

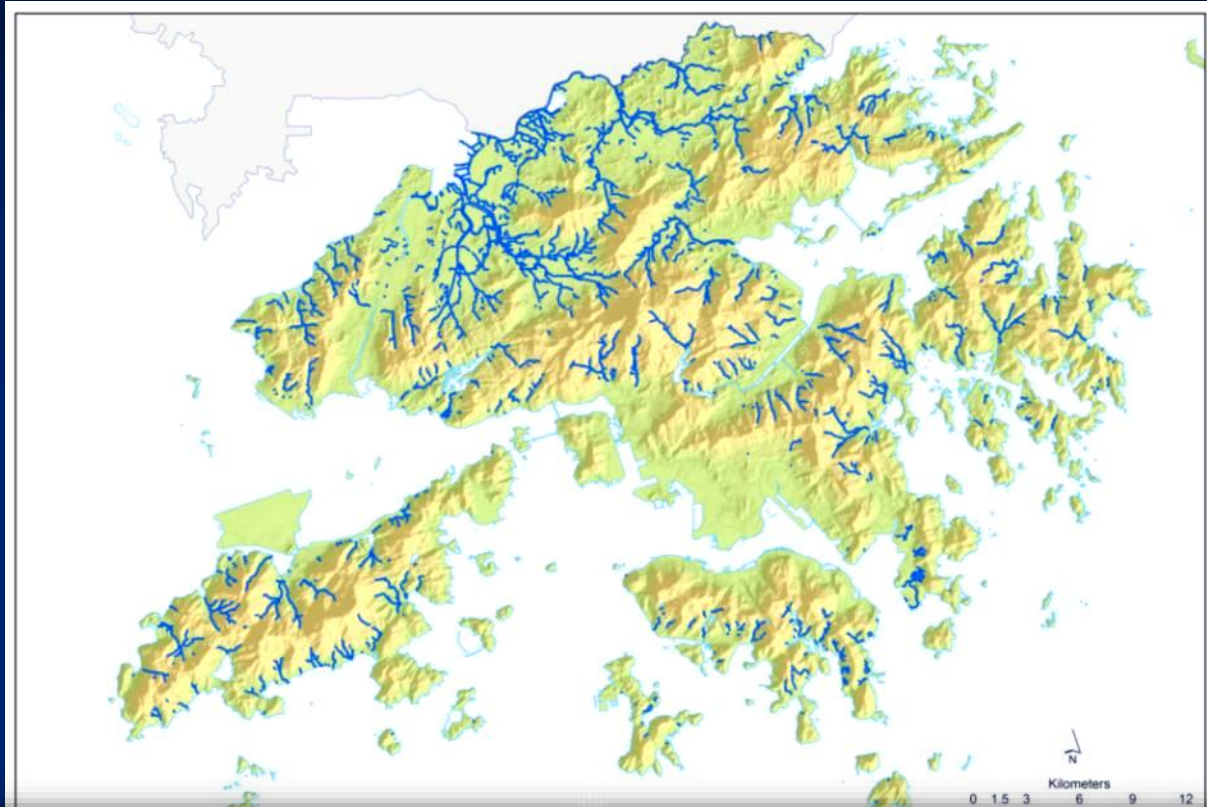
Rivers in Hong Kong



Dr. Ng Cho Nam



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

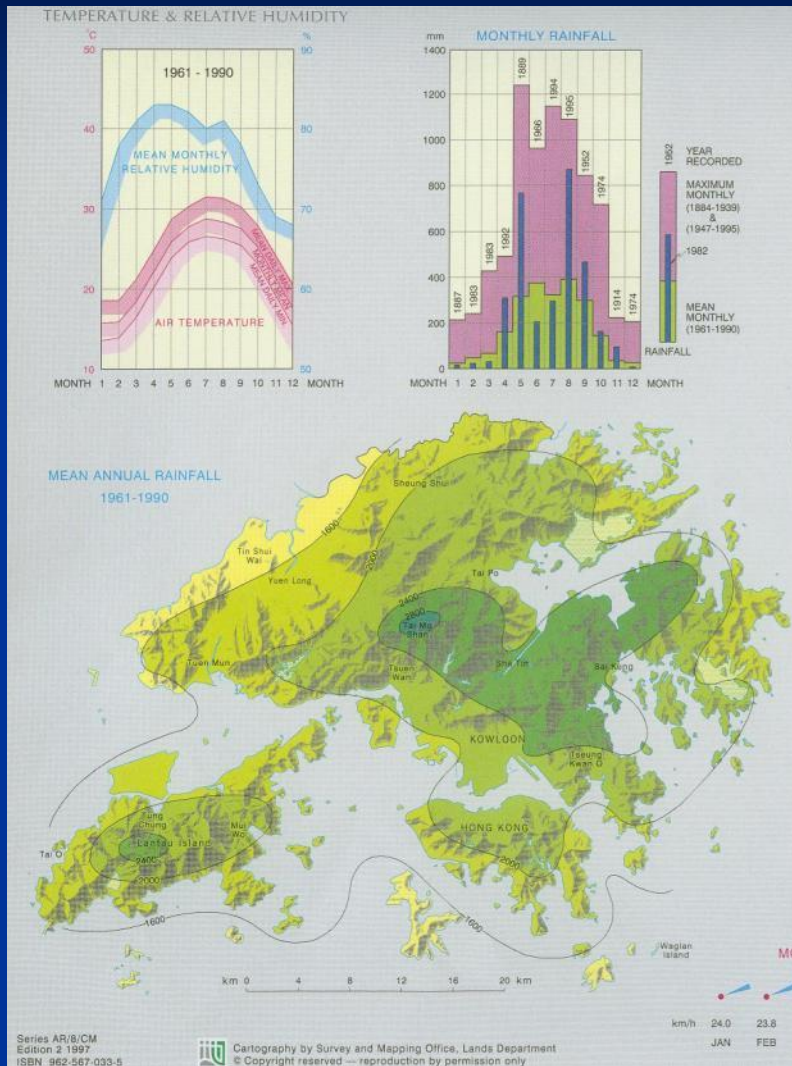


圖 2： 鶴藪河盆的年降雨量和徑流

Figure 2: Annual rainfall and runoff for the drainage basin at Hok Tau

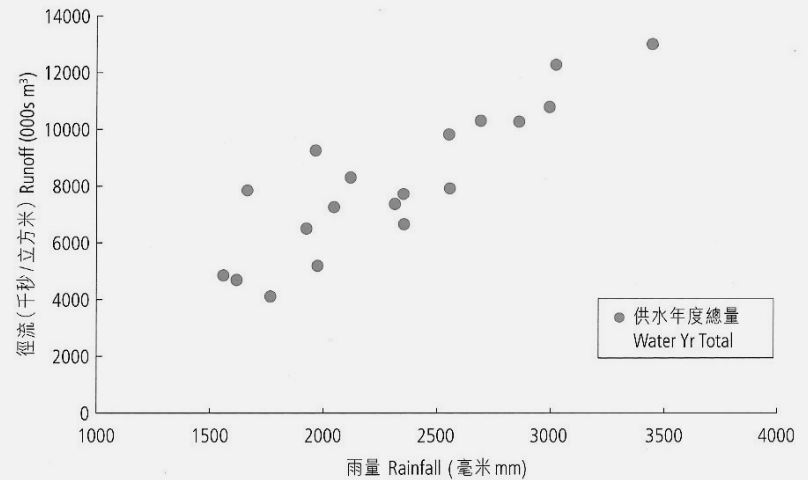
