JC-WISE
Water Initiative on Sustainability and Engagement
賽馬會惜水・識河計劃

"My River, My Community" Scheme

Workshop-cum-Guided field-trip to Lam Tsuen River Catchment

16 December 2017

How to conduct fieldwork along Lam Tsuen River

Anthony K. C. Yeung

Hong Kong Geographical Association

About Lam Tsuen River Field Study

Relevance to the DSE Geography curriculum

- This field study is related to **'Managing Rivers and Coastal Environments – A continuing challenge'** (Compulsory Part)

Objectives

- To investigate the **characteristics of different courses** of the river;
- To examine various strategies of **channel management works**; &
- To investigate how **channel management works affect the ecology and the landscape** of the areas along the river.

Pre-requite knowledge

(A) Characteristics of different courses of the river

a. Upper course – Ng Tung Tsai Fall
b. Middle course
c. Lower course
d. Estuary – Kwong Fuk Bridge

(B) Channel management works

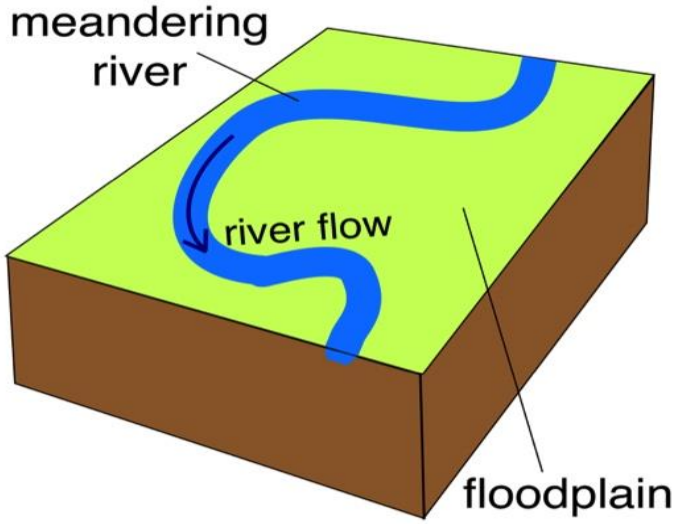
a. Channelisation
b. Hard engineering strategies
c. Ecological enhancements in channelisation work

(C) How channelised work affect the ecology & landscape

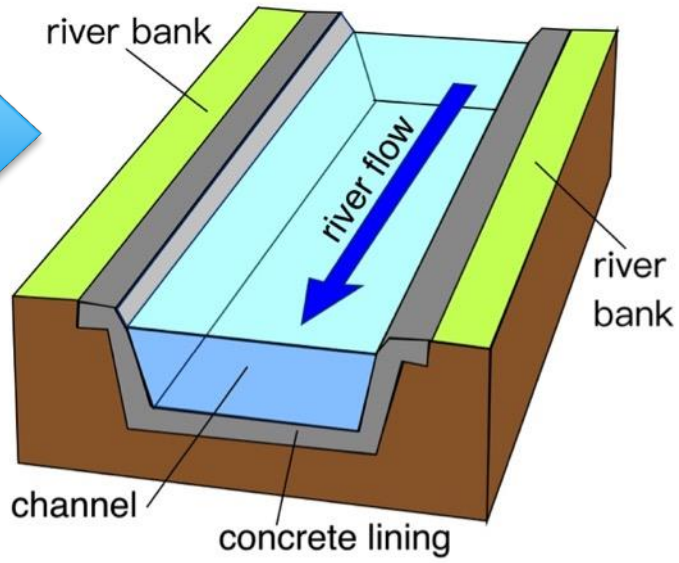
a. Eco-system services
b. Land uses

Pre-requite knowledge: Channelisation

Before channelisation



After channelisation



Effect of channelisation on:

A. river channel
B. river bed
C. capacity, hydraulic efficiency and discharge of the river

Pre-requite knowledge: Hard engineering strategies

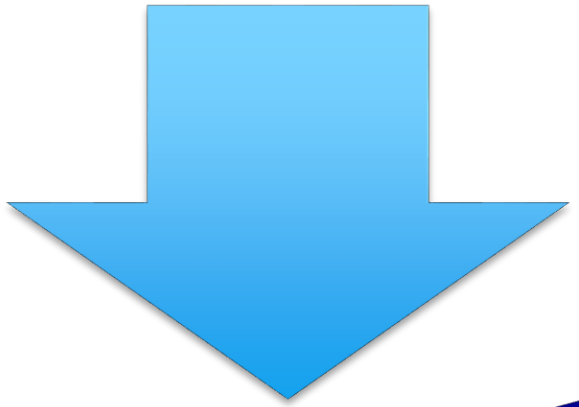
(1)
Block revetment
（鋪磚塊）

(3)
Concrete cover
（鋪混凝土）

(2)
Gabion wall
（石籠牆）

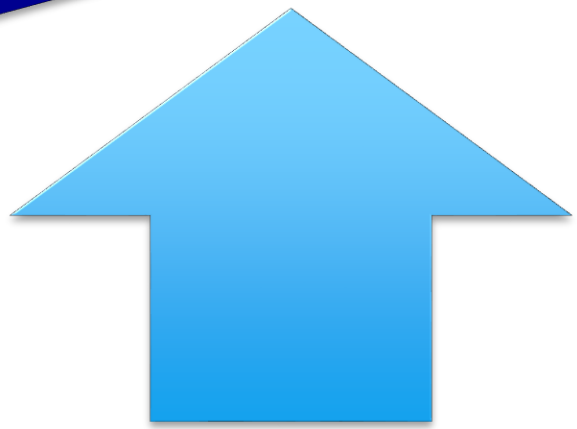
(4)
Stone pitching retaining wall
（石砌護土牆）

Pre-requite knowledge: Hard engineering strategies



Costing

Different types of hard engineering strategies



Intended effects (major purposes)

Pre-requite knowledge: Hard engineering strategies

What type of hard engineering strategies employed in channelisation and river bank protection work here?

