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Legislative Council

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Panel on Development

Meeting on 22 June 2021

**Background brief on
the development of the Common Spatial Data Infrastructure**

Purpose

This paper provides background information on the development of the Common Spatial Data Infrastructure ("CSDI") and summarizes the views and concerns expressed by Members on the subject at relevant committees of the Legislative Council ("LegCo").

Background

2. Government bureaux/departments ("B/Ds") hold considerable amount of spatial data such as locations of government facilities, census data, real-time traffic information, etc. According to the Administration, the general direction is for such data to be shared with the community and opened up with easy access. Throughout the years, B/Ds have been making wider use of the Geographic Information System ("GIS") to facilitate management of spatial data and/or development of map application platforms. Yet in the absence of common standards and guidelines, such spatial data is often maintained in different systems that cannot talk to each other, rendering data sharing across B/Ds or with external parties virtually impossible.

3. Acknowledging that spatial data infrastructure is vitally important to smart city development, the Administration have committed in the Smart City Blueprint for Hong Kong released in December 2017 to developing CSDI and three-dimensional ("3D") digital map. The Development Bureau ("DEVB") works with the Innovation and Technology Bureau ("ITB") and major user departments to press ahead with the setting up of CSDI for the consolidation, exchange and sharing of geospatial information

to tie in with the development of various smart city applications by the community.   In the 2019-2020 Budget, the Financial Secretary announced that $300 million[1&2] would be earmarked to expedite the development of digital infrastructure, with a view to facilitating the dissemination, utilization and innovative application of geospatial data.

Roadmap for Common Spatial Data Infrastructure

4.   The CSDI portal seeks to overcome data sharing hurdle by building a scalable and secured common sharing platform for exchange of quality and up-to-date spatial data and services in a readily accessible and convenient manner.   According to the Administration, the CSDI portal operates like a one-stop data "supermarket" where B/Ds and the public can come and visit not only to search and view a wide range of data but also to download the data as raw material and tap the data in innovative uses through value-added products.   In terms of system architecture, data in the CSDI portal will be organized in the form of layers.   The base layer will be the map of Hong Kong with built and natural features such as roads, buildings, community facilities, country parks, beaches, etc.   Each subsequent layer (or dataset) then adds a unique dimension to the system. Intersecting different layers using GIS tools could, for example, facilitate property search by households and businesses, check the applicable school net for a residential block, as well as provide information on planned developments and demographics in the neighbourhood.

5.   The Hong Kong GeoData Store [3] launched by the Lands Department ("LandsD") in December 2018 with 79 government datasets[4] will be used as the foundation for development of the CSDI portal. Before 2022, the Administration will enhance and transform the Hong Kong GeoData Store into the CSDI portal with initial focus on spatial data held by departments under DEVB.   On top of the 79 datasets, the Administration will roll out the CSDI portal with about 70 additional

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[1]   The Administration estimated that the total non-recurrent expenditure of the proposed development of CSDI and 3D digital map to be $300 million over five years from 2019-2020 to 2023-2024, made up of $150 million for DEVB and its family of departments to expedite the implementation of CSDI, and $150 million for the Lands Department to develop the 3D digital map in a progressive manner.

[2]   Approval of the $300 million funding was sought in the context of the Appropriation Bill 2020, which was passed on 14 May 2020.

[3]   https://geodata.gov.hk/gs/

[4]   These datasets include government premises and facilities, schools, hospitals, clinics, community and social service facilities, cultural, leisure and sports facilities, postal service facilities and job centres.

datasets in phases, first within Government by end 2021 and then to the public by end 2022. The Administration aims to advance the full operation of the CSDI portal to end 2022, one full year earlier than the Administration's original target. The Administration has also planned to launch four quick win projects for use within and/or outside Government: Map Application Programming Interface ("API"), Geo-tagging Tool, Address Data Infrastructure and District-based Spatial Information Dashboard ("the Dashboard") between 2019 and 2021. The implementation schedule of CSDI is in **Appendix I**.

Implementation and control arrangements

6. The Administration has set up a new Common Spatial Data Steering Committee ("CSDSC") co-chaired by DEVB and ITB and attended by key government spatial data owners[5] to provide strategic directions for the CSDI development, build an active data sharing and collaboration landscape within the Government, and oversee the progress of the CSDI development and usage of the $300 million funding. CSDSC will report to the Steering Committee on Innovation and Technology ("SCIT") chaired by the Chief Executive and seek policy steer from this Committee on key policy issues that may arise from the CSDI implementation. A new Spatial Data Office ("SDO")[6] staffed by a multi-disciplinary team has also been established under DEVB to serve as CSDSC's executive arm. SDO is mainly responsible for overseeing the building and management of the CSDI portal, identifying and prioritizing spatial data to support the phased development of CSDI, and monitoring the execution of capacity building, outreach and partnership initiatives.

