

For discussion
on 18 January 2011

**Legislative Council
Panel on Commerce and Industry**

**Provision of Funding Support for
Partner State Key Laboratories in Hong Kong**

PURPOSE

This paper spells out the arrangements for providing funding support to Partner State Key Laboratories (Partner SKL) in Hong Kong through the Innovation and Technology Fund (ITF).

BACKGROUND

Policy Commitment

2. In his 2010 Policy Address, the Chief Executive set out under the Policy Agenda a series of new initiatives for the further development of the infrastructure for economic growth. Among them, one initiative is to provide financial assistance to Partner SKLs in Hong Kong to enhance their research capability.

State Key Laboratories in Mainland

3. The Mainland's State Key Laboratory (SKL) Scheme, originated in 1984, is under the auspices of Mainland's Ministry of Science and Technology (MOST). It serves as a major initiative in nurturing basic as well as applied technology research and development in Mainland. The Scheme carries high status as it signifies recognition from MOST for the research work of a specific laboratory in a specific area. SKLs aim to carry out innovative research taking into account the national technology development direction, national economy, social development and national security aspects.

Admission

4. The admission process is very rigorous:
- (a) Firstly, candidate laboratories have to submit information to prove that they are in possession of high quality research capacity and can also provide a good environment for conducting research and development.

They will be assessed on the basis of the qualifications and quality of their research staff, their existing equipment and research facilities, the representative and demonstrated original research work published and recognized internationally in mainstream academic publications, and exchange activities with reputable peer research laboratories overseas; and

- (b) Candidate laboratories will have to undergo two vetting stages, in which an expert group will initially be formed to examine the proposals on the basis of their merit. And in the second stage, there will be site visits to the candidate laboratories for validation of the claims and vetting of facilities and research capability through technical presentations and interrogations.

Monitoring and Reassessment

5. For those SKLs that have been admitted, they will have to undergo monitoring procedures thereafter as set out by MOST and be reassessed every 5 years. For those SKLs that are reassessed, they will be graded under three categories, namely, “outstanding”, “meritorious” and “inferior”. Those that are graded as “inferior” or fail to complete the reassessment process will be delisted (i.e. cease to carry the status of SKL).

Current Situation

6. SKLs are supported by their hosting organizations. For example, the SKL of Marine Environmental Science is supported by Xiamen University. Also, there has been annual funding coming from MOST for the operation of SKLs. Since 2008, such funding amounts to RMB 10 million each year for each SKL. As a result, each SKL expects to receive a total funding of RMB 50 million from MOST for a period of 5 years after getting through the assessment/reassessment (i.e. RMB 10 million/year x 5 years).

7. As at 2009, there are some 220 SKLs established in Mainland, with staffing over 10 000 people and research equipment amounting to RMB 8 billion. These SKLs are distributed among various technology areas, namely, life science, geology, engineering, information and communication technology, chemistry, material, mathematics, physics, etc.

Partner State Key Laboratories in Hong Kong

8. Prior to 2007, laboratories in Hong Kong had to apply to MOST directly for the status of Partner SKLs (for laboratories in Hong Kong, they can only be Partner SKLs as the SKL status is only given to laboratories in the Mainland). Five laboratories in Hong Kong, all from local universities, have applied to MOST and have been successful in gaining the status of Partner SKLs

by pairing up with SKLs in Mainland. They are:

- (c) Partner SKL of Emerging Infectious Diseases at the University of Hong Kong (partner in Mainland being the SKL for Infectious Diseases Prevention and Control, Chinese Centre for Disease Control and Prevention);
- (d) Partner SKL of Brain and Cognitive Sciences at the University of Hong Kong (partner in Mainland being the SKL of Brain and Cognitive Sciences, Institute of Biophysics, Chinese Academy of Sciences);
- (e) Partner SKL of Oncology in South China at the Chinese University of Hong Kong (partner in Mainland being the SKL in Oncology in South China, Sun Yat-Sen University Cancer Center);
- (f) Partner SKL of Agro-biotechnology at the Chinese University of Hong Kong (partner in Mainland being the SKL of Agrobiotechnology, China Agricultural University); and
- (g) Partner SKL of Millimeter Waves at the City University of Hong Kong (partner in Mainland being the SKL of Millimeter Waves, Southeast University).