Shing Mun River Channel, Tai Wai

Pre-requite knowledge: Eco-designs in channelisation work

(1) **Grasscreting** along channel embankment

(2) Reinforcing **grass lining** in **gabions**

(3) **Unlined channel bed** and embankment

(4) Creating **shallow pond**

(5) Creating **wetland** habitats

(6) Building **flow deflector**

Pre-requite knowledge: Eco-system services

Provisioning

Goods or products produced by ecosystems

Regulating

Natural processes regulated by ecosystems

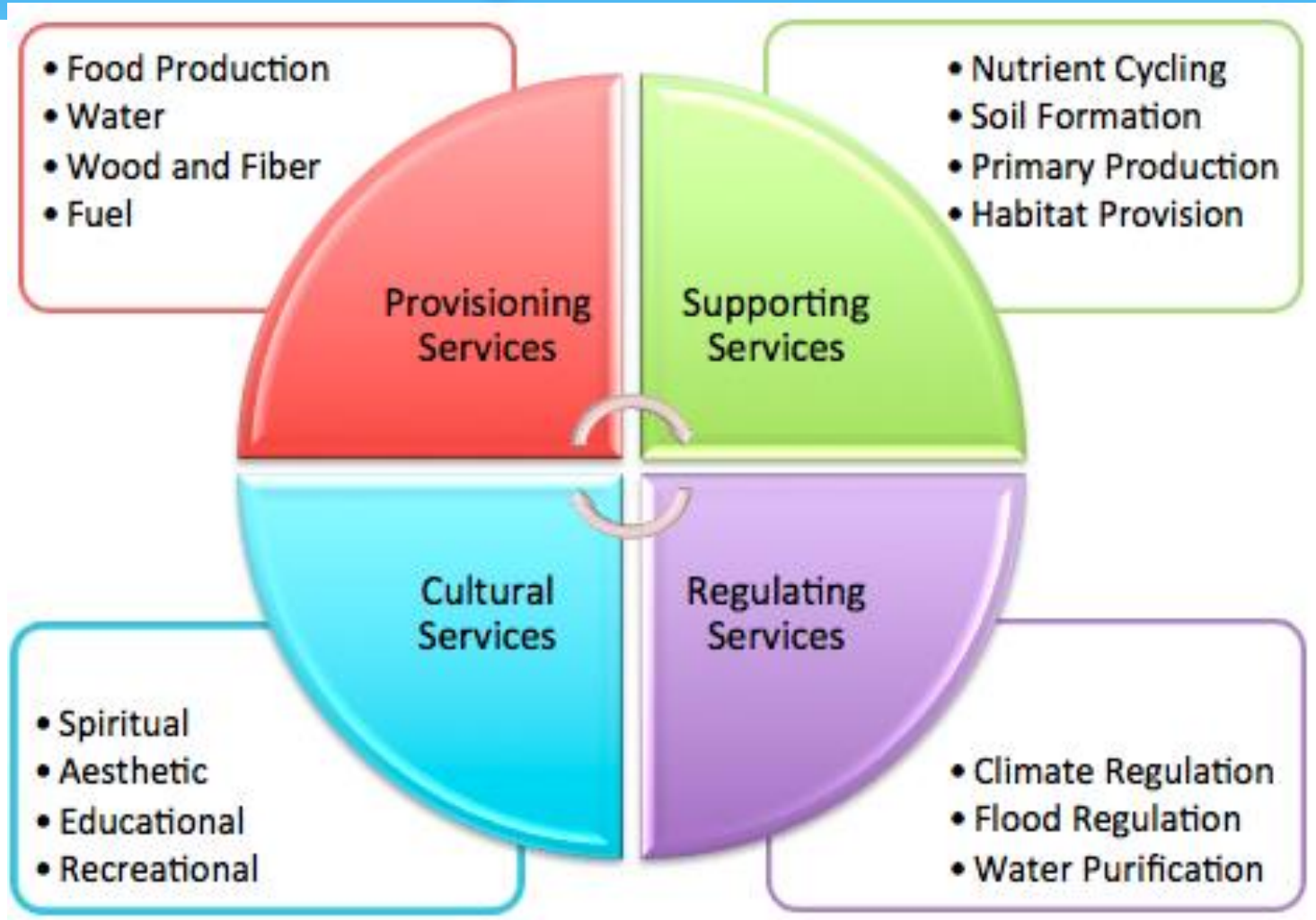
Cultural

Non-material benefits obtained from ecosystems

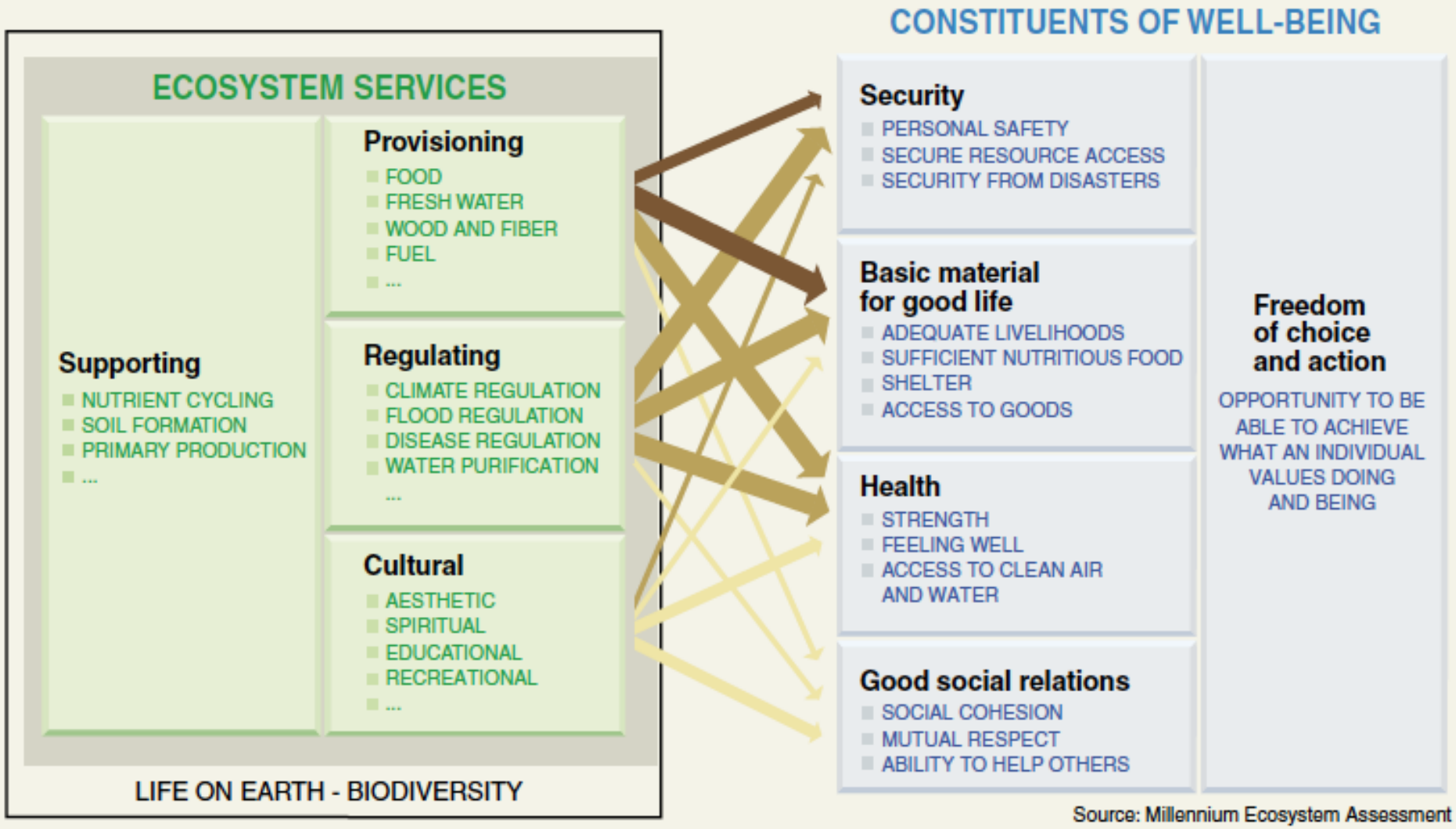
