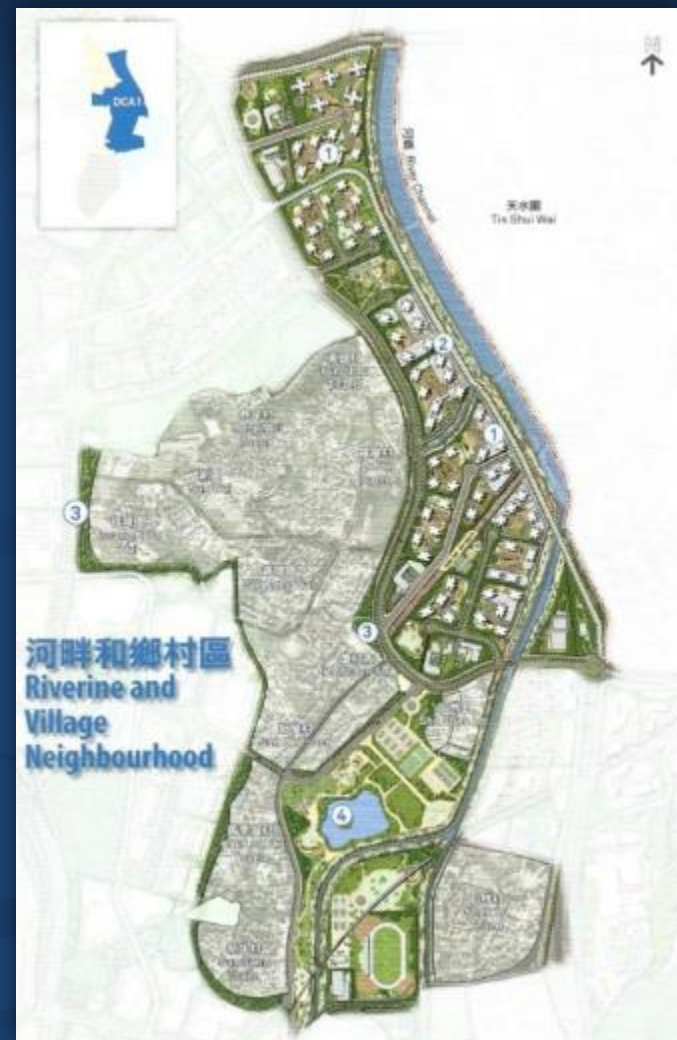


DCA1 河畔和鄉村區 Riverine and Village Neighbourhood

「河畔和鄉村區」位於填海天水圍及被活化後的河渠旁，該發展特色分區提供優質的住宅區及河畔公共空間。河渠活化後，河道的生態系統得以改善，而河畔亦會加設河畔長廊。

The "Riverine and Village Neighbourhood" is located alongside the regenerated river channel which flows towards and along TSW. This DCA provides quality residential neighbourhood and riverine public spaces. With the river regeneration, the river ecology system will be enhanced and riverside promenade will be provided.

- 在河畔發展住宅大廈，坐落河畔長廊旁。
Residential buildings will be developed at the riverside, commanding scenic views of the riverside promenade.
- 取消原有天影路，沿活化後的河渠加設河畔長廊，以改善河畔環境。河畔長廊將提供零售及餐飲設施，以增添河畔長廊的活力。河畔長廊亦會開設行人道及單車徑，讓市民在悠閒的環境中散步及騎單車。
With the removal of Tin Ying Road, a promenade along the regenerated river channel is planned to enhance the riverside environment. Retail and dining facilities will be provided to promote vibrancy of the promenade. Pedestrian walkways and cycle tracks are planned alongside the promenade to allow strolling and cycling in a relaxed environment.



A River Friendly Culture - re-affirming the values of rivers

Rivers have multi-functions

- water resource – drinking, farming
- drainage
- ecological
- aesthetic
- landscape
- cultural
- recreation
- micro-climate adjustment
- sustainability
- etc.



