Rivers in Hong Kong

Friday June 28, 2018
Dr. Cho-Nam Ng
<table>
<thead>
<tr>
<th>Time</th>
<th>Programme</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00 pm</td>
<td>Rivers in Hong Kong (Dr Cho-Nam Ng, JC-WISE)</td>
</tr>
<tr>
<td>5:05 pm</td>
<td>Break</td>
</tr>
<tr>
<td>5:20 pm</td>
<td>How to conduct field-work along Kam Tin River (Mr Anthony Yeung, HKGA)</td>
</tr>
<tr>
<td>6:10 pm</td>
<td>Water Footprint (Dr Frederick Lee, JC-WISE)</td>
</tr>
<tr>
<td>6:30 pm</td>
<td>Workshop ends</td>
</tr>
</tbody>
</table>
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) and "Ephemeral streams" (flows in response to rainfall).
Rainfall and runoff

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

Figure 3(a): Runoff regime for the Tai Lam Chung basin
Daily rainfall and runoff
Who manage our rivers?
Beas River at Long Valley (before 1990s)
A flood plain

Villagers in uproar after homes swamped for second time
Flood prevention measures

Table 4: Flood protection standards for Hong Kong

<table>
<thead>
<tr>
<th>Types of Drainage</th>
<th>Recurrence Interval (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban drainage trunk systems</td>
<td>200</td>
</tr>
<tr>
<td>Urban drainage branch systems</td>
<td>50</td>
</tr>
<tr>
<td>Main rural catchment drainage channels</td>
<td>50</td>
</tr>
<tr>
<td>Village drainage</td>
<td>10</td>
</tr>
<tr>
<td>Intensively used agricultural land</td>
<td>2-5</td>
</tr>
</tbody>
</table>
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
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.
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

- Sources of Drinking Water
- Agriculture and Fisheries
- Navigation
- Recreation
- Cultural Heritage
- Ecological Functions
- Hydroelectricity
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 鴴
  - 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

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

Futian National Nature Reserve

Bird Life International’s Important Bird Area (Lok Ma Chau and Long Valley)
Revitalizing river – eco-design channel

Lam Tsuen River

past

present

trained
Eco-design channel – fish ladders
Artificial channels => Eco-design channels
The more natural substrate the better

Natural bottom substrate provide foraging opportunities for wetland-dependent species

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

©H Lui
Kai Tak Nullah ⇒ Kai Tak River
Hung Shui Kiu New Development Area
Planning and Engineering Study

Riverine and Village Neighbourhood

Residential buildings will be developed at the riverbank, overlooking the river promenade.

With the removal of Tin Yung Road, a promenade along the rejuvenated river channel is planned to enhance the riverside environment. Dedicated and shared facilities will be included to promote the use of the promenades. Pedestrian walkways and cycling tracks are planned alongside the promenade to allow walking and cycling in a relaxed environment.

DCA1

Riverine and Village Neighbourhood

The "Riverine and Village Neighbourhood" is located along the revitalised riverine area which flows towards Tin Yung Road. This DCA provides quality residential environment and riverside public spaces. With the river revitalisation, the river ecosystem will be enhanced and riverside promenades will be provided.

In the residential areas, the riverfront landscape will:

1. Enhance the visual amenity of the riverside area, creating a sense of place.
2. Promote the use of the riverside walkway.
3. Ensure the safety and accessibility of the promenade.
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

early 1990s

present
Yuen Long Creek in the early 1980s

in early 1980s

at 2017
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

Water gathering grounds in HK
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.

What is needed?

‘Environmental Flow’ for ecological sensitive/eco-design channels
The largest wetlands in HK are not functioning as wetland!
Reservoirs become vulnerable ...
Reservoir nature reserves in Essex, England

Abberton Reservoir
Nature Reserve and Visitor Centre

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:

Abberton Reservoir Visitor Centre
Church Road
Loyer de la Haye
Colchester
Essex CO2 8EU
telephone: 01206 738172
e-mail: abberton@essexwt.org.uk
website: www.essexwt.org.uk

Registered Charity No. 260465

Promoting Wildlife for the Future and for the People of 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.
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
Rivers@HK Database

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