Supporting

Functions that maintain all other services

Pre-requite knowledge: Eco-system services



Source: Millenium Ecosystem Assessment, 2005.



Source: Millennium Ecosystem Assessment

Conducting Enquiry Field Study

(1) Planning & preparation

↓

(2) Data collection

↓

(3) Data processing, analysis & presentation

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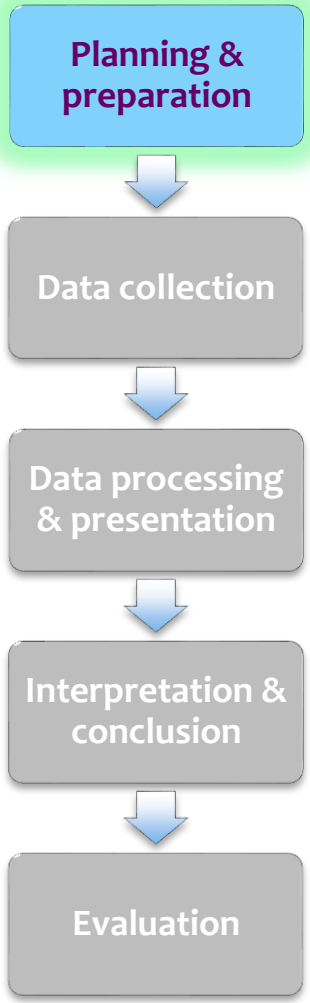
(4) Interpretation & conclusion

↓

(5) Evaluation

Conducting Enquiry Field Study: (1) Planning & preparation



(A) **Background information:**

About Lam Tsuen River: Topography, land uses, etc.

