

# Report of On-line Questionnaire Survey about the Public's Perception on Hong Kong's Rivers

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## Introduction

**Green Power** launched an on-line game with the theme "river conservation" in November 2000. The participants were invited to complete a questionnaire after playing the games. The questionnaire (in Chinese only) aimed at collecting public's general perception on Hong Kong's rivers, including both natural and man-made river channels. The number of participants of the on-line game is 3,565. The total number of participants answered the questionnaire from 8 Nov 2000 to 2 Jan 2001 is 1522 (i.e. 42.7% of total log-in participants).

## Results of the questionnaire

The content and statistics of the results of the questionnaire are showed as follows. Please note that the questionnaire was in Chinese only. The percentages are based on the number of participants answered the questionnaire (i.e.1522) and the figures in brackets are frequencies.

1. 你認為香港有沒有由山上流向海邊的天然河流(包括溪澗)嗎？(請選一項)

**Do you think that there are rivers (including streams) flowing from hills to seashores in Hong Kong?**  
(Choose one only)

- |        |          |       |       |
|--------|----------|-------|-------|
| a. 有   | Yes      | 64.3% | (978) |
| b. 沒有  | No       | 18.0% | (274) |
| c. 不知道 | Not sure | 17.7% | (270) |

2. 在香港，你在那裡見過河流(包括天然和人工河道)呢？(可選多項)

**Where have you seen rivers (including natural and man-made) in Hong Kong?** (Choose one or more)

- |                |  |       |       |
|----------------|--|-------|-------|
| a. 市區或新市鎮      | Urban area or New Towns  | 38.2% | (581) |
| b. 新界或離島的郊區或鄉村 | Countryside or villages in the New Territories or outlying islands | 56.1% | (854) |
| c. 郊野公園或山區     | Country parks or uplands   | 56.5% | (860) |

3. 你在香港的河道範圍內(包括天然和人工河道)進行過什麼活動呢？(可選多項)

**What have you done in river areas (including natural and man-made)?** (Choose one or more)

a. 學術考察或研究 Academic study or researches	36.7%	(559)
b. 岸上運動(例如：踏單車、跑步) Terrestrial sport (e.g. cycling, jogging)	35.5%	(540)
c. 水上運動(例如：划船、游泳) Aquatic sport (e.g. rowing, swimming)	31.0%	(472)
d. 消閒(例如：垂釣、看書、散步、嬉水、遠足) Leisure pursuit(e.g. fishing, reading, promenade, hiking)	43.9%	(668)
e. 沒有進行過任何活動 None	17.3%	(263)
f. 其他 Others	18.0%	(274)

4. 你知不知道部份集水區以外的香港河流用作收集食水之用呢？(請選一項)

**Do you know that some rivers outside the water catchment areas are supplying portable water?** (Choose one only)

a. 知道 Yes	59.5%	(906)
b. 不知道 No	40.5%	(616)

5. 你知不知道部份香港河流用作排放污水之用呢？(請選一項)

**Do you know that some of Hong Kong's rivers are used for wastewater disposal?** (Choose one only)

a. 知道 Yes	67.3%	(1,025)
b. 不知道 No	32.7%	(497)

6. 你認為香港的河道(包括天然和人工河道)有什麼問題呢？(可選多項)

**In your opinions, what are the problems of Hong Kong's rivers (including natural and man-made)?** (Choose one or more)

a. 泛濫造成水浸 Flooding	33.9%	(516)
b. 水質惡劣(包括有顏色、混濁、有臭味) Bad water quality(including staining with colours, turbid, odorous)	62.0%	(943)
c. 多垃圾 Full of refuses	67.3%	(1,024)
e. 沒有動植物生存 No living plants and animals	29.9%	(455)
f. 天然河道消失 Loss of natural river channels	35.2%	(535)
g. 不知道 Not sure	11.7%	(178)

7. 你認為香港的河道整治工程(包括拉直和挖深河道，將河床和河濱鋪上石屎)有什麼功用?(可選多項)

**In your opinions, what are the functions of river training projects (including straightening and deepening of channels, and concreting the riverbeds and riverbanks)?** (Choose one or more)

a. 防洪 Flood prevention	47.4%	(722)
b. 改善水質 Improve water quality	35.9%	(546)
c. 排放污水 Wastewater disposal	49.0%	(746)
d. 改善居住環境 Improve living environment	27.9%	(424)
e. 方便日後維修管理 Facilitate future maintenance and management	29.8%	(453)
f. 不知道 Not sure	16.2%	(247)

