明愛陳震夏郊野學園
Caritas Chan Chun Ha Field Studies Centre


Urban Problems in Cheung Chau


Student Name：_____ **Group No.**：_____

Course Date：_____

OBJECTIVES

- Knowledge：
  - To investigate the relationship between urban problems and distance of town centre of study area
  - To solve urban problems from a sustainable development angle (1.5 day / 2 day course)
- Skills：
  - To assess the level of urban decay
  - To draw choropleth maps
  - To compare different sampling methods
  - To use Geographic Information System (GIS) for data processing (2 day course)
- Value：
  - To develop students' awareness of urban problems and sustainable development

Relevance to the DSE geography curriculum

✪ Building a sustainable city

PRIOR KNOWLEDGE

1. The central part of Cheung Chau is a _____. And the development of Cheung Chau is long-established. The peak population had reached 40,000. Its present population is about _____. The type of settlement belongs to village / town / city / metropolis .
2. Continuous development of an area is causing urban problems gradually. Common urban problems in Hong Kong include :

   _____
3. The earliest developed region of a city defined as 'Inner City'. It shows highest degree of deterioration. What is this phenomenon?
   Urban encroachment / Urban decay / Counter-urbanization
4. Sustainable development balances the needs of _____ , _____ and _____ . Using sustainable development angle to solve urban problems is a better solution in the long run.

STAGE 1 : PLANNING & PREPARATION

Focus of studies : Urban problems

✪ **Hypotheses setting :**
What are the differences of below urban decay problems when distance from the town centre increases (away from _____)?

Hypotheses	Indicators of Urban decay	Away from town centre, problems become	Hypothesis are valid? ✔ / ✘
1	Overcrowding of street	seriously / slightly / similarly	
2	Poor building quality	seriously / slightly / similarly	
3	Poor environmental hygiene	seriously / slightly / similarly	
4	Lack of town planning	seriously / slightly / similarly	

STAGE 1 : PLANNING & PREPARATION

➢ When to collect data?

Date: _____ Mon to Fri / Sat / Sun & Public holiday Season: _____ Time: _____ to _____	What factors would you consider in choosing the fieldwork date?
1. Any weather warnings & signals issued by the Hong Kong Observatory in the **past three days**? ☐ Tropical cyclone warning signals ☐ Rainstorm warnings ☐ Frost warning ☐ Cold weather warning ☐ Very hot weather warning ☐ Other:_____	
2. Is today ideal for fieldwork of this topic? Why?	

➢ Where to collect data?

Is Cheung Chau an ideal field site of this topic? Why?	What factors would you consider when choosing the field site?
Refer to the map on P.16. Different sampling methods are used in setting the data collection locations *(details on P.20)*: Fieldwork area : Whole island / Central part / Southern part / Northern part of Cheung Chau Sampling methods of fieldwork area: Simple random / Systematic / Stratified / Quota / Convenience / Purposive Sampling methods of transects: Simple random / Systematic / Stratified / Quota / Convenience / Purposive Sampling methods of buildings: Simple random / Systematic / Stratified / Quota / Convenience / Purposive	

STAGE 2 : DATA COLLECTION

➢ What data to collect and how to collect data?

Items	Primary data collection methods [A-I] *(see Table 1)* *(may choose more than one)*	Equipment [1-5] *(see Table 2)* *(if needed)*	Operational precautions
Streets • Flow rate of pedestrians & vehicles • Types of street obstruction • Width of streets			
Building quality • Surface of buildings • Windows & pipes of buildings • Structure of buildings			
Environmental hygiene • Air quality • Noise level • Rubbish & sewage • Offensive smell			
Town planning • Distance between buildings • Greening & recreational facilities • Land use • Obnoxious facilities			

Table 1 Primary data collection methods *(details on P.19)*

A) Observation	B) Measurement	C) Counting	D) Category	E) Distribution (mapping)
F) Scoring	G) Field sketching	H) Questionnaire	I) In-depth interview	

Table 2 Equipment for fieldwork *(Make sure you know how to use them correctly before fieldwork.)*

Equipment / tools used in the fieldwork		
 1. **sound level meter**	 2. **tally counter**	 3. **air quality monitor**
 4. **stopwatch**	 5. **colour pencils (for data processing)**	

階段 STAGE 2：數據蒐集 DATA COLLECTION

組別 **Group**：_____
樣條 **Transect**：**A／B／C／D**

抽樣方法 Sampling method：_____

何時需要權重？
When weighting is needed?

