For discussion
on 13 June 2025

FCR(2025-26)21

ITEM FOR FINANCE COMMITTEE

CAPITAL WORKS RESERVE FUND
HEAD 710 – COMPUTERISATION
Lands Department
New Subhead "Replacement of the Land Information System of the Lands Department"

Members are invited to approve the creation of a new commitment of $405,141,000 for the replacement of the Land Information System of the Lands Department.

PROBLEM

The Lands Department (LandsD) needs to replace its existing Second Generation of Land Information System (2GLIS) to enhance system infrastructure, land information management, land parcel databases, and map production workflows, with a view to meeting operational requirements and strengthening data-driven analytics through the enhancement of system functionality and performance, and supporting low-altitude economy and smart city development.

PROPOSAL

2. The Director of Lands, with the support of the Secretary for Development and the Commissioner for Digital Policy, proposes to create a new commitment of $405,141,000 for the replacement of the existing 2GLIS, along with enhancements.

/JUSTIFICATION …..

JUSTIFICATION

Problems and Limitations of the 2GLIS

3. The existing 2GLIS of LandsD stores various kinds of cadastral and geospatial information data which have to be updated continuously to provide a wide range of mapping services and map products for use by government departments, business sectors and members of the public. Its main functions are at Enclosure 1. 2GLIS, which was fully commissioned in May 2011, has been in use for over 14 years and now faces the following problems and constraints.

Encl. 1

Obsolescence and lack of technical support for the existing system

4. The original design serviceable life and system maintenance contract period of the 2GLIS was ten years, which has now been exceeded. The existing system mainly relies on hardware and software maintenance to sustain its operations, but these hardware and software components now face the problems of obsolescence and the cessation of provision of related technical support services. In particular, the service provider of the designated virtualisation desktop software used by LandsD users to access the 2GLIS has exited the Hong Kong market since 2023 and no longer provides software upgrade services. Without the upgrade service support for the virtualisation desktop software to access the system, the Geographic Information System (GIS) software and the operating system software of 2GLIS cannot be upgraded as well. Besides, the GIS software provider will cease the related support services starting from 2026. While LandsD is still able to sustain limited maintenance and patchwork for the 2GLIS software, the patch support updates for the operating system software will also be discontinued starting from 2029. Therefore, LandsD needs to replace the land information system in full or else failure to upgrade the access and operating system software will cause vulnerabilities that can severely compromise the stable operation of 2GLIS and even expose the system to security risks. LandsD may then encounter difficulties in delivering the required products and services to government departments, business sectors and members of the public, as well as in executing land administration work.

5. Besides, since the launch of 2GLIS, the demand for land information from government departments and the community has been growing. To cope with various daily operational needs, LandsD has built numerous functional modules and platforms outside the framework of 2GLIS, making the system challenging to manage over time. Therefore, it is impractical for LandsD to address various system-related issues, such as data compatibility and system interfacing, and accommodate new operational needs through a simple system upgrade exercise.

/Exigency …..

Exigency of enhancing system functionality and data processing capability

6. The design framework of 2GLIS constrains the data processing and storage capabilities of the system. When multiple users access the system simultaneously, the limitations of the existing architecture and constraints, such as lack of support for graphics processing units, impede the effective processing of various types of data[1] as the number of users and the volume of data continue to grow, hence severely hampering daily work efficiency.

7. Regarding map production, LandsD developed 2GLIS primarily to collect and process features and terrain data shown on large-scale topographic maps. Therefore, its existing system framework does not support the production of small-scale topographic maps. LandsD currently needs to use another mapping system to produce small-scale maps, which is time-consuming and requires considerable manpower. As a result, changes in features are often not reflected on small-scale topographic maps in a timely manner[2].

8. In the operational context, the independent mode of operation of 2GLIS means that the system could not directly interface with other land administration systems, such as those for land grants, handling small house applications and land transactions, etc. This results in problems such as un-synchronised data, affecting the effective retrieval and utilisation of land information.