8. 你認為香港的河道整治工程會否破壞河流的生態環境嗎?(請選一項)

**Do you think whether Hong Kong's river training projects will damage river ecosystem?** (Choose one only)

a. 會 Yes	69.8%	(1,063)
b. 不會 No	13.7%	(208)
c. 不知道 Not sure	16.5%	(251)

9. 你贊成保護香港的天然河流(包括天然河道、水質和景觀)嗎?(請選一項)

**Do you agree to protect Hong Kong's natural rivers (including natural river channels, water quality and scenery)?** (Choose one only)

a. 贊成 Yes	88.7%	(1,350)
b. 不贊成 No	11.3%	(172)

10. 你認為香港的河流範圍(包括天然和人工河道)應該怎樣利用呢?(可選多項)

**In your opinions, how to make use of the river areas (including natural and man-made)?** (Choose one or more)

a. 生態保育、學術考察或研究 Conservation, academic study and researches	66.4%	(1,010)
b. 加建運動設施 Build more sport facilities	26.6%	(405)
c. 河濱公園 riverside parks	46.1%	(701)
d. 防洪或排放污水 Flood prevention and wastewater disposal	28.6%	(436)
e. 發展基建或建屋 Develop infrastructure and housing projects	12.4%	(189)
f. 其他 Others	19.1%	(291)

## **Discussion**

Rivers are commonly known landscape feature and water body which flow from uplands and terminate at the sea or lakes. However, the results of the questionnaire showed that 36% of surveyed participants (Question 1) did not know or were not sure whether there are such rivers in Hong Kong. The figure reveals that many Hong Kong people have limited experience of rivers, especially local ones.

There are two hundred rivers, including natural and man-made, in Hong Kong. However, most of them have been modified to different extent. Upland streams are conveyed to catchwaters and stream water is directed to reservoirs. Almost all lowland rivers have been channelized and river water is so heavily polluted that many people treat them as nullahs rather than rivers (see question 5, 7 and 10). Even more extremely, some river channels in urban areas were covered, for examples, Sam Dip Tam River (三疊潭河) in Tsuen Wan. Perception of some people that there are no rivers (including streams) flowing from hills to seashores in Hong Kong may be attributable to these changes to local natural rivers

These changes may also explain why over half of the surveyed participants sighted rivers in countryside, villages, country parks or uplands (56 and 57% respectively) but only 38% of them sighted rivers in developed areas such as urban and new towns. (Question 2). It suggests that most Hong Kong people get in touch with rivers in rural areas but not in urban environment.

The result of Question 3 shows that 44% of surveyed participants have used river areas for leisure pursuit. The second popular uses are academic study or researches (37%) and the third terrestrial and aquatic sport (36% and 31% respectively). These results reveal that river areas are popular recreational sites.

In Question 10, most surveyed participants (66%) thought that river areas should be used for conservation, academic study and researches. 46% and 27% thought that river areas should be used for recreational purposes, i.e. parks and sport respectively. 29% of them thought that rivers should be used for flood prevention and wastewater disposal. Only 12% thought that river areas should be used for development of infrastructure and housing.

Question 7 reveals a serious misconception of the surveyed participants. Half of them (49%) thought that river training projects were for wastewater disposal, and 36% of them for improving water quality. In fact, the principal function of the projects is flood prevention that is also seen by most surveyed participants (47%), but not treating wastewater. 28% considered that such projects could improve living environment and 30% thought that the projects were to facilitate the future maintenance and management of river channels.

60% of surveyed participants (Question 4) know that some rivers outside the water catchment areas are supply portable water, for example Lam Tsuen River (林村河). On the other hand, the fact that most surveyed participants (67% in Question 5) perceived river channels as sewerage further confirms the conclusion from the results of Question 7. In fact, some surveyed participants still thought that rivers should be used for wastewater disposal (Question 10).