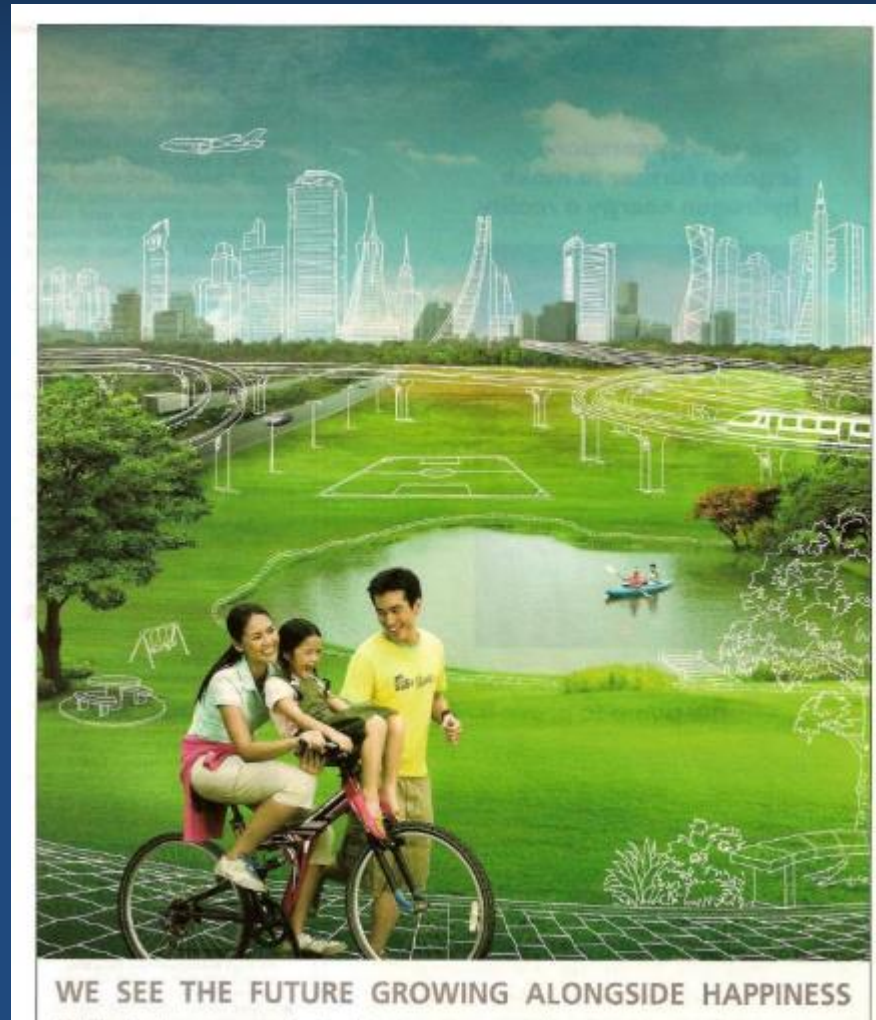
A Paradigm Shift - Stay Away From River Culture

⇒ River Friendly Culture

⇒ Water Friendly Culture



a Blue Green City
a Smart, Green, Resilient (SGR) City



WE SEE THE FUTURE GROWING ALONGSIDE HAPPINESS

Some remarks

Remark I filthy rivers => clean artificial channels



water quality issues



Ng Tung River 梧桐河

Yuen Long Creek in the early 1980s



Plate 4.4 Agricultural, industrial and sewage wastes from Yuen Long Creek into an offensive and foul smelling open sewer

