CONTROLLING OFFICER'S REPLY

(Question Serial No. 1219)

Head: (39) Drainage Services Department

Subhead (No. & title): (-) Not specified

Programme: (1) Stormwater Drainage

Controlling Officer: Director of Drainage Services (MOK Wing-cheong)

Director of Bureau: Secretary for Development

Question:

It is stated in the 2026-27 Budget that the Drainage Services Department (DSD) will enhance its smart flood forecast and alert system. In addition, the DSD will develop an artificial intelligence (AI) large vision-language model to analyse the images captured by street cameras, thereby speeding up emergency response. The Government has also set up the AI Efficacy Enhancement Team, and allocated $100 million for introducing leading technologies from the industry so as to accelerate digital intelligence transformation of the Government. In this connection, would the Government inform this Committee of:

1. the full list of AI flood forecasting and monitoring systems currently being used or developed by the DSD (including those developed in collaboration with local and Mainland scientific research institutions);
2. the total expenditures on the research and development (R&D) of each of the above-mentioned systems (inclusive of the costs paid to universities for R&D work), with a breakdown by system name and R&D stage;
3. the amounts of provision earmarked in the past year by the DSD for the estimated expenditure on system optimisation and maintenance of each of the above-mentioned systems; and
4. the actual amount allocated to the DSD for strengthening its existing flood forecast and alert system, out of the above-mentioned $100 million provision for "digital intelligence transformation"?

Asked by: Hon FAN Hoi-kit, Alex (LegCo internal reference no.: 33)

Reply:

Our reply to the Member's question is as follows:

To cope with the flooding threats brought by extreme weather, the Drainage Services Department (DSD) has proactively applied innovative technologies in drainage works in recent years to implement the just-in-time clearance arrangement to reduce flood risk. The DSD has proactively developed various Artificial Intelligence (AI) systems. Currently, systems that are being used or developed by the DSD include the AI Flood Monitoring System and the Smart Flood Forecast and Alert System. Details of the two systems, including

partner organisations, expenditures on research and development, as well as system optimisation and maintenance, are set out as follows:

Smart Flood Forecast and Alert System

To break through the limitations of traditional hydraulic models that requiring a long time for computation, the DSD's in-house team developed the Mosaic Model Map (M^3), a real-time territorial flood risk system, in 2024. Since 2025, the system has been adopted for flood risk assessments, enabling forecasts of flood risks in coastal low-lying or windy residential areas ahead of Severe or Super Typhoons, thereby facilitating advance preparations. As the system was developed and is operated by departmental staff under internal staff establishment, no additional costs are involved. To further enhance flood forecast and alert capabilities, the DSD is now collaborating with the South China University of Technology to develop the Smart Flood Forecast and Alert System, which integrates big data and advanced AI technologies to support the DSD in taking specific preventive measures and planning emergency response actions. The system is scheduled for trials in mid-2026 at 3 locations, including Lam Tsuen River in Tai Po, Wan Chai, and Tsui Ping River in Kwun Tong, enabling pre-emptive prevention and strategic emergency response to possible flooding. The development cost is estimated at around $1.3 million, which covers the operational expenditure at the 3 trial locations in 2026-27.

AI Flood Monitoring System

The DSD, in collaboration with The Hong Kong University of Science and Technology, successfully developed the AI Flood Monitoring System in 2024 by leveraging an AI large vision-language model. The system has been piloted in areas such as Chatham Road South in Tsim Sha Tsui, Tai Kiu Tsuen and Tung Tau Wai Village in Yuen Long, where images captured by road closed-circuit television (CCTV) cameras are collected to detect and analyse street flooding using AI. Upon detection of flooding, the system instantly issues an alert to facilitate the prompt deployment of emergency response teams by the DSD to handle flooding incidents. Afterwards, the DSD worked with the Hong Kong Police Force (HKPF) to expand the coverage of the AI Flood Monitoring System. The system is now connected to over 300 CCTV cameras under the "SmartView" initiative of the HKPF, strengthening the DSD's effectiveness in responding to extreme weather. The development cost of the system is approximately $6 million, with an annual operational expenditure of about $1.4 million.

The development and operational expenditures incurred by the 2 aforementioned systems are not funded under the $100 million provision proposed in the Budget to accelerate digital intelligence transformation of the Government. The DSD has earmarked funding to cover the expenditure on both systems.

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