

# 立法會 *Legislative Council*

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## **Panel on Commerce and Industry**

**Meeting on 16 May 2017**

### **Updated background brief on the initiatives for promotion of innovation and technology under the Innovation and Technology Fund**

#### **Purpose**

This paper provides updated background information on a series of initiatives to promote innovation and technology ("I&T") under the Innovation and Technology Fund ("ITF"), namely the Innovation and Technology Support Programme ("ITSP"), University-Industry Collaboration Programme ("UICP"), enhanced Internship Programme, Research and Development ("R&D") Cash Rebate Scheme, Public Sector Trial Scheme ("PSTS"), Enterprise Support Scheme ("ESS") and the Midstream Research Programme for Universities ("MRP") funded by the University Grants Committee ("UGC"). This paper also gives a summary of the views and concerns expressed by members on related issues during previous discussions.

#### **Background**

##### The Innovation and Technology Fund

2. Being a statutory fund administered by the Innovation and Technology Commission ("ITC"), ITF<sup>1</sup> is to provide financial support to a spectrum of activities that boost Hong Kong's I&T capability, ranging from applied research and R&D, technology transfer and commercialization of related activities to promotional activities that foster an innovation culture within the community.

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<sup>1</sup> On 9 July 1999, the Finance Committee ("FC") approved the proposed injection of \$5 billion into the Innovation and Technology Fund ("ITF") which came into operation on 1 November 1999. FC subsequently approved the Administration's proposal to inject a further \$5 billion into ITF to provide sustained and comprehensive support for the development of innovation and technology ("I&T") on 27 February 2015.

3. As of 2014, ITF operated four key funding programmes, which were ITSP, UICP, Small Entrepreneur Research Assistance Programme ("SERAP"),<sup>2</sup> and General Support Programme ("GSP").<sup>3</sup>

4. In the 2014-2015 Budget, the Financial Secretary ("FS") announced the setting up of ESS<sup>4</sup> to replace SERAP under ITF to further enhance the application and commercialization of R&D results.

5. The Administration briefed the Panel on Commerce and Industry ("the Panel") on its proposal to set up ESS to replace SERAP at the meetings on 18 March and 16 December 2014. ESS was subsequently launched on 28 April 2015.

6. In the 2016-2017 Budget, FS further announced a series of new initiatives under ITF to foster the adoption of new technologies, the devotion of more focus and investment on R&D, and to encourage young graduates to join the I&T workforce. These new initiatives included :

- (a) injecting \$2 billion to launch MRP to provide funding support for universities funded by UGC to carry out more midstream and applied research projects in key technology areas;
- (b) increasing the level of cash rebate under the R&D Cash Rebate Scheme to 40% to encourage private enterprises, small and medium enterprises ("SMEs") in particular, to put more resources into R&D works;
- (c) extending PSTS to cover the incubatees of the Cyberport and the Hong Kong Science Park ("HKSP") for funding their production of prototypes or samples and conduct trials of their R&D results in the

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<sup>2</sup> The Small Entrepreneur Research Assistance Programme ("SERAP") was first launched in 1999 to provide financial support for small technology-based enterprises to carry out research and development ("R&D") activities on a commercial basis. The ceiling of Government's contribution was subsequently raised from \$2 million to \$6 million per project. Such contribution would be recouped gradually if the project was commercially successful.

<sup>3</sup> The General Support Programme is the only funding scheme under ITF catering for non-R&D projects that contribute to the upgrading and development of Hong Kong industries, as well as fostering an I&T culture in Hong Kong. Organizations in Hong Kong such as non-profit making organizations, public bodies, charitable organizations, local universities or private companies are eligible to apply.

<sup>4</sup> The Administration intended to replace SERAP with the Enterprise Support Scheme ("ESS") to create a "rainforest" of technology companies, help lower the entry barrier for technology start-ups and help reduce the consequence of failure. Moreover, without the recoupment requirement under ESS, the Administration would be able to create a more favourable environment to encourage the private sector to invest in in-house research.

public sector, with a view to facilitating commercialization of R&D results;

- (d) increasing the monthly allowances of the Internship Programme under ITF and extend the scope to cover the incubatees and SME tenants of the Cyberport and HKSP, as well as the start-ups to be funded by the Innovation and Technology Venture Fund; and
- (e) launching a Technology Voucher Programme ("TVP")<sup>5</sup> to subsidize the use of technological services and solutions by local SMEs.