in early 1980s



at 2017

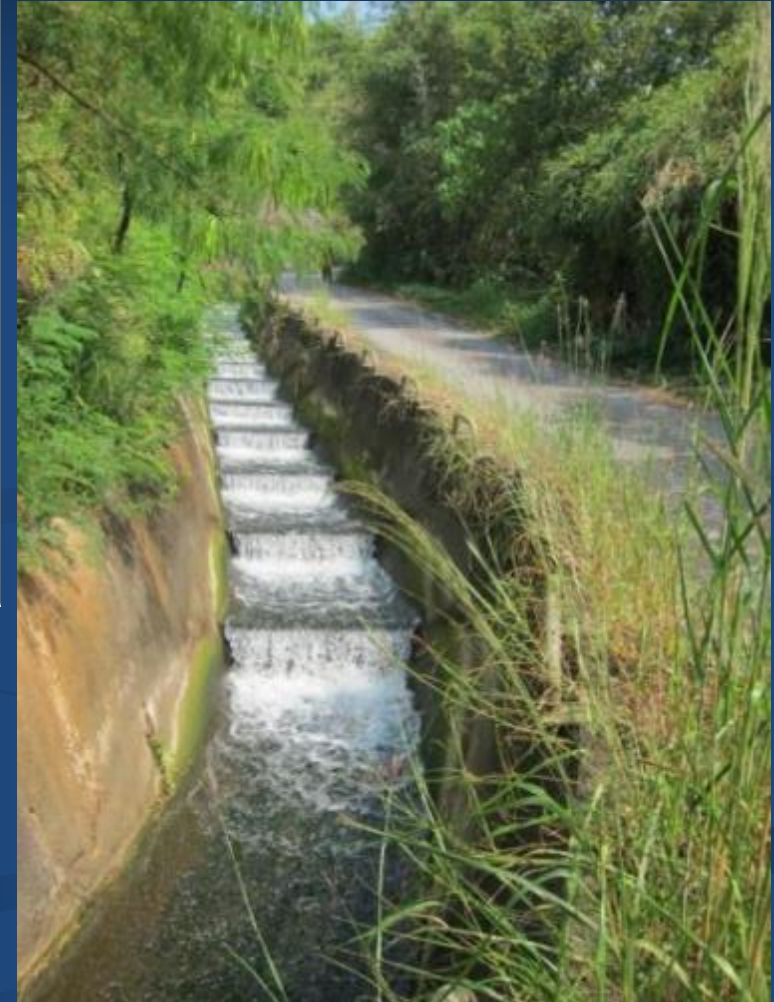
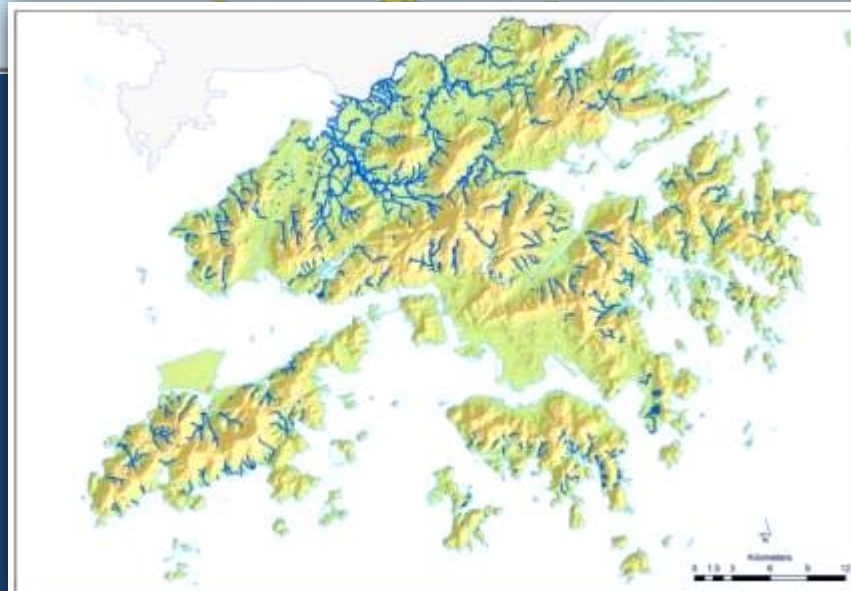
Remarks II 'One River, Two Systems' (一河兩制)



Lam Tsuen River:
down stream 林村
河下游



one river => two rivers
one catchment => two catchments



What is needed?

‘Environmental Flow’ for ecological sensitive/eco-design channels



Environmental Flow refers to the quality, quantity, and timing of water flows required to maintain the components, functions, processes, and resilience of aquatic ecosystems that provide goods and services to people.

The largest wetlands in HK are not functioning as wetland!

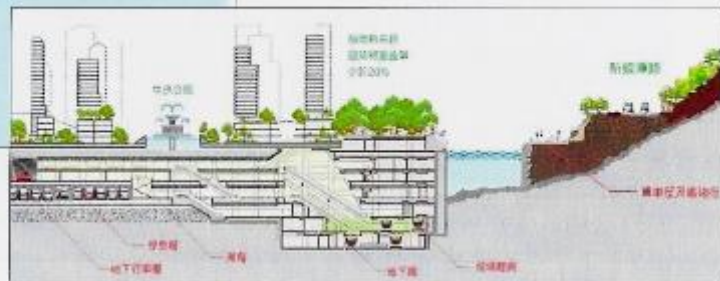


Reservoirs become vulnerable ...

