

**For discussion on
16 December 2014**

Legislative Council Panel on Commerce and Industry

**Launching of a New Enterprise Support Scheme to
replace the Small Entrepreneur Research Assistance Programme
under the Innovation and Technology Fund**

PURPOSE

On 18 March 2014, Members supported our proposal to set up an Enterprise Support Scheme (ESS) to replace the Small Entrepreneur Research Assistance Programme (SERAP) under the Innovation and Technology Fund (ITF). This paper provides further details of ESS, including its key features, scope and funding arrangements, expected benefits, etc. for Members' consideration.

BACKGROUND

Small Entrepreneur Research Assistance Programme

2. The \$5-billion ITF was established in 1999 to fund projects that contribute to innovation and technology (I&T) upgrading in manufacturing and service industries. Among the four major programmes of ITF, SERAP is the only one that supports in-house research and development (R&D) by the private sector.

3. SERAP was first launched in 1999. Its objective is to provide financial support for small technology-based enterprises to carry out R&D activities on a commercial basis. During its early days, funding of up to \$2 million per project was provided on a dollar-for-dollar matching basis. The ceiling of Government's contribution was subsequently raised to \$6 million per project. Such contribution would be recouped gradually if the project is commercially successful.

4. Over the years, SERAP has evolved to suit prevailing circumstances. The major enhancements are summarised at **Annex A**.

Performance of SERAP

5. As at 31 October 2014, there were 1 836 SERAP applications and 394 were approved, involving a total funding of \$471.4 million. In the past three years, we received around 100 applications each year as set out in Table 1 below.

Table 1 : SERAP Applications Received and Approved, and Funds Approved from 2011 to 2013

Year	Number of Applications Received	Number of Applications Approved	Total Funds Approved (in \$ million)
2011	85	19	\$25.0
2012	91	6	\$9.3
2013	111	23	\$50.7

6. For 2014, we have received 84 applications up till 31 October. This lower application number for SERAP may be attributable to some companies anticipating the launch of ESS.

7. Most of the SERAP projects are related to information and communications technology (ICT) (53%); electrical and electronics (22%) and biotechnology (10%) as detailed in Table 2 below.

Table 2: SERAP Projects by Technology Area

Technology Area	Number and Percentage of Projects Approved	Funds Approved (\$ million)
Information and Communications Technology (ICT)	209 (53.0%)	229.3
Electrical and Electronics	87 (22.1%)	106.0
Biotechnology	39 (9.9%)	68.2
Manufacturing Technology	20 (5.1%)	20.6
Materials Science	13 (3.3%)	17.7
Environmental Technology	13 (3.3%)	13.9

Technology Area	Number and Percentage of Projects Approved	Funds Approved (\$ million)
Nanotechnology	4 (1.0%)	9.4
Chinese Medicine	1 (0.3%)	0.4
Others	8 (2.0%)	5.9
Total	394	471.4

Audit Review on SERAP in 2013

8. The Audit Commission (Audit) conducted a review on ITF in 2013. The review also covered SERAP, specifically –

- (a) the recoupment of Government's contribution to SERAP projects; and
- (b) the processing of SERAP applications and monitoring of projects approved for SERAP funding support.

9. The relevant findings were set out in Chapters 9 and 10 of the Director of Audit's Report No. 61 tabled at the Legislative Council in November 2013. Some major recommendations regarding SERAP are as follows –

- (a) the Innovation and Technology Commission (ITC) should step up follow-up actions on recoupment of Government's contribution to SERAP projects, including taking timely action on companies which fail to report revenue/investments and consulting the Department of Justice about the feasibility of instigating legal action against the companies which do not comply with the SERAP Fund Agreement; and
- (b) ITC should closely monitor the progress of the SERAP projects and take measures to ensure that recipient companies submit reports in a timely manner according to the schedule set out in the SERAP Fund Agreement.

10. ITC is following up the Audit's recommendations. We will review the outstanding SERAP cases by adopting a balanced approach to adequately protect the interests of the Government on the one hand, while acting appropriately and sympathetically to the companies concerned on the other.

11. We have also completed a comprehensive review of SERAP to see if it can support the industry in present-day circumstances, taking into account all factors including the measures adopted to support I&T in places outside Hong Kong. Some limitations of the current programme have been identified. The details are set out in paragraphs 12 to 15 below.

Limitations of SERAP

Recoupment Requirement

12. According to the SERAP Guidelines and Fund Agreement, the following should be recouped from the recipient companies until Government's contribution is repaid in full –

- (a) 5% of the gross revenue generated from the project; and
- (b) 10% of investment made to the recipient company by a third party.

