

**For information
on 22 June 2021**

Legislative Council Panel on Development

**Progress Report on
the Development of the Common Spatial Data Infrastructure**

PURPOSE

This paper briefs Members on the progress of the development of the Common Spatial Data Infrastructure (CSDI).

BACKGROUND

2. Enhancing the use and sharing of spatial data (i.e. data with a location component such as geographical coordinates) is recognised worldwide¹ as a crucial measure to support policy-making and drive innovation and value creation of society. The Government has been generating, collecting and making use of a wide range of spatial data in discharging its functions. However, in the absence of common standards as well as a common channel for collation and dissemination, spatial data held by different Government departments cannot be shared effectively amongst themselves or with the public. This would hinder the full exploitation of the potential of spatial data.

3. With location as the common language, the CSDI aims to provide a map-based digital infrastructure as a one-stop data platform to open up and centralise standardised spatial data, allowing free use by Government departments, businesses, academia and the public. Sharing spatial data on the CSDI portal can minimise duplication of departmental efforts and resources in maintaining, processing and updating data. More importantly, with the ability to integrate different datasets (such as the population data,

¹ The United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM), a renowned international organisation in the field of geospatial information management, suggested all countries to take positive steps to achieve the vision for the effective use of geospatial information to measure, monitor and achieve sustainable social, economic and environmental development.

public facilities, etc.), CSDI can help analysing a large volume of data and present the data analysis in innovative and informative formats.

4. CSDI can also spur innovation and boost the digital economy, opening up a wide range of possibilities for application development. Nowadays, spatial data are widely used in smart applications running on mobile devices for improving our daily lives. For example, apps providing information on public transport makes extensive use of map data and positions of buses, etc. We expect that the development of CSDI would encourage the development more smart applications using spatial data in one way or another.

Development of CSDI

5. As stated in the 2017 and 2018 Policy Address, establishing the Common Spatial Data Infrastructure (CSDI) forms part of the implementation of the Smart City Blueprint. The Development Bureau (DEVB), with the support from the Innovation and Technology Bureau as well as other bureaux / departments (B/Ds), takes the lead to develop the CSDI. In June 2019, the DEVB briefed this Panel on the proposed development of CSDI² and received general support. The progress and implementation schedule of CSDI initiatives is at **Annex A**. The details are set out as follows.

PROGRESS OF IMPLEMENTATION

The CSDI Portal

6. The current plan is that the CSDI portal will release about 320 datasets, for use first on a trial basis by government departments by end 2021, and by the public by end 2022. These datasets include Framework Spatial Data Theme³ (FSDT) and Common Sharable Spatial Data⁴ (CSSD), to be contributed from different B/Ds, Out of the 320 datasets, there are

² LC Paper No. CB(1)1181/18-19(05) "Development of Common Spatial Data Infrastructure and 3D Digital Map" dated 25.6.2019.

³ Framework Spatial Data Theme provides a standard geographic framework for geocoding or referencing other datasets. For example, street address, once standardised and geo-coded to location, can be further analysed geospatially in ways that would have never been possible otherwise.

⁴ Common Sharable Spatial Data are usually datasets such as planning data, census data etc., provided and maintained by data owner. These types of common sharable data, once geo-coded to location, may greatly facilitate the use by organisations and members of the public in their spatial analysis or applications.

about 120 datasets contributed by departments under DEVB, mainly planning, lands, buildings and works related datasets covering:

- i. infrastructural facilities and public amenities;
- ii. drainage, sewerage and waterworks facilities; underground storm water and sewerage pipes;
- iii. maps and pedestrian network;
- iv. Outline Zoning Plans, Territorial Population and Employment Data Matrix, projections of population distribution; and
- v. addresses.

7. The remaining around 200 datasets are from B/Ds outside the DEVB's family, mainly covering:

- i. census datasets;
- ii. excavation permits;
- iii. district-based annual valuation statistics;
- iv. metered on-street parking locations;
- v. Coronavirus related data, and
- vi. public facilities.

8. To ensure reliability, accessibility and interoperability of spatial data, all datasets to be released in the CSDI portal will comply with the following 5 CSDI standards:

- i. geo-tagging of non-spatial data;
- ii. documentation of data specifications;
- iii. documentation of metadata;
- iv. establishment of Application Programming Interface⁵; and
- v. conversion of spatial data to an open and machine-readable format.

9. The DEVB will continue to encourage B/Ds to release more spatial data beyond what has been committed. We will seek annual spatial data returns from B/Ds from next year on to assist them to plan ahead and make arrangements for the release of spatial data. Through the Common Spatial Data Advisory Committee (CSDAC) (see paragraph 18 for details), we will

⁵ A web mapping service for the public and private sectors to support their web applications that require map display.

tap the views of outside experts on suitable types of datasets to be made available on the CSDI portal.