Reclaiming Plover Cove Reservoir for Large-scale Housing Development 填平船灣淡水湖作大型房屋發展的建議



The Suggestion 有關建議



建議大規模填海增地 倡填船灣淡水湖 學者：可建30萬伙

【明報專訊】香港樓價高企房屋供應不足，香港大學學者望政府以立管控制地產權，為整個土地供應作調劑，又建議大規模填海作長遠土地供應，並提出可研究填平估值地約1200公頃的龜背洲淡水湖，估計可供屋30萬個單位。天文台曾台長表示其出賣前年低窪淡水湖的建議，「完全沒有考慮」。星島晚報《專稿》。

Q1 27.720

种植者可免收地租课税

據大馬路海濱研習中心昨發表的研習報告，指本港自回歸後幾十年來，大型填海工程計劃，緊扣政府填海計劃，本港填海面積由1990年僅有約205公頃，增至現時約千公頃。為大馬路海濱填海計畫及建設委員會秘書鄧耀宗指出，對於填海計畫上來說，大型填海計畫往往比填海計畫，均能刺激土地及資源開拓與經濟發展，亦需要填海以應付港人，又不利於一地兩用（填海）。

中心並可由考慮把廢存於江口水質對新水質補填。中心並可由考慮把廢存於江口水質對新水質補填。

林祖英：完全脫離現實

林鄭葉劉同遊加拿大溫哥華水污染展覽的後談，就上述「完全依賴現實」，林劉兩氏就水污染問題各抒己見。香港若有各個地方水廠，以熱心「發生意外」為前提而設法來處理，「不能完全依賴輸來江水」，林氏向內地化驗水廠代表表示：「電法」是最有效方法之一。劉氏則要求香港地區「無錯」，指現時香港區域內仍有半地帶人口增加造成多項水污染問題，却仍由內地水廠負責供應地區用水。

林伊鋒曾指可以從左開槍

這批傳單又在九龍出巡半個鐘後來回巡邏，與16



是清溪水漫流，如香溪鎮二次水壩。(本誌攝照片)

土地供應建議

■ 中短期措施

- 政府公布2047年收回新及舊九龍的填海土地將供作綠地上地
- 紅濱綠地設計圖方案，將被認為不尊重自然環境

長期持續推動

- 填海，先貼泥盤包，清乾門下古泥，打泥及泥盤及生泥。

■ 其他考虑因素

- 鎮平龍潭溪水壩，估計可埋埋30萬噸泥沙



謝國生主編楚辭於2015年接受《文匯報》訪問時，
由次子謝國權翻譯。

發展關切問題，正朝著多項問題以外擴展和相對的研究，包括中小學、藝術和科學、國際和平與環境和經濟等，目前已有半完成。這些研究將結合、評議，以提供政治氣候、政策制定者及地方自治機關之建議。另一方面正迅速成立一支小規模土地調查隊。



Abberton Reservoir Enhancement Project on completion



working in partnership

Abberton Reservoir

Nature Reserve and Visitor Centre

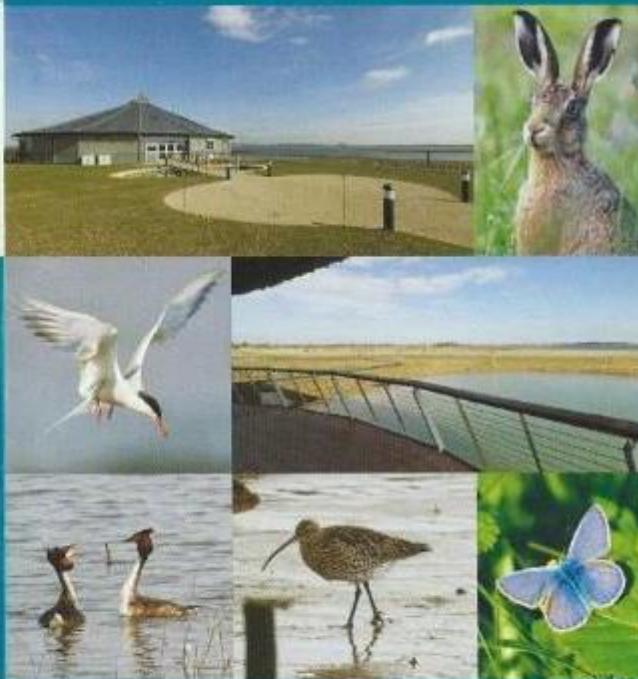
The visitor centre is open 9am - 5pm daily (closed Christmas and Boxing Day).