表格 Table 1：人車流量（2 分鐘）

Flow rate of pedestrians & vehicles (2 mins)

建築物編號 Building no.	行人 Pedestrians (數量 no.) [a]	車輛 Vehicles				加權總和 Weighted sum [S] = [a]+[c]+[e]
		類別一 Type 1: _____ (數量 no.) [b]	加權指數一 Weighted index 1 [c] = [b] x ___	類別二 Type 2: _____ (數量 no.) [d]	加權指數二 Weighted index 2 [e] = [d] x ___	

階段 STAGE 2：數據蒐集 DATA COLLECTION

組別 **Group**：_____
樣條 **Transect**：**A／B／C／D**

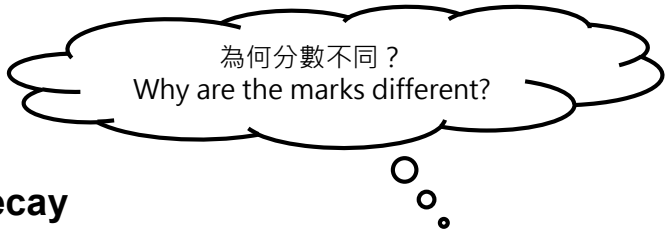
表格 Table 2：街道闊度 Width of streets

抽樣方法 Sampling method：_____

建築物編號 Building no.	街道阻塞類型 Types of street obstruction	街道原本闊度 Original width of streets (步距 foot span) [g]	街道可用闊度 Usable width of streets (步距 foot span) [h]	可用闊度百分比 Percentage of usable width (%) [P] = [h] / [g] x 100	街道可用闊度 Usable width of streets (米 m) [U] = [f] x [h]	每分鐘每米闊度流量 Flow rate per meter per minute [R] = [S] / [U] x 2

✪ 鞋子長度 Length of shoe _____ 厘米 cm = _____ 米 m → [f]

階段 STAGE 2：
數據蒐集 DATA COLLECTION



城市衰落評估 Assessment of Urban decay

評估項目 Assessment items	沒有 None	輕微 Little	中等 Some	嚴重 Many
樓宇質素欠佳 Poor buildings quality				
A. 外表衰退（污積、塗鴉、油漆剝落） Surface deterioration (stains, graffiti, paint peeling)	0	1	2	3
B. 玻璃破爛、窗戶生鏽、水管滲漏／生鏽 Broken glass, corroded windows, leaked / corroded water pipes	0	2	4	6
C. 石屎剝落、鋼筋外露、出現裂縫、物料結構不穩 Concrete spalling, exposed bar tendons, occurrence of *cracks,* unstable structure of materials	0	3	6	9
環境衛生惡劣 Poor environmental hygiene				
D. 空氣污染 Air pollution（微細懸浮粒子 PM2.5） （*μg*/m^3：0-50 / 51-100 / 101-150 / 151 or above 或以上）	0	1	2	3
E. 噪音污染 Noise pollution （分貝 dB：41-50 / 51-60 / 61-70 / 71 or above 或以上）	0	1	2	3
F. 垃圾及污水、害蟲滋生 Rubbish dump & sewage, harmful insects	0	2	4	6
G. 難聞氣味 Offensive smell	0	3	6	9
缺乏城市規劃 Lack of town planning				
H. 過度擠迫（建築物間距不足） Overcrowding (inadequate distance between buildings)	0	1	2	3
I. 缺乏綠化／休憩空間及設施 Lack of greening / recreational space & facilities	0	1	2	3
J. 商住混合土地利用 Mixed land use of commercial & residential	0	2	4	6
K. 厭惡性設施 Obnoxious facilities	0	3	6	9

階段 STAGE 2：數據蒐集 DATA COLLECTION

組別 **Group**：_____
樣條 **Transect**：**A／B／C／D**

抽樣方法 Sampling method：_____

表格 Table 3：城市衰落評估 Assessment of Urban decay

建築物編號 Building no.	土地利用 Land use		樓宇質素欠佳 Poor buildings quality				環境衞生惡劣 Poor environmental hygiene					缺乏城市規劃 Lack of town planning				
	地下 G/F	一樓 1/F	A 0/1/2/3	B 0/2/4/6	C 0/3/6/9	總分 total	D 0/1/2/3	E 0/1/2/3	F 0/2/4/6	G 0/3/6/9	總分 total	H 0/1/2/3	I 0/1/2/3	J 0/2/4/6	K 0/3/6/9	總分 total

STAGE 3：DATA PROCESSING & PRESENTATION

✪ A _____ map is a type of thematic map. According to table 2 and table 3 below, colour the sampling area on the map (P.10-P.13).

What are the strengths and weaknesses of this map?