9. In April 2007, at the third meeting of the Mainland-Hong Kong Science and Technology Cooperation Committee [Note¹], it was agreed between MOST and the Innovation and Technology Commission (ITC) that a formal mechanism should be devised to process applications for setting up Partner SKLs in Hong Kong. ITC was assigned with the responsibility for coordinating the whole application process, with the assistance from the Research Grants Council (RGC) under the university Grants Committee (UGC) given its wealth of expertise. As soon as the applications were received, the assessment process would begin with the setting up of an expert group to examine the applications. The recommendations formulated by the group would subsequently be forwarded to MOST which would then make a final decision.

10. The first round of invitation for application (on top of the 5 mentioned in paragraph 8 above) was put up in late 2007 and in response there were a total of 17 applications from 6 universities. The assessment criteria were very similar to those of SKLs in Mainland. The candidates had to provide details of their research capability in terms of staff, equipment and facilities in their proposals, with the endorsement from the host universities for financial support of the operation budget of the laboratories. An expert group consisting of 5 academic members from overseas universities was then formed with the

¹ The Mainland-Hong Kong Science and Technology Cooperation Committee is an annual meeting between Mainland and Hong Kong, and is co-chaired by the Vice Minister of MOST and the Secretary for Commerce and Economic Development.

assistance of the RGC to vet the proposals. It finally recommended 7 to MOST for consideration.

11. Subsequently, a delegation from MOST led by a Director-General came to Hong Kong in mid 2008 to conduct site visits and discussions. After rounds of clarification and deliberation, MOST approved in 2009 and 2010 the establishment of the following 7 Partner SKLs in Hong Kong (on top of the 5 mentioned in paragraph 8 above):

- (a) Partner SKL of Phytochemistry and Plant Resources in West China at the Chinese University of Hong Kong (partner in Mainland being the SKL of Phytochemistry and Plant Resources, Kunming Institute of Botany, Chinese Academy of Sciences);
- (b) Partner SKL of Molecular Neuroscience at the Hong Kong University of Science and Technology (partner in Mainland being the SKL of Neuroscience, Institute of Neuroscience, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences);
- (c) Partner SKL of Marine Pollution at the City University of Hong Kong (partner in Mainland being the SKL of Marine Environmental Science, Xiamen University);
- (d) Partner SKL of Ultra-precision Machining Technology at the Hong Kong Polytechnic University (partner in Mainland being the SKL of Precision Measurement Technology and Instruments, Tsinghua University and Tianjin University);
- (e) Partner SKL of Chirosciences at the Hong Kong Polytechnic University (partner in Mainland being the SKL of Bio-organic and Natural Products Chemistry, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences);
- (f) Partner SKL on Synthetic Chemistry at the University of Hong Kong (partner in Mainland being the SKL of Organometallic Chemistry, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences); and
- (g) Partner SKL for Liver Research at the University of Hong Kong (partner in Mainland being the SKL of Oncogenes and Related Genes, Shanghai Cancer Institute).

Hence, there are now altogether 12 Partner SKLs in Hong Kong, details of which are at the **Annex**.

REVIEW

Current Situation

12. At present, all of the 12 Partner SKLs in Hong Kong are accommodated within their university campuses and supported financially mainly by their host universities. They can also apply for funding through existing channels such as RGC and ITF. Furthermore, they are eligible to join force with their Mainland counterparts for applying research funding in Mainland, such as the “National High Technology Research and Development Program (863 Program)” and the “State Basic Research Program of China (973 Program)”. All of them are headed by their Heads of Laboratories, who are responsible for managing the daily business and supervising the research operations of the laboratories. Also, each laboratory has to set up an academic committee consisting of no more than 15 academics and experts to oversee the research direction and to examine annual budgets and development plans. Similar to their counterparts in Mainland, all Partner SKLs in Hong Kong would have to undergo periodic reassessment as directed under MOST. They would also be delisted if upon reassessment they are graded as “inferior” or fail to complete the reassessment process.

13. All of the Partner SKLs in Hong Kong have come a long way in assembling a group of renowned professionals and research teams, equipped with state-of-the-art research facilities and possessing an aggregate of expertise that spearheads at the forefront of a specific knowledge area. Also, about half of the Partner SKLs have been awarded projects under the Areas of Excellence (AoE) Scheme [Note²] of the University Grants Committee showing the high level of academic achievement.

