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Panel on Development

Meeting on 22 June 2021

Background brief on the Construction Innovation and Technology Fund

Purpose

This paper provides background information on the Construction Innovation and Technology Fund ("CITF"), and summarizes the views and concerns expressed by Members on the subject at relevant committees of the Legislative Council.

Background

2. The construction sector has a workforce of about 311 900¹ contributing 4.2% of our Gross Domestic Product.² On 16 July 2018, the Finance Committee approved a non-recurrent commitment of \$1 billion for establishing CITF for use over a tentative period of 5 years (2018-2019 to 2022-2023). CITF aims at encouraging wider adoption of innovative construction methods and technology in the construction industry, and to build up the capacity of construction professionals to leverage innovation for continuous improvement, with a view to promoting productivity, uplifting built quality, improving site safety and enhancing environmental performance. The Fund has been in operation since October 2018.

¹ Source: [Quarterly Report on General Household Survey \(First Quarter 2021\), Census and Statistics Department](#)

² Source: [Gross Domestic Product, Census and Statistics Department](#)

Governance and implementation

3. A Steering Committee ("SC") led by the Permanent Secretary for Development (Works) and comprising members from industry stakeholders and major government departments has been set up to provide overall steer, decide on the key parameters and monitor the progress of implementation of CITF. The Administration has commissioned the Construction Industry Council ("CIC") to administer the Fund, and CIC has set up a dedicated office to discharge the relevant duties.

Scope of funding

4. CITF covers two aspects, namely technology adoption and manpower development. CITF supports the adoption of technologies (including machinery, equipment and software) with proven effectiveness in boosting productivity, uplifting build quality, improving site safety or enhancing environmental performance through leveraging automation, industrialization and digitization rather than sheer innovative management practices. These criteria will form the basis for assessing applications. To simplify and expedite the application process, CIC has drawn up a list of pre-approved technologies meeting the above assessment criteria, the examples of which include (a) Building Information Modelling ("BIM"); (b) Modular Integration Construction ("MiC"); (c) prefabricated steel rebar; and (d) automation, robotics and innovative equipment.

5. To help the industry overcome the impediments for the adoption of innovative technologies (i.e. upfront investment and lack of know-how), CITF also provides financial support for (a) experiential use of the innovative equipment, hardware or software (e.g. BIM system) to raise interest and awareness; (b) technology-specific training to enable competent use of the technology; and (c) adoption of technology³ in construction projects.

6. On manpower development, CITF supports existing practitioners and prospective construction professionals to take part in courses and events on advanced construction technologies with a view to enhancing the capability of practitioners to harness technology for the continuous improvement in the construction industry. The Fund will support industry-specific empowerment programmes focusing on construction innovation and technology ("I&T"). Such programmes would include training courses, visits and conferences

³ Examples include procurement of plant and machineries, appointment of specialist sub-consultants specific for adoption of MiC by project consultants, etc.

organised locally or outside Hong Kong.⁴ Only Hong Kong permanent residents are eligible for funding support.

Government facilitation

7. The Government has been promoting technology adoption through the Capital Works Programme, with a spending of some \$85 billion a year constituting about one-third of the total value of construction projects. For instance, with effect from 2018, capital works projects exceeding \$30 million are required to use BIM from design to implementation. To promote a wider use of prefabrication, the Government has assisted in the establishment of large-scale, highly automated steel reinforcing bar ("rebar") prefabrication yards and introduced measures to facilitate their operation and encourage contractors to use rebar products made by the approved rebar prefabrication yards. In addition, a few public works projects (e.g. InnoCell of Hong Kong Science Park) had piloted the use of MiC.

8. To assist the industry in adopting innovative construction technologies, CIC has set up the Construction Innovation and Technology Application Centre in November 2017 to introduce the latest construction technologies.

9. As at 1 December 2020, CITF has approved more than 1 400 applications from over 700 enterprises with a total commitment of more than \$300 million covering applications of MiC, BIM and other advanced construction technologies, and about 8 000 training places for practitioners for attending technology-related training.