7. The Panel discussed and supported in principle the proposed new initiatives above at the meeting on 17 May 2016. The Finance Committee ("FC") approved the proposal to inject an additional \$2 billion into ITF for launching MRP at the meeting on 10 June 2016.

## **Progress of various schemes under the Innovation and Technology Fund**

### Innovation and Technology Support Programme

8. ITSP supports mid-stream/downstream applied R&D projects mainly undertaken by the five R&D Centres set up by the Government, local universities and other designated local public research institutions. The Guangdong-Hong Kong Technology Cooperation Funding Scheme<sup>6</sup> also operates under the ITSP funding framework.

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<sup>5</sup> As announced in the 2016-2017 Budget, a \$500 million Technology Voucher Programme ("TVP") would be launched under ITF on a pilot basis to subsidise local small and medium enterprises ("SMEs") in using technological services and solutions to improve productivity, or upgrade or transform their business processes. The Innovation and Technology Commission ("ITC") officially launched TVP in November 2016. TVP provides a cumulative funding up to \$200,000 for each eligible SME on a 2:1 matching basis to carry out a maximum of three approved projects. Each project should normally be completed within 12 months. To ensure proper focus on project implementation, an SME cannot undertake more than one TVP project at the same time. The Panel on Commerce and Industry supported the proposal to introduce TVP at the meeting on 17 May 2016, and was briefed on the implementation of TVP at the meeting on 21 February 2017.

<sup>6</sup> Guangdong-Hong Kong Technology Cooperation Funding Scheme ("TCFS") aims to enhance the level of collaboration on R&D between organisations in Hong Kong and Guangdong. Projects funded by TCFS have to demonstrate an element of collaboration between Hong Kong and Guangdong or Shenzhen research institutes or the industry. Depending on the nature of the project, the projects may be funded solely by ITSP in Hong Kong or Guangdong/Shenzhen, or jointly by the authorities of two sides, i.e. Guangdong/Hong Kong or Shenzhen/Hong Kong.

9. There are broadly two categories of projects under ITSP, namely platform projects and collaborative projects.<sup>7</sup> The Administration briefed the Panel at the meeting on 18 November 2014 on the relaxation of the minimum number of industry sponsors for ITSP projects from two to one and allowing ITSP platform projects conducted by universities to accept sponsorship from a company which was related to the university. As at 31 December 2016, 2,279 projects had been approved under ITSP with funding of over \$9,482 million.

#### University-Industry Collaboration Programme

10. UICP provides matching grant for collaborative projects undertaken by local companies in collaboration with universities. The matching is on a 50:50 basis and only cash sponsorship is accepted. Given UICP projects are proprietary in nature, the intellectual property ("IP") rights arising from the projects belong to the applicant companies. There are three schemes under the UICP, namely Teaching Company Scheme, Matching Grant for Joint Research and Industrial Research Chair Scheme.<sup>8</sup>

11. The Administration briefed the Panel at the meeting on 18 November 2014 on relaxing the timeframe for UICP projects from two years to three years; allowing flexibility for the company and the university participating in a UICP project to negotiate and mutually agree on the IP arrangements and adopting the assessment framework of ITSP for UICP projects. As at 31 December 2016, 300 projects had been approved with funding of over \$354.7 million under UICP.

#### Internship Programme

12. Launched in July 2004, the Internship Programme supports organizations undertaking R&D projects funded by ITF to recruit graduates from local universities as interns to assist in the R&D projects. The Internship Programme

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<sup>7</sup> Platform projects are intended for the benefit of the industry as a whole. These projects require industry contribution of at least 10% of the project cost from at least one company. The industry sponsors will not be entitled to own the project intellectual property ("IP"). Collaborative projects intend to provide support to the industry or a company in conducting R&D, realizing/commercializing IP and taking the R&D outcome to the market. These projects require higher levels of industry contribution of at least 30% of the project cost for projects conducted by R&D Centres or at least 50% for projects conducted by other research institutions. The industry partner will be entitled to exclusive right to utilize the project IP for a defined period or own the project IP.