Hong Kong's rivers are generally heavily polluted by point sources such as pig farms. Moreover, stormwater drainage is often misused for wastewater disposal. In principle, river channels should not be connected with any sewage drainage except stormwater outlets that are only for discharge of surface runoff during rainstorm. However, even stormwater discharge to rivers may create non-point source pollution because of the pollutants left on the surface of stormwater catchment area such as lubricating oil, food debris.

In Question 6, bad water quality and refuses are the major concerns of the surveyed participants (62% and 67% respectively). About one-third of surveyed participants are aware of the loss of natural river channels and flooding (35% and 34% respectively). 30% of surveyed participants consider absence of living plants and animals are problems of Hong Kong's rivers.

In Question 8, 70% of surveyed participants thought that river training projects will damage river ecosystem and 89% agreed to protect Hong Kong's natural rivers (Question 9). ***The public's request for clean and lively rivers is undeniable.***

### **Preliminary Review of Landuse of River Areas in New Towns**

In order to compare the public's expectation on uses of river areas and the existing landuse of riversides in Hong Kong, **Green Power** reviewed the statutory town planning zoning of three new towns, namely Tai Po, Tuen Mun and Yuen Long. These new towns were selected for the following reasons;

- a. All these new towns have rivers flowing through the town centres: Lam Tsuen River (林村河) and Tai Po River (大埔河) in Tai Po, Tuen Mun River (屯門河) in Tuen Mun and Yuen Long Creek (元朗瀝) in Yuen Long.
- b. All these new towns are covered by outline zoning plans (OZP) (分區計劃大綱圖) .
- c. The landuse of river areas in these new towns are diverse.

The landuse zoning within 100m (arbitrary assigned) of both sides of rivers in the planning scheme area (規劃區) of new towns was analyzed. Table 1 summarized the landuse zoning according to statutory categorization. A simplified result is showed in Table 2.

Although Yuen Long possesses the longest river channels (11.60km) in the planning scheme area amongst three news towns, it has the least percentage of non-polluting landuse (open space and green belt), 12%, in the river area. On the other hand, Tuen Mun possesses the shortest river channels (4.68 km) but it has the largest percentage of non-polluting landuse, 38%. The major zoning of non-polluting landuse is Open Space and Green Belt zoning only occupies a small percentage in the analyzed new towns (3.14% on average, Table 1).

The major landuse of river area in Yuen Long is industrial that accounts for almost one-third of the total. Another 30% are taken up by residential that includes multi-storey buildings in town centre and villages in the periphery. Residential is the major landuse of river area of Tai Po and a quarter of the total river area is taken up by non-polluting landuses that include open space, green belt and SSSI.

Generally, the major landuses of the river area in the analyzed new towns are

1. Residential (30%)
2. Non-polluting (25%)
3. Major roads (16%)

When compared with result of Question 10 of the questionnaire, the existing town planning zoning of river area cannot fulfill public's demand on conservation, academic study, researches and sport except leisure pursuit.

Although there are quite a considerable area of open space in the analyzed new towns, some of them are isolated by major road. For example, part of riverside park in Tuen Mun is bounded by Tuen Mun Highway. And some of them are sacrificed for infrastructure development. For example, part of riverside park in Tuen Mun is lost to West Rail Project.

Moreover, the segments of river in the analyzed new towns are all channelized and the river ecosystem is totally destroyed. The water quality index of Yuen Long Creek is even ranked "very bad" in recent years. These significantly depreciate the conservation value of river courses and spoil rivers as research, sport and recreational assets.

### **Conclusion**

1. Many Hong Kong people have limited experience of local rivers.
2. Local river channels (including natural and man-made) are misperceived as wastewater outlet.
3. Most surveyed people consider pollution and loss of natural river courses are major problems of Hong Kong's rivers.
4. Local river channels are generally used for recreational purpose.
5. Most surveyed people prefer river area to be used for conservation, academic study and researches.
6. Most surveyed people support conservation of Hong Kong's natural river.

### **Recommendations**

1. Protect and avoid destruction, nuisances, intrusion and adverse impacts on the ecosystem, water quality and landscape of Hong Kong's natural river courses.
2. Tighten the statutory control on point and non-point source discharge of effluent, and dumping to river courses.
3. Review the statutory town planning zoning to fulfill public's reasonable and rational expectation on uses of river areas.
4. Tree plantation targeted at prevention of soil erosion and river conservation.
5. Researches on the ecology, geography and community uses of rivers in Hong Kong.
6. Adopt an ecologically less damaging and environmental-friendly planning, design and work practice for all work projects in river areas, whatever the scale, nature and duration of the works.
7. Reinstate the channelized and polluted river courses through control of water quality and provision of conditions for recovery river ecosystem.
8. Public education to promote conservation of Hong Kong's river courses.