Major views and concerns expressed by Members

10. Members had expressed various views on CITF at the meeting of the Panel on Development ("the DEV Panel") on 29 May 2018 and that of the Finance Committee on 16 July 2018. Members' major views and concerns are summarized in the ensuing paragraphs.

⁴ Examples of the empowerment programmes include (a) collaborative courses and workshops; (b) technology enrichment courses outside Hong Kong for students; (c) technology training and visits outside Hong Kong for practitioners; and (d) international conferences for enhancing innovation capability.

Justifications for the establishment of the Construction Innovation and Technology Fund

11. Members queried why a central fund was not established to cater for the I&T development of various industries such as logistics, retail, and food and beverage, and instead a specific fund was proposed to be set up for the construction industry. The Administration advised that I&T development of the local construction industry fell far behind other industries by international standard. Given that the development of I&T in the construction industry would help enhance the productivity and performance of the industry and hence Hong Kong's competitiveness in the world, the establishment of a specific fund for the industry was essential.

12. Some Members questioned the need for the establishment of CITF. There was a view that the construction industry, in particular those large developers, should take the initiative to adopt new building technologies and promote the development of I&T in the industry.

13. The Administration advised that the Hong Kong construction industry principally relied on labour-intensive construction methods mainly because there was a readily available construction work-force in Hong Kong. Moreover, the construction companies handled the works projects on a one-off basis, and hence lacked the incentive to enhance their construction technologies. In view of the dwindling and ageing workforce and the reluctance of young people to join the construction industry, it was necessary to set up CITF to promote advanced construction technologies in Hong Kong to enhance productivity and sustainable development of the construction industry.

14. The Administration further stressed the importance of the construction industry to Hong Kong's economy and advised that enhancement of I&T in the industry would help boost Hong Kong's competitiveness and improve the standard of living of Hong Kong people. Some 8 000 companies would benefit from CITF, most of which were small and medium-sized construction contractors, subcontractors and consultants.

Scope of funding

15. Members were concerned whether devices and technologies developed locally would be given priority in granting subsidies under CITF, and whether the Fund would cater for the development of new construction supervision devices and technologies for quality checking. The Administration advised that while CITF would cover the use of advanced

construction technology in Hong Kong which had already been adopted in other economies, SC of the Fund would consider whether additional incentives should be provided for the use of locally developed I&T products. The Administration added that the construction industry was encouraged to use more prefabricated components prepared off-site, which would facilitate quality monitoring and checking.

16. Noting that CITF would provide funding support for students and workers in the construction industry to attend overseas courses on I&T in construction works, Members considered that the Administration should target at the development of certain types of technologies in Hong Kong. Members also expressed concern about the training needs of senior construction workers upon the introduction of new construction technologies.

17. The Administration advised that CITF aimed at subsidizing tertiary students and practitioners in the construction industry to attend non-local courses to learn about the use of advanced building technology in advanced countries such as Germany and the United Kingdom with a view to widening their exposure. The Administration further advised that about 20% of CITF would be used for manpower development, including training of existing workers, and details of the training would be worked out by SC of CITF.

Government facilitation

18. Some Members suggested that the Administration should accord higher priority to companies adopting innovative building technologies in the assessment criteria for tenders of Government building projects to promote the use of advance technologies in the industry. The Administration should also consider providing tax concessions to encourage companies to develop innovative building technologies in Hong Kong. The Administration responded that it had been promoting the use of innovative building technologies through contractual means, such as by mandating construction projects exceeding \$30 million to use BIM.

19. Members considered it incumbent upon the Administration to collaborate with the labour unions to provide appropriate in-service training/retraining courses in order to help the construction workers, in particular those aged workers, adapt to the technological development. The Administration advised that CITF would support existing practitioners and students in construction-related disciplines to attend local, Mainland or overseas technology enrichment courses. Furthermore, the Hong Kong Institute of Construction of CIC had been tasked to foster a new generation of construction workers well-versed in new construction technologies. Funding

would also be provided to labour unions for organizing approved technology training courses for their members.