<sup>8</sup> Teaching Company Scheme supports local companies to take on postgraduate students from local universities to assist in propriety R&D work. Matching Grant for Joint Research aims to foster private companies to collaborate with universities in proprietary R&D projects. Industrial Research Chair Scheme aims to assist universities and industry to develop research efforts that respond to industrial needs by inviting professors to lead designated R&D projects.

is one of the two sub-programmes<sup>9</sup> under GSP of ITF. Each project can engage up to two interns at any one time for a maximum period of 24 months. Since 24 February 2016, the internship allowance for graduates with a Bachelor degree has been increased from \$12,000 to \$14,000 and that for graduates with a Master or higher degree from \$14,000 to \$16,500. The Internship Programme was extended to cover incubatees and SME tenants of HKSP and Cyberport on 19 December 2016.

### Research and Development Cash Rebate Scheme

13. On 1 April 2010, the Government introduced the R&D Cash Rebate Scheme to reinforce the research culture among private companies and to encourage them to establish stronger partnership with local research institutions. With a funding commitment of \$200 million approved by FC, the R&D Cash Rebate Scheme provided cash rebate to private companies on their investment in R&D projects funded by ITF or conducted in partnership with designated local public research institutions.<sup>10</sup> With FC's approval in February 2015, the R&D Cash Rebate Scheme was subsumed under ITF with effect from 1 April 2016.

14. The R&D Cash Rebate Scheme is administered by ITC and the level of cash rebate was 10% of the investment in R&D projects when the Scheme was launched. To enhance the effectiveness of the Scheme and to encourage the private sector to invest more in R&D, the level of cash rebate was raised to 30%, effective from 1 February 2012, and to 40% from 24 February 2016. As at end-March 2016, over 800 enterprises had been funded, involving cash rebates of nearly \$170 million in total.

### Public Sector Trial Scheme

15. To promote realization or application of the R&D results in the public sector, the Government introduced PSTS in March 2011, whereby additional funding is provided to complete R&D projects funded by ITF for the production of tools/prototypes/samples and the conducting of trials in the public sector, including government departments, public bodies and trade associations.

16. In 2014, the Administration raised the funding ceiling of PSTS from 30% to 50% of the actual cost of the R&D projects funded by ITF, and up to 100% for projects undertaken by the R&D Centres. On 19 December 2016, PSTS was extended to include incubatees of the Cyberport and HKPC for trials of their

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<sup>9</sup> The other sub-programme is the Patent Application Grant which provides funding support for patent applications from an individual or a company who/which has never owned a patent before.

<sup>10</sup> Designated local public research institutions under the R&D Cash Rebate Scheme include local universities; R&D Centres set up under ITF; Hong Kong Productivity Council; Vocational Training Council and Hong Kong Institute of Biotechnology.

technologies or products in the public sector. The funding ceiling for each project is \$1 million. As at end-March 2016, over 110 projects had been approved under PSTS with funding of over \$190 million, benefitting over 160 organizations.

### Enterprise Support Scheme

17. To address the limitations of SERAP and encourage more private sector investment in I&T, the Administration replaced SERAP with ESS with improved features. Under ESS, limited companies registered in Hong Kong, regardless of size, will be eligible to apply. Funding of up to \$10 million for each approved project will be provided on a matching basis. Contribution from the applicant company should not be less than 50% of the total project cost. Moreover, the applicant company will own the IP of the project and there will be no requirement for recoupment of Government's contribution. As at 31 December 2016, a total of 22 projects and \$65.5 million of funding had been approved under ESS.

### Midstream Research Programme for Universities

18. Launched on 23 December 2016, MRP is an initiative to encourage academic institutions funded by UGC to conduct more theme-based midstream research in focused technology areas. The focal point of MRP is on R&D projects which endeavour to improve the well-being of elderly, in particular ventures related to preventing, diagnosing or treating dementia or those that facilitate quality care for dementia patients. The funding ceiling for each project is \$5 million. Priority will be given to projects involving collaboration across multiple disciplines, universities or research institutions, where a higher funding ceiling of \$10 million per project will be given.