Incapability of the legacy system in supporting emerging technological requirements and the needs of Smart City

9. With the advancements in digital mapping technology and the development of Smart City, the demand of the general public for high-quality spatial data has remained strong. In support of the Open Data Policy, government departments and members of the public have since 2022 been able to obtain digital maps and other land-related information provided by 2GLIS through the Common Spatial Data Infrastructure (CSDI) portal developed and managed by LandsD.

/Currently …..

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[1] The 2GLIS is running on an outdated centralised computing platform, suffering from issues of competing computing resources. More users accessing the system simultaneously will lengthen the data processing times. Besides, the additional functions built to accommodate daily operational needs further weighed down the system's performance, exacerbating the data processing time and ultimately hampering work efficiency.

[2] The production of topographic maps typically starts with 1:1 000 scale, which will then be converted into smaller scales topographic maps such as 1:20 000 and 1:100 000 maps for use under different circumstances. In general, large-scale topographic maps are more suitable for displaying individual features, such as buildings and streets in details, while small-scale maps are used to display features over broader areas, such as country park boundaries.

Currently, LandsD collects vast amounts of spatial data from aerial and on-ground sensors. As time goes by and technology continues to advance, the amount of relevant data and land records will grow exponentially. With the constraints of the existing system architecture, it is estimated that the storage of 2GLIS will reach its full capacity in two to three years, and it will not be able to manage more data records by then. Besides, due to the absence of graphics processing units, the use of emerging technologies to support the processing of larger volumes and more complex data on 2GLIS, such as artificial intelligence, is impeded.

10. To support Smart City development, there is a pressing need for wider use of three-dimensional (3D) geospatial data and making it more widely available. However, since 2GLIS does not support a 3D spatial data management framework, LandsD currently has to use a separate system to manage the 3D spatial models collected and the related digital map data.

11. In view of the above, 2GLIS is constrained by its limited data storage capacity and its inability to perform a system upgrade as its originally design serviceable life was exceeded. This has restricted the provision of a secure, stable and scalable infrastructure. At the same time, the design of 2GLIS can hardly support the evolving 3D spatial data development needs. It is therefore necessary to replace and enhance the system.

The Proposed Third Generation of Land Information System (3GLIS)

12. Having regard to the findings of the consultancy study in 2024 on the modernisation of the land information system of LandsD and the advice of the Digital Policy Office (DPO), LandsD proposes the development of the 3GLIS. The proposed 3GLIS will interface with other related systems, databases and external services by establishing an integrated land information system to enhance the management of land resources and further support Smart City development.

Expected Benefits

13. Compared with the existing 2GLIS, the proposed 3GLIS will bring about the anticipated benefits set out below.

/Fully …..

Fully supporting the modernisation of the land information system architecture

14. LandsD proposes to build the 3GLIS with reference to international geospatial data standards, national survey and mapping standards, and the Government Cloud Infrastructure Services (GCIS) standards and framework, and upgrade the related hardware and software, so as to replace the difficult-to-maintain 2GLIS along with enhancements.

Improving data quality and work efficacy

15. We expect that, through upgrading the software and hardware configurations and restructuring workflows and modes of operations, the proposed 3GLIS will address the problems of lengthy data processing and incompatibility of data from different systems, thereby enhancing the overall operational efficiency.

16. To shorten the revision cycle of small-scale topographic maps, LandsD will introduce map generalisation workflows, holistically managing data conversion between topographic maps of different scales, to enhance data quality and map production efficiency. By digitalising the compilation workflow processes for topographic maps of different scales, it can minimise conversion discrepancies of the topographic maps at different scales through automated adjustments. As a result, manual efforts and time will be saved and the map revision cycle will be shortened to timely reflect the information arising from changes of topographical features. LandsD anticipates that the revision frequency of the related small-scale digital topographic maps can be doubled from twice to four times a year.

17. By integrating land boundary data from different sources through the proposed 3GLIS (such as providing a more user-friendly system framework to facilitate qualified land surveyors in importing and storing the land and cadastral survey data related to works projects), it will streamline the process of revising the affected boundaries of works projects and land parcels. In turn, this enhances the efficiency of land development and facilitates the daily survey and mapping work of LandsD.