Donations welcome. Events and activities are priced individually. For information or bookings for any of our activities or events, please contact us directly:



Abberton Reservoir Visitor Centre
Church Road
Layer de la Haye
Colchester
Essex CO2 0EU

telephone: 01206 738172
email: abberton@essexwt.org.uk
website: www.essexwt.org.uk



Reservoir
nature reserves in
Essex, England



What is needed?

Eco-design reservoir & catchwater 生態水塘

Reservoir Nature Reserves 水塘保護區



Hok Tau Reservoir 鶴藪水塘

One river, Two systems

Eco-design
Reservoir



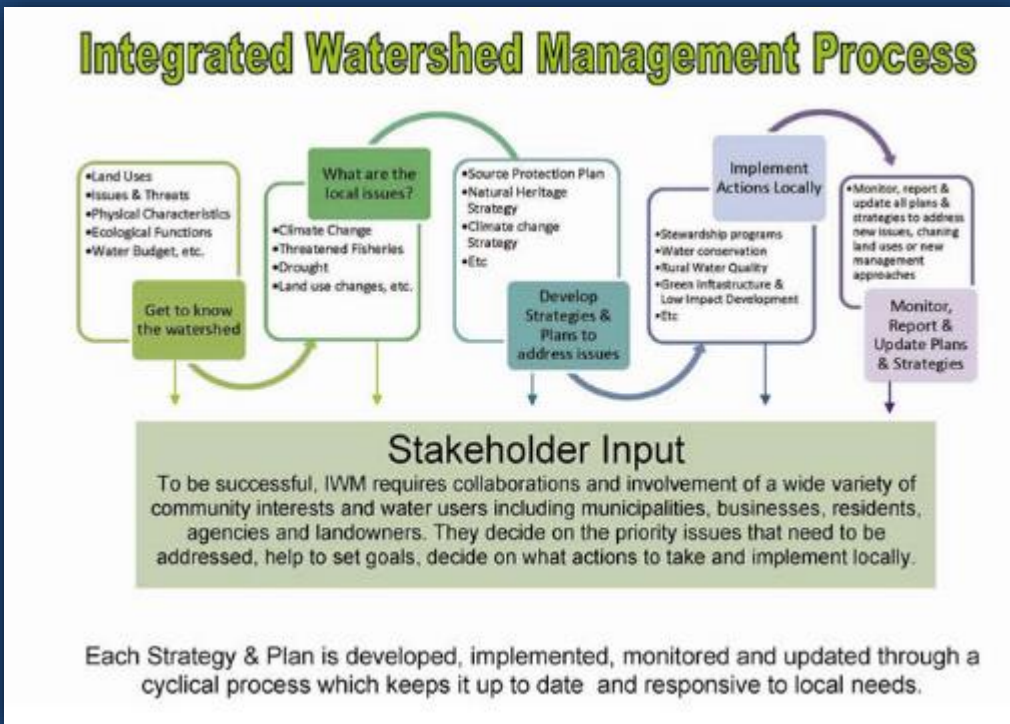
Eco-design
River



What is ultimately needed?

Integrated River Basin Management

Integrated river basin management aims to establishing a framework for coordination whereby all administrations and stakeholders involved in river basin planning and management can come together to develop an agreed set of policies and strategies such that a balanced and acceptable approach to land, water, and natural resource management can be achieved.