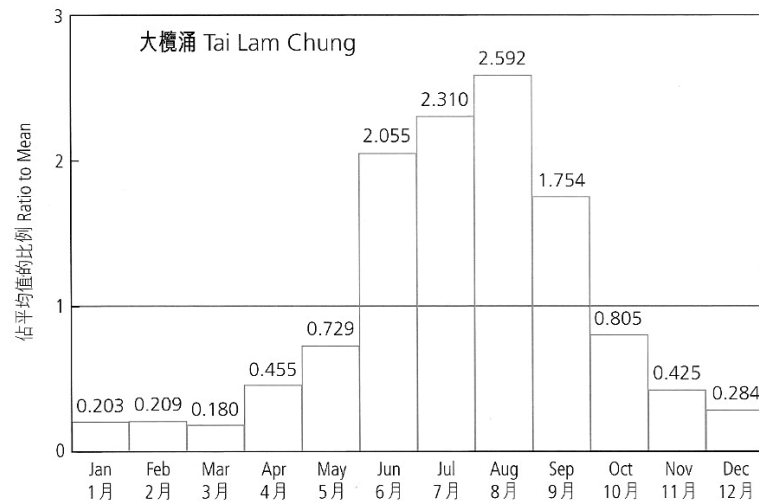


圖 3(b)： 大機涌河盆的徑流水流狀況

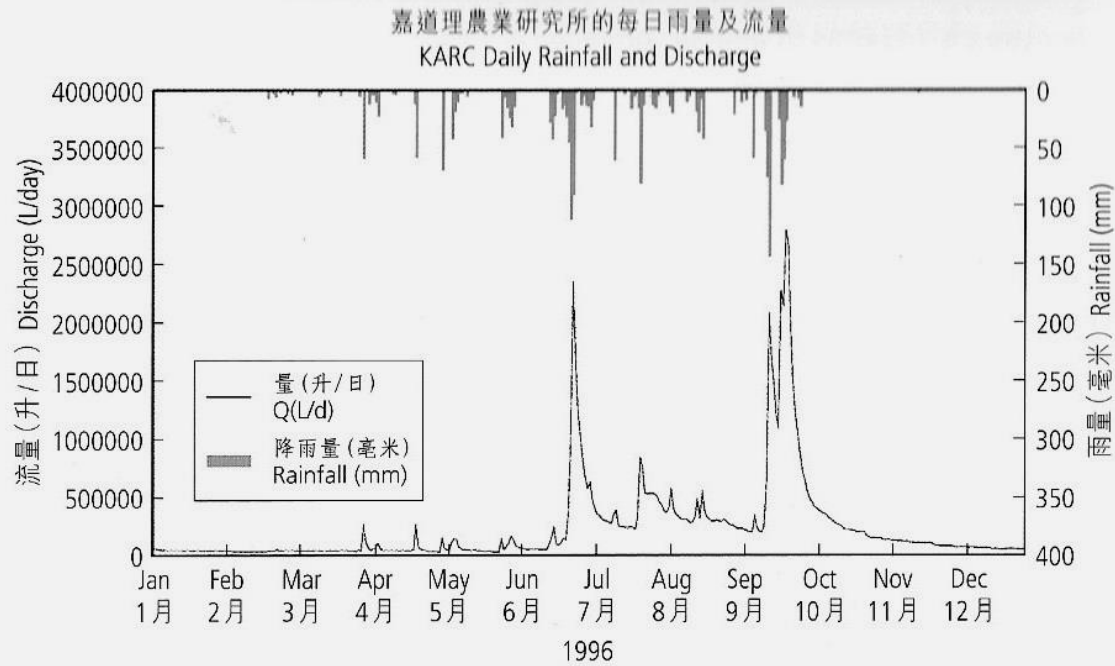
Figure 3(b): Runoff regime for the Tai Lam Chung basin



daily rainfall and runoff

圖4： 實驗河盆K的日降雨量和徑流

Figure 4: Daily rainfall and runoff for the KARC drainage basin



Beas River at Long Valley (before 1990s)



