

For discussion
on 1 March 2019

Legislative Council Panel on Education

New Resources to Further Support the Research Work of the Higher Education Sector and the Funding Policy of the Research Grants Council

Purpose

The Chief Executive (CE) proposed in the Policy Address in October 2018 that more resources be provided to further support the research work of the higher education sector. This paper seeks Members' support for the proposed injection into the Research Endowment Fund (REF), rationalising the use of different pots of endowment of the REF, and launching the Research Matching Grant Scheme (Research MGS), as well as briefs Members on the funding policy of the Research Grants Council (RGC).

About the Research Grants Council

2. Established on 1 January 1991, the RGC operates under the aegis of the University Grants Committee (UGC) and consists of local and overseas academics, as well as local lay members. The RGC's terms of reference include advising the Government through the UGC on the needs of academic research in the higher education sector; assessing research grant applications and monitoring the use of research grants; selecting award of various research fellowships; and implementing research funding schemes for the self-financing higher education sector. Subject panels and committees are set up under the RGC to consider applications for research grants and fellowships. The RGC provides equal support to different types of academic research.

3. At present, the RGC administers 15 competitive research funding schemes in four categories for the UGC-funded universities, namely:

(I) Collaborative Research Schemes

- (i) Areas of Excellence (AoE) Scheme
- (ii) Theme-based Research Scheme (TRS)
- (iii) Collaborative Research Fund (CRF)
- (iv) Research Impact Fund (RIF)
- (v) Joint Laboratory Funding Scheme (JLFS)

(II) Individual Research Schemes

- (i) General Research Fund (GRF)
- (ii) Early Career Scheme (ECS)

(III) Fellowship Schemes

- (i) Humanities and Social Sciences Prestigious Fellowship Scheme (HSSPFS)
- (ii) Hong Kong PhD Fellowship Scheme (HKPFS)

(IV) Joint Research Schemes with the Mainland and Overseas Regions

- (i) National Natural Science Foundation of China (NSFC)/RGC Joint Research Scheme
- (ii) The French National Research Agency (Agence Nationale de la Recherche, ANR)/ RGC Joint Research Scheme
- (iii) The European Union (EU) – Hong Kong Research and Innovation Cooperation Co-funding Mechanism by the RGC
- (iv) Germany/Hong Kong Joint Research Scheme;
- (v) PROCORE – France/Hong Kong Joint Research Scheme
- (vi) Fulbright – RGC Hong Kong Senior Research Scholar/Research Scholar Award Programmes

The RGC also administers three funding schemes for the local self-financing degree sector, namely (i) the Faculty Development Scheme (FDS); (ii) the Inter-Institutional Development Scheme (IIDS); and (iii) the Institutional Development Scheme (IDS).

4. Award statistics on the above RGC's funding schemes for the 2016/17 to 2018/19 academic years are provided at [Annex I](#).

Assessment

5. The RGC operates through committees/panels comprising local and non-local experts. To avoid perceived conflict of interest, committee/panel chairpersons are non-local experts, and the RGC Chairman does not participate in the assessment of research proposals. Members of the RGC/committees/panels and external reviewers are required to declare interest. All research proposals are subject to a rigorous peer review process based on the academic quality of research proposals. The peer review process is supported by the RGC's international network of over 12 000 external reviewers. Committees/panels make final review and decision after assessment by external reviewers.

Establishment and development of the REF

6. The REF was established in February 2009 with an endowment of \$18 billion. The endowment of the REF is currently divided into four pots of money, which are used to generate investment income to fund the following designated purposes approved by the Finance Committee (FC):

- (a) From the 2010/11 academic year onwards, the investment income of at least \$14 billion out of a total principle of \$18 billion is used to replace the bulk of the recurrent subvention from the Government allocated to the RGC for distribution as Earmarked Research Grants (ERG) to the UGC-funded universities, thus providing greater funding stability and certainty of funding to support universities' research projects;
- (b) The investment income of up to \$4 billion of the REF is used to support the TRS, thus allowing UGC-funded universities to work on longer-term research proposals on themes which are strategically beneficial to the development of Hong Kong;

- (c) In 2012, the Government secured FC's approval to inject \$5 billion into the REF. The investment income from \$3 billion of that injection is for funding research projects of local self-financing degree-awarding institutions on a competitive basis to enhance academic and research development. The investment income of the remaining \$2 billion is used to replace the annual recurrent provision of \$100 million allocated to the RGC for distribution as ERG to the UGC-funded universities for greater funding stability; and
- (d) In the 2017/18 academic year, the Government secured FC's approval for a further injection of \$3 billion into the REF to generate investment income for providing tuition waiver for local students enrolled in UGC-funded research postgraduate programmes.

7. Since February 2009, the Government has injected a total of \$26 billion into the REF. The REF balance was \$29.4 billion as at 30 November 2018.