Kam Tin River Catchment



- catchment area of about 44.3 km²

Cultural Heritage



Yi Tai Study Hall
二帝書院



Hand-pulled ferry 橫水渡



Bin Mo Bridge 便母橋



Kat Hing Wai 吉慶圍

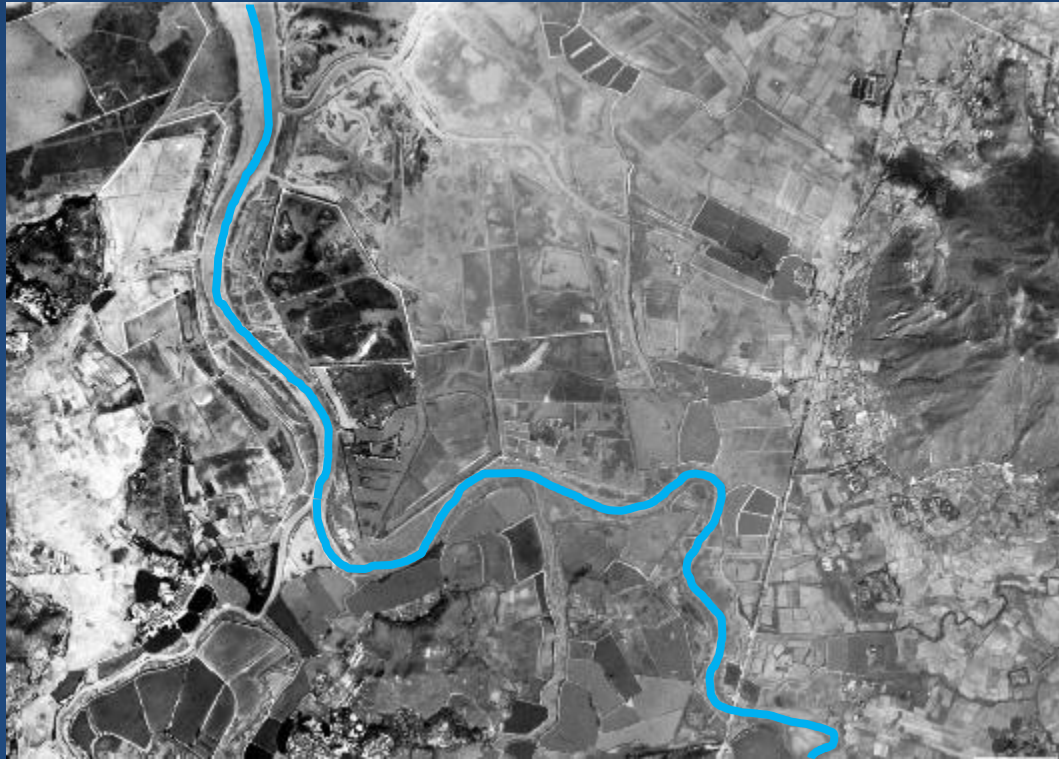


Tang Ching Lok Ancestral Hall
清樂鄧公祠

Ecological functions



Old and New Kam Tin River Channels near Nam Sang Wai (南生圍)