### **Previous discussions**

19. The Panel had a discussion on the comprehensive review of ITF with proposed improvement measures at the meeting on 18 February 2014. The Panel was briefed on the details of ESS at the meetings on 18 March and 16 December 2014. The Panel and FC discussed the injection of \$5 billion into ITF at the meetings on 20 January and 27 February 2015, and discussed the proposed MRP at the meetings on 17 May and 10 June 2016 respectively. Members' views and concerns in previous discussions are summarized in the ensuing paragraphs.

### Management of the Innovation and Technology Fund

20. At the Panel meeting on 20 January 2015, some members commented that the initial appropriation of \$5 billion to ITF in 1999 had been spent at a slow pace and urged the Administration to speed up the usage of ITF to vigorously promote the development of I&T in Hong Kong. The Administration advised that in

addition to the initial injection of \$5 billion into ITF in 1999, the total revenue earned over the years was about \$4.1 billion, comprising mainly the investment income from the Exchange Fund to which the unspent ITF funding had been parked plus the project incomes ploughed back to ITF over the years. Furthermore, the actual cash flow might vary depending on the number and amount of funding applications approved under different funding programmes and changes in policy, the introduction of new initiatives/schemes in the future might also speed up the usage of funds.

21. At the FC meeting on 27 February 2015, some members noted that ITF had not required further injection of funds since its inception in 1999 with \$5 billion and questioned why the Administration estimated that the same amount of injection into ITF was sufficient for its operations for only five to six years. The Administration advised that the forecast was based on past expenditure pattern. The projected depletion period was shorter than that of the initial financial injection as the scope and schemes of ITF had expanded over the years.

#### Commercialization of research and development outcomes

22. At the Panel meeting on 20 January 2015, members opined that ITF should focus on funding projects that were commercially viable and suitable for manufacturing in Hong Kong, thereby generating actual economic contributions to Hong Kong's economy. The Administration replied that it had refined the assessment framework for ITF applications since 2011 so that in assessing a project proposal, consideration was also given to the holistic plan of realization/commercialization so as to encourage and identify projects with greater prospect of realization/commercialization. In addition, PSTS provided additional funding to completed R&D projects funded by ITF for the production of tools/prototypes/samples and for conducting trials in the public sector. In recent years, there had been a significant increase in the number of cases in realizing R&D outcomes in the public sector and commercialization of R&D outcomes.

23. At the FC meeting on 27 February 2015, members expressed concern about the Administration's lack of effective policies to support commercialization of R&D outcomes. The Administration advised that the Administration had adopted measures in the past few years to expand the scope of ITF to provide support to more downstream R&D activities and commercialization of R&D outcomes. In addition to supporting local R&D, ITF would also support projects involving procurement of third party IP. ITF had also been providing funding to the technology transfer offices of universities to support activities on technology transfers.

#### Research and Development Cash Rebate Scheme and Public Sector Trial Scheme

24. To promote the R&D Cash Rebate Scheme to SMEs, some members suggested at the Panel meeting on 18 February 2014 that the Administration

should collaborate with relevant chambers of commerce and trade associations to arouse SMEs' interests in the application of I&T in their business operations, and strengthen their collaboration with local research institutions and academia on research projects. Efforts should also be made to publicize the successful R&D results under the Scheme to the general public.

25. The Administration advised that to heighten awareness of the Scheme, the Administration would publicize the relevant improvement measures of ITF and engage the major chambers of commerce and industry organizations in this endeavor.

26. To enhance PSTS, some members suggested that the Administration should expand the scope of PSTS to cover trials in the private sector to promote wider exploitation of local R&D results and facilitate their commercialization in the open market. The Administration replied that the proposed increase of the funding limit of PSTS projects from 30% to 50% of the actual cost of the R&D project supported by the ITF would facilitate the conduct of larger scale product trials to assess speedily and comprehensively the effectiveness of the new innovation in different settings, and repeated trials to identify areas of improvement to facilitate their commercialization in the open market.

#### Implementation of the Enterprise Support Scheme

27. Members were concerned that ESS would be open to applications by all companies registered in Hong Kong, regardless of size at the Panel meetings of 18 March and 16 December 2014. Some members were concerned that small technology companies which were SMEs might be less competitive than large companies when applying for the ESS and that more established company applicants might take away the bulk of the funding, depleting the ESS fund pool quickly at the expense of SME applicants.