Data processing of table 2

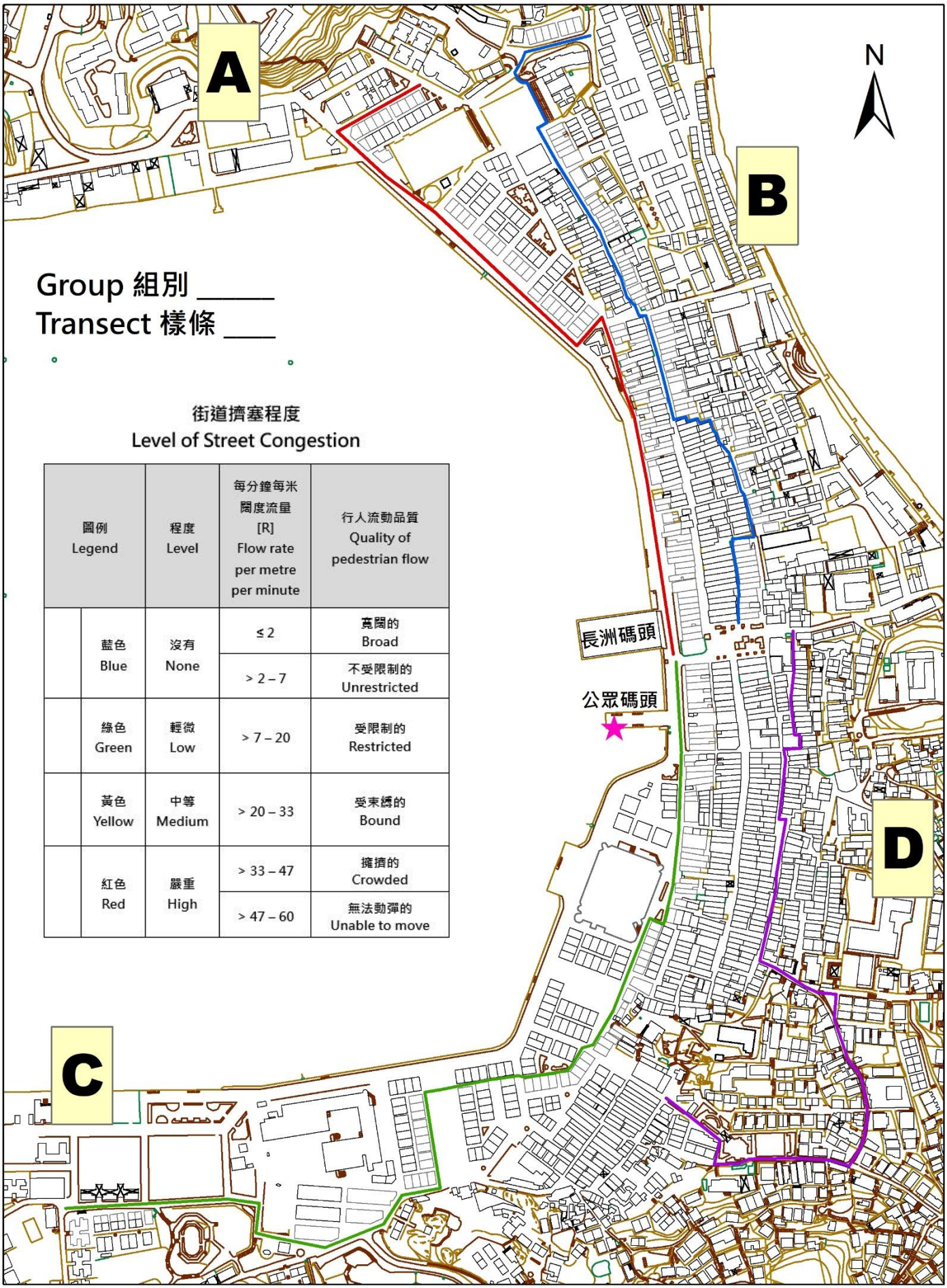
Legend	Level of Urban Decay	Street congestion	
		Flow rate per metre per minute [R]	Quality of pedestrian flow
Blue	None	≤ 2	Broad
		> 2 – 7	Unrestricted
Green	Low	> 7 – 20	Restricted
Yellow	Medium	> 20 – 33	Bound
Red	High	> 33 – 47	Crowded
		> 47 – 60	Unable to move

References：2011 年臺灣公路容量手冊，第 19 章行人設施

Data processing of table 3

Legend	Level of Urban Decay	Poor building quality Min. value：_____ Max. value：_____	Poor environmental hygiene Min. value：_____ Max. value：_____	Lack of town planning Min. value：_____ Max. value：_____
Blue	None			
Green	Low			
Yellow	Medium			
Red	High			

What other graph can be used to represent the above data?



街道擠塞程度
Level of Street Congestion

圖例 Legend		程度 Level	每分鐘每米闊度流量 [R] Flow rate per metre per minute	行人流動品質 Quality of pedestrian flow
	藍色 Blue	沒有 None	≤ 2	寬闊的 Broad
			> 2 – 7	不受限制的 Unrestricted
	綠色 Green	輕微 Low	> 7 – 20	受限制的 Restricted
	黃色 Yellow	中等 Medium	> 20 – 33	受束縛的 Bound
	紅色 Red	嚴重 High	> 33 – 47	擁擠的 Crowded
			> 47 – 60	無法動彈的 Unable to move