1954

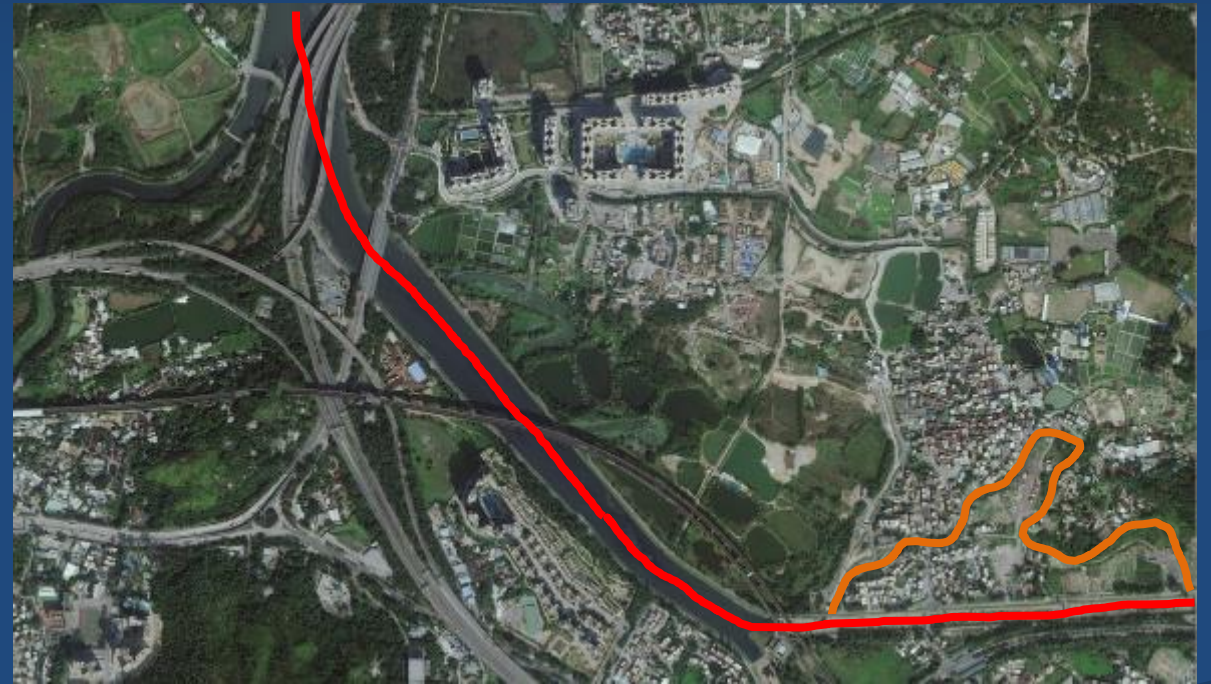


2018

Old and New Kam Tin River Channels near Bin Mo Bridge 便母橋

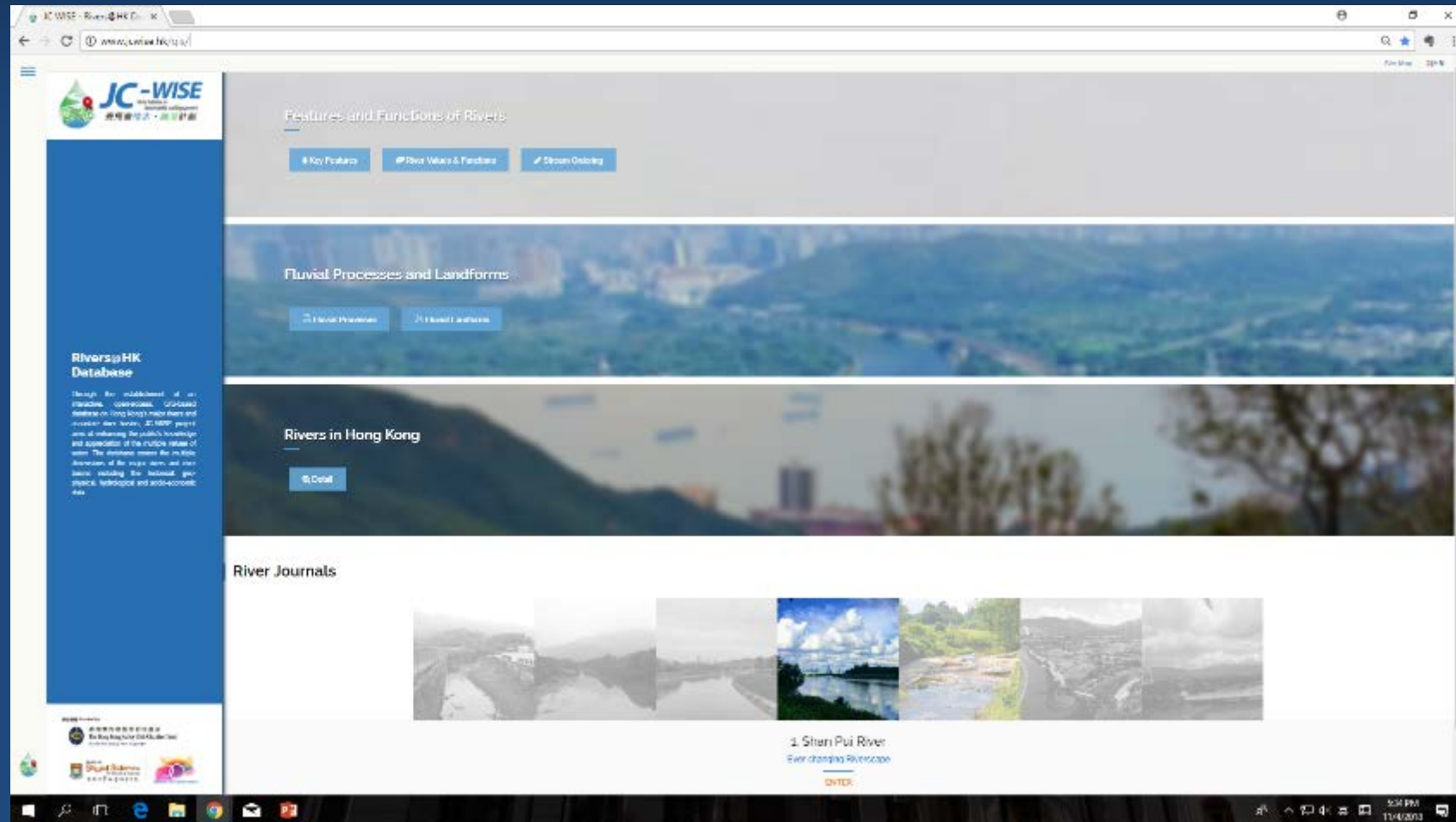


1954



2018

Rivers@HK Database



<http://www.jcwise.hk/gis/>