13. Recipient companies are required to report to ITC the amount of recoupment payment arising from revenue generated from SERAP deliverables and third party investments. However, ITC has encountered difficulties in verifying whether the reported amount of recoupment payment is true and correct. For example,

- (a) it may not always be possible to identify the proportion of revenue that is attributable to the results of a SERAP project, especially when the SERAP project results only form part of the final commercialised product. This makes it difficult to ascertain the correct amount of funds to be recouped from the recipient company; and
- (b) when a third party incorporated in Hong Kong invests in the recipient company, ITC may still be able to verify the amount of investment through public records for example from the Companies Registry. However, such information may not be available if the investment was made by private individuals or an entity incorporated in other jurisdictions.

14. In addition, ITC faces practical problems such as recipient companies' delay or failure in reporting project revenue and third party investment, in making recoupment payments, etc. As the recoupment

requirement is continuing until the amount of Government's contribution is recovered in full, the number of cases being monitored by ITC is ever-increasing.

Other Limitations of SERAP

15. At present, over 80% of ITF-supported R&D projects, via the Innovation and Technology Support Programme (ITSP) and the University-Industry Collaboration Programme (UICP), are conducted by designated local public research institutions. For other companies that wish to seek ITF support for their in-house R&D, the only available source of funding is SERAP. However, SERAP may be viewed as less favourable than ITSP and UICP in the following aspects –

- (a) **Recoupment Requirement** – while there is no repayment requirement for projects funded by ITSP and UICP, SERAP recipients are required to repay the Government when the projects generate revenue or when the recipient companies receive third party investment. There are comments that the recoupment requirement could become a disincentive for SERAP recipients to pursue success;
- (b) **Size of Company** – SERAP is restricted to small and medium enterprises (SMEs) which have less than 100 employees and are not subsidiary companies significantly owned or controlled by publicly listed companies. Larger companies in general cannot benefit from the funding support to conduct in-house R&D. This will undermine the interest of these larger companies to invest in I&T in Hong Kong; and
- (c) **Funding Ceiling** – while funding support by ITF on R&D projects conducted in collaboration with designated local public research institutions may reach \$30 million per project, the funding ceiling of SERAP is only \$6 million per project.

Private Sector Investment in R&D in Hong Kong

16. In Hong Kong, the ratio of public sector (i.e. the Government and the higher education sector) and private sector expenditure on R&D is about 55:45. In contrast, this ratio is closer to 30:70 in most competitive economies, where the private sector contributes the majority toward R&D expenditure. Stronger private sector involvement in R&D would help

build a healthier ecosystem for I&T development. We hope ESS would help motivate more companies to invest in R&D in Hong Kong.

THE NEW SCHEME – ENTERPRISE SUPPORT SCHEME

17. To address the limitations of SERAP and to encourage more private sector investment in I&T, we will replace SERAP with a new ESS with the following improved features –

- (a) **Size of Company** – limited companies registered in Hong Kong, regardless of size, will be eligible to apply;
- (b) **Funding Ceiling** – 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;
- (c) **Intellectual Property (IP) Arrangements** – as in the case of SERAP, the applicant company will own the IP of the project;
- (d) **Recoupment Requirement** – in contrast with SERAP, there will be no requirement for recoupment of Government’s contribution. This will provide greater encouragement to companies to invest in R&D; and
- (e) **Benefit-sharing Model** – Benefit-sharing is not mandatory. Detailed explanations are set out in the paragraphs below.

18. In devising ESS, we have critically reviewed whether benefit-sharing should be one of the features, and if it is, whether it should be mandatory or optional.

19. As background, when we sought the approval of the Legislative Council Finance Committee in 2005 on the establishment of the R&D Centres, we considered that as the R&D Centres ramped up their operation over the years, they would generate income from their R&D projects through IPs and commercialisation of the project deliverables. Such income would be ploughed back to ITF, and be reserved for meeting expenditure of new projects. This was the background and basis of benefit-sharing.