(B) **Knowledge recap:** Channelisation works

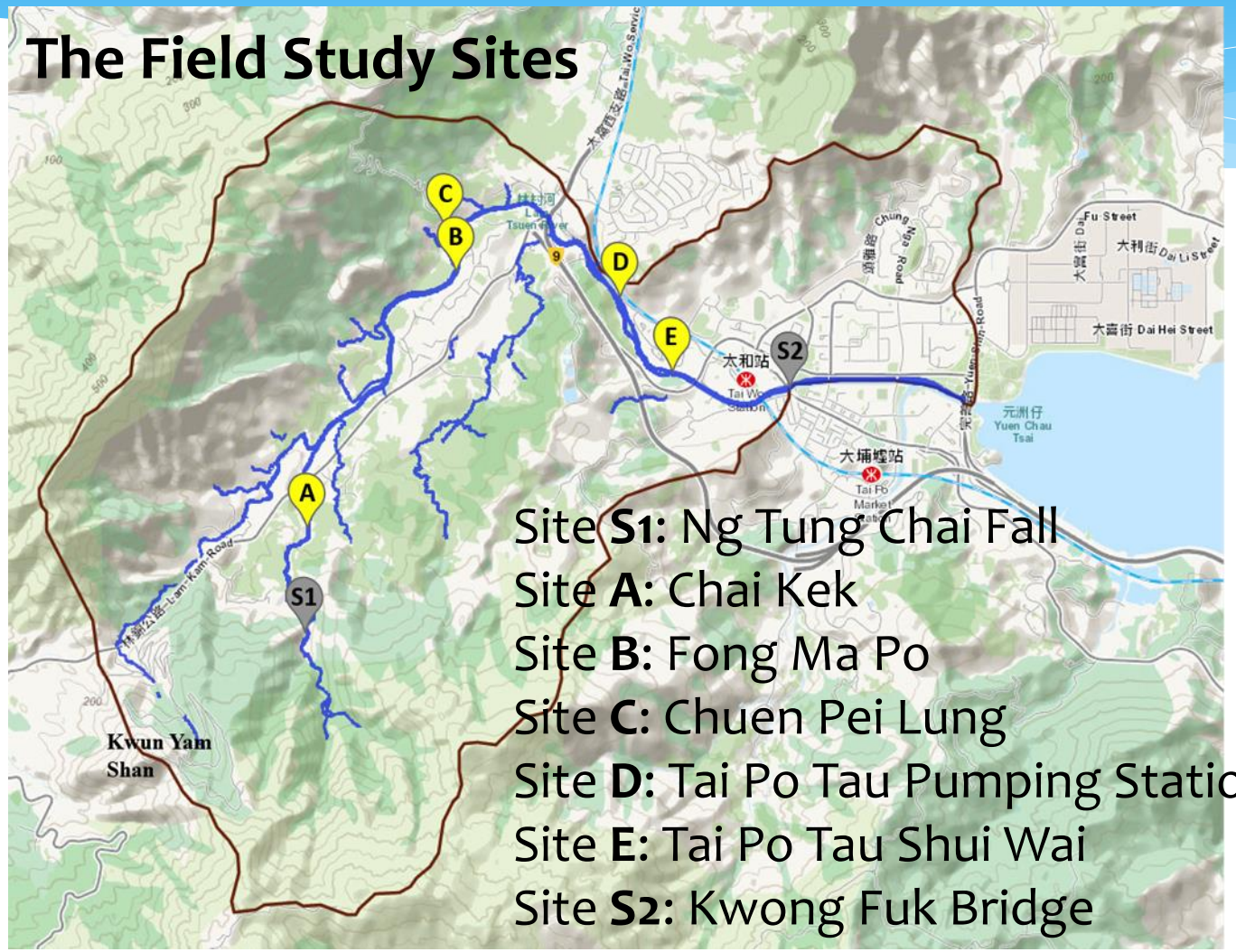
(C) **Enquiry questions:**

(1) How do the channel management works vary along the course of the river?

(2) How do the channel management works affect the ecology and the landscape of the areas along the river?

Conducting Enquiry Field Study: (2) Data collection

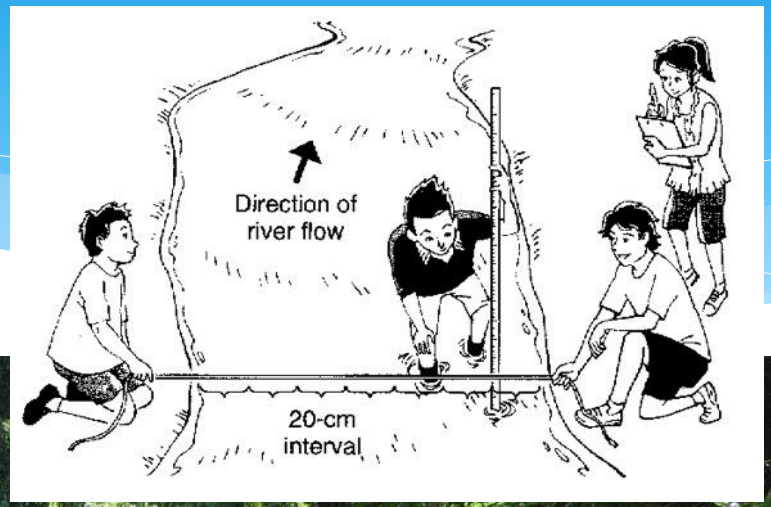
- Planning & preparation
- **Data collection**
- Data processing & presentation
- Interpretation & conclusion
- Evaluation