Major views and concerns expressed by Members

7. The major views and concerns expressed by Members on the development of CSDI at the relevant meetings of the Panel on Development ("DEV Panel") and the Establishment Subcommittee in the 2018-2019 and 2019-2020 sessions are summarized in the ensuing paragraphs.

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[5] Other members include Head of SDO and representatives at directorate level from about 20 B/Ds.

[6] In November 2019, the Administration proposed to create one supernumerary Chief Land Surveyor (D1) post to lead SDO in steering and expediting the development of CSDI, and one supernumerary Government Land Surveyor (D2) post to head the Mapping Management Centre to be established in the Survey and Mapping Office of LandsD for supporting the rolling out of CSDI. The funding proposal (EC(2019-20)13) was endorsed by the Establishment Subcommittee on 18 December 2019 and approved by the Finance Committee on 15 May 2020.

Development of the Common Spatial Data Infrastructure portal

Functionality of the Common Spatial Data Infrastructure portal

8.   Members in general supported the development of CSDI in Hong Kong, and called on the Administration to expedite the CSDI development which could be widely used in many meaningful aspects, such as flood forecasting particularly in village areas, promotion of heritage conservation and green tourism.   Pointing out that existing government data were disseminated in a format not easily usable by application developers, Members enquired whether application developers in the private sector were allowed to use the data on the CSDI portal to develop innovative applications that brought convenience to the public, and whether the Administration would make it mandatory for all B/Ds to release data in a machine-readable format through the CSDI portal.

9.   The Administration advised that all B/Ds would be encouraged to progressively release data under their purview through the CSDI portal unless there were security, privacy and other policy concerns and depending on the availability of resources.   The CSDI portal would release data for free in an open, standardized and machine-readable format on a continuous and real-time basis, and offer APIs so that data could be easily shared, processed and used by application developers.   Businesses would be allowed to use the data for commercial purposes, but they would be required to keep the spatial data in the standardized format, so that the data could be easily used by others.

10.   Some Members pointed out that information of the CSDI portal had to be duly updated to cater for the needs of users.   The Administration advised that it recognized the importance of data update for CSDI, and there were plans to align the deadline for B/Ds to update their data standards and set up a common standard.   Dataset update tag would also be available in the CSDI portal so that data users could stay informed of the data source and the time when the dataset was last updated

Promoting the release of data by the private sector

11.   Members considered that the CSDI portal should also include data other than those held by DEVB's family of departments and private sector data (e.g. real-time traffic information) so as to enhance its functionality as a one-stop portal.   They were concerned about how the Administration would convince private enterprises to open up their data and take part in the development of the CSDI portal.   Some Members suggested that

consideration should be given to include provisions for free open data when the Government entered into contracts with private enterprises (e.g. when entering into franchise agreements with public transport operators) in order to speed up the process of spatial data sharing.

12. The Administration advised that the private sector, including public transport operators and utility companies, was generally positive towards releasing their data in recent years. For instance, public bus companies and the MTR Corporation Limited had been providing their real-time bus/train arrival information to the Office of the Government Chief Information Officer for release through the Public Sector Information Portal. To realize more fully the potential of CSDI in the longer run, it would be one of the major duties of SDO to secure the co-operation of the private sector to make available their spatial data for sharing through the CSDI portal.

District-based Spatial Information Dashboard

13. Noting that the Dashboard aimed at providing district-based information, Members enquired whether the Administration would provide a platform to consult the local residents or district councils to ensure provision of district-based information upon completion of the project, and whether members of the public could reflect their views on the development of the CSDI portal to DEVB direct.

14. The Administration responded that in addition to providing information regarding different districts to the public (such as school network, local weather and traffic conditions etc.), the Administration would also make reference to overseas experience to use Dashboard for improving district management, such as reports on issues relating to street hygiene could be made to relevant departments for follow up. DEVB would, through the consultative committee to be set up,[7] collect views from representatives of various sectors on the CSDI portal, and consideration was being given to setting up a website to make public the progress of development of the CSDI portal, which could also be used as a platform for collecting public views on the CSDI portal.