18. The proposed 3GLIS will also enhance its interoperability and compatibility with different systems and platforms. By linking relevant topographic maps and land parcel data to other internal land administration systems and external systems and platforms (including the CSDI, one of the platforms which is widely used by the general public and business sectors), the new system can

/deliver …..

deliver more accurate land parcel information, spatial data and mapping services to government departments and the public for better sharing and use of geospatial data and land information to support the planning and application of Smart City and low-altitude economy.

Establishing a 3D spatial data management framework to support the development of the low-altitude economy

19. At the same time, we also expect that the built-in 3D spatial data management framework of the proposed 3GLIS will support the development of the low-altitude economy more effectively. It includes the provision of 3D spatial data of accurate terrain, elevation, structures etc., that can support the design, monitoring and management of flight paths for small unmanned aerial vehicles such as designing obstacle-free routes taking into account different topographical features of suburban and densely urban areas. This will enhance the safety and operational efficiency of low-altitude transportation networks. Besides, the proposed 3GLIS can support the provision of 3D Map Application Programming Interface services. It will deliver high-value-added 3D map data services to the industries and innovation and technology businesses, to drive the development of drone applications, aerial logistics and other models of low-altitude economy.

Achieving sustainable development of urban space

20. The 3D spatial data management framework of the proposed 3GLIS will enable LandsD to handle interests in different land strata (including cavern facilities, transportation hubs, railway development projects, public facilities beneath elevated highways, etc.) more effectively. Besides, the proposed 3GLIS will interface with the 3D digital database of the Underground Utilities Information System of LandsD, enabling the integration of spatial data of underground utilities to streamline land administration workflows (such as processing applications for excavation permits) and to support other government departments to plan and conduct underground works projects more effectively.

21. Furthermore, with the growing adoption of Building Information Modelling (BIM), the proposed 3GLIS will also establish a data alignment framework to boost data interoperability so as to make good use of the BIM data collected from public works projects in support of land development and 3D digital map production more effectively.

/22. …..

22. In addition to managing and storing 3D models, the proposed 3GLIS will also support 3D spatial data analysis and applications[3], which will enable LandsD to provide more valuable and accurate data analytics services for bureaux and departments when necessary.

Enhancing system security and database scalability to accommodate future needs

23. By adopting GCIS, the proposed 3GLIS could meet the newly revised security control requirements. It provides a secure and stable infrastructure and enables LandsD to manage its computing resources centrally under the GCIS framework, reducing the resources required for system maintenance in the future. Apart from this, the GCIS framework will also enhance system scalability and interoperability, allowing the system to scale up on demand to accommodate vast amounts of spatial data obtained from various sources and supporting the data interfacing with other systems in LandsD, so that LandsD can expedite map revisions and boost its capability of spatial data processing and analytics.

24. In summary, the proposed replacement of the land information system will enhance system functionalities and streamline related workflows. For government departments, business sectors and members of the public, the proposed 3GLIS will improve the efficiency of land administration, land management and survey and mapping; open up data to provide diversified map products and services; and deliver substantial benefits in supporting the development of low-altitude economy and Smart City planning (such as leveraging of the technologies of CSDI, 3D spatial data analytics, BIM, etc.).

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[3] 3D spatial data analytics and application can be used in a wide spectrum of areas, including airflow environment assessments, traffic control measures, urban renewal studies, etc.