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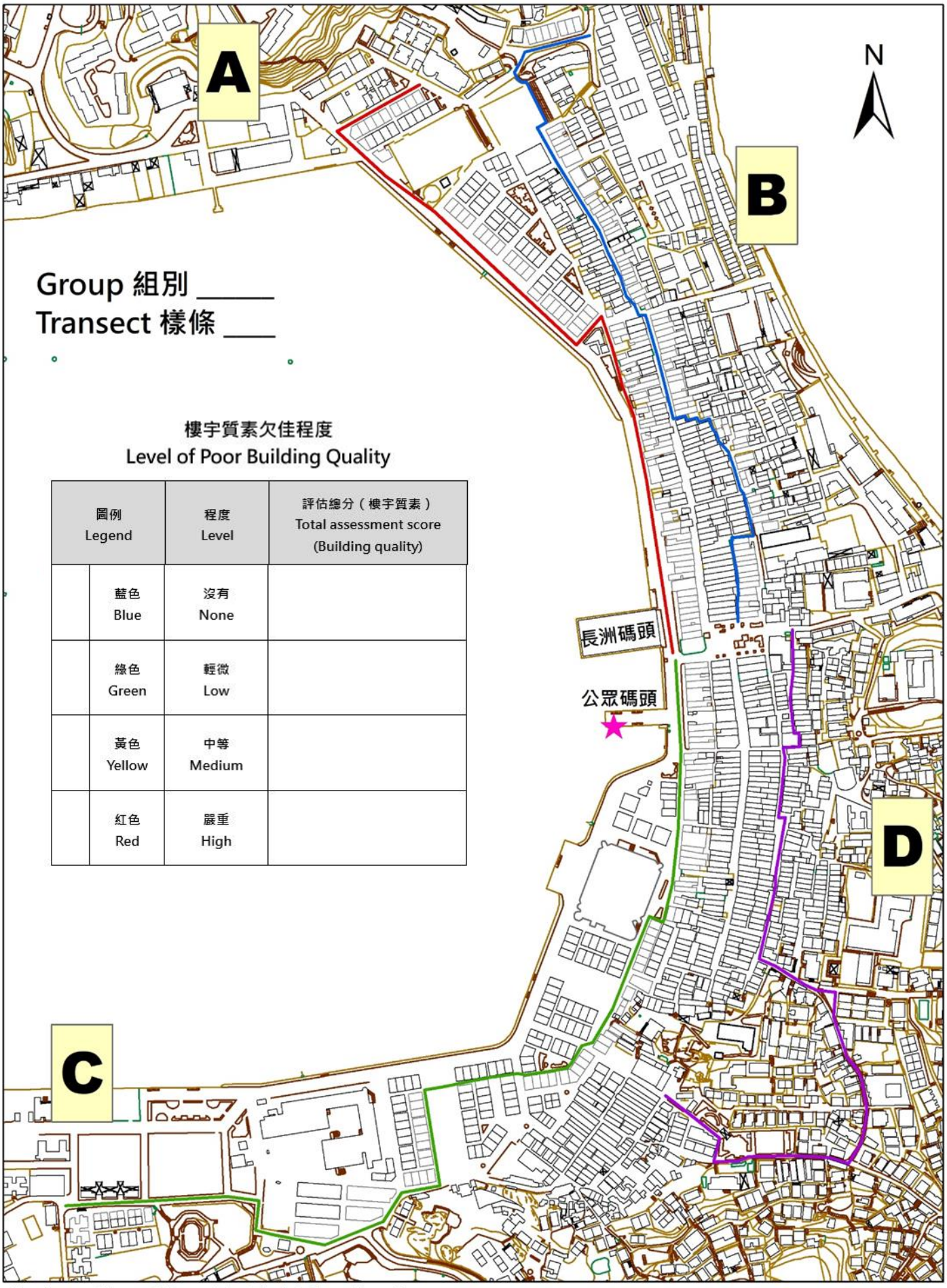
0 30 60 120 180 240
Meters