Funding control

20. Some Members were concerned that CITF might mainly benefit large contractors that had the capacity to adopt more innovative technologies, and enquired whether there would be a prescribed ceiling of funding support for each successful application. Pointing out that the fund administration costs might account for as much as 10% of some Government funds, Members enquired if administration costs of CITF would be paid out of the \$1 billion earmarked for the Fund. The Administration responded that to benefit more construction companies and support a wider array of innovative technologies, ceilings would be imposed on the funding support for individual applications and the cumulative total of funding provided to each applicant. The Administration further advised that CIC would absorb the manpower and administration costs so that the entire amount of CITF could be used for the direct benefit of the industry.

Attracting new blood to the construction industry and application of new technologies

21. Members were concerned how CITF could help improve the image and productivity of the construction industry to help attract more young people to join the industry, and how the Government could ensure that the new technology learned overseas would be applicable in Hong Kong. Members considered that occupational safety and health for construction workers should be the prime concern in the process of technology promotion. The Administration advised that generally construction work gave an image that the jobs involved hard work and sometimes were dangerous, promotion of innovation and modern technology could help enhance the image of the industry, especially when the average age of skilled construction workers was above 50 and there was a manpower shrinkage in the workforce.

22. On application of the technologies learned overseas, the Administration remarked that about 80% of CITF would be used to directly subsidize the construction industry in adopting innovative building technology and about 20% of the Fund would be utilized to finance construction practitioners and tertiary students to undertake training. They would be required to submit reports on their studies/visits, in particular on the possible application of the advanced technology in Hong Kong.

Employment of local construction workers

23. Members were concerned that with the promotion of MiC, part of the construction process would be undertaken overseas or in the Mainland, thereby resulting in loss of jobs for local construction workers. The Administration explained that although over 300 000 workers were working in the construction industry, there was still a shortage of 5 000 to 10 000 workers to meet the manpower demand of construction projects. With the increase in construction volume and the dwindling workforce, coupled with the reluctance of young people to join the construction industry, there would still be a shortfall of construction workers after the application of technologies like BIM and MiC in Hong Kong.

24. Some Members pointed out that with the increasing use of prefabricated steel rebars in the industry, the employment opportunities of bar benders would be affected. They also enquired how the Administration could ensure the quality of the prefabricated steel rebars produced. The Administration advised that the Civil Engineering and Development Department ("CEDD") was responsible for maintaining a list of approved off-site prefabrication yards for public works projects and overseeing their quality assurance work. Moreover, CEDD was exploring the feasibility of standardizing the quality assurance requirements for prefabricated steel rebars to better ensure their quality. In view of an ageing construction workforce and the difficulty to attract young people to take up bar-bending works at construction sites, the Administration envisaged that the manufacturing of prefabricated steel rebars at off-site yards would become the trend.

Latest development

25. At the meeting of the DEV Panel to be held on 22 June 2021, the Administration will brief members on the progress of the implementation of CITF.

Relevant papers

26. A list of relevant papers is in the **Appendix**.

Construction Innovation and Technology Fund

List of relevant papers

Committee	Date of meeting	Paper
Panel on Development	29 May 2018	Administration's paper on "Construction Innovation and Technology Fund" [LC Paper No. CB(1)996/17-18(03)] Minutes of meeting [LC Paper No. CB(1)55/18-19]
	1 December 2020	Administration's paper on initiatives of Development Bureau in the Chief Executive's 2020 Policy Address and Policy Address Supplement [LC Paper No. CB(1)275/20-21(01)]
Finance Committee	16 July 2018	Administration's paper on the funding proposal for a new non-recurrent commitment of \$1 billion for the establishment of the Construction Innovation and Technology Fund [LC Paper No. FCR(2018-19)39] Minutes of meeting [LC Paper No. FC103/18-19]