LCQ14: Water quality of river channels and nullahs

Following is a question by the Hon Stanley Li and a written reply by the Secretary for Environment and Ecology, Mr Tse Chin-wan, in the Legislative Council today (November 22):

Question:

It has been reported that the water quality of river channels and nullahs varies, and, in particular, abnormalities in water quality have been detected at Shing Mun River in Sha Tin. In this connection, will the Government inform this Council:

(1) of (i) the number of complaints received about the hygiene conditions of Shing Mun River, as well as the follow-up actions taken, and (ii) the numbers of inspections and cleaning operations carried out at Shing Mun River, as well as the manpower and expenditure involved, in each of the past three years;

(2) whether it has regularly reviewed the effectiveness of the measures adopted to monitor the water quality of river channels and nullahs; if so, of the details; if not, the reasons for that;

(3) whether it has any long-term strategy to improve the water quality of river channels and nullahs; if so, of the details and timetable; if not, the reasons for that;

(4) whether it has studied the introduction of more innovative technologies to monitor the water quality, hygiene conditions and drainage capacity of river channels and nullahs; if so, of the details; if not, the reasons for that; and

(5) whether new education and publicity activities are in place to promote the public's attention and efforts towards maintaining the environmental hygiene of river channels and nullahs?

Reply:

President,

The reply to the question raised by the Hon Stanley Li is set out below.

(1) The numbers of complaints received by the Food and Environmental Hygiene Department (FEHD), the Environmental Protection Department (EPD) and the Drainage Services Department (DSD) about the environmental hygiene of Shing Mun River in each of the past three years are tabulated below:

Year/Department	FEHD	EPD	DSD
2021	9	90	10
2022	10	58	6
2023 (Up to October)	12	30	9

The FEHD is responsible for removing floating refuse in nullahs, river channels, watercourses and natural rivers. At present, a cleaning service contractor engaged by the FEHD is tasked with removing the floating refuse from Shing Mun River. The contractor would deploy one supervisor and three workers for inspection and refuse removal. They would drive a boat to carry out regular inspection and refuse removal work along the course of Shing Mun River. During the rainy season from May to September each year when there is usually more floating refuse in the river, the contractor would provide daily inspection and refuse removal services. The inspection and refuse removal services are provided every other day from October to April of the following year. The FEHD would also deploy staff to carry out irregular inspections to ensure proper performance of the contractor and follow up on complaints by instructing the contractor to remove floating refuse from the river promptly. The contractor would take actions in response to the complaints and remove refuse from the river according to the FEHD's instructions.

The EPD, which has all along been attaching great importance to the environment and water quality of Shing Mun River, has regularly inspected and monitored the water quality of the river, followed up on all complaints against wastewater discharge and river water quality and deployed staff to trace suspicious sources of wastewater discharge. If any acts in breach of law are identified, the EPD will take appropriate enforcement actions to combat illegal sewage discharge.

Regarding manpower arrangement and expenditures, as the clean-up of Shing Mun River as well as the handling of complaints on environmental pollution of the river with follow-up inspections are parts of the routine work performed by the relevant departments, there is no separate breakdown of such expenditures.

(2) and (3) Most of the river channels in the urban areas of Hong Kong are artificially constructed or substantially modified drainage channels, or the so-called "nullahs". The EPD conducts routine water quality monitoring on a monthly basis at some 30 major rivers (including those nullahs mainly for flood drainage) across the territory, with sample analyses covering over 50 physical, chemical and biological parameters. Besides, pursuant to the Water Pollution Control Ordinance (Cap. 358), the compliance rate of the Water Quality Objectives (WQOs) is calculated by using five representative WQO parameters (including pH, suspended solids, dissolved oxygen (DO), five-day biochemical oxygen demand (BOD5) and chemical oxygen demand) to assess the overall condition of river water quality. In parallel, the EPD bases on the

three key parameters of DO, BOD5 and level of ammonia-nitrogen to calculate the Water Quality Index (WQI), which rates river water quality in five categories, namely "Excellent", "Good", "Fair", "Bad" and "Very Bad", for assessing the overall health condition of river water quality.

Shing Mun River was heavily polluted decades ago, resulting in odour issues. The Government has adopted a series of measures to improve the water quality, including provision of sewerage facilities for villages and installation of dry weather flow interceptors, implementation of the Livestock Waste Control Scheme, rectification of sewer misconnections, as well as conduct of bioremediation works for river sediments. The main channel of Shing Mun River first achieved "Excellent" WQI grading in 2005 and has maintained this grading since 2008 up to present. In 2022, the overall WQO compliance rate of Shing Mun River was 94 per cent, and its main channel has met the water quality requirements for secondary contact water recreational uses (such as rowing).

As for the overall improvement strategy, apart from ongoing monitoring, inspections and law enforcement, the Government has been proactively planning and developing sewerage infrastructure over the years to continuously improve public environmental hygiene and water quality of rivers and harbour. The Government's four key strategies include upgrading sewage treatment facilities and extending public sewerage systems to cater for population growth and development needs, providing village sewerage systems to improve the rural environment, installing dry weather flow interceptors to improve the nearshore water quality of Victoria Harbour, and progressively rehabilitating ageing sewers.

In 2022, the river water quality of Hong Kong maintained in a good and stable condition, achieving an overall WQO compliance rate of 88 per cent. In terms of the WQI grading, 84 per cent of the rivers in Hong Kong were graded as "Excellent" or "Good" in 2022, as compared with only 26 per cent in 1987. This shows a significant improvement in the river water quality of Hong Kong over the past 30 years as well as a substantial reduction of pollution loads in river channels. The Government will carry on with the above measures for continuous improvement in the water quality of river channels and nullahs in Hong Kong.

(4) As regards the application of innovative technologies in water quality monitoring, the EPD is exploring the use of locally-developed battery-powered mobile cameras at the downstream of some strategic storm water manholes to monitor storm water drainage systems. This can facilitate our further and long-term tracing and identification of sewer misconnections in upstream areas. The EPD will keep in view technological development and introduce the use of relevant technologies where appropriate, so as to protect the environment more effectively.

The DSD also continues to enhance its application of innovative technologies in flood control monitoring. It has installed about 300 remote flood control devices such as rain gauges and water level sensors at different locations across the territory to collect 24-hour real-time data on

rainfall yield, water levels and tidal levels, etc, for instant transmission to the hydrological information system. Staff can use smartphones or computers to monitor the conditions of the main river channels and watercourses in real time, thereby facilitating the DSD to promptly implement preventive and contingency measures.

(5) The EPD has rolled out a number of education and publicity campaigns to encourage members of the public to protect river channel environment, which include notifying construction sites to step up on-site rainwater management before the rainy season every year so as to prevent the pollution of river channels by rainstorm-induced overflow of wastewater. Besides, to avoid environmental pollution of river channels and hygiene and nuisance problems caused by the improper use of septic tank systems, the EPD has also devoted relevant publicity efforts, including setting up a webpage on "Tips on Proper Operation of a Septic Tank System" and distributing publicity materials to the residents of villages that have not yet been connected to public sewage systems to remind them of the importance of the proper use, repair and maintenance of septic tanks.

The DSD has all along been promoting its work on the protection of river channels through TV Announcements in the Public Interest, publications, leaflets and other activities such as opening its flood prevention facilities for public visits, organising river greening fun day and implementing outreach educational programmes, etc.