A
B
C
D
N
Group 組別 _____
Transect 樣條 ____
樓宇質素欠佳程度
Level of Poor Building Quality
圖例 Legend
程度 Level
評估總分（樓宇質素） Total assessment score (Building quality)
藍色 Blue
沒有 None
綠色 Green
輕微 Low
黃色 Yellow
中等 Medium
紅色 Red
嚴重 High
長洲碼頭
公眾碼頭
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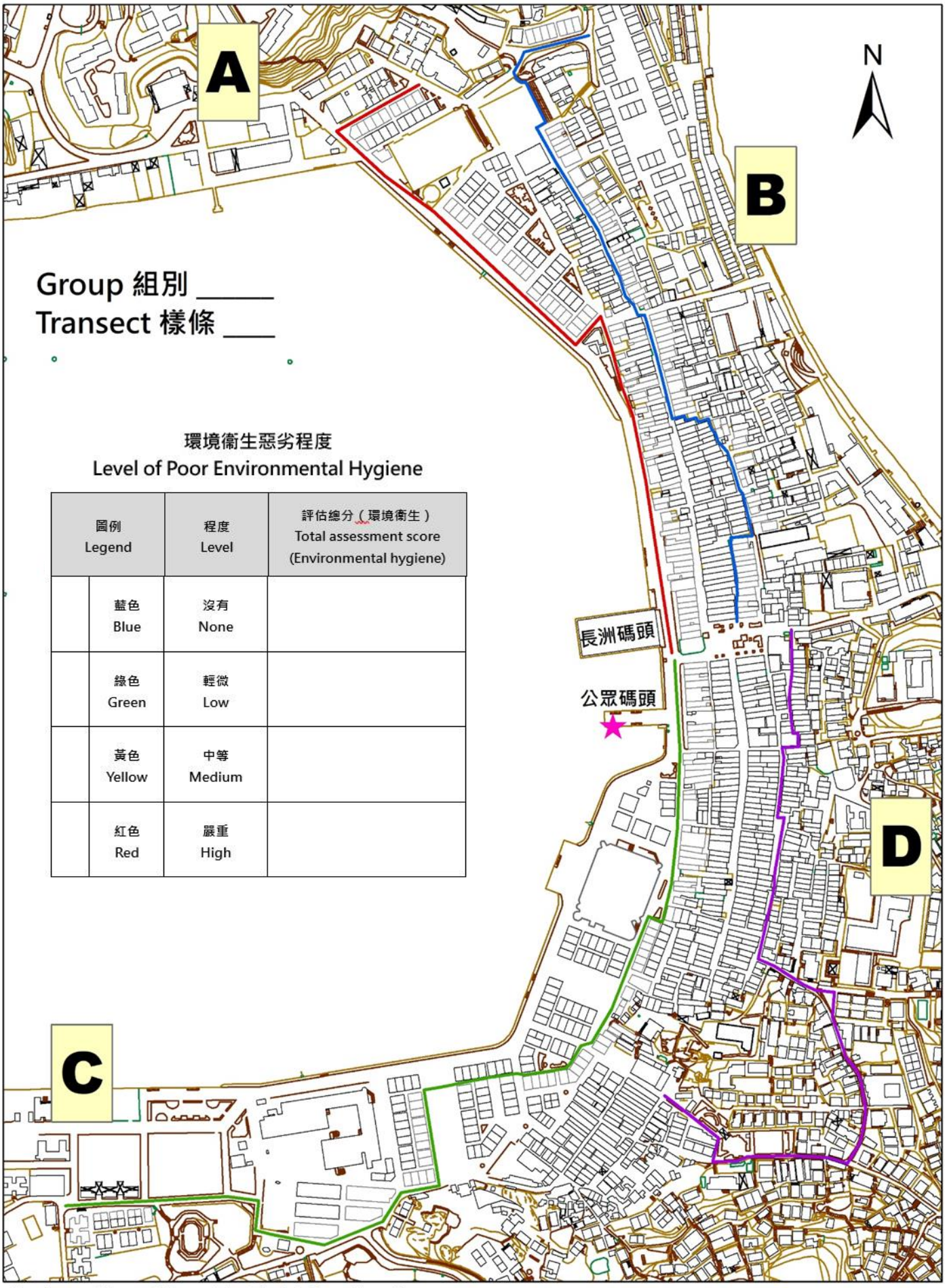
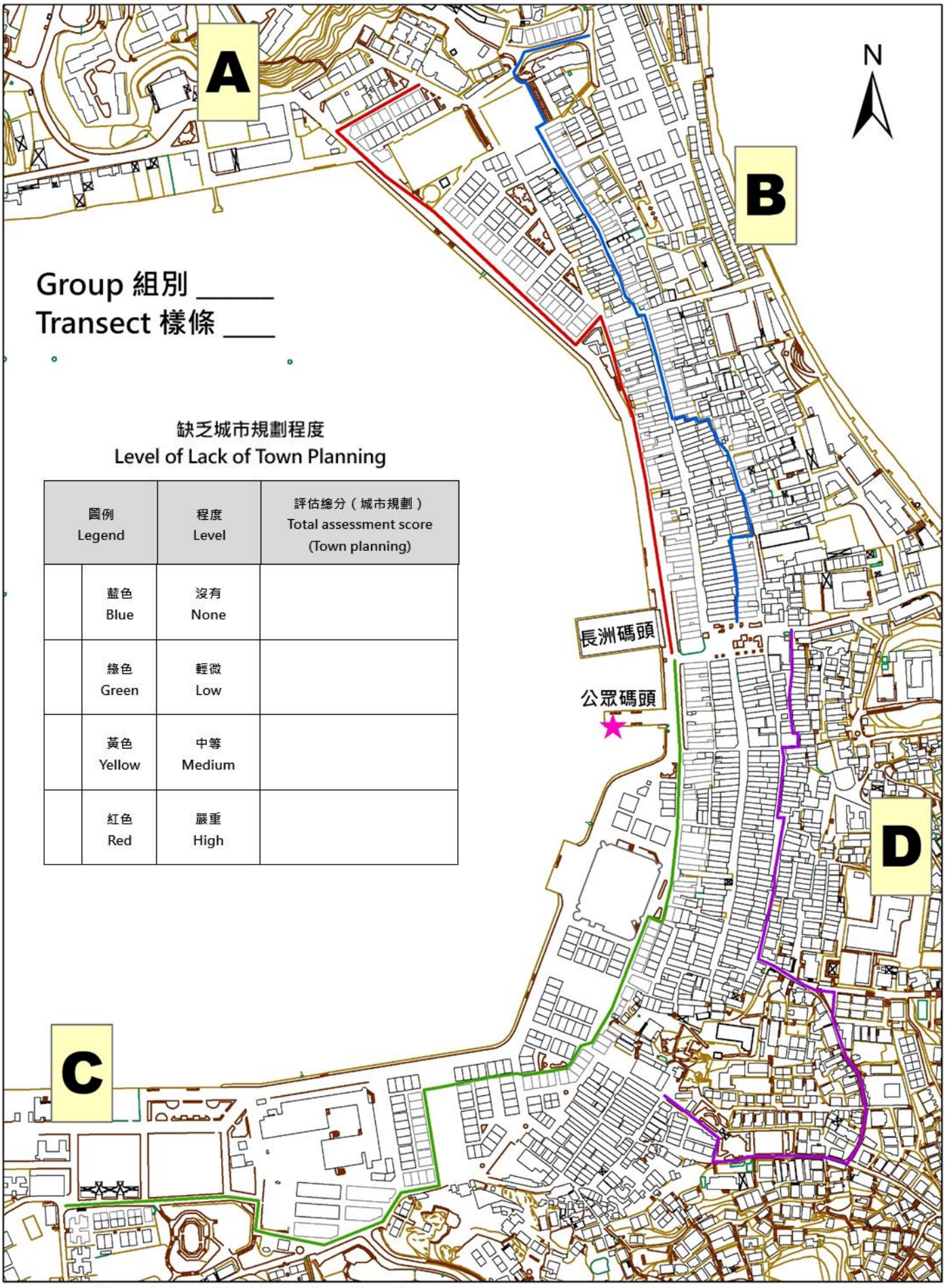
0 30 60 120 180 240
Meters



