Rivers in Hong Kong

Friday April 27, 2018
Dr. Ng Cho-nam
## Programme

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</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>5:00 pm</td>
<td>Break</td>
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<tr>
<td>5:15 pm</td>
<td>How to conduct field-work along Sheung Yue River</td>
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<tr>
<td></td>
<td>(Mr Anthony Yueng &amp; Mr Tony Leung, HKGA)</td>
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<tr>
<td>6:15 pm</td>
<td>Water Footprint (Dr Frederick Lee)</td>
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<tr>
<td>6:45 pm</td>
<td>Arrangements for field trip and farming activities</td>
</tr>
<tr>
<td>7:00 pm</td>
<td>Workshop ends</td>
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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

1. Re-connecting the public with our **rivers** – enhance the understanding of the multiple values of water
2. **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
daily rainfall and runoff
Beas River at Long Valley (before 1990s)
a flood plain
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 Tim 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
Who manage our rivers?
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
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
- Ecological Functions
- Navigation
- Hydroelectricity
- Recreation
- Cultural Heritage
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.

- 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

Lam Tsuen River

present

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

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

Natural bottom substrate provide foraging opportunities for wetland-dependent species

©H Lui
Kai Tak Nullah ⇒ Kai Tak River
DCA1 河畔和鄉村區
Riverine and Village Neighbourhood

The Riverine and Village Neighbourhood is located along the rejuvenated river channel which flows towards and along Tin Yip Road. This DCA provides quality residential neighbourhood and riverine public spaces. With the river regeneration, the river ecology system will be enhanced and riverine recreation area will be provided.

1. Residential buildings will be developed at the Riverside, commanding a scenic view of the promenade.

2. The removal of Tin Yip Road, a promenade along the rejuvenated river channel, is planned to enhance the riverside environment. Links and stairs facilities will be provided to promote the river’s promenade. Pedestrian walkways and cycle tracks are planned along 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
Some remarks
Remark I  filthy rivers  =>  clean artificial channels

early 1990s

water quality issues

Ng Tung River 梧桐河
Yuen Long Creek in early 1980s

Plate 4.6 Agricultural, industrial and sewage wastes from Yuen Long Creek into an offensive and foul smelling open sewer

in early 1980s at 2017
Eutrophication at Sheung Yue River, April 2018

on April 9, 2018

on April 14, 2018
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
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 …
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.
Rivers@HK Database

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