28. The Administration advised that under ESS, there would not be a quota on the number of applications to be processed or the amount of funding to be approved. Therefore the support for SMEs would not be reduced even though large companies would be eligible to apply for the ESS funding. All applications that had met the assessment criteria of ESS would be approved, regardless of the size of the applicant companies. Furthermore, every application, be it from a large or small company, would be assessed on its own merits, and the assessment criteria would include the I&T component and commercial viability of the projects among others.

29. Some members enquired whether an appeal mechanism would be provided for unsuccessful applicants. The Administration advised that while there would not be any appeal mechanism, ITC would pass on the project assessment panel's comments to the unsuccessful applicants, who could revise and resubmit their applications if they so wished to the project assessment panel for consideration.



30. Some members also expressed concern that since ESS had no mandatory recoupment requirement, some applicant companies might lack the driving force to pursue successful commercialization of their projects vigorously. The Administration advised that without the recoupment requirement, the Administration would be able to create a more favourable environment to encourage the private sector to invest in in-house research. This would lead to an increase in the quantity of R&D projects, and more success stories might emerge when there was a critical mass of start-ups and technology companies. A mandatory recoupment and benefit-sharing requirement would render ESS a loan not dissimilar to SERAP and reduce its intended effectiveness.

#### Midstream Research Programme for Universities

31. At the Panel meeting on 17 May 2016, members sought elaboration on the definition of midstream research. The Administration advised that midstream research involved research activities in between basic research and applied research. They mostly arose from findings of basic research, which were experimental or theoretical work leading to new discoveries or new knowledge without any particular application. Midstream research covered a wide range of activities, including concept proofing, laboratory validation, system/process optimization, etc. It had the potential of leading to further downstream R&D work, the outcome of which could be applied or commercialized.

32. Members also raised questions on the implementation of MRP at the FC meeting on 10 June 2016. Noting that robotics technology was one of the preliminary topics of the proposed MRP, members enquired if the Administration had assessed the midstream research capability of local institutions in this area of robotics technology, and also, compared with the rest of the world, what role local institutions could play in the midstream research of the relevant technological area. The Administration advised that local universities, especially those with engineering subjects on offer, had all been engaging in research on robotics technology. Moreover, when picking research topics, the research capability of local universities in the relevant technological area would be taken into account.

33. Members pointed out that universities engaged in a very broad scope of research projects that were applicable to various industries and asked whether members of the expert panels under MRP had extensive knowledge about technologies and industries to review project applications by institutions. The Administration advised that there would be specific research topics under the proposed Midstream Research Programme, and project applications for each research area would be vetted by the respective expert panel.

34. Some members enquired about how MRP could promote applied research and commercialization of research outcomes. The Administration advised that while MRP did not require industry sponsorship for a project, its purpose was to

encourage UGC-funded institutions to focus more on midstream research, so as to make available more research outcomes for further downstream research in order to develop new products or services.

35. In response to members' views that researchers were often unable to share the benefits brought about by commercialization of research outcomes, the Administration advised that the IP rights of the funded projects would be vested with the lead applicant. Furthermore, relevant institutions were encouraged to promote their research outcomes to the industries concerned after project completion by means of licensing or contract services. Universities could also set up their own start-up companies to promote commercialization of research outcomes of projects and the actual arrangement of which should be decided by universities on their own.

### **Council meeting**

36. At the Council meeting of 16 December 2015, Mr Charles MOK asked an oral question about promoting development of I&T industry. Mr MOK enquired about whether the Administration would expand the scope of PSTS to include the R&D projects not funded by ITF and allow more organizations, including private organizations, to participate in the trials of tools, prototypes or samples. Mr MOK also asked whether the Administration would make reference to the experience of other countries and provide I&T vouchers to local SMEs to encourage them to procure the relevant products and services, so as to promote the development of the I&T industry. The Administration replied that to further promote the adoption of R&D results funded by ITF in the public sector, the Administration had raised the funding ceiling of PSTS from 30% to 50% in 2014, so as to encourage the conduct of trials in larger scale. The Administration would consult the industry and relevant stakeholders and consider whether to further expand the scope of PSTS. On I&T vouchers, the Administration replied that it noted that certain overseas regions provide "innovation vouchers" or similar assistance to SMEs, it would draw on the experiences of these places to facilitate its consideration on measures to improve the technological level and the competitiveness of the industry.