環境衞生惡劣程度
Level of Poor Environmental Hygiene

圖例 Legend		程度 Level	評估總分（環境衞生） Total assessment score (Environmental hygiene)
	藍色 Blue	沒有 None	
	綠色 Green	輕微 Low	
	黃色 Yellow	中等 Medium	
	紅色 Red	嚴重 High	


A
B
C
D
N
Group 組別 _____
Transect 樣條 ____
長洲碼頭
公眾碼頭
缺乏城市規劃程度
Level of Lack of Town Planning
圖例 Legend
程度 Level
評估總分（城市規劃） Total assessment score (Town planning)
藍色 Blue
沒有 None
綠色 Green
輕微 Low
黃色 Yellow
中等 Medium
紅色 Red
嚴重 High
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0 30 60 120 180 240
Meters

STAGE 4 : DATA ANALYSIS & CONCLUSION

1. According to the fieldwork evidences and tables, are your hypotheses **(Away from town centre, urban decay problems become seriously / slightly / similarly.)** on page 2 valid? Explain them with the choropleth maps.

2. They are obviously different of the locational factors of Cheung Chau central part and the northern-southern part. Time sequence of their development is also different. According to your prior knowledge, explain the reasons of one of Cheung Chau urban decay problems **(Overcrowding of street / Poor building quality / Poor environmental hygiene / Lack of town planning).**

FURTHER INVESTIGATION (1.5 DAY / 2 DAY COURSE)

1. Use the Geographic Information System (GIS) for data processing. Create choropleth maps of Cheung Chau urban decay problems **(Overcrowding of street / Poor building quality / Poor environmental hygiene / Lack of town planning).** (2 day course)

2. Choose one of Cheung Chau urban decay problems **(Overcrowding of street / Poor building quality / Poor environmental hygiene / Lack of town planning).** Collect other choropleth maps of this problem. Where does this urban decay problem occur in Cheung Chau? (1.5 day / 2 day course)

3. Focusing on the affected area of this Cheung Chau urban decay problem, design the second fieldwork. Take photographs and record all necessary information. Try to find feasible solutions to cope with this problem. (1.5 day / 2 day course)

4. Create annotated pictures. By using choropleth maps and annotated pictures, illustrate the spatial distribution, the present situation and the underlying reasons of this Cheung Chau urban decay problem. Suggest feasible scheme to solve this problem in the angle of sustainable development. (1.5 day / 2 day course)

STAGE 5 : EVALUATION

1. What sampling methods are used to select the study area, transects and buildings respectively? Account for the **merits** and **demerits** of these sampling methods.

2. Scoring is used for assessing when collecting data. State the **advantages** and **limitations** of this method.

3. Reflect on the planning of fieldwork. Discuss the factors that might cause data bias and propose methods to improve the **validity** and **reliability** of the data.