10. All datasets on the CSDI portal will be free of charge for download and use. This is also in line with the Government's Open Data Policy. It is noted that some spatial data are currently released for a charge. The B/Ds concerned will progressively waive such charges to prepare for the launch of the CSDI portal. For example, the charge for the provision of Light Detection and Ranging data, and the charges for Lands Department (LandsD) digital map products such as Digital Topographic Map and Digital Land Boundary Map, have recently been waived. We will continue to work with B/Ds along this direction.

11. The infrastructure of CSDI portal is being developed. It will be hosted in cloud services to allow scalability and flexibility to expand system capacity over time. Datasets provided by different B/Ds will be stored either centrally in the CSDI portal or locally in the departments with a connection to the CSDI portal. System security measures will be implemented to protect the portal from cyber threats and attacks.

Quick-win Projects

12. To allow public and private sectors to enjoy early benefits of using spatial data ahead of the full operation of CSDI in 2022, we are in the process of launching four quick-win projects to showcase the benefits of using spatial data. These quick-win projects will be migrated to the CSDI portal upon its commissioning. Details of the projects are as follows.

(a) Map Application Programming Interface (Map API)

13. Map API service assists web/mobile application developers to embed maps with up-to-date spatial information into their applications. Three Map API services including Topographic Map API, Imagery Map API and Map Label API were launched on 3 December 2020.

(b) Geo-tagging Tool

14. To facilitate efficient data sharing and computing, and development of smart applications, a web-based 'Geo-tagging Tool' will be provided for data owners to convert data into digital format with geographic component. The Geo-tagging Tool will be tentatively available by Q3 2021.

(c) District-based Spatial Information Dashboard

15. District-based Spatial Information Dashboard enables users to present district-based analytics, using interactive data visualisations on a single screen categorised by different themes.⁶ The Dashboard will be tentatively available by Q3 2021.

(d) Address Data Infrastructure (GeoAddress)

16. Address Data Infrastructure (GeoAddress) is a standard and unique location identifier to facilitate smart application developers to improve the accuracy of location search in their applications. We will make available the GeoAddress code searching function as one of the options for address search by Q4 2021.

Stakeholder Engagement

17. To foster a collaborative environment for the government, businesses, non-governmental organisations, academic and the wider community to participate in the sharing and use of spatial information and services, we are engaging stakeholders through a number of platforms.

(a) Common Spatial Data Advisory Committee (CSDAC)

18. Established in October 2020, the CSDAC is chaired by the Director of Lands with official members from various B/Ds and 24 non-official members from relevant sectors, including the construction industry, geospatial and IT related groups, academics, social/community services, public utilities and transport operators, with an aim to tap members' expertise on the development of the CSDI to meet the needs of our society and economy. The CSDAC also assists the government in formulating measures to take forward the development of the CSDI and 3D digital map in support of Hong Kong's drive to become a world-class smart city.

⁶ In fact, the 'Interactive Map Dashboard for COVID-19' is a recent prominent example of spatial data dashboard. Launched in February 2020, the dashboard keeps the public informed of the latest situation of the COVID-19 in Hong Kong, thereby helping the community fight the virus together. As of June 2021, the COVID-19 Dashboard has attracted more than 53 million view counts.

(b) Geospatial Lab (GeoLab)

19. The aim of establishing the GeoLab⁷ is to provide a platform to nurture a geospatial community by encouraging the younger generation, start-ups and creative minds to discuss, explore and exchange ideas for harnessing the potential of spatial data, thereby improving quality of life and promoting business opportunities.

20. The GeoLab is run by the Tung Wah Group of Hospitals, engaged by the government through open tender. It commenced its on-line operation on 10 May 2021, and has hosted on-line talks on geospatial technologies and applications for start-ups and students. The GeoLab will have a physical presence -- a working space in a commercial building in Kwun Tong with a floor area of about 3,000 square feet, to be open to the public in Q3 2021. It will provide fitted-out working space, computer facilities as well as a wide range of engagement activities for students, younger generation and start-ups including application developers. It will organise engagement activities, such as talks by geospatial informatics experts, geospatial workshops, group visits. It will also reach out to schools to promote the use of spatial data as part of the Science, Technology, Engineering and Mathematics (STEM) education. In doing so, it helps nurture a culture that helps incubate ideas, spur innovation and promote greater use of spatial data.

WAY FORWARD

21. The DEVB will continue to take the lead in the development and implementation of the CSDI portal.

22. Members are invited to note the progress of CSDI development and offer comments.

Development Bureau
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⁷ Geospatial Lab website can be accessible at <https://csdigeolab.gov.hk> .

**Progress and Implementation Schedule for
Common Spatial Data Infrastructure (CSDI) Initiatives**

Rolled-out Time	Deliverables
December 2020	Launch of the Map API
May 2021	Establishment of Geospatial Lab
By Q3 2021	Launch of the Geo-Tagging Tool
By Q3 2021	Launch of the District-based Spatial Information Dashboard
By Q4 2021	Launch of the ADI (GeoAddress)
By the end of 2021	Launch of the CSDI portal for use by B/Ds
By the end of 2022	Launch of the CSDI portal for use by the public via internet