The Case for Providing Funding Support to Partner SKLs in Hong Kong

14. At present, whilst Partner SKLs may apply to RGC/ITF for funding and in fact since mid 2009 the ITF system has been refined to make it possible for 50% of funding to go across the border to Mainland (the “Money Across Border” issue), they do not have any direct funding support from the Mainland as well as Hong Kong governments. In our discussion with Partner SKLs, we appreciate that, when compared with their counterparts in Mainland which are receiving RMB 10 million each year from MOST, they are in a less advantageous situation financially. And even if they have the aspiration and competence in carrying out projects that are of value to the community, they would be deterred from doing so given the financial constraint. Hence, to improve the situation and to provide recognition to the achievements of Partner SKLs, we recommend

² AoE Scheme which started in 1996 aims to foster within universities a number of excellent groups so that they would be recognized internationally as of equal status to their peers in the same subject area, and justifying the investment in state-of-the-art facilities and activities which will maintain their leading position in the academic world internationally.

providing funding support to them.

FUNDING SUPPORT ARRANGEMENTS

15. We intend to provide direct financial support to Partner SKLs in Hong Kong through the ITF, details as follows:

- (a) Funding up to a ceiling of \$2 million each year, initially for 5 years, will be provided to each Partner SKL starting from the coming financial year (2011/2012). In other words, for a five year period, Partner SKL will receive \$10 million (i.e. \$2 million/year x 5 years). Such funding will cease if the Partner SKL is ever delisted;
- (b) The funds can be used for the following purposes:
 - (i) manpower for research, e.g. Research Assistants, Post-doctoral Fellows, etc.; and
 - (ii) purchase of equipment.

Other expenses, such as rental, overhead like electricity, will not be covered since Partner SKLs are mostly accommodated within their host university campuses;

- (c) At present, there is a general requirement that applications under ITF should normally need to have industrial sponsorship of at least 10% of the total approved project costs to demonstrate industry support. Given the nature of this proposal, such requirement will not apply;
- (d) Payment will be made on a reimbursement basis, i.e., after the close of the financial year. ITC will then issue a call circular to all partner SKLs requesting them to submit a statement of claim (up to the \$2 million ceiling). Upon verification payment will be made;
- (e) The above arrangements will apply to all Partner SKLs in Hong Kong. Hence, if more laboratories in Hong Kong are awarded the status of Partner SKLs on top of the present 12, they will also be covered by this proposal; and
- (f) Since the last round of Partner SKLs approval was given by MOST in 2010, we expect that the next round of reassessment would be carried out by MOST in around 2015 (given that the cycle for reassessment is 5 years). As such, we intend to conduct a review of our Scheme in around 2014 to see if it should be continued/improved/discontinued.

The above arrangements will provide a stable source of funding to enable Partner SKLs to map out a longer term development plan to strengthen their research capability as well as build up the necessary infrastructure support (equipment and facilities) for exploring new technology areas.

WAY FORWARD

16. Subject to Members' views, we intend to roll out the Scheme in April 2011. Letters will be sent to all Partner SKLs informing them of the new arrangements.

ADVICE SOUGHT

17. Members' comments and support are invited for the above.

Innovation and Technology Commission
January 2011

The 12 Partner SKLs in Hong Kong

I. Partner SKLs with submission of application to MOST prior to 2007			
Host University in Hong Kong	Partner SKL in Hong Kong	Mainland SKL Partner	Date of Approval by MOST
香港大學 The University of Hong Kong	新發傳染性疾病國家重點實驗室夥伴實驗室 Partner SKL of Emerging Infectious Diseases	中國疾病預防控制中心 - 傳染病預防控制國家重點實驗室(位於北京市) Chinese Centre for Disease Control and Prevention - SKL for Infectious Diseases Prevention and Control (in Beijing)	2005
香港大學 The University of Hong Kong	腦與認知科學國家重點實驗室夥伴實驗室 Partner SKL of Brain and Cognitive Sciences	中國科學院生物物理研究所 - 腦與認知科學國家重點實驗室(位於北京市) Institute of Biophysics, Chinese Academy of Sciences - SKL of Brain and Cognitive Sciences (in Beijing)	2005
香港中文大學 The Chinese University of Hong Kong	華南腫瘤學國家重點實驗室夥伴實驗室 Partner SKL of Oncology in South China	中山大學腫瘤防治中心 - 華南腫瘤學國家重點實驗室(位於廣州市) Sun Yat-Sen University Cancer Center - SKL in Oncology in South China (in Guangzhou)	2006
香港中文大學 The Chinese University of Hong Kong	農業生物技術國家重點實驗室夥伴實驗室 Partner SKL of Agrobiotechnology ^(#)	中國農業大學 - 農業生物技術國家重點實驗室(位於北京市) China Agricultural University - SKL of Agrobiotechnology (in Beijing)	2008