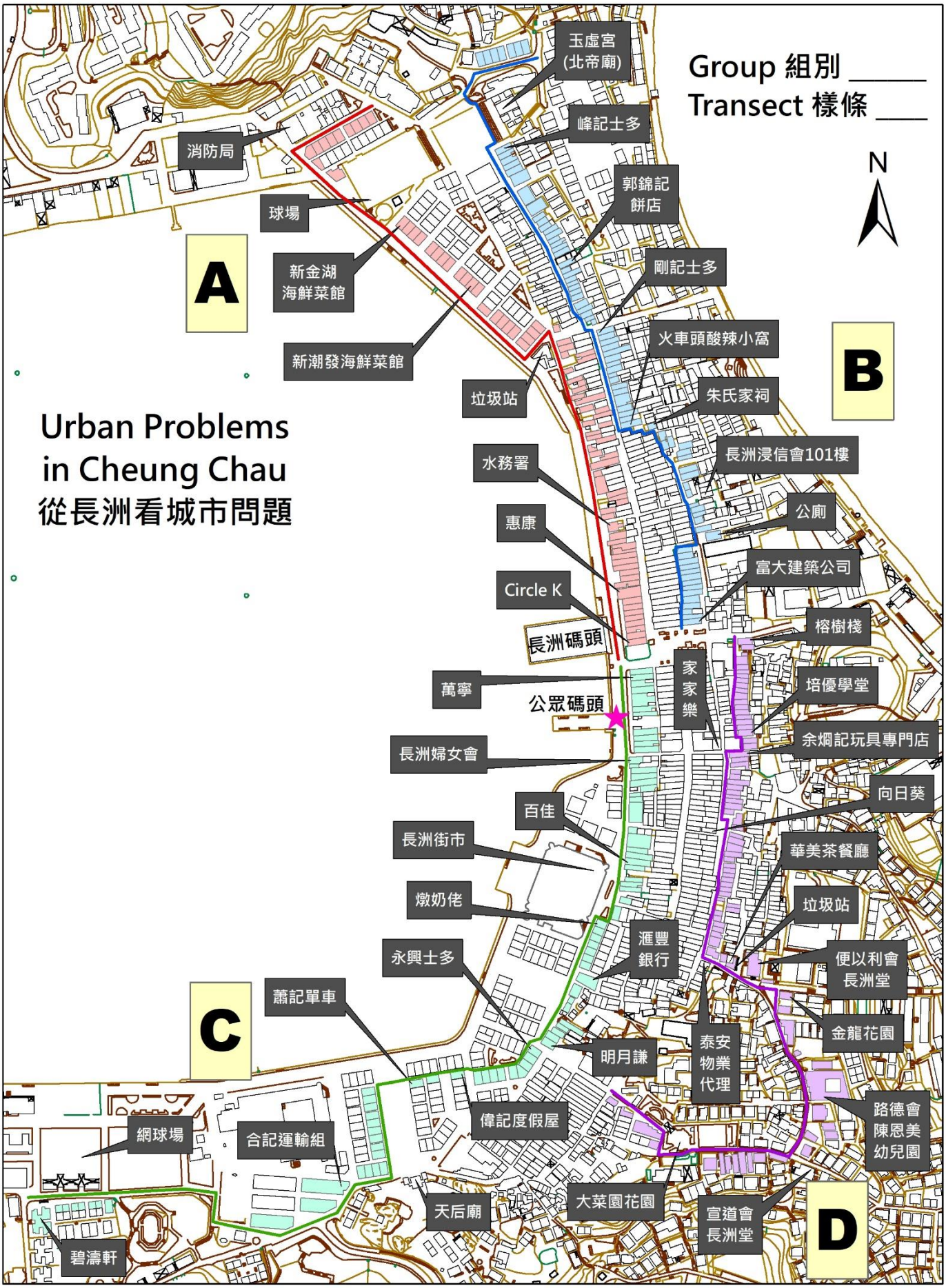
Factors affecting the data reliability and validity		Suggestion for improvement
Fieldwork date/ time ◆ Fieldwork date and time representative? ◆ Any impact by today's weather condition?		
Field site/ study area ◆ Field sites match with research topic? ◆ Field study area adequate?		
Location of data collection (Sampling) ◆ Sampling method in choosing field site appropriate? ◆ Location of measurement representative? ◆ Sample size sufficient?		
Data collection items/ methods ◆ Data collection items adequate to respond the enquiry questions? ◆ Are the data obtained from the data collection method(s) objective and without bias? ◆ Any inadequacy about the equipment/ instruments? ◆ Measurer using the equipment/ instruments correctly?		

4. Further study:
   Set a study area in **the community of your school** and devise a study plan on the topic related to **urban problem.** *(including fieldwork date / fieldwork time / field sites / sampling methods / data collection items and methods / equipment required, etc.)*

……

Homework

After the fieldwork, complete the field trip diary (P.17-18) as a means to consolidate this fieldwork experience and reference for revision of field-based question.


Group 組別 _____
Transect 樣條 ____
N
A
B
C
D
Urban Problems
in Cheung Chau
從長洲看城市問題
玉虛宮
(北帝廟)
峰記士多
消防局
郭錦記
餅店
球場
新金湖
海鮮菜館
剛記士多
新潮發海鮮菜館
火車頭酸辣小窩
垃圾站
朱氏家祠
水務署
長洲浸信會101樓
惠康
公廁
Circle K
富大建築公司
長洲碼頭
榕樹棧
家家樂
萬寧
公眾碼頭
培優學堂
余烟記玩具專門店
長洲婦女會
向日葵
百佳
長洲街市
華美茶餐廳
燉奶佬
垃圾站
滙豐
銀行
永興士多
便以利會
長洲堂
蕭記單車
金龍花園
泰安
物業
代理
明月謙
路德會
陳恩美
幼兒園
網球場
合記運輸組
偉記度假屋
大菜園花園
天后廟
宣道會
長洲堂
碧濤軒
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0 37.5 75 150 225 300
Meters

My Field Trip Diary

Urban Problems in Cheung Chau

- Related modules: C4 Building a sustainable city
- Key point of fieldwork/topic: _____

▪ Date:_____ (Weekday/ Public holiday) ▪ Time:_____ ▪ Field site: _____	▪ Weather condition:
Is the above planning appropriate for this fieldwork?	