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

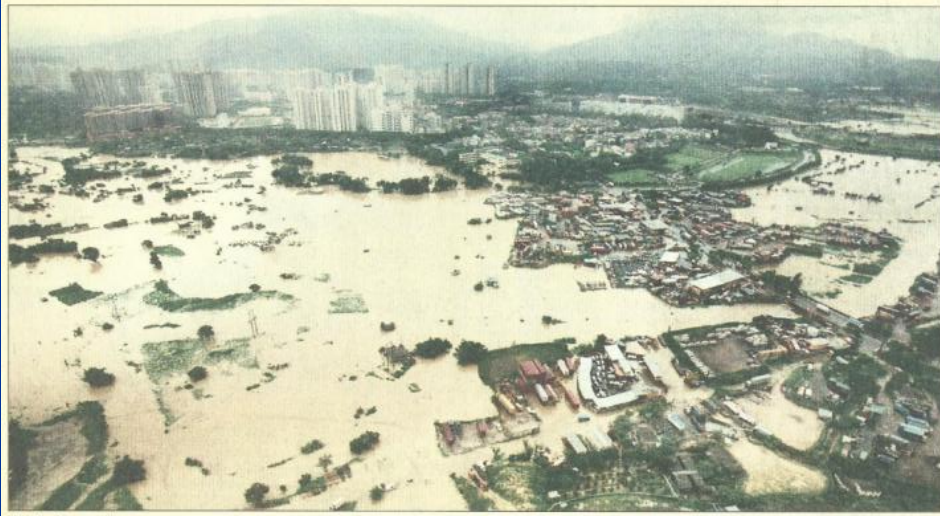


●昨晨在西北面降下暴雨，令低窪地帶積成澤國。

上水天平山村 三十八人被困

【本報訊】本港今年最大豪雨，昨日（廿四日）凌晨，上水天平山村被大水浸，三十八人被困。據悉，該村位於山頂，四周被山圍繞，村內道路狹窄，且多為泥濘路，遇雨即滑。村民表示，大水浸後，村內交通完全中斷，部分房屋被淹，損失慘重。目前，有關部門已派員前往救援，並已救出部分被困村民。

Villagers in uproar after homes swamped for second time



石湖新村逢雨必浸

●李光生指，上為九三年深圳洪災時被淹的村莊，下為今次水浸，其實該處部分屋宇已高了約四呎。

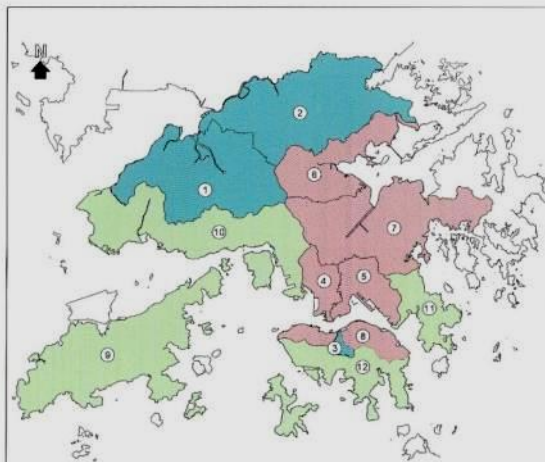
天平山村農作物盡毀 數月後才可種植蔬菜

【本報訊】上水天平山村農作物，因連日大雨，損失慘重。據悉，該村位於山頂，四周被山圍繞，村內道路狹窄，且多為泥濘路，遇雨即滑。村民表示，大水浸後，村內交通完全中斷，部分房屋被淹，損失慘重。目前，有關部門已派員前往救援，並已救出部分被困村民。

天平山村位於上水，是一個典型的山頂村。由於地形狹窄，村內房屋密集，且多為泥濘路，遇雨即滑。此次大水浸，村內交通完全中斷，部分房屋被淹，損失慘重。村民表示，大水浸後，村內交通完全中斷，部分房屋被淹，損失慘重。目前，有關部門已派員前往救援，並已救出部分被困村民。

●李光生表示已被淹沒的蔬菜，而背後的一片汪洋，原來是村內的小路。

Flood prevention measures



Study Areas 研究地區	START DATE 開始	COMP. DATE 完成	Status 狀況
1. Yuen Long 元朗	4/08	12/11	Completed 已完成
2. North District 北區	4/08	12/11	
3. Happy Valley 跑馬地	7/10	10/11	
4. West Kowloon 西九龍	1/12	7/14	On going 進行中
5. East Kowloon 東九龍	1/12	7/14	
6. Tai Po 大埔	2/13	6/15	
7. Shatin & Sai Kung 沙田及西貢	2/13	6/15	
8. Northern Hong Kong Island 新界島	5/14	12/16	Proposed 建議中
9. Lantau Island & Islands 大嶼山及離島			
10. Tuen Wan, Tuen Mun & Tsing Yi 屯門、屯門及青洲			
11. Tseung Kwan O 將軍澳			
12. Southern Hong Kong Island 香港島南			

各區「雨水排放整體計劃檢討研究」進度表

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 Tim River: then (1963) and now



What have been done to our major rivers un 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

Who manage our rivers?

 渠務署
Drainage Services Department



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 rail ducts

* management issues - the hydrology, water quality etc.