FINANCIAL IMPLICATIONS

Non-recurrent Expenditure

25. The proposed 3GLIS involves an estimated non-recurrent expenditure of $405,141,000 over a four-year period from 2025-26 to 2028-29. The breakdown is as follows –

		2025-26 ($'000)	2026-27 ($'000)	2027-28 ($'000)	2028-29 ($'000)	Total ($'000)
(a)	Hardware	-	-	-	7,050	**7,050**
(b)	Software	-	16,000	16,000	16,701	**48,701**
(c)	Cloud service	4,916	31,799	29,472	33,899	**100,086**
(d)	Implementation services	-	25,525	67,625	84,531	**177,681**
(e)	Contract staff	1,602	11,590	11,464	6,566	**31,222**
(f)	Training	-	-	-	3,370	**3,370**
(g)	Others	-	80	-	120	**200**
	Sub-total	**6,518**	**84,994**	**124,561**	**152,237**	**368,310**
(h)	Contingency	-[4]	8,499	12,456	15,876[5]	**36,831**
	Total	**6,518**	**93,493**	**137,017**	**168,113**	**405,141**

26. On paragraph 25(a) above, the estimated expenditure of $7,050,000 is for the acquisition of computer hardware, including large-format printers and related computer management hardware.

27. On paragraph 25(b) above, the estimated expenditure of $48,701,000 is for the acquisition of computer software, including GIS software, geospatial data conversion software and colour management system.

/28. …..

[4] As the project will be in its initial stage in 2025-26, we anticipate that contingency expense is unlikely to be incurred and therefore relevant budget is zero.

[5] As the project will be in its final stage in 2028-29, we anticipate that the likelihood of incurring contingency expense during the settlement of the project sum will be high. This breakdown figure includes all of the remaining contingency budget for the project.

28. On paragraph 25(c) above, the estimated expenditure of $100,086,000 is for the acquisition of cloud service, including the setting up of the software and hardware for the cloud service, communication network equipment and system security equipment, and implementation of GCIS, etc.

29. On paragraph 25(d) above, the estimated expenditure of $177,681,000 is for hiring service providers to deliver system development services, including system analysis and design, system and application development and testing, system set-up, installation, configuration, site preparation, data conversion, maintenance services, etc.

30. On paragraph 25(e) above, the estimated expenditure of $31,222,000 is for hiring contract information technology (IT) staff to support the work of internal project management team in project planning, monitoring, conducting system acceptance tests, etc.

31. On paragraph 25(f) above, the estimated expenditure of $3,370,000 is for providing relevant training to the staff.

32. On paragraph 25(g) above, the estimated expenditure of $200,000 is for covering the costs of the security risk assessment and audit and privacy impact assessment services.

33. On paragraph 25(h) above, the estimated expenditure of $36,831,000 represents a 10% contingency on the cost items set out in paragraphs 25(a) to (g) above.

Other Non-recurrent Expenditure

34. The development of the proposed 3GLIS will require an internal project management team to be set up in LandsD, which will be responsible for project management, provision of advice to contractors in relation to user requirements and system development, procurement, system analysis and design, site preparation, conducting user acceptance tests, implementation support, etc. This will entail an estimated non-recurrent staff cost of $30,072,000 from 2025-26 to 2028-29, which will be absorbed by the existing resources of LandsD.

/**Recurrent** …..

Recurrent Expenditure

35. The estimated recurrent expenditure for the proposed 3GLIS from 2029-30 onwards will be $32,629,000 per annum. The relevant expenses cover the costs of hardware and software maintenance and cloud service. A breakdown is tabled below –

		2029-30 onwards ($'000)
(a)	Hardware and software maintenance	16,775
(b)	Cloud service	15,854
	Total	**32,629**

36. On paragraph 35(a) above, the estimated expenditure of $16,775,000 is for the provision of hardware and software maintenance service to support the proposed 3GLIS.

37. On paragraph 35(b) above, the estimated expenditure of $15,854,000 is for the service fee of GCIS Satellite Sites.

38. After offsetting the annual realisable savings of $26,852,000 as detailed in paragraph 39(a) below, from 2029-30 onwards, the net recurrent expenditure of the proposed 3GLIS will be $5,777,000 per annum. Besides, the existing staff supporting and managing 2GLIS will continue to be deployed to handle the same tasks for the proposed 3GLIS. The annual staff costs involved are $13,889,000, which will continue to be absorbed by the existing resources of LandsD.