### **Latest position**

37. The Administration will brief the Panel on the implementation progress of various schemes under ITF, including ITSP, Internship Programme, R&D Cash Rebate Scheme, PSTS, ESS, MRP and TVP.

**Relevant papers**

38. A list of relevant papers is shown in the **Appendix**.

Council Business Division 1  
Legislative Council Secretariat  
12 May 2017

List of relevant papers

Date of meeting	Meeting	Paper
18/2/2014	Panel on Commerce and Industry	<p>Administration's paper on "Comprehensive review of the Innovation and Technology Fund – proposed improvement measures"  <a href="#">(LC Paper No. CB(1)885/13-14(03))</a></p> <p>Background brief on improvements to the Innovation and Technology Fund to promote innovation and application of research and development outcomes prepared by the Legislative Council Secretariat  <a href="#">(LC Paper No. CB(1)885/13-14(04))</a></p> <p>Minutes of meeting  <a href="#">(LC Paper No. CB(1)1234/13-14)</a></p>
18/3/2014	Panel on Commerce and Industry	<p>Administration's paper on "New initiatives on promotion of innovation and technology"  <a href="#">(LC Paper No. CB(1)1072/13-14(07))</a></p> <p>Updated background brief on promotion of innovation and technology prepared by the Legislative Council Secretariat  <a href="#">(LC Paper No. CB(1)1072/13-14(08))</a></p> <p>Minutes of meeting  <a href="#">(LC Paper No. CB(1)1418/13-14)</a></p>

Date of meeting	Meeting	Paper
16/12/2014	Panel on Commerce and Industry	<p>Administration's paper on "Launching of a new Enterprise Support Scheme to replace the Small Entrepreneur Research Assistance Programme under the Innovation and Technology Fund" (<a href="#">LC Paper No. CB(1)344/14-15(04)</a>)</p> <p>Background brief on launching of a new Enterprise Support Scheme to replace the Small Entrepreneur Research Assistance Programme under the Innovation and Technology Fund prepared by the Legislative Council Secretariat (<a href="#">LC Paper No. CB(1)344/14-15(05)</a>)</p> <p>Minutes of meeting (<a href="#">LC Paper No. CB(1)439/14-15</a>)</p>
20/1/2015	Panel on Commerce and Industry	<p>Administration's paper on "Injection into the Innovation and Technology Fund" (<a href="#">LC Paper No. CB(1)438/14-15(05)</a>)</p> <p>Background brief on the Innovation and Technology Fund prepared by the Legislative Council Secretariat (<a href="#">LC Paper No. CB(1)438/14-15(06)</a>)</p> <p>Minutes of meeting (<a href="#">LC Paper No. CB(1)582/14-15</a>)</p>
27/2/2015	Finance Committee	<p>Administration's paper on "Innovation and Technology Fund" (<a href="#">FCR(2014-15)57</a>)</p> <p>Minutes of meeting (<a href="#">LC Paper No. FC238/14-15</a>) (<a href="#">LC Paper No. FC239/14-15</a>)</p>
16/12/2015	Council	<p>Question No. 5 on "Promoting development of innovation and technology industry" raised by Hon Charles MOK (<a href="#">Hansard</a>) (Page 3004-3016)</p>

<b>Date of meeting</b>	<b>Meeting</b>	<b>Paper</b>
17/5/2016	Panel on Commerce and Industry	<p>Administration's paper on "New initiatives under the Innovation and Technology Fund to promote innovation and technology"  <a href="#">(LC Paper No. CB(1)901/15-16(05))</a></p> <p>Background brief on the new initiatives for promotion of innovation and technology prepared by the Legislative Council Secretariat  <a href="#">(LC Paper No. CB(1)901/15-16(06))</a></p> <p>Minutes of meeting  <a href="#">(LC Paper No. CB(1)1186/15-16)</a></p>
10/6/2016	Finance Committee	<p>Administration's paper on "Innovation and Technology Fund"  <a href="#">(FCR(2016-17)38)</a></p> <p>Minutes of meetings  <a href="#">(LC Paper No. FC317/15-16)</a>  <a href="#">(LC Paper No. FC318/15-16)</a></p>