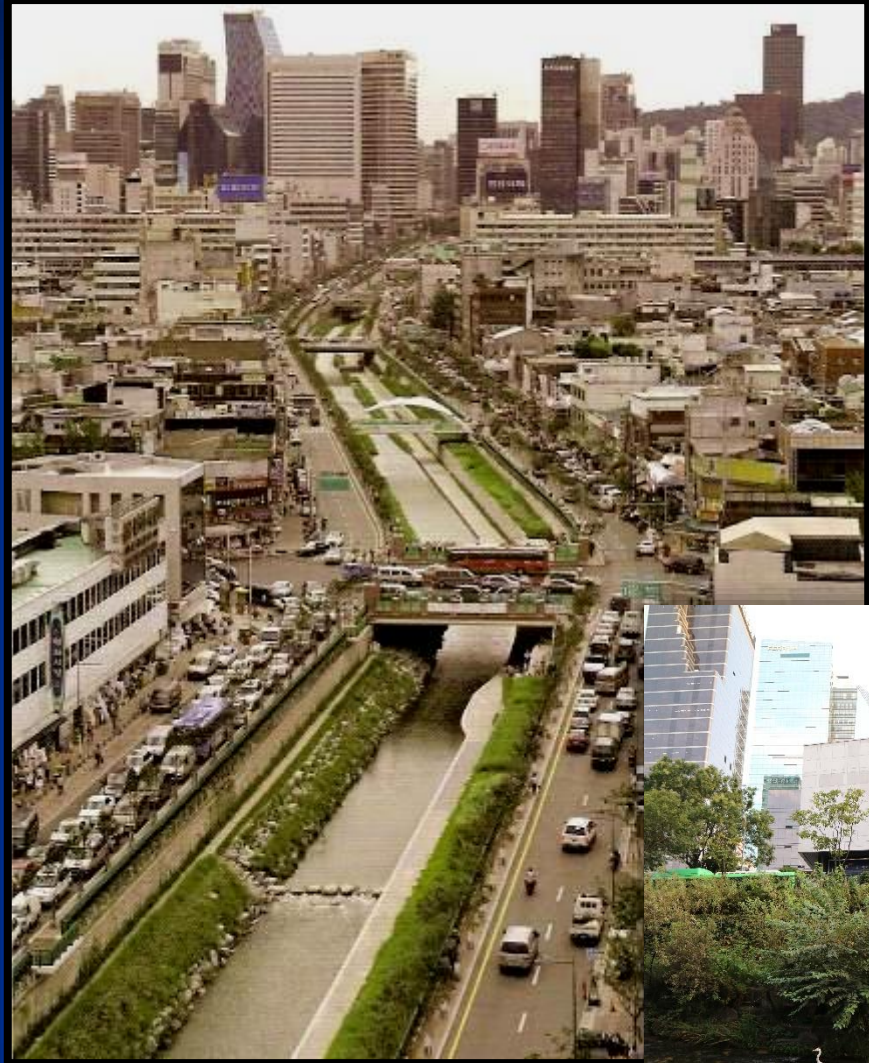
the original Shenzhen River channel at Lok Ma Chau



The global trend ...



Cheong Gye Cheon (Seoul)



Futian River (Shenzhen)



Bishan-Ang Mo Kio Park, Singapore



Policy Address 2015

Water-friendly Culture and Activities

181. 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)

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 鷸
 - Sandpipers 鷸
 - Snipes
 - Kingfishers 翠鳥
 - Jacanas 水雉
 - Rails 田雞
 - Coots 水雞
- Amongst them **~54 species** are freshwater dependent



Important ecological sites are linked by the Shenzhen River

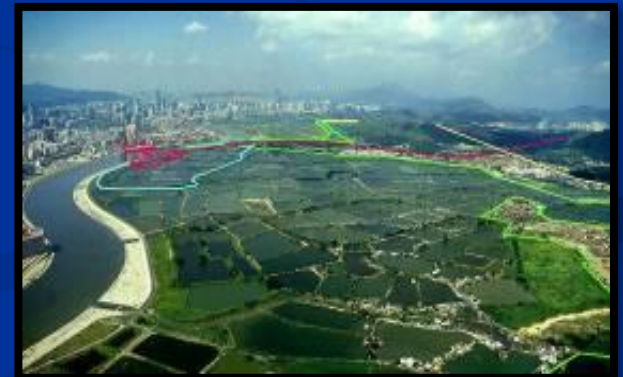
Futian National Nature Reserve



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 channel



past



present

Lam Tsuen River



trained

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



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

▲土木工程拓展署計劃將東涌河下游一段約四百呎的明渠，還原為天然河道。

【明報專訊】特首於2015/16年提及，將在大型排水改善工程及排水規劃中，加入活化水體概念。上任的土木工程拓展署長鍾錦華訪，透露為配合東涌新市鎮擴展，強化東涌河，初步構思將下游來的明渠，還原為天然河道。由時具排洪功能，暴雨期間水位漲，政府參考外國經驗，將在河全港首個警報系統，並在河道上設施，讓市民在安全情況下近距河道。