20. We have carefully considered the various shortcomings of SERAP, in particular the rather onerous requirement of recouping the original funding in its entirety. Although the requirement of recoupment was included since SERAP was established, experience in the past decade shows that there are problems as follows -

- (a) Over the years, whilst there were 394 approved projects under SERAP, with a funding amount of \$471 million, only some \$25 million has been recouped, representing a small percentage (around 5%) of the total SERAP approved funding;
- (b) Given the recoupment requirement, SERAP is *de facto* a loan. There have been suggestions that Government should be more generous in its funding support and that a mandatory recoupment requirement at the very early stage of commercialisation would be a major disincentive; and
- (c) SERAP Fund is to be recouped from 5% of the gross revenue generated from the project deliverables as well as 10% of third party investment made to the recipient company until the Government's contribution is repaid in full. However, we note that some SERAP companies appeared to be hesitant to report their revenues or success in raising third party investment to ITC. With the current set up and staff resources at ITC, it is operationally difficult to effectively monitor and follow up all the active cases, especially if the recoupment requirement continues until the entire Government's contribution is repaid in full which can last over a decade.

Indeed, this was one of the major findings of the Audit Review 2013 as mentioned in paragraphs 8 and 9 above. In brief, there are considerable difficulties in effective enforcement of the recoupment requirement.

21. Our major policy intention of replacing SERAP with ESS is –

- (a) To create a 'rainforest' of technology companies, help lower the entry barrier for technology start-ups, and help reduce the consequence of failure. If a recipient company succeeds, it will be a positive indication of our support measures; and precious experience would be gained by all stakeholders regardless of the eventual commercial outcome; and

- (b) Without the recoupment requirement, we would be able to create a more favourable environment to encourage the private sector to invest in in-house research. This would also lead to an increase in the quantity of R&D projects. More success stories might emerge only when we have a critical mass of start-ups and technology companies. However, a mandatory benefit-sharing requirement would render ESS a loan not dissimilar to SERAP and reduce its intended effectiveness.

22. In the light of the above, it appears logical not to impose a mandatory requirement for benefit-sharing. We however note that this would lead to an inconsistency with the current practice of the R&D Centres where benefit-sharing is required in undertaking collaborative projects with the private sector. Indeed the monetary return from IP rights licensing and assignments, royalties, contract services, and benefit-sharing is an indication of the Centres' performance in commercialisation, in addition to other indicators like the level of industry contribution.

23. Given the complex considerations above, we propose a balanced approach –

- (a) Benefit-sharing will not be mandatory under ESS in order not to discourage private sector from investing in R&D. However, if an ESS applicant is confident with its commercial prospects and offers benefit-sharing, this would be taken into account in assessing the application. There would not be any pre-determined formulae for the benefit-sharing and applicant companies would have the flexibility to propose payment terms that suit their circumstances, such as fixed payments within a limited period after commercialisation of the project deliverables; and
- (b) As regards R&D Centre projects, the relevant Board of Directors or Technology Committee may decide whether and how benefit-sharing should be implemented for individual collaborative projects with the private sector, taking into account all relevant factors such as the impact of the core technologies to be further developed, public interest, background of the private collaborators and resources committed by the Centre.

24. The introduction of ESS will undoubtedly cast an impact on the R&D Centres. We will review the arrangements pertaining to the latter in order to dovetail.

25. A comparison of the key features of ESS and SERAP is at **Annex B**.

Scope and Funding Arrangements

26. In general, the scope and funding arrangements for ESS will follow the prevailing practice of ITF, including –

- (a) **Scope of Funding** – to render strong support to downstream R&D and commercialisation activities and to allow full exploitation of the technological edge of local industries, the scope of ESS will cover R&D as well as system integration, industrial design, compliance testing and clinical trials;
- (b) **Location of R&D Work** – at present, ITF allows up to 50% of the R&D work of a funded project to be conducted outside Hong Kong, provided that prior approval is sought from ITC with justifications. While we generally encourage R&D collaboration with other economies, the applicant company should demonstrate how such collaboration will bring reasonable benefits to the local industry and community, i.e. the Hong Kong angle; and
- (c) **Fund Disbursement and Project Period** – funding will normally be disbursed to each recipient company by half-yearly instalments. The amount of each instalment will be based on the estimated cash flow of the project. Instalments will be made available upon confirmation of the availability of the matching fund from the recipient company and satisfactory completion of the project milestones. The project period should generally not exceed 24 months.

Assessment of Applications and Control of Approved Projects

27. The assessment of applications and control of approved projects will also be in line with the general practice of ITF –

- (a) **Application and Assessment** – ITC will set up assessment panels to assess and select the applications to be funded under

ESS. The panel will comprise experts from the academia, industry, venture capital, etc. to ensure a fair and balanced assessment of applications. Based on the assessment criteria, including I&T component, commercial viability, team capability and commitment, as well as relevance to Government policies or overall interest of the community, the assessment panel will formulate its recommendations to the Commissioner for Innovation and Technology, who will then consider whether the applications should be approved.

