

CONTROLLING OFFICER'S REPLY

SB492

(Question Serial No. 4989)

Head: (168) Hong Kong Observatory

Subhead (No. & title): (-) -

Programme: (2) Radiation Monitoring and Assessment

Controlling Officer: Director of the Hong Kong Observatory (SHUN Chi-ming)

Director of Bureau: Secretary for Security

Question:

1. Regarding “operating a network of radiation monitoring stations, an aerial radiation monitoring system, two radiological survey vehicles, a radiation laboratory and an emergency radiation data management system” in paragraph 11 under the Brief Description of Programme (2), would the Government briefly describe details of each item of work in the past 3 years, and set out the respective staff establishment and expenditure involved for this financial year?

2. Regarding “planning and participating in exercises and drills in response to nuclear emergencies” in paragraph 11 under the Brief Description of Programme (2), would the Government briefly describe details of the emergency exercises in the past 3 years, and set out the staff establishment for and expenditure involved in emergency exercises and drills for this financial year?

3. Would the Government explain why nuclear emergency drills seem to involve only residents on Tung Ping Chau but do not further include more residents from the northeast and east of New Territories? What are the scientific or experiential bases for evacuating residents within 20 kilometres of nuclear power plants?

4. The following 5 items of work are mentioned in Matters Requiring Special Attention this year in paragraph 14 under Programme (2):

- implementing the agreed arrangements between Hong Kong and Guangdong on radiation monitoring and assessment;
- conducting drills and exercises on emergency response in conjunction with other government departments as well as the relevant Guangdong counterparts;
- organising training on radiation monitoring and assessment;
- taking forward the enhancement of radiation monitoring and assessment facilities; and
- further promoting public education on radiation by launching an e-book on radiation and revamping the “Radiation Monitoring, Assessment and Protection” webpage.

Please set out details of each item of work (particularly the interface with the public), and the respective staff establishment and expenditure involved (particularly for the enhancement of radiation monitoring facilities).

5. What kinds of radiation sources are included as background radiation under the existing Hong Kong Observatory (HKO)'s classification? As regards radiation monitoring in the past year, what is the percentage of background radiation in local radiation? What radionuclides are included in non-background radiation and what are believed to be their sources?

6. Does HKO have any plan to monitor radiation in seawater? If so, please set out details of the work, outcomes and findings of monitoring, as well as the staff establishment and expenditure involved. If no, please provide the reasons and its future considerations.

Asked by: Hon CHU Hoi-dick (LegCo internal reference no.: 2021)

Reply:

1. The work related to the radiation monitoring network, aerial radiation monitoring system, radiological survey vehicles, radiation laboratory and other relevant systems is listed in HKO's annual publication "Summary of Environmental Radiation Monitoring in Hong Kong". Please refer to the relevant link (<https://www.weather.gov.hk/publica/pubrm.htm>) for the reports.

2. HKO routinely carries out internal drills and exercises on radiation monitoring and assessment, and also participates in inter-departmental drills and exercises with relevant departments. These include emergency operations of the Monitoring and Assessment Centre, emergency radiation sample measurement at the radiation laboratory, and ground and aerial emergency radiological surveys. HKO also conducts monthly communication tests with relevant government departments, China Light and Power and the Guangdong authority. In the past three years (2016 to 2018), HKO conducted a total of 64 drills and exercises, and 36 communication tests.

3. In addition to internal drills conducted by relevant departments from time to time, large-scale inter-departmental exercises on the "Daya Bay Contingency Plan" (DBCP) (see <http://www.dbcp.gov.hk/eng/dbcp/download.htm>) are organised every three to five years in order to test the response capability of the Government as well as the effectiveness of the DBCP. The latest of such exercises, "CHECKERBOARD II", was held in December 2017. Over 1 400 officers from 35 bureaux, departments and other organisations, as well as some 200 volunteers, participated in the event. Under the DBCP, the area of Hong Kong within 20 kilometres of the nuclear power stations at Daya Bay (including Mirs Bay and Tung Ping Chau) is designated as "Emergency Planning Zone 1". Comprehensive plume counter-measures, including evacuation or sheltering, and use of thyroid blocking agents, may need to be taken for people from the area. This designation is in line with the relevant standards of the International Atomic Energy Agency, and is also on par with those of many advanced countries.

4. HKO is responsible for monitoring and assessing the environmental radiation levels of Hong Kong. In the rare event that a nuclear incident occurs or is likely to occur in Hong Kong or its neighbouring areas, HKO will step up radiation monitoring and carry out accident consequence assessment according to the situation of the incident. HKO will also work with relevant government departments to advise on the corresponding contingency and protective measures that should be taken. The related workflow, counter-measure criteria, as well as the names and roles of other participating government departments, etc, are set out in the

DBCP. As mentioned under item 2 above, HKO routinely carries out internal and inter-departmental drills and exercises on radiation monitoring and assessment. These include emergency operations of the Monitoring and Assessment Centre, emergency radiation sample measurement at the radiation laboratory, and ground and aerial emergency radiological surveys. To ensure smooth communication among all parties concerned, HKO also conducts monthly communication tests with relevant government departments, China Light and Power and the Guangdong authority. In addition, HKO regularly participates in inter-comparison exercises on radiation measurements with the Guangdong authority to assure the quality of its environmental radiation measurements. HKO organises radiation monitoring and assessment training courses and workshops for participation by staff from HKO and other departments, as well as continually updates and enhances related equipment and facilities. HKO has been providing various radiation-related information and education resources through its webpage, “MyObservatory” mobile app, publications, Open Days, school and group visits, public talks, etc. To further enhance its public education efforts, HKO also produces its own popular science video clips related to nuclear science and radiation for broadcasting via such channels as HKO’s “Cool Met Stuff” web channel, “MyObservatory” mobile app, television, YouTube, etc.

5. Radiation is part of our daily lives. It can be divided into two main categories according to sources: natural and artificial radiation. Natural radiation includes radioactivity in the rocks and soil of the Earth’s crust, radon, cosmic radiation, as well as radioactivity in food and drinks. Natural radiation accounts for about 80% of the radiation doses to which we are subjected. It may vary from place to place. Medical use of radiation is the most significant source of artificial radiation. This includes X-ray radiology, nuclear medicine imaging and radiation therapy. Radiation arising from human activities typically accounts for about 20% of public exposure.

6. Sea water samples are routinely monitored under HKO’s “Environmental Radiation Monitoring Programme”. The related work and results are listed in the annual publication “Summary of Environmental Radiation Monitoring in Hong Kong”.

The wide variety of radiation monitoring and assessment work mentioned above is generally part of HKO’s day-to-day work. As the staff and expenditure required have been subsumed under the regular provision for HKO, it is difficult to quantify the amounts separately.

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