Cost Savings and Avoidance

39. After its full commissioning and starting from 2029-30, it is estimated that the proposed 3GLIS will bring about cost savings and avoidance of $58,370,000 in total per annum, comprising –

(a) An annual realisable savings of $26,852,000

After the commissioning of the proposed 3GLIS, there will be savings in contract IT staff cost (including the support for preparation of data conversion among topographic maps of different scales,

/maintenance …..

maintenance of the existing virtualisation desktop infrastructure (VDI), etc.), and from the maintenance and support for the 2GLIS. The annual realisable savings from 2029-30 onwards amount to $26,852,000.

(b) An annual notional savings of $8,080,000

The improved work efficiency brought about by the proposed 3GLIS is expected to result in an annual notional savings in staff cost of $8,080,000 from 2029-30 onwards (including the support for the conversion of topographic maps of different scales, production of various kinds of topographic maps, boundary maps and plans, design of data models, alignment of various kinds of land data, maintenance of the existing system, etc.). Since the relevant manpower is currently also deployed to support other tasks, the cost savings cannot be realised through the deletion of posts. However, the manpower saved will be redeployed to support other duties of LandsD.

(c) An annual cost avoidance of $23,438,000

With the implementation of the proposed 3GLIS, it is estimated that there will be a cost avoidance of a recurrent expenditure of $23,438,000 from 2029-30 onwards. It includes an additional annual cost of $8,000,000 originally to be incurred for the replacement of the VDI, and the annual staff costs of $15,438,000 to be incurred for the upgrade and maintenance of the existing 2GLIS, alignment of data from different sources (especially that of the 3D spatial data so as to enrich spatial databases), analysis of various kinds of data, shortening map revision cycle, etc.

40. In addition, a one-off cost avoidance of non-recurrent expenditure of $6,092,000 is estimated for the implementation of the proposed 3GLIS. Assuming that LandsD could not implement the proposed 3GLIS, it has to replace the hardware of the existing 2GLIS to maintain its effective operation, and incur the expenditure as a result.

41. The cost and benefit analysis for the proposed 3GLIS is at Enclosure 2. Encl. 2

IMPLEMENTATION PLAN

42. LandsD has completed the technical study for the proposed project and taken into account the requirements from the DPO on the proposed 3GLIS. The Request for Information was issued to relevant service providers in the market, inviting them to provide estimates for the project, which has been taken into account when formulating the relevant estimated expenditures.

43. In view of the complexity of the proposed 3GLIS and to ensure the continuous and effective operation of the land information system, the project should be implemented in an orderly and prudent manner. Sufficient time should also be allowed to ensure a smooth transition from the existing system to the new one in order to avoid any interruptions that may affect the services and products being provided to government departments, business sectors and members of the public, as well as the work of land administration, survey and mapping, etc. LandsD will strictly follow the relevant guidelines issued by the DPO, including strengthening the governance mechanism for major IT system projects and ensuring the smooth completion and prudent rollout of the proposed 3GLIS, in order to meet the needs of departmental operation and expectations of the members of the public for public services.

44. Taking into consideration the above factors and relevant reference information, the development of the proposed 3GLIS will be broken down into five phases for implementation. The pre-tendering work will commence gradually upon funding approval. The implementation work for the set-up of GCIS infrastructure will commence in the first quarter of 2026 as the first phase. It will last for 14 months and is expected to be completed in the first quarter of 2027. The second to fifth phases will commence successively in the second quarter of 2026 on the new GCIS infrastructure, including setting up of the integrated topographic database, migrating topographic mapping system functions, streamlining the topographic map production processes, setting up and optimising the cadastral information system functions, and the establishment of a brand-new Integrated Land Information Geospatial Portal. These are anticipated to be completed within 22 to 31 months. The development of the entire proposed 3GLIS is expected to be completed and rolled out by the third quarter of 2028, lasting for 33 months. The implementation schedule is set out below –

/**Milestones** …..