There will not be any appeal mechanism. However, ITC will inform unsuccessful applicants of the comments of the assessment panel. Based on the comments, the applicants can revise their applications and submit them to the assessment panel again for consideration;

- (b) **Control Mechanism** – all approved projects will be monitored by ITC against the milestones stated in the applications. Recipient companies have to submit progress reports every six months until project completion. Upon completion of the projects, recipient companies should also submit audited accounts of the projects to ITC; and
- (c) **Post Project Evaluation** – two years after completion of the R&D project funded under ESS, or successful commercialisation of the project deliverable(s), whichever is earlier, the recipient company will have to file a “Post Project Evaluation Questionnaire” to ITC. In the questionnaire, the company will have to indicate the progress of commercialisation, share its success stories (if applicable), and provide feedback on ESS. Such information would be useful for our review of ESS in due course.

EXPECTED BENEFITS

28. The expected benefits of ESS are as follows –

- (a) **Increase the Chance of Successful Commercialisation** – apart from supporting R&D projects by small technology companies and start-ups, ESS will also help more established companies. Larger industry players would usually have a better handle of market needs and hence be able to plan their technology rollout

accordingly. As such, their R&D projects would stand a better chance of successful commercialisation;

- (b) **Increase the Diversity of Technology Areas of Funded Projects** – since the funding ceiling will be raised from \$6 million to \$10 million and the restriction of company size will be cancelled, ESS may appeal to a wider spectrum of R&D interests. For example, more pharmaceutical and biotechnology companies may be interested in getting funding support for their projects;
- (c) **More Private Sector Investment in R&D** – stronger incentives will be provided for companies, regardless of size, to conduct in-house R&D activities. That would in turn encourage more private sector R&D expenditure in Hong Kong. On the one hand, it will lower the threshold for technology start-ups or SMEs to further their applied R&D efforts for translating the technology to marketable products or services. On the other hand, multinational corporations (MNCs) or large companies may be more willing to leverage on the ESS support and undertake R&D projects in Hong Kong. In addition, companies which are funded by ESS may find it easier to attract other investments;
- (d) **Encourage Technology Commercialisation** – it will spawn more commercialisation activities which will in turn drive the level of R&D investment, particularly in the private sector. This will help engender a critical mass of talents, companies, capital and IP and in turn create a bigger I&T sector in the longer run;
- (e) **Create more Employment Opportunities** – the increase in private sector R&D will also translate into more jobs. Apart from jobs offered by local companies, the opportunities offered by local offices of MNCs and Mainland companies will be attractive to our young science and engineering graduates; and
- (f) **Local Industry Upgrading** – companies will be encouraged to make use of indigenous as well as foreign innovative technologies to strengthen their product/service portfolios, thus improving the overall innovation capacity and competitiveness of the local industry by helping them to move up the value chain.

ESTIMATED CASELOAD AND FUNDING REQUIREMENT

29. As ESS is a new funding scheme, it may not be possible to estimate the relevant caseload and funding requirement at this stage. Despite the fact that ESS is more flexible and generous, it may take some time for companies to familiarise with the new scheme before submitting funding applications. Similar to SERAP and other funding programmes under ITF, we do not propose to restrict the number of applications to be processed each year. The actual amount of funds approved will depend on the number of applications approved. The indicative figures shown in Table 3 below present scenarios for a 30% increase in the number of the ESS applications received in the first year (2015) and a 20% increase in the second year (2016). Accordingly, the amount of Government's contribution is estimated to be around \$56 million and \$66 million respectively.

Table 3 : Estimated Caseload of ESS Applications and Estimated Funds to be Approved in 2015 and 2016

Year	Estimated Number of Applications Received (a)	Average Percentage of Applications Approved ¹ (b)	Estimated Number of Applications Approved (c)=(a)x(b)	Average Amount of Funds Approved for each application (in \$ million) ² (d)	Estimated Amount of Funds Approved (in \$ million) (e)=(c)x(d)
2015	131 ³	21%	28	\$2	\$56
2016	157 ⁴	21%	33	\$2	\$66

30. The workload arising from the implementation of ESS and follow up of outstanding SERAP cases will be absorbed within ITC's resources and the funding requirement for the approved projects will be absorbed by the approved allocation of ITF.

¹ Based on the number of SERAP applications received and approved from November 1999 to end October 2014, it is assumed that the number of ESS applications approved in one year is around 21% of the applications received.