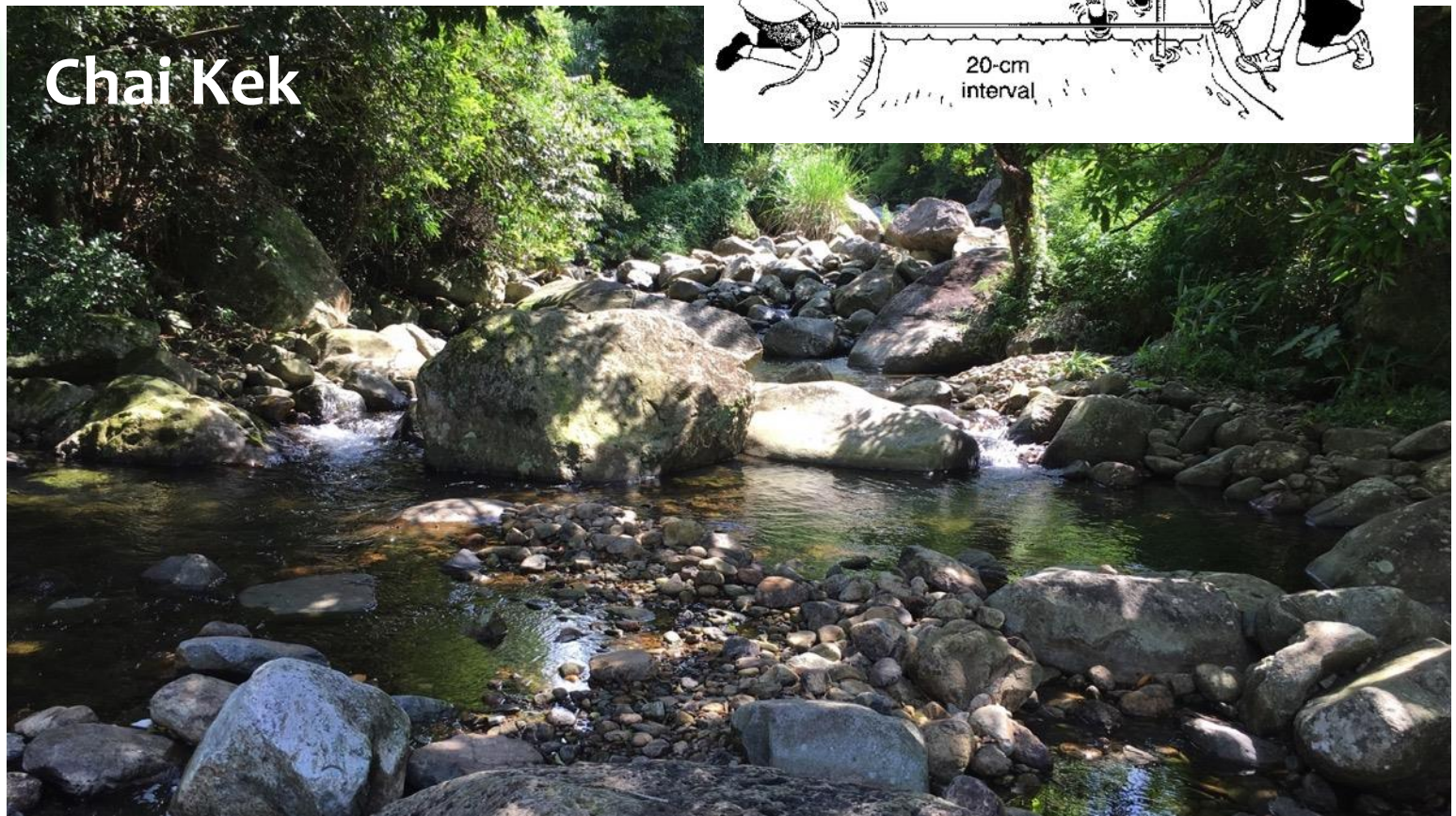


Conducting Enquiry Field Study: (2) Data collection

- Planning & preparation
- **Data collection**
- Data processing & presentation
- Interpretation & conclusion
- Evaluation

Measuring channel characteristics

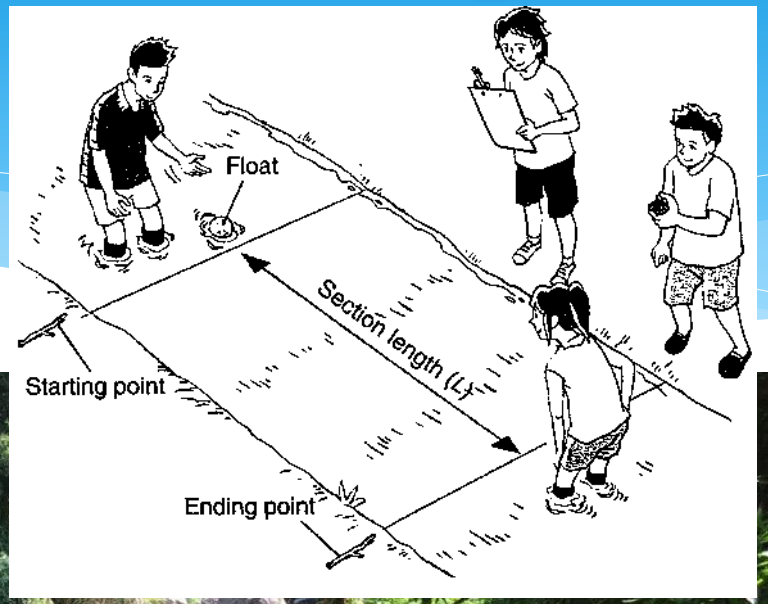




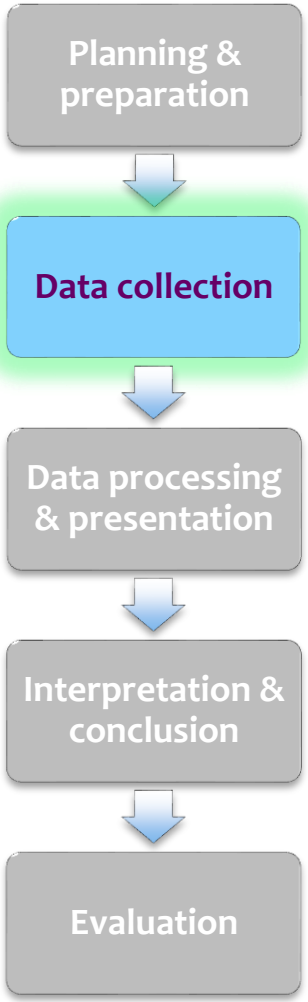
Conducting Enquiry Field Study: (2) Data collection

- Planning & preparation
- **Data collection**
- Data processing & presentation
- Interpretation & conclusion
- Evaluation

Measuring river velocity



Conducting Enquiry Field Study: (2) Data collection



The instrument:

Channel Management Record Form

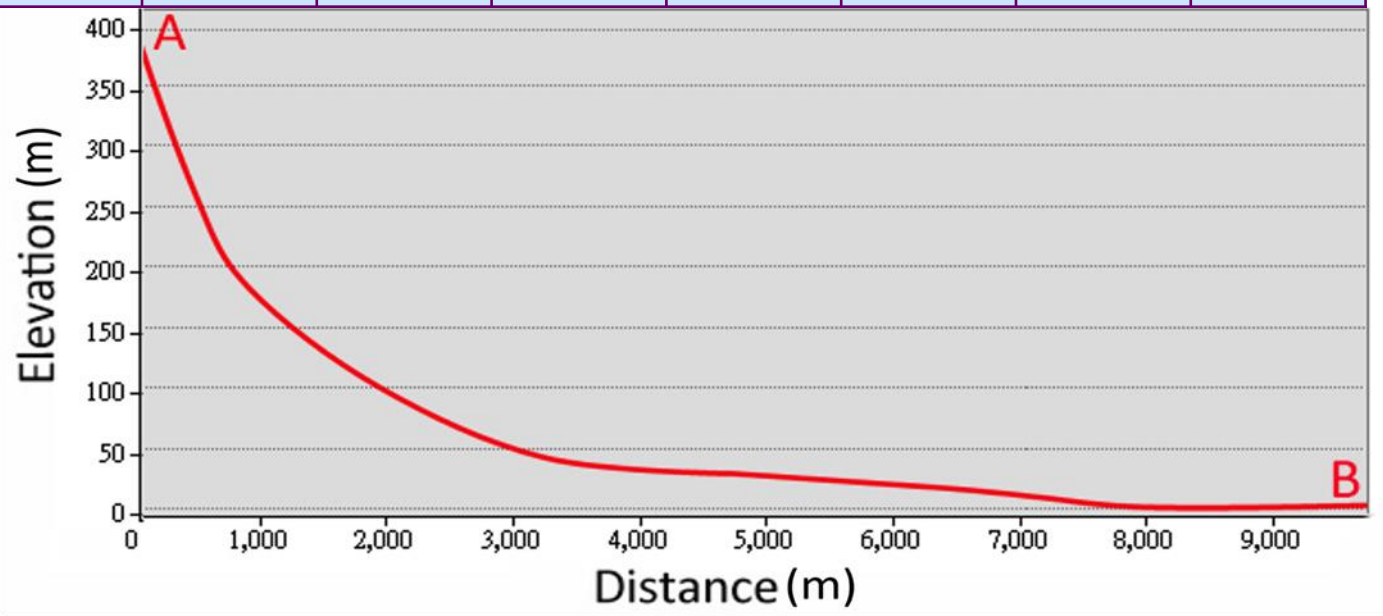
Channel Management Record Form

Locality:	Date:
Section of the river: ☐ Upper course ☐ Middle course ☐ Lower course	
Land use along the river:	
About the channel management work	
Type: ☐ Blocks revetment ☐ Gabion wall ☐ Concrete cover ☐ Stone pitching retaining wall Description:	
Ecological enhancement: ☐ Grasscrete ☐ Lining in gabions ☐ Unlined channel bed ☐ Shallow pond ☐ Wetland ☐ Flow deflector Description:	
Intended effect (major purpose):	
Aesthetic value:	Costing:
Effects on the hydraulic efficiency of the river	
Channel width (find out the width with the aid of the large scale map or by direct measurement):	
Channel characteristics:	
Flow volume:	Flow speed:
Ecosystem services brought by the management work	
Provisioning services:	
Regulating services:	
Supporting services:	
Cultural services:	
Remarks:	

Conducting Enquiry Field Study: (3) Data processing & presentation

- Planning & preparation
- Data collection
- **Data processing & presentation**
- Interpretation & conclusion
- Evaluation

Field sites	Ng Tung Chai	Chai Kek	Fong Ma Po	Chuen Pei Lung	TPT Pump Station	TPT Shui Wai	Kwong Fuk Bridge
Land use							
Channel m. works							
Eco-design							



Conducting Enquiry Field Study: (3) Data processing & presentation

Planning & preparation

Data collection

Data processing & presentation

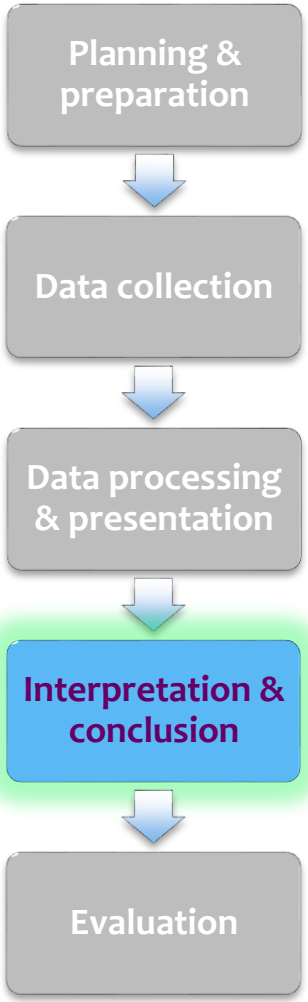
Interpretation & conclusion

Evaluation

Complete the following table

Field work site	Distance from river	Land use along the river	Hard management strategy employed			Ecosystem services brought by the management work				Remarks and comments	Field work sites
			Type	Description, costing	Greenery, ecological features	Provisioning	Regulating	Supporting	Cultural		
(S1) Ng Tung Chai	Source										(S1) Ng Tung Chai
(A) Chai Kek											(A) Chai Kek
(B) Chuen Pei Lung											(B) Chuen Pei Lung
(C) Fong Ma Po											(C) Fong Ma Po
(D) Tai Po Tau Pumping Station											(D) Tai Po Tau Pumping Station
(E) Tai Po Tau Shui Wai											(E) Tai Po Tau Shui Wai
(S2) Kwong Fuk Bridge	River mouth										(S2) Kwong Fuk Bridge