**END**

**TABLE 1. Summary of Landuse Zoning Within 100m of River Channels in OZPs of Selected New Towns**

Uses 用途	Approximate Area /ha & (%) 大約面積/公頃及(百分率)			
	Tai Po 大埔	Tuen Mun 屯門	Yuen Long 元朗	Average 平均值
Open Space 休憩用地	21.13 (19.88%)	33.68 (37.00%)	14.34 (9.24%)	23.05 (22.04%)
Green Belt 綠化地帶	6.30 (5.95%)	0.93 (1.02%)	3.78 (2.44%)	3.67 (3.14%)
Site of Special Scientific Interest 具特殊科學價值地點	0.1 (0.09%)	0 (0%)	0 (0%)	0.03 (0.03%)
Major Road 主要道路	16.99 (15.98%)	15.95 (17.52%)	23.54 (15.17%)	18.83 (16.22%)
Commercial / Residential 商業 / 住宅	6.68 (6.28%)	0 (0%)	1.62 (1.04%)	2.77 (2.44%)
Residential (Group A) 住宅 (甲類)	20.26 (19.06%)	17.52 (19.25%)	16.28 (10.49%)	18.02 (16.27%)
Residential (Group B) 住宅 (乙類)	6.83 (6.43%)	0.19 (0.21%)	7.78 (5.01%)	4.93 (3.88%)
Village Type Development 鄉村式發展	9.41 (8.85%)	0 (0%)	20.99 (13.53%)	10.13 (7.46%)
Industrial 工業	0 (0%)	4.97 (5.46%)	4.51 (2.91%)	3.16 (2.79%)
Government, Institution or Community 政府、機構或社區	14.67 (13.80%)	16.2 (17.80%)	7.35 (4.73%)	12.74 (12.11%)
Comprehensive Development Area 綜合發展區	0 (0%)	0 (0%)	10.66 (6.88%)	3.55 (2.29%)
Other Specified Uses 其他指定用途	3.91 (3.68%)	1.58 (1.74%)	44.31 (28.56%)	16.6 (11.33)
Total Area 總面積	106.31 (100%)	91.02 (100%)	155.16 (100%)	117.50
Length of River Channels in Scheme Area (km)	5.87	4.68	11.60	7.38

In Tai Po OZP, the SSSI is Tai PO Egretary. OU is railway.

In Tuen Mun OZP, GI/C includes schools, OU includes LRT depot, electricity substation and petrol filling station.

In Yuen Long OZP, GI/C includes petrol filling station, schools, refuse collection point, electricity substation and boy scout centre.

**TABLE 2. Summary of Broad Landuse Within 100m of River Channels in Selected New Towns**

Uses 用途	Approximate Area /ha & (%) 大約面積/公頃及(百分率)			
	Tai Po 大埔	Tuen Mun 屯門	Yuen Long 元朗	Average 平均值
Non-polluting Landuse 非污染性土地用途	27.53 (25.92%)	34.61 (38.02%)	18.12 (11.68%)	26.75 (25.21%)
Major Road 主要道路	16.99 (15.98%)	15.95 (17.52%)	23.54 (15.17%)	18.83 (16.22%)
Residential Area 住宅區	43.18 (40.62%)	17.71 (19.46%)	46.67 (30.07%)	35.85 (30.05%)
Industrial 工業	0 (0%)	4.97 (5.46%)	48.82 (31.47%)	17.93 (12.31%)
Other Landuses 其他土地用途	18.58 (17.48%)	17.78 (19.54%)	18.01 (11.61%)	18.12 (16.21%)
<i>Total Area</i> 總面積	<i>106.31</i> (100%)	<i>91.02</i> (100%)	<i>155.16</i> (100%)	<i>117.50</i>
<i>Length of River Channels in Scheme Area (km)</i>	<i>5.87</i>	<i>4.68</i>	<i>11.60</i>	<i>7.38</i>