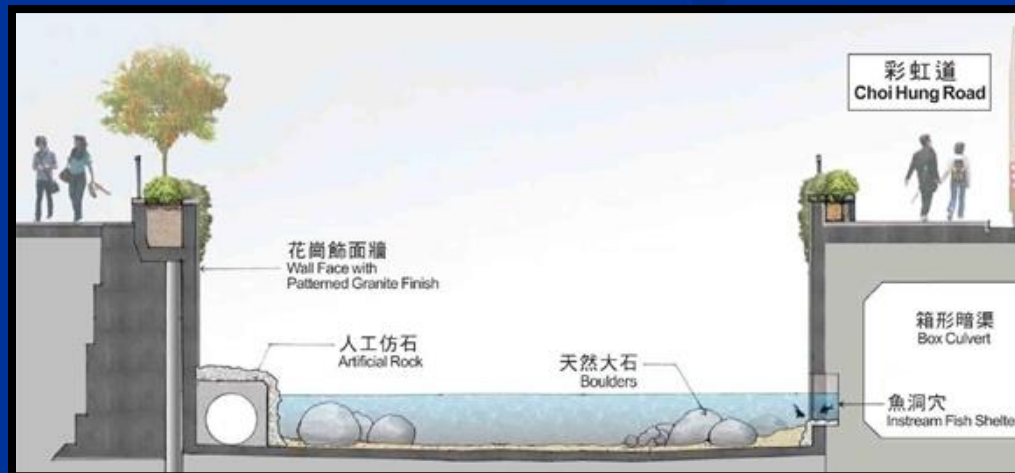
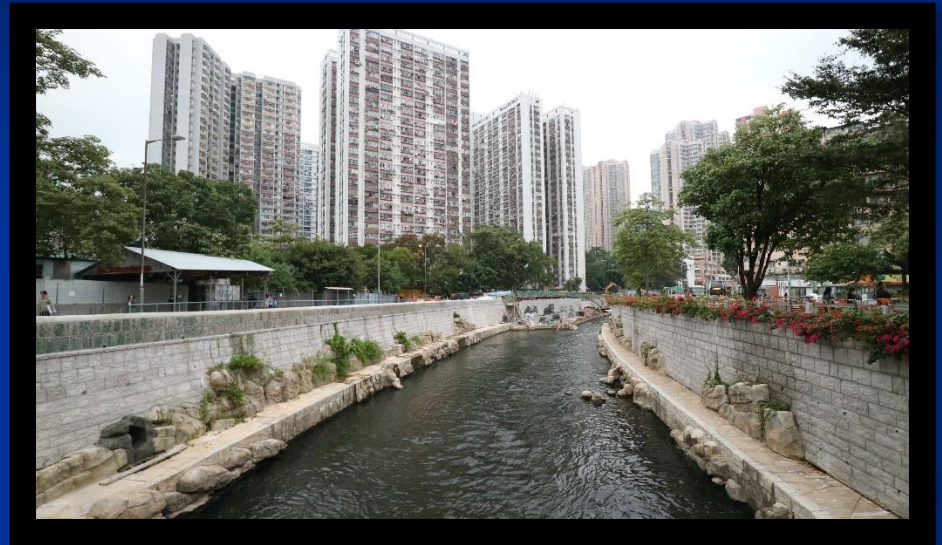
The more natural substrate the better

©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





渠務署
Drainage Services Department

活化
翠屏河

Revitalisation
of
Tsui Ping
River



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"?

在香港談及河道，大家想到的或是城門河、錦田河、林村河等，它們大都是位於新界或較鄉郊的地方。你否想過，在九龍鬧市中的戰道，亦將擁有一條河道？這就是位於翠屏道及敬業街旁，現時稱為敬業街明渠的一段水渠。

A river in Hong Kong? When asked this question, one may think of Shing Mun River, Kam 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?

是「渠」？是「河」？ "Nullah" ? or "River" ?

或許大家都已習慣「敬業街明渠」的名字，的確，在過往的五十年，它的主要功能，就是作為翠屏區的一個排水設施，我們計劃將它活化，成為「翠屏河」，不僅進一步加強防洪功能，同時更從多方面提升其質素，包括水質、生態、景觀和公共空間等，令從前的明渠確切地成為市區中的一個河道綠洲。

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 rainwater. The conversion into "Tsui Ping River" will involve enhancement in multiple aspects, among which are water quality, aesthetics, ecology, amenity, accessibility, etc.

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

現時的明渠位於翠屏道及敬業街旁，由佳康道伸延到海旁，主觀塘區的中央位置，毗鄰居民及繁盛的工商業區，地理位置優越，加上河道的水質特質，有極佳條件成為市區中一個珍貴的河畔公共空間。我們期望在加強翠屏河防洪功能的同時，為它注入生氣和活力，並加強河道與周邊地區的連接，為公眾帶來一個全新的近水休憩設施。 Situated in the centre of Kwan Tong District adjacent to residential developments and bustling commercial cum 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

計劃的目標是利用水質、景觀和生態概念活化河道及改善水質，改造翠屏河為一個感受河景和休閒活動的地帶，為社區建設綠化河道走廊，聯同旁邊的翠屏河公園及敬業街橋下的文化及藝術空間，為翠屏區增添活力和多元色彩。 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 River Garden and the arts and cultural space beneath the Kwun Tong Bypass flyover will offer synergy and add diversity to the Kwun Tong District.