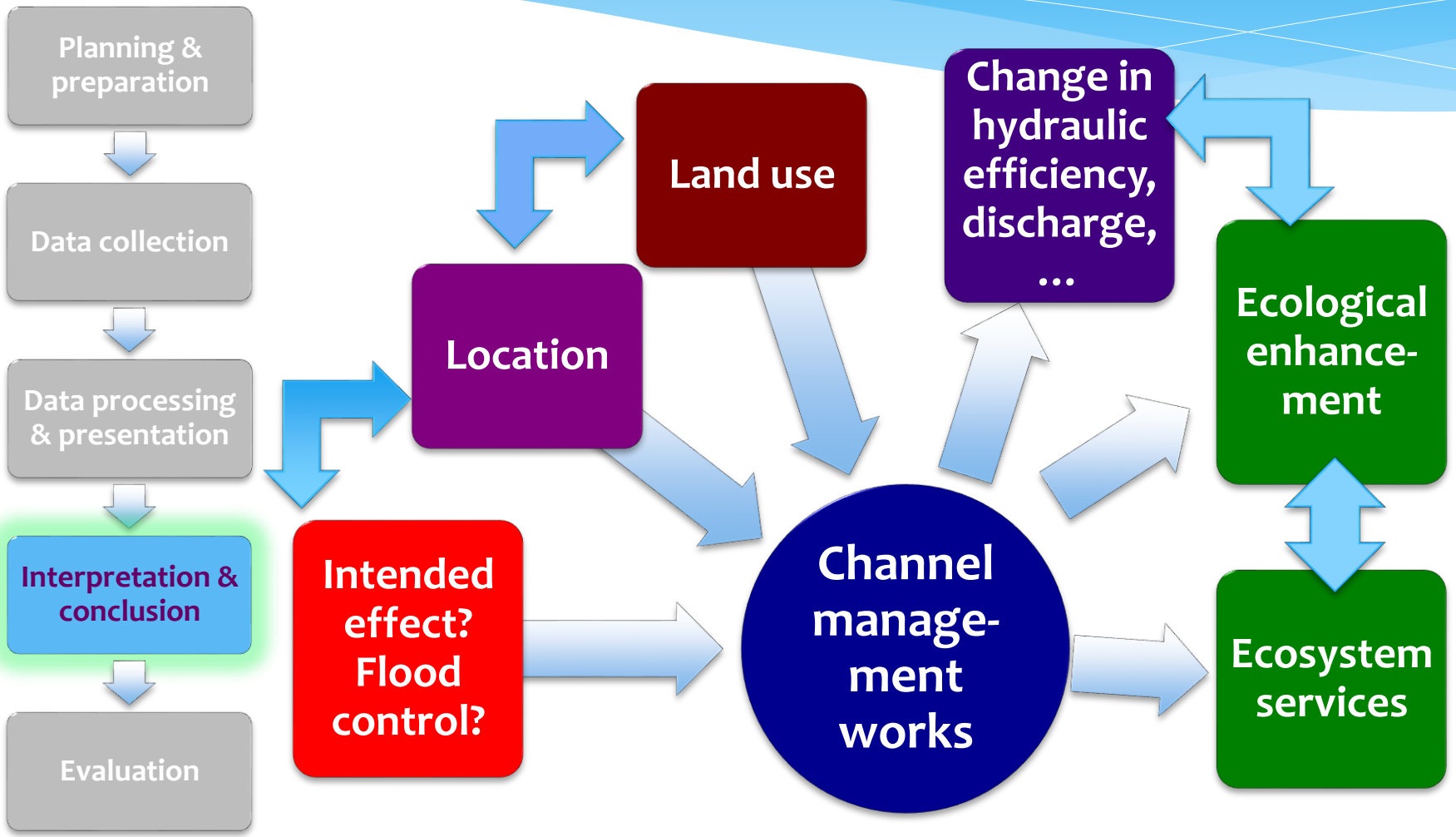
Conducting Enquiry Field Study: (4) Interpretation & conclusion



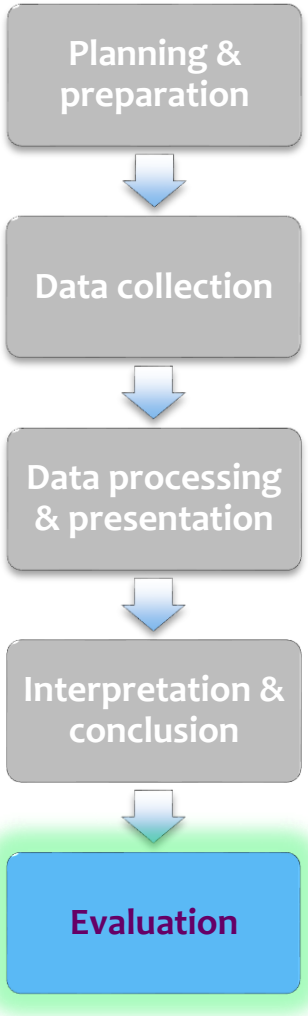
Group discussion:

With reference to the information collected in the field, account for the variation of channel management works along Lam Tsuen River and their impacts on the environment.

Conducting Enquiry Field Study: (4) Interpretation & conclusion



Conducting Enquiry Field Study: (5) Evaluation



- **Suggest other data needed, account for problem in data collecting**
- **Room for improvement**

- **Getting people's views & opinions about the channel management works**
- **Secondary data needed:**