Review of Research Policy and Funding

8. The CE announced in the Policy Address in October 2017 that the UGC had been invited to set up a task force to conduct a holistic review of the research support strategy and the level and allocation mechanism of research funding for the higher education sector in Hong Kong. The Task Force on Review of Research Policy and Funding (Task Force), led by Professor Tsui Lap-chee, was then set up under the aegis of the UGC to take forward the review. The Task Force submitted the Review Report to the Government in September 2018.

9. On promotion of research excellence, the Task Force recommended doubling the overall competitive research funding, including making substantial injection into the REF to sustain research funding and rationalising the use of different pots of endowment of the REF for more effective deployment of funding. At the same time, the Task Force proposed incentivising cross-institutional/cross-disciplinary collaboration with sustainable support for research incentives of strategic priorities.

10. The Task Force also recommended that a Research MGS for local degree-awarding institutions should be set up to diversify the funding sources and to boost private research and development (R&D) expenditure and donations in the research community. The R&D expenditure and donations from the private sector, industries and philanthropists secured by individual local degree-awarding institutions will be matched by the Government for research-related purposes.

Injection into the REF

11. The Government has accepted in full the recommendations made by the Task Force. The CE announced in the 2018 Policy Address that a substantial injection of \$20 billion into the REF would be made, with the investment income generated from the injection to be used for (i) sustaining the level of research funding; (ii) providing funding for the RIF launched by the RGC to render continued funding support for impactful research; and (iii) providing additional funding for the RGC's collaborative research funding schemes to encourage cross-institutional/cross-disciplinary collaborations. Details of the above proposals are set out in paragraphs 12 to 16 below.

Sustaining the level of research funding

12. The REF is currently placed with the Exchange Fund administered by the Hong Kong Monetary Authority for investment. However, the annual investment return rate of the REF has declined from 6.8% in 2009 to 2.8% in 2017, which is lower than the level expected when the REF was established or when injections were made. The REF reported deficits in both 2016/17 and 2017/18. To provide adequate funding for schemes funded by the REF and meet the increasing demand for competitive research funding, the Government has accepted the Task Force's proposal to provide new resources as a stable source of funding, which will also help sustain the level of research funding in the long run.

Rendering continued funding support for impactful research

13. To encourage local universities to conduct more impactful and translational research projects to meet Hong Kong's needs, and to engage in more collaborative efforts with stakeholders outside academia, the UGC allocated \$150 million to the RGC for launching a competitive research funding scheme called the RIF on a pilot basis in 2018. Researchers are required to submit a "Pathways to Impact" statement to elaborate on the potential impact of the research project on society. The scheme was well received by the higher education sector and a total of 164 applications were received with the funding request amounting to some \$1 billion in total. The UGC hence increased the provision to \$200 million. After careful and thorough assessment, the RGC decided to fund 30 projects with \$193 million. The awarded projects covered a wide range of subject areas, such as research and development of drugs, innovative reclamation and building methods, as well as security and applications of the Internet of Things. Injection into the REF can regularise the funding for the RIF so as to promote more high-quality and impactful research.

Incentivising cross-institutional/cross-disciplinary collaboration

14. Cross-institutional/cross-disciplinary research plays an important role in the development of successful innovative projects. The RGC currently supports collaborative academic research through three collaborative research schemes, namely the AoE Scheme, the CRF and the TRS. A total of approximately \$570 million funding is granted under these schemes per annum. The CRF has been well received by university researchers. Over the past five years, both the number of applications received under the scheme and the sum involved have continued to increase. In 2014/15, 155 applications were received under the scheme involving a total sum of \$1.04 billion. In 2018/19, there were more than 220 applications and the sum involved has risen to over \$1.61 billion. The funding approved under the scheme is maintained at \$110 million in each of the past five years.

15. To encourage more joint collaborative research among institutions with a view to enhancing their respective research capacity and securing a critical mass, the RGC will, in response to the recommendation of the Task Force, review these three existing funding schemes and consider combining them to form a new scheme to cater for the existing research needs, and support proposals from research institutes set up by universities and incentivise universities to conduct more collaborative research. Injection into the REF will help substantially enhance the aggregate budget for and the attractiveness of cross-institutional/cross-disciplinary collaborative research.

16. A significant injection of \$20 billion into the REF, assuming a rate of return in the range from 3.7% to 4.9% per annum, will generate an additional annual investment income of around \$740 million to \$980 million as research funding. Together with the proposed Research MGS (paragraph 18 below), it will help to achieve the strategic proposal of doubling Hong Kong's overall competitive research funding from \$2 billion to \$4 billion in the next few years. It would help ensure continued support for the conduct of strategic impactful research and promote more high-quality research, making Hong Kong more competitive in research and development.