Implementation, control and management

15. Noting that CSDSC was co-chaired by DEVB and ITB, Members expressed concern that such arrangement would lead to unclear delineation of responsibilities. They also enquired about the terms of reference of CSDSC, including whether CSDSC would oversee the progress of the

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[7] The Common Spatial Data Advisory Committee has been set up since October 2020.

CSDI development and provide strategic directions for the CSDI development.

16. The Administration advised that most of the datasets to be released through the CSDI portal up to 2022 were managed by DEVB's family of departments. With the cooperation of ITB, DEVB would take the lead in the CSDI development during the period. As a further step, CSDSC would work with other data owners including B/Ds, public utilities companies and private companies to release datasets which might be of more interest to users through CSDI beyond 2022. CSDSC would monitor and provide directions for the CSDI development along the way.

17. Some Members opined that as government departments had different levels of information technology proficiency, the Administration should play an active role in coordinating various government departments to ensure that the datasets provided by these departments most suited the users' needs. They also expressed concern on the sufficiency of Administration's manpower to handle the relevant tasks and the competency of CSDSC to foster the CSDI development.

18. The Administration advised that as CSDSC comprised representatives from all B/Ds that would release datasets through the CSDI portal, it could monitor the progress of the CSDI development and opening up of government data. CSDSC would also seek policy steer from SCIT on key policy issues that might arise from the CSDI implementation where necessary. Moreover, SDO would serve as CSDSC's executive arm and support its daily operations. SDO was staffed with six officers and additional resources would be sought to strengthen SDO's manpower in order to cope with the increasing workload.

Council question

19. At the Council meeting on 15 July 2020, a Member raised question on the development of CSDI. The hyperlink to the question and the Administration's reply are provided in **Appendix II**.

Latest development

20. At the meeting of DEV Panel to be held on 22 June 2021, the Administration will brief members on the progress on the development of CSDI.

Relevant papers

21.   A list of the relevant papers on the LegCo website is in **Appendix II**.

Council Business Division 1
<u>Legislative Council Secretariat</u>
18 June 2021

**Implementation Schedule for Common Spatial Data Infrastructure
(as of December 2019)**

Rolled-out Time	Deliverables
For internal use within Government by end 2021	Releasing through the Common Spatial Data Infrastructure ("CSDI") portal about 70 additional data sets under the Development Bureau's family of departments on top of the 79 datasets already available on the Hong Kong GeoData Store.
Between the latter half of 2019 and 2021	Launching quick-win projects for use within and/or outside Government, including Map Application Programming Interface ("API"), Geo-tagging Tool, Address Data Infrastructure and District-based Spatial Information Dashboard.
CSDI in full operation and for use by the public by end 2022	Opening up the above 70 + 79 data sets for free download and use by the public.
Beyond 2022	Releasing more datasets through CSDI, subject to further discussion with bureaux/departments data owners on issues including data standardization, availability of API data service, etc.

(Source: Annex A to LC Paper No. CB(1)1181/18-19(05))

Development of the Common Spatial Data Infrastructure

List of relevant papers

Committee	Date of meeting	Paper
Panel on Development	25 June 2019	Administration's paper on "Development of Common Spatial Data Infrastructure and 3D Digital Map" [LC Paper No. CB(1)1181/18-19(05)] Minutes of meeting [LC Paper No. CB(1)1356/18-19]
Panel on Development	19 November 2019	Administration's paper on "creation of directorate posts in Development Bureau and Lands Department for rolling out the Common Spatial Data Infrastructure" [LC Paper No. CB(1)134/19-20(01)] Minutes of meeting [LC Paper No. CB(1)657/19-20]
Establishment Subcommittee	18 December 2019	Funding proposal on "creation of two supernumerary posts of one Chief Land Surveyor (D1) in the Planning and Lands Branch of the Development Bureau and one Government Land Surveyor (D2) in the Lands Department with effect from 1 April 2020 or upon approval of the Finance Committee (whichever is later) up to 31 March 2025 to oversee the implementation of the Common Spatial Data Infrastructure, thereby ensuring that major deliverables can be rolled out on schedule according to the pledged timetable" [EC(2019-20)12] Minutes of meeting [LC Paper No. ESC 31/19-20] Supplementary information provided by the Administration [LC Paper No. ESC21/19-20(01)]

Hyperlink to relevant Council question and the Administration's reply:

Date	Council question
15 July 2020	Question on "Common Spatial Data Infrastructure"