- Primary data:

Strategies of data collection	**Data collected**	**Equipment/ Instrument** *(if any)*	**Merits☺/ Demerits☹ of the data collection strategy** *(give examples)*	**Suggestion for improvement** *(give explanations)*

- Secondary data:

Data collected	Use	Obtained from
Apart from the above, what other supplementary information would be necessary to respond to the fieldwork topic?		

- Sampling method (if any):

Sampling method	Applied during data collection of	Merits☺/ Demerits☹

- Data processing and presentation:

Type of graph/ chart	Content and function of graph/chart	Merits☺/ Demerits☹

- For deeper learning or further study, I suggest modify the following aspects:

		Suggestion (give examples)
❑	Key point of fieldwork/ topic	
❑	Data to be collected and method of data collection	
❑	Date and time of fieldwork	
❑	Field site	

Primary data collection methods

Data collection methods	Explanations		Examples
A) Observation	● Using sensory observation to explore the details of research subject (people, things or environment) in a purposive and planned way. Data are recorded using text, photos, sketch, map, etc. (Refer to other data collection methods listed below)		● Identification of the surrounding environment of a field site
B) Measurement	● To estimate or measure the physical quantity of the research subject. It usually requires the use of equipment or tools. Data are usually shown in certain standard, weights or measures.		● Measurement of the width of street and the building height
C) Counting	● To record the number of occurrence of a single item.		● Statistics of pedestrian flow at the pier
D) Category	● To classify based on the nature, characteristics and uses: ◆ to group the same or similar things; ◆ to separate different things.		● Types of goods sold in supermarket ● Customers (serving local residents and tourists) of different shops
E) Distribution (mapping)	● To group similar things according to the research topic (similar to "**D. Category"**); ● Only suitable for spatial representation (different from category); ● Useful in showing the mode of occurrence of research subject in a complex environment.		● Distribution of shops selling big fish balls in Cheung Chau
F) Scoring	● To quantify abstract or subjective concepts; ● To merge various data for easy comparison; ● Scoring items should include different aspects.		● Risk index of natural hazards of Cheung Chau ● Air Quality Health Index (AQHI)
G) Field sketching	● To make simplified drawing of the field site to show what the data collectors observed. Annotations related to the research subject are added to provide key feature or additional information.		● Draw the characteristics and formation of weathering landforms
H) Questionnaire	● Forms: face-to-face, telephone, written, etc.; ● Using questionnaire to understand the opinion of research subject; ● Larger sample size than "**I. in-depth interview"**; ● Mainly closed questions (with options available).	● To collect information by questioning; ● To obtain information which is difficult to be obtained through observations; ● To understand the rationales and opinions of interviewees.	● The main reasons for tourists to visit Cheung Chau ● The level of satisfaction among residents regarding a revitalization project
I) In-depth Interview	● To obtain information through face-to-face/ telephone interview; ● Smaller sample size than "**H.Questionnaire"**; ● Mainly open questions and forthcoming questions will change upon the answer of respondents.		● Opinions of District Council members on the future development of that district

Sampling Methods

	Probabilistic sampling methods ➢ *Need to know the size of population;* ➢ *Few differences among individuals;* ➢ *Individual has equal chance of being selected;* ➢ *Representativeness of data depends on sampling percentage.*			**Non-probabilistic sampling methods** ➢ *Size of population might not be relevant to the research objective;* ➢ *Chance of individual being selected is unknown;* ➢ *Representativeness of the results depends on the judgment of researcher in sample selection (Such as the correlation between samples and research targets).*		
Sampling methods	**Simple random sampling** (簡單隨機抽樣)	**Systematic sampling** (系統抽樣)	**Stratified sampling** (分層抽樣)	**Quota sampling** (配額抽樣/ 定額抽樣)	**Convenience sampling** (便利抽樣/ 方便抽樣)	**Purposive sampling** (立意抽樣)
Explanations	To select sample from the **whole population randomly**. (using computer program, bamboo slip or random number table)	Each member of the whole population is sequentially numbered, then selected according to a **fixed, periodic interval**.	The whole population are classified according to the variable and divided into separate stratum. Then samples are selected randomly by proportion from each stratum.	The whole population are classified according to the variable and divided into separate stratum. Then desired number (quota) of samples are selected from each stratum.	Research subjects are selected due to convenience of recruitment.	Samples are selected according to research objectives and special requirements.
Examples	To choose a certain number of students to conduct questionnaires/ surveys according to the class number.	To measure the noise level of a street in a regular interval.	To group buildings according to their ages (e.g. above or below 50), and select a certain number of buildings in each group randomly.	To select a certain number of male and female customers, then record the amount spent in a shop.	To interview a certain number of relatives who work in mainland China To interview a certain number of passersby on the street	To conduct an in-depth interview with a district councilor about the social problems of that district.
Remarks	Suitable for small population and few variations among samples (for relevant research objectives).	Suitable for large population (hidden cyclic ordering which may affect the representativeness of data).	Effectively show the relationship / effect between variables.	Effectively show the relationship / effect of variables, but the characteristics and size of samples are judged subjectively.	Should not generalize the data to larger population	Suitable for qualitative research (data is easily influenced by the subjective judgment of researcher)