² According to the amount of SERAP funds approved since 2012 (the funding for each approved project is capped at the current amount of \$6 million, see Table 1 above), it is estimated that the average amount of funds approved for each ESS application will be some \$2 million.

³ Based on the statistics on SERAP in Table 1 and paragraph 6 above, the number of SERAP applications received in 2014 is projected to be 101. It is estimated that there will be a 30% increase in the ESS applications received in the first year (2015) as compared with that received under SERAP in 2014. Hence, $131 = 101 \times 1.3$.

⁴ It is estimated that there will be a 20% increase in the ESS applications received in the second year (2016) as compared with that in 2015. Hence, $157 = 131 \times 1.2$.

31. We will monitor the situation closely after the launch of ESS, including the caseload, the approval rate of the application, the funding amount approved, etc. We will review the Scheme in due course and put in place enhancement measures as necessary.

IMPLEMENTATION

32. Subject to the support of the Legislative Council Panel on Commerce and Industry, ITC will finalise the application guidelines and forms and proceed to appoint members of the assessment panels. Briefings will be arranged for potential applicants on the features and operations of ESS in early 2015. Upon the launching of ESS, new SERAP applications will no longer be accepted. The target date for launching ESS is the first quarter of 2015.

33. Before the launching of ESS, SERAP will continue to be in operation. The existing cases of SERAP will still be handled under their existing rules.

34. Apart from providing financial support, the recipient company may also join the incubation programmes currently operated by the Hong Kong Science and Technology Parks Corporation (HKSTPC) if it satisfies the prevailing admission criteria. We will work out details of interfacing with HKSTPC later.

ADVICE SOUGHT

35. Members are invited to support the proposed ESS. Subject to the Panel's comment, ITC will launch ESS in early 2015.

Innovation and Technology Commission
December 2014

**Major Enhancements of the
Small Entrepreneur Research Assistance Programme (SERAP)
over the Years**

- In 2008,
 - (i) the size of eligible company was expanded from ‘no more than 20 employees’ to ‘no more than 100 employees’;
 - (ii) the two-phase application system was streamlined to a single-phase system. Before that, an applicant was required to confine the project’s initial trial phase to no more than six months and subsequently apply for the second-phase funding;
 - (iii) a new measure was introduced in which 10% of Government’s contribution would be withheld until the recipient company submitted the final report and the audited accounts of the projects to the Innovation and Technology Commission (ITC); and
 - (iv) the reference interest rate for calculating penalty for late recoupment payment to the Government was changed from ‘an interest rate at the prime rate on all sums due and unpaid’ to ‘an interest rate at 5%, 10% or 15% on all sums due and unpaid’ depending on the length of delay.
- In 2009, the funding ceiling for each project was raised from \$2 million to \$4 million.
- In 2012,
 - (i) the funding ceiling for each project was further raised from \$4 million to \$6 million;
 - (ii) the scope of eligible companies was expanded to include enterprises that had received venture capital investment; and

- (iii) the scope of project activities eligible for funding support was expanded to include industrial design, testing and certification of prototype, clinical trial, etc., in addition to the original scope which only included research and development (R&D) activities.
- At present, the key features of SERAP include –
 - (i) Government funding is provided on a dollar-for-dollar matching basis to small technology-based companies, which have less than 100 employees, to undertake R&D projects within two years;
 - (ii) the funded projects should have innovative technological content, and have a reasonable chance of successful development of new products, processes or services that can be brought to the market;
 - (iii) recipient companies will hold all intellectual property rights arising from the projects; and
 - (iv) Government's contribution should be recouped gradually when the projects generate revenue or when there is third party investment made to the recipient companies.

**Comparison of Key Features in the Enterprise Support Scheme (ESS)
and the Small Entrepreneur Research Assistance Programme (SERAP)**

	SERAP	ESS
Size of Company	Small and medium enterprises with less than 100 employees and are not subsidiary companies significantly owned or controlled by publicly listed companies will be eligible to apply.	Companies registered in Hong Kong, regardless of size, will be eligible to apply.
Funding Ceiling	Funding ceiling of up to \$6 million for each approved project.	Funding ceiling of up to \$10 million for each approved project.
Recoupment Requirement	Full recoupment of Government's original contribution – <ul style="list-style-type: none">• 5% of the gross revenue generated from the project; and• 10% of investment made to the recipient company by a third party.	No recoupment requirement.
Benefit-sharing Model	No benefit-sharing (since there is full recoupment).	Non-mandatory and flexible arrangements where an applicant company may propose how the benefits would be shared with the Government within a certain time period.