

LEGCO QUESTION NO.19

(Written Reply)

Asked by Hon YANG Wing-kit

Date of meeting: 4 May 2022

Replied by: Secretary for Commerce and
Economic Development

Warning services of the Hong Kong Observatory

Hon YANG Wing-kit to ask:

It is learnt that at around 2:30 am on 14 March this year, many members of the public reported to the Hong Kong Observatory (“HKO”) that they felt an earth tremor, but it was only after a certain period of time that HKO released on its online platform the news about an earthquake of magnitude 4.1 which had occurred near the coast of south-eastern China. In this connection, will the Government inform this Council:

- (1) of the staffing establishment of the Forecasting and Warning Services Branch of HKO and, in respect of its officers working on shifts on a round-the-clock basis, their numbers and work arrangements in times of normal operation and during the epidemic respectively;
- (2) of the current locations across the territory where HKO has set up seismic sensors, and the total number of such sensors; whether such sensors are capable of accurately monitoring and detecting seismic activities in Hong Kong and neighbouring areas; if so, of the details; if not, the reasons for that;
- (3) as it is learnt that HKO will analyze cases of earth tremors felt in Hong Kong, of the time required for the basic analysis as well as compilation and dissemination of earthquake information; and
- (4) of the circumstances under which HKO will, through the “Emergency Alert System”, send emergency alert messages about extreme weather, natural disasters or radiation leaks to members of the public?

Reply:

President,

Having consulted the Security Bureau, our reply to the question raised by the Hon Yang Wing-kit is as follows:

(1) The Forecasting and Warning Services Branch of the Hong Kong Observatory (HKO) is mainly responsible for providing weather forecasting service and issuing warnings on inclement weather. The Branch currently has an establishment of about 80 staff. The Central Forecasting Office under the Branch is responsible for monitoring weather, issuing weather reports, forecasts and warnings, as well as disseminating information on the occurrence of earthquake and tsunami to the public. The Central Forecasting Office operates round-the-clock and its staff are arranged to work in three shifts per day, with seven staff per shift. The shift arrangement has been maintained throughout the epidemic over the past two years or so to ensure the aforementioned weather forecasting and emergency services are unaffected.

(2) The HKO currently monitors distant and nearby earthquake activities by broadband and short-period seismographs respectively. Two broadband seismographs are installed at Po Shan Road on Hong Kong Island and the HKO Headquarters in Tsim Sha Tsui to effectively monitor earthquakes as far as about 8 000 kilometres away, whilst seven short-period seismographs are installed at Cape D'Aguilar, Cheung Chau, Keung Shan, Lead Mine Pass, Luk Keng, Tsim Bei Tsui and Yuen Ng Fan to mainly monitor earthquakes within about 200 kilometres of Hong Kong.

The HKO also assesses the impacts of earthquakes on Hong Kong by five strong motion accelerographs at Po Shan Road on Hong Kong Island, the HKO Headquarters in Tsim Sha Tsui, Lead Mine Pass, Tsim Bei Tsui and Yuen Ng Fan. In addition to the seismographic network in Hong Kong, the HKO also receives real-time raw seismic data from the global seismographic network with about 480 broadband seismographs around the world, for monitoring global earthquake activities and their possible impacts on Hong Kong. The broadband seismograph at Po Shan Road is one of the broadband seismographs in the global seismographic network.

(3) The HKO receives real-time data from the local and global seismographic networks, and can calculate parameters of an earthquake including its origin time, magnitude (i.e. amount of energy released from the earthquake source, usually presented on the Richter Scale) and epicentre location etc. within around 10 minutes upon its occurrence. For all global earthquakes reaching magnitude 5.0 or above, the HKO will disseminate information of the earthquakes through issuing “Quick Earthquake Messages” on its website and social media pages.

In the event of a locally felt earth tremor in Hong Kong, the HKO will also immediately analyse data from the seismographic networks and reports from the public (including information on the extent and duration of the felt vibration, spatial distribution of the reports, etc.) to determine the earthquake's local intensity (i.e. impacts of vibration on individuals, furniture, buildings and geological structures etc., usually presented on the Modified Mercalli Scale). Such analysis is usually completed within an hour upon earthquake occurrence, after which the HKO will immediately issue a "Locally Felt Earth Tremor Report" through channels including the HKO website, mobile weather application "MyObservatory", social media pages and the Government News and Media Information System, etc. The report covers the origin time, magnitude, epicentre location, and local intensity of the earthquake, as well as the number of reports received from the public, etc.

Regarding the earthquake mentioned in the question, it occurred at 2:29 a.m. on 14 March this year. The HKO issued a report at 2:40 a.m. on the same day through its website and social media pages etc., indicating that reports of felt earth tremor were received from the public and analysis was underway. Later at 3:16 a.m. (i.e. 47 minutes after the earthquake occurred), the HKO issued a "Locally Felt Earth Tremor Report" which contained information about the earthquake.

(4) The HKO currently disseminates messages including weather warnings and special weather tips to the public through multiple channels, such as the HKO website, "MyObservatory", social media pages, the Government News and Media Information System and the mass media, etc. The HKO maintains close communication with relevant bureaux in respect of extreme weather, natural disasters or incidents of radioactive release, and will consider disseminating messages through the Emergency Alert System on emergency situations in Hong Kong (such as severe hazards arising from super typhoons, severe tsunamis or serious nuclear accidents at the Daya Bay Nuclear Power Station) to alert the public of appropriate precautions and emergency response actions, having regard to the specific circumstances of the events, including their severity, urgency and potential public impacts, etc.

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