I. Partner SKLs with submission of application to MOST prior to 2007			
Host University in Hong Kong	Partner SKL in Hong Kong	Mainland SKL Partner	Date of Approval by MOST
香港城市大學 City University of Hong Kong	毫米波國家重點實驗室夥伴實驗室 Partner SKL of Millimeter Waves	東南大學 - 毫米波國家重點實驗室(位於南京市) Southeast University - SKL of Millimeter Waves (in Nanjing)	2008
II. Successful applicants for Partner SKLs awarded by MOST under coordination of ITC after 2007			
Host University in Hong Kong	Partner SKL in Hong Kong	Mainland SKL Partner	Date of Approval by MOST
香港中文大學 The Chinese University of Hong Kong	植物化學與西部植物資源持續利用國家重點實驗室夥伴實驗室 Partner SKL of Phytochemistry and Plant Resources in West China ^(#)	中國科學院昆明植物研究所 - 植物化學與西部植物資源持續利用國家重點實驗室(位於昆明市) Kunming Institute of Botany, Chinese Academy of Sciences - SKL of Phytochemistry and Plant Resources (in Kunming)	2009
香港科技大學 The Hong Kong University of Science and Technology	香港分子神經科學國家重點實驗室夥伴實驗室 Partner SKL of Molecular Neuroscience ^(#)	中國科學院上海生命科學研究院神經科學研究所 - 神經科學國家重點實驗室(位於上海市) Institute of Neuroscience, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences - SKL of Neuroscience (in Shanghai)	2009
香港城市大學 City University of Hong Kong	海洋污染國家重點實驗室夥伴實驗室 Partner SKL of Marine Pollution ^(#)	廈門大學 - 近海海洋環境科學國家重點實驗室(位於廈門市) Xiamen University - SKL of Marine Environmental Science (in Xiamen)	2009

II. Successful applicants for Partner SKLs awarded by MOST under coordination of ITC after 2007			
Host University in Hong Kong	Partner SKL in Hong Kong	Mainland SKL Partner	Date of Approval by MOST
香港理工大學 The Hong Kong Polytechnic University	超精密加工技術國家重點實驗室夥伴實驗室 Partner SKL of Ultraprecision Machining Technology	清華大學及天津大學 - 精密測試技術及儀器國家重點實驗室(位於北京市) Tsinghua University and Tianjin University - SKL of Precision Measurement Technology and Instruments (in Beijing)	2009
香港理工大學 The Hong Kong Polytechnic University	手性科學國家重點實驗室夥伴實驗室 Partner SKL of Chirosciences ^(#)	中國科學院上海有機化學研究所 - 生命有機化學國家重點實驗室(位於上海市) Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences - State Key Laboratory of Bio-organic and Natural Products Chemistry (in Shanghai)	2010
香港大學 The University of Hong Kong	合成化學國家重點實驗室夥伴實驗室 Partner SKL on Synthetic Chemistry ^(#)	中國科學院上海有機化學研究所 - 金屬有機化學國家重點實驗室 (位於上海市) Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences - State Key Laboratory of Organometallic Chemistry (in Shanghai)	2010
香港大學 The University of Hong Kong	肝病研究國家重點實驗室夥伴實驗室 Partner SKL for Liver Research	上海市腫瘤研究所- 癌基因及相關基因國家重點實驗室 (位於上海市) Shanghai Cancer Institute - State Key Laboratory of Oncogenes and Related Genes (in Shanghai)	2010

[Note: Partner SKLs marked with ^(#) are involved in projects funded under AoE.]