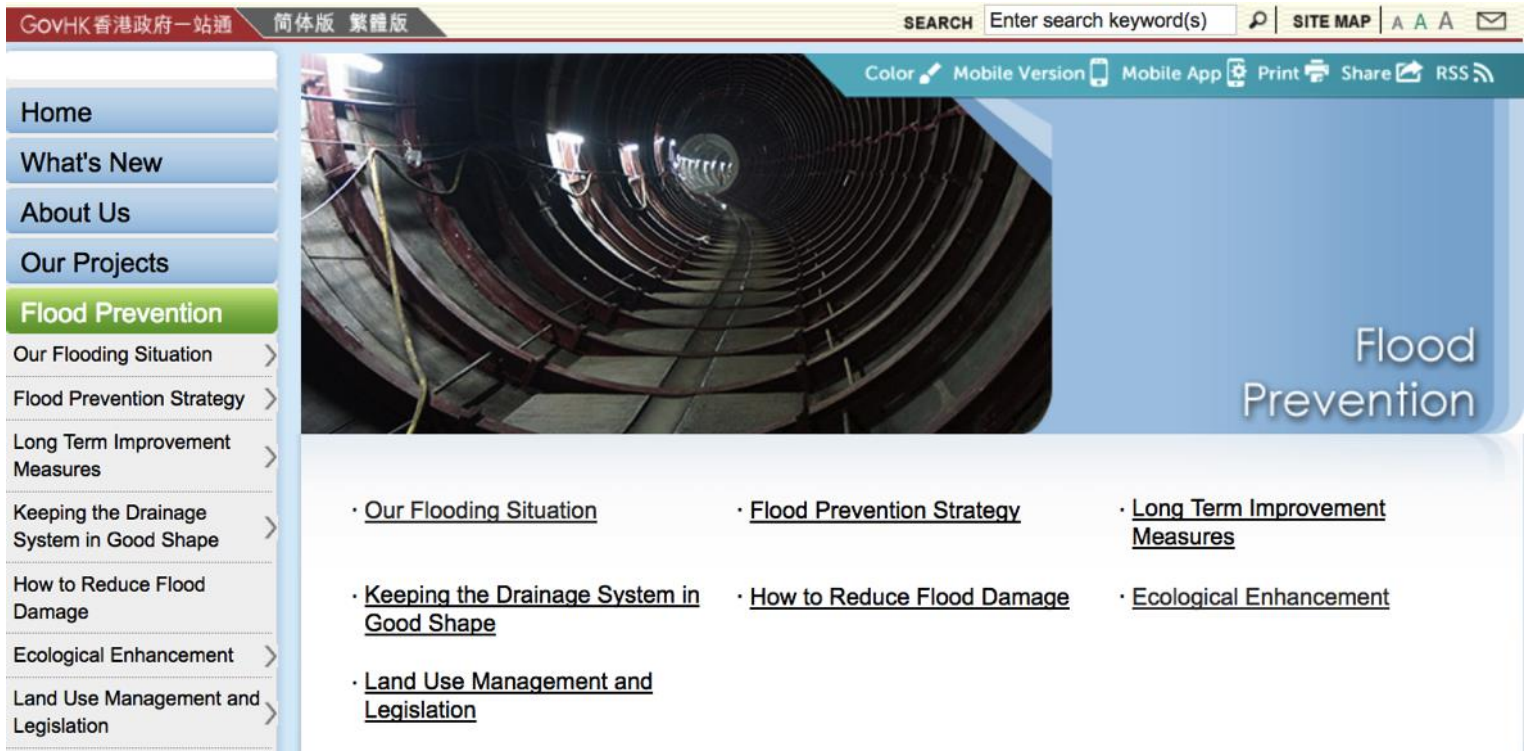
  Drainage Services Department – **www.dsd.gov.hk**

Conducting Enquiry Field Study: (5) Evaluation

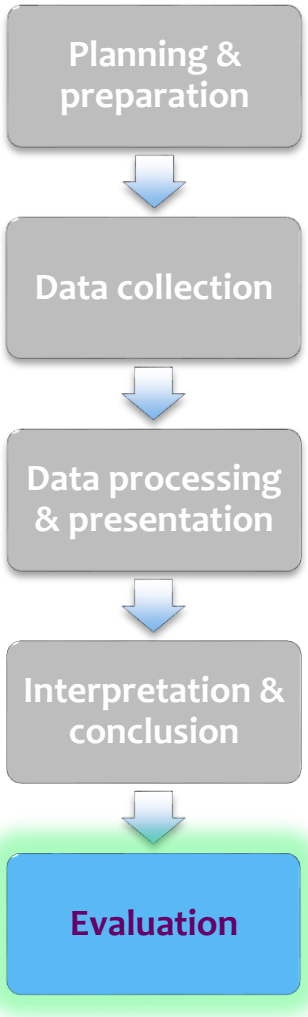
- Planning & preparation
- Data collection
- Data processing & presentation
- Interpretation & conclusion
- **Evaluation**

- **Secondary data needed:**

  Drainage Services Department – **www.dsd.gov.hk**



Conducting Enquiry Field Study: (5) Evaluation



- **Secondary data needed:**

  Historical maps and aerial photographs

  Comparison with the existing landscape & environment

Conducting Enquiry Field Study: (5) Evaluation

- Planning & preparation
- Data collection
- Data processing & presentation
- Interpretation & conclusion
- **Evaluation**

- **Other indicators:**


寬鰭鱲
Freshwater Minnow (*Zacco platypus*)


小白鷺
Little Egret (*Egretta garzetta*)

Please note:


大埔頭抽水站附近的充氣尼龍堤壩
The inflatable fabridam near
Tai Po Tau Pumping Station

Please note:


船灣供水計劃工程竣工紀念碑
Stone plaque commemorating the
inauguration of the Plover Cove Water Scheme
GOVERNMENT OF HONG KONG
THE PLOVER COVE WATER SCHEME
WAS INAUGURATED ON 20th JANUARY 1969
BY HIS EXCELLENCY THE GOVERNOR
SIR DAVID TRENCH GCMG MC
CONSULTING ENGINEERS
BINNIE & PARTNERS
SCOTT WILSON KIRKPATRICK & PARTNERS

Field sites NOT visited today

Ng Tung Chai Falls

Field sites NOT visited today

Kwong Fuk Bridge

How to conduct field study along Lam Tsuen River

Q & A

Thank you