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

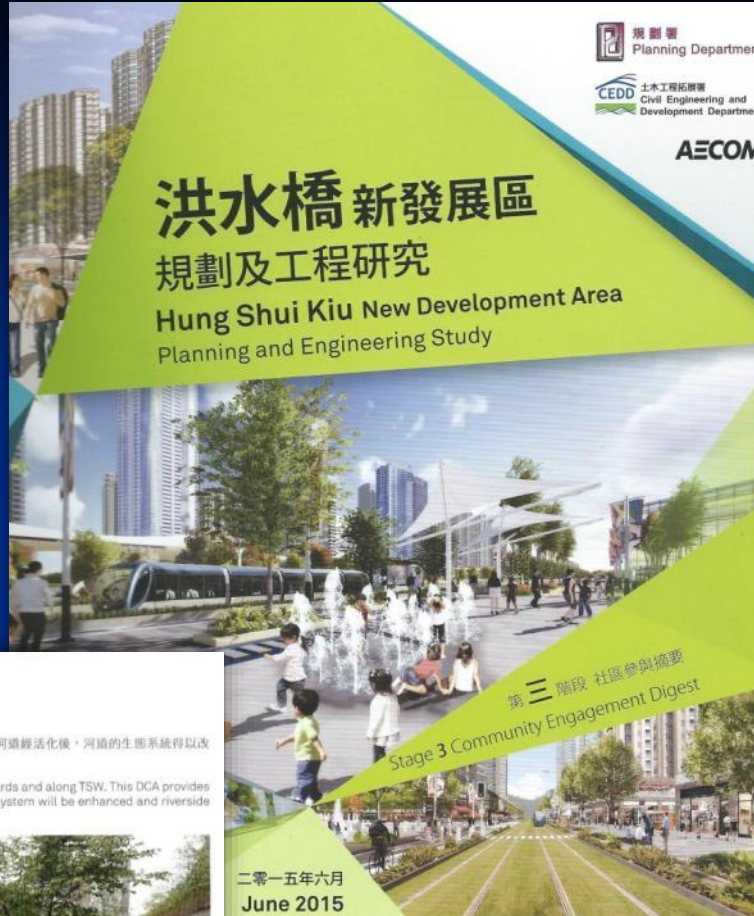
政府在2016年發佈「起動九龍東概念規劃計劃5.0」，提出了多個發展焦點，「活化翠屏河」是其中一個主要規劃項目，我們會與區內各發展項目保持緊密聯絡，發揮協同效應，攜手將九龍東成為一個充滿活力的綠色核心商業區。

The Government launched the "Energizing 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.



洪水橋新發展區 規劃及工程研究

Hung Shui Kiu New Development Area
Planning and Engineering Study



第三階段 社區參與摘要
Stage 3 Community Engagement Digest

二零一五年六月
June 2015

DCA1

河畔和鄉村區 Riverine and Village Neighbourhood

「河畔和鄉村區」位於流經天水圍及被活化後的河道旁，該發展特色分區提供優質的住宅區及河畔公共空間。河道經活化後，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.

①

在河畔發展住宅大廈，坐落河畔長廊景致。

Residential buildings will be developed at the riverside, commanding scenic views of the riverside promenade.

②

取消現有天影路，沿活化後的河道加設河畔長廊，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。河畔長廊亦會加設行人道及單車徑，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.



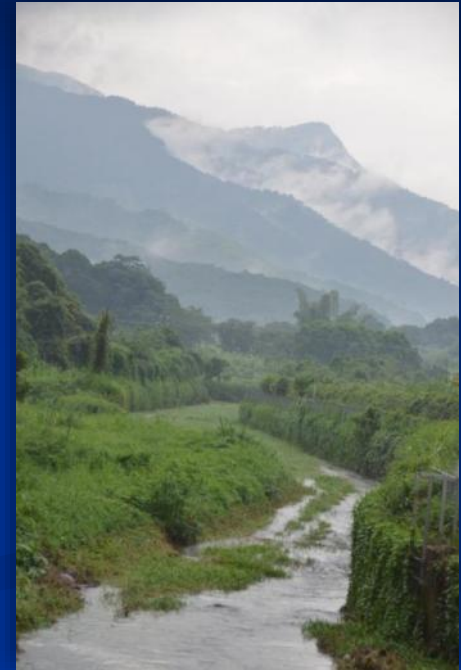
河畔和鄉村區 Riverine and Village Neighbourhood



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.



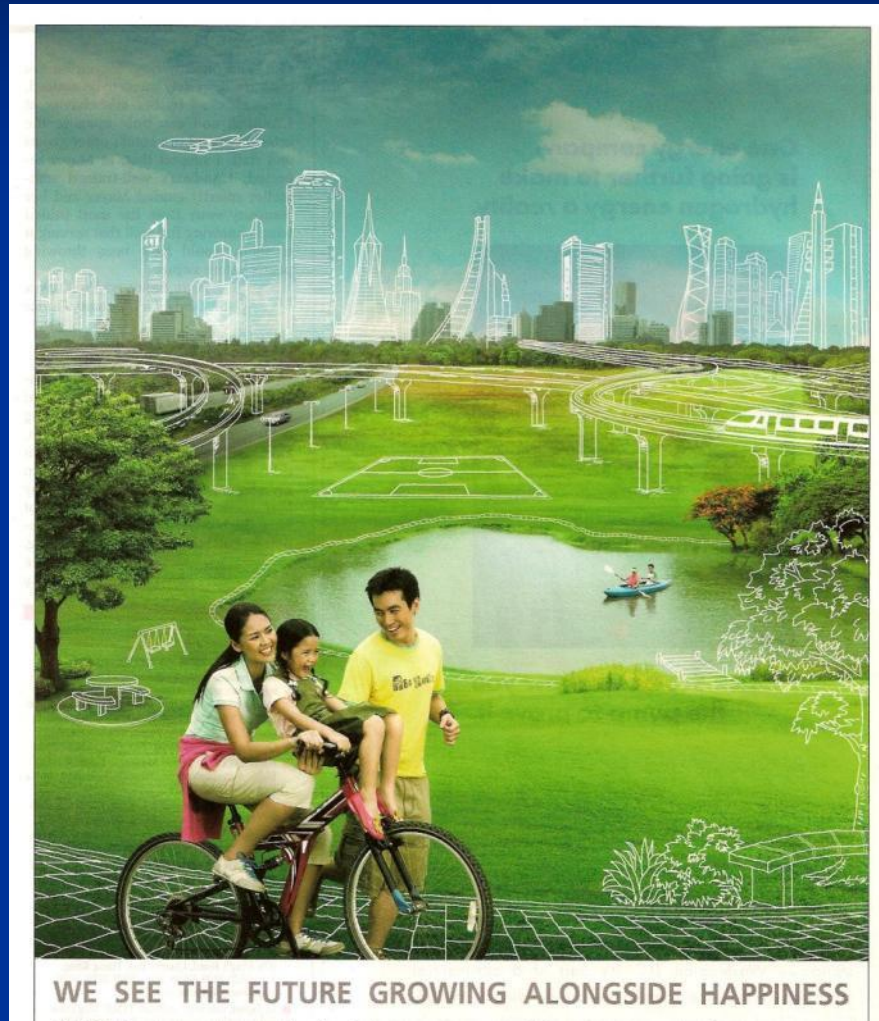
A Paradigm Shift - Stay Away From River Culture