	Milestones	**Target Completion Date**
(a)	GCIS Infrastructure Set-up	
	• Procurement and contract award	Q4 2025
	• Roll-out of GCIS infrastructure	Q1 2027
(b)	Integrated Topographic Database System	
	• Procurement and contract award	Q1 2026
	• Roll-out of integrated topographic database system	Q1 2028
(c)	Streamlining Topographic Map Production Workflows	
	• Procurement and contract award	Q2 2026
	• Roll-out of streamlining workflow	Q2 2028
(d)	Integrated Land Parcel Information System	
	• Procurement and contract award	Q1 2026
	• Roll-out of land parcel information system	Q3 2028
(e)	Integrated Land Information Geospatial Portal	
	• Procurement and contract award	Q4 2026
	• Roll-out of integrated land information geospatial portal	Q3 2028
(f)	System maintenance and inspection of the proposed 3GLIS	Q1 2029

PUBLIC CONSULTATION

45. We consulted the Legislative Council Panel on Development on the above proposal on 25 March 2025. Members supported the submission of the above proposal to the Finance Committee for funding approval. Some members raised concerns about how the Government will prevent operational disruptions of the new system in case the software vendor discontinues the software upgrade and support services. In this regard, we will stipulate in the procurement contract that the service provider has to ensure the provision of continuous software support services throughout the design lifespan of the proposed 3GLIS, thereby mitigating risks of

/operational …..

operational impact due to the cessation of software support services. Additionally, in light of members' feedback, we have reviewed the implementation schedule of the proposed 3GLIS and advanced the completion of development and roll-out of the system to the third quarter of 2028 (see paragraph 44 above for details).

Development Bureau
Lands Department
June 2025

Main Functions of the Second Generation of Land Information System (2GLIS)

The 2GLIS, currently used at the Lands Department (LandsD), was fully commissioned in May 2011. The system records and continuously updates various cadastral and geospatial information data to support a wide range of digital map products and services for government departments, business sectors and the general public. Details are as follows –

(a) Keeping up the land parcel boundaries and cadastral survey records for compiling various digital land boundary survey plans and records for use by the government departments and the public, such as the Lot Index Plan[1]. Besides, the system also archived other cadastral survey records (such as Demarcation District sheets, house lot plans, etc.).

(b) Production of up-to-date large-scale survey maps and medium-scale derived maps of Hong Kong, showing the latest topography and city landscape. The maps are widely used by over 40 government departments and the public for land administration, town planning, engineering, transportation, education, election, emergency operations, and other general purposes. Examples of using digital topographic maps of LandsD in existing government systems include –

    (i) the Mobilising and Communications System of the Fire Services Department;

    (ii) the Slope Information System of the Civil Engineering and Development Department;

    (iii) the Transport Information System of the Transport Department;

    (iv) the Digital Mapping System of the Census and Statistics Department; and

    (v) the Drainage Geospatial Information System of the Drainage Services Department.

/(c) …..

[1] In 2024, LandsD provided about 11 500 copies of Lot Index Plan, through the "Hong Kong Map Service 2.0" web portal, which is widely used by the public for land-related applications including applications for planning permission, approval, certificates of exemption, etc.

(c) Provision of geospatial data for the Common Spatial Data Infrastructure (CSDI)[2], including Land Parcel, Building Framework Spatial Data Themes, enabling government departments to utilise the relevant framework spatial data in their systems (through mobile applications such as "GeoInfo Map", "MyObservatory" and "HKeMobility" or other platforms), and providing accurate and versatile geospatial information for government departments and the public. The CSDI platform also supports the business sectors and service providers in making use of the data to develop commercial applications and support the development of Smart City[3];

(d) Supporting private and public organisations for their production of various types of plans and providing a reliable map source for government departments and the public, including plans prepared by the government departments under related ordinances, as well as sales brochures for the private developers under the Residential Properties (First-hand Sales) Ordinance (Cap. 621); and

(e) Supporting the government in reviewing the utilisation of land resources and formulating land-related policies by integrating and analysing geospatial data, particularly data related to land supply and land use.