⇒ River Friendly Culture

⇒ Water Friendly Culture



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



Some remarks

Remark I filthy rivers -> clean artificial channels



water quality issues



Ng Tung River 梧桐河

Yuen Long Creek in early 1980s



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

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

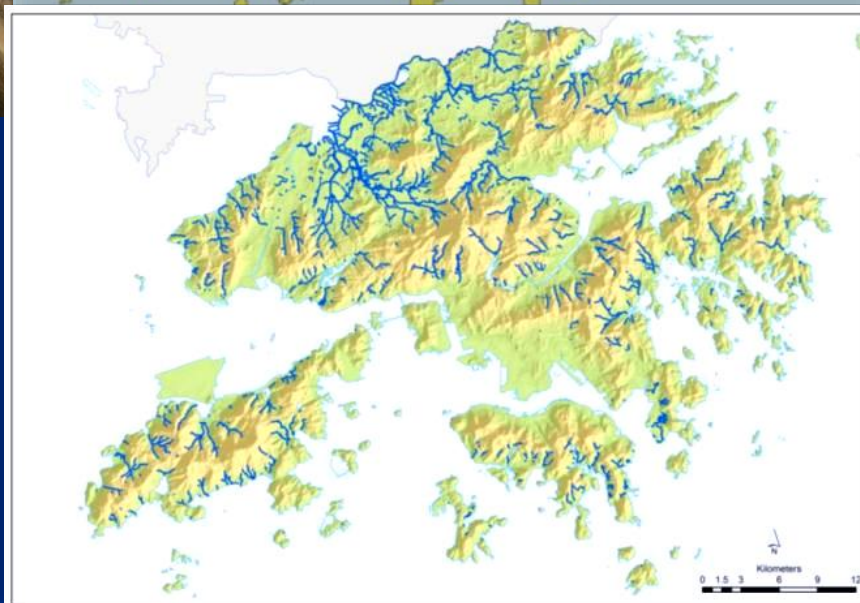
Lam Tsuen River: up stream
林村河上游



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】香港樓價高且房屋供應不足，香港大學學者建議政府成立常設決策機構，為整體土地供應作規劃，又建議大規模填海作長遠土地供應，並提出可研究填平佔地約1200公頃的船灣淡水湖，估計可供應30萬個單位。天文台前台長林超英批評填平船灣淡水湖的建議「完全脫離現實」，環團亦斥「無稽」。



船灣淡水湖(圖)為香港第二大水塘。(水務署圖片)

填海可免收地搬遷居民

港大科斯喬維研究中心昨發表研究報告，指港自回歸後幾乎沒有大規模填海發展計劃，綜合政府數字，本地填海面積由1990年代高峰2005公頃，減至現時近乎零。港大建築學院地產及建設系教授黎偉聰指出，對於長遠供應土地，大型填海的無論在行政及實施方面，均較開闢新土地或重新規劃城鎮有效，「不需要驚動居民搬遷，又不需與土地擁有者周旋」。

中心還指可以考慮把儲存東江水的船灣淡水湖填土工程以發展新市鎮。水務署網頁顯示，船灣淡水湖是香港第二大水塘，容量2.3億立方米。同系教授鄧廣策指船灣淡水湖原來的自然環境已在興建水壩時被破壞，故再發展該位置，對環境影響相對少。鄧又解釋，可利用引水道將東江水引到其他水塘，又建議政府增建海水化淡廠。

林超英:完全脫離現實

林超英昨回應填平船灣淡水湖起碼的建議，批評是「完全脫離現實」。林指船灣淡水湖用作儲存淡水，香港需要多個地方儲水，以免一旦「發生意外」時沒後備水飲用，「不能完全依賴東江水」。林又指海水化淡非取代方案，「(化淡)需再用大量能量」。環保團體亦批評建議「無稽」，指現時房屋問題是內地來港人口增長過多及私樓炒賣所致，填海亦未有惠及可持續發展因素。

林建鋒曾提填平船灣淡水湖建議

這並非首次有人提出填平船灣淡水湖起碼，經民

土地供應建議

中短期措施

- 政府公布2047年收回發展商在新界擁有的未被開發或閒置土地
- 改變補地價計算方式，製造誘因予發展商加速發展土地

長期持續措施

- 填海，地點建議包括屯門白泥、坪洲及馬灣洲中間

其他考慮方案

- 填平船灣淡水湖，估計可提供30萬個單位

資料來源：
港大建築學院
地產及建設系
教授黎偉聰
及鄧廣策



聯席主席林建鋒於2013年接受《文匯報》訪問時，也曾提出同類建議。

發展局回覆稱，正推進多項與填海以外填海相關的研究，包括為小蠔灣、龍鼓灘和馬料水3個近岸填海地點做技術研究，預計下半年完成，另計劃向立法會申請撥款，以期盡快開展吹填、龍鼓灘和馬料水填海的規劃及工程研究。局方又指正影響成立專責小組檢視土地供應來源。

Abberton Reservoir is an extremely important site for breeding birds and is a stopover for thousands of birds on migration. It has been designated as a Site of Special Scientific Interest (SSSI), a Special Protection Area (SPA) and a RAMSAR site (Wetland of International Importance). Essex & Suffolk Water own and operate the reservoir to help supply its 1.5 million customers in Essex with drinking water. The nature reserve and the visitor centre are managed by Essex Wildlife Trust in partnership with the water company.

At the visitor centre:

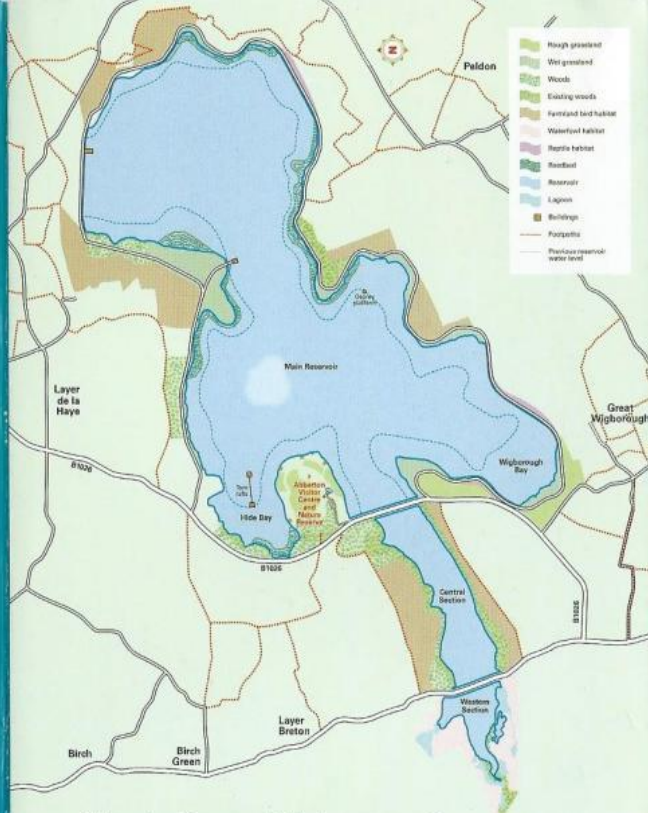
- Viewing area
- Gift shop
- Light snacks and drinks
- Toilets including disabled and baby changing
- Children's activities
- Optics sales

We offer many events and activities for both children and adults throughout the year; from guided walks and courses, to school holiday activity days and under-five's clubs. Schools and other groups are welcome by appointment. Please contact the visitor centre for more information and bookings.



To keep up-to-date with future developments or to find out how you can get involved in this exciting project please look at:

www.essexwt.org.uk or www.eswater.co.uk or
facebook at www.facebook.com/EWTAbberton



Abberton Reservoir Enhancement Project on completion

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:



ESSEX
Wildlife Trust

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



**ESSEX & SUFFOLK
WATER**

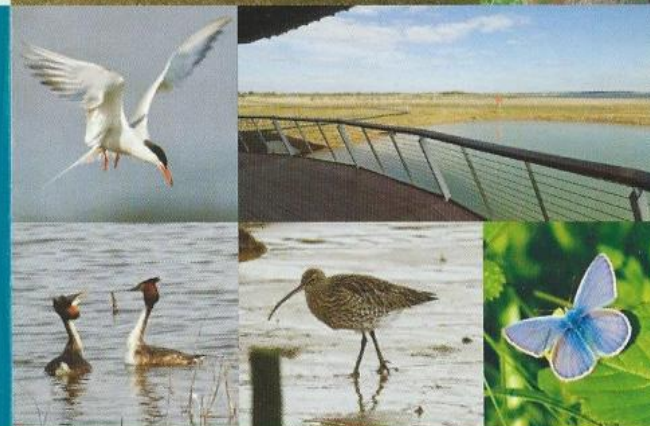


ESSEX
Wildlife Trust

working in partnership

Abberton Reservoir

Nature Reserve and Visitor Centre



Hanningfield Reservoir Nature Reserve, Essex



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

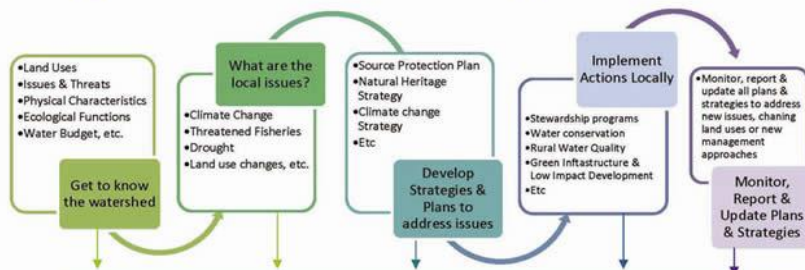


What is ultimately needed?

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.

Integrated Watershed Management Process



Stakeholder Input

To be successful, IWM requires collaborations and involvement of a wide variety of community interests and water users including municipalities, businesses, residents, agencies and landowners. They decide on the priority issues that need to be addressed, help to set goals, decide on what actions to take and implement locally.

Each Strategy & Plan is developed, implemented, monitored and updated through a cyclical process which keeps it up to date and responsive to local needs.



Our focus today: Lam Tsuen River