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[2] From 2022, government departments and the public can access the digital topographic map and other land-related information product services provided by 2GLIS through the CSDI portal. In 2024, there were over 364 000 downloads of digital map data and over 7.3 billion Map Application Programming Interface service calls requested by users through the CSDI portal.

[3] For example, we understood the geographic information system services providers leverage data from CSDI, integrating with other information and technologies, to deliver the market with commercially value-added Internet of Vehicles and fleet management services, thereby adding vitality to the Smart City development.

Cost and Benefit Analysis for the Replacement of the Land Information System of the Lands Department (LandsD)

Item	Cash flow ($'000)									
	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	Total
1. Non-recurrent										
Expenditure	6,518	93,493	137,017	168,113	-	-	-	-	-	405,141
Staff cost	1,390	7,774	10,503	10,405	-	-	-	-	-	30,072
Total Non-recurrent Expenditure	**7,908**	**101,267**	**147,520**	**178,518**	-	-	-	-	-	**435,213**
2. Recurrent										
Expenditure	-	-	-	-	32,629	32,629	32,629	32,629	32,629	163,145
Total Recurrent Expenditure	-	-	-	-	**32,629**	**32,629**	**32,629**	**32,629**	**32,629**	**163,145**
Total Non-recurrent and Recurrent Expenditure (A)	**7,908**	**101,267**	**147,520**	**178,518**	**32,629**	**32,629**	**32,629**	**32,629**	**32,629**	**598,358**
3. Cost Savings and Avoidance										
Recurrent Realisable Savings[1]	-	-	-	-	26,852	26,852	26,852	26,852	26,852	134,260
Recurrent Notional Savings[2]	-	-	-	-	8,080	8,080	8,080	8,080	8,080	40,400
Non-recurrent Cost Avoidance[3]	-	-	-	-	6,092	-	-	-	-	6,092
Recurrent Cost Avoidance[4]	-	-	-	-	23,438	23,438	23,438	23,438	23,438	117,190
Total Savings (B)	-	-	-	-	**64,462**	**58,370**	**58,370**	**58,370**	**58,370**	**297,942**
Net Savings (C) = (B) - (A)	**(7,908)**	**(101,267)**	**(147,520)**	**(178,518)**	**31,833**	**25,741**	**25,741**	**25,741**	**25,741**	**(300,416)**
Net Cumulative Savings	**(7,908)**	**(109,175)**	**(256,695)**	**(435,213)**	**(403,380)**	**(377,639)**	**(351,898)**	**(326,157)**	**(300,416)**	

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[1] After the commissioning of the proposed Third Generation of Land Information System (3GLIS), there will be savings in contract information technology staff (including the support of preparation of data conversion among topographic maps of different scales, maintenance of the existing virtualisation desktop infrastructure (VDI), etc.), and from the maintenance and support for the Second Generation of Land Information System (2GLIS). The savings will offset a portion of the recurrent expenditure of 3GLIS.

[2] With the improved work efficiency brought about by the proposed 3GLIS, there will be savings in staff cost (including the support for the conversion of topographic maps of different scales, production of various kinds of topographic maps, boundary maps and plans, design of data models, alignment of various kinds of land data, maintenance of the existing system, etc.). Since the relevant manpower is currently also deployed to support other tasks, the cost savings cannot be realised through the deletion of posts. However, the manpower saved will be redeployed to support other duties of LandsD.

[3] This represents the amount of a one-off cost avoidance, which would otherwise be incurred for replacing the existing hardware of 2GLIS to maintain its effective operation, assuming that LandsD could not implement the proposed 3GLIS.

[4] This represents the amount of an annual cost avoidance, which covers an annual cost to be incurred for the replacement of the VDI, and the annual staff costs to be incurred for the upgrade and maintenance of the existing 2GLIS, alignment of data from different sources (especially that of the three-dimensional spatial data so as to enrich spatial databases), analysis of various kinds of data, shortening map revision cycle, etc., assuming that LandsD could not implement the proposed 3GLIS.