Rationalising the use of different pots of endowment of the REF

17. In addition to the proposed injection to the REF, the Task Force also proposed to rationalise the use of different pots of endowment of the REF. Currently, the utilisation of investment income generated from each pot of endowment of the REF varies. Details are set out at **Annex II**. Taking 2017/18 academic year as an example, while the pot for ERG had a deficit and the annual budget for TRS was also trimmed, the other pots were in surplus. At present, the investment income from different pots of endowment of the REF can only be used for designated purposes. Redeploying a pot's investment income for other pots' designated purposes is not allowed, even when there is a surplus after its original designated purpose has been fully fulfilled. To make the best use of resources, it is proposed that the restriction be lifted so that the RGC may, after having fully fulfilled the original designated purposes of certain pots of endowment (including providing sufficient research funds for self-financing institutions, the TRS and fully covering the tuition fees of all local students of UGC-funded research postgraduate programmes), flexibly redeploy any remaining

investment incomes for other pots' designated purposes. The proposed free redeployment of investment income among the pots of endowment under the REF will facilitate the achievement of greater efficiency and enhanced effectiveness in channelling resources strategically to meet the higher education sector's research requirement.

Research Matching Grant Scheme

18. The Government has also accepted the recommendation of the Task Force to incentivise the private sector to strengthen financial support for R&D for the purpose of diversifying the funding sources for research activities. In this connection, the CE has proposed in the 2018 Policy Address to launch a Research MGS. Expenditure and donations for R&D can be specifically allocated to any individual institution / project of any discipline. A total of \$3 billion will be provided in three years for application by local degree-awarding institutions (including self-financing institutions). R&D expenditure and donations from the private sector and philanthropists secured by individual institutions will be matched by the Government for research-related purposes. Subject to the funding approval from the Legislative Council (LegCo) in this legislative session, the Research MGS can be launched in the 2019/20 academic year at the earliest. Details of the Research MGS and the matching mechanism are set out at **Annex III**.

19. This is the first matching grant dedicated to research work in the higher education sector. The Research MGS not only allows the higher education sector to tap more sources of research funding, but also encourages collaboration between the industries and the higher education sector in R&D, thereby strengthening the social impact of the research conducted by the higher education sector. Since the share of private sector only accounts for 45% of the total expenditure in R&D over the years, the introduction of the Research MGS will not only help local degree-awarding institutions (including self-financing institutions) diversify their funding sources, but also incentivise private sector to invest more in R&D.

20. As it takes time for the community to expand its overall research capacity and cultivate a research culture, the Government will make timely decision on the way forward of the Research MGS taking into account its effectiveness and the grants for other research funding schemes of the Government in the next few years.

Financial Implications

21. The proposed injection into the REF will require a one-off funding of \$20 billion in the 2019-20 financial year. On the assumption that the rate of return is in the range from 3.7% to 4.9% per annum, the annual investment income generated from the proposed injection will be around \$740 million to \$980 million. As it takes at least one year to generate investment income from the new injection, it is expected that the RGC funding will be substantially increased in the 2021/22 academic year at the earliest if funding approval for injection is obtained from the LegCo within this legislative session. Rationalising the use of investment income of different pots of endowment of the REF will not incur additional funding requirement.

22. The proposal to launch the Research MGS will involve a non-recurrent funding of \$3 billion. It has no recurrent financial implications for the Government.

Way Forward

23. Subject to Members' views, we will seek FC's funding approval for the proposed injection of \$20 billion into the REF and the proposed Research MGS, as well as the approval of the proposed rationalisation of the use of different pots of endowments of the REF.

Education Bureau
February 2019

**Award Statistics on Research Grants Council's Funding Schemes
in Academic Years from 2016/17 to 2018/19**

Research Funding Scheme	2016/17		2017/18		2018/19	
	No. of Projects Supported	Amount Awarded (\$ million)	No. of Projects Supported	Amount Awarded (\$ million)	No. of Projects Supported	Amount Awarded (\$ million)
Collaborative Research Schemes						
Areas of Excellence Scheme	3	231.1	Not applicable^	Not applicable^	3	216.1
Theme-based Research Scheme	7	230.0	5	180.0	5	180.0
Collaborative Research Fund	18	110.0	18	110.0	20	110.0
Research Impact Fund	Research Impact Fund and Joint Laboratory Funding Scheme were introduced in 2018/19				30	192.9
Joint Laboratory Funding Scheme					Data not yet available	
Individual Research Schemes						
General Research Fund	969	599.2	964	593.4	989	592.2
Early Career Scheme	155	89.2	151	84.3	153	86.7
Fellowship Schemes						
Humanities and Social Sciences Prestigious Fellowship Scheme	4	2.9	5	3.7	7	4.5
Hong Kong PhD Fellowship Scheme	231 (Number of New Awardees)	168.0	231 (Number of New Awardees)	173.0	231 (Number of New Awardees)	173.0
Joint Research Schemes with the Mainland and Other Overseas Jurisdictions						
National Natural Science Foundation of China / RGC Joint Research Scheme	22	24.2	22	25.7	24	26.2

Research Funding Scheme	2016/17		2017/18		2018/19	
	No. of Projects Supported	Amount Awarded (\$ million)	No. of Projects Supported	Amount Awarded (\$ million)	No. of Projects Supported	Amount Awarded (\$ million)
The French National Research Agency / RGC Joint Research Scheme	3	6.5	3	7.9	3	7.9
European Union – Hong Kong Research and Innovation Cooperation Co-funding Mechanism by the RGC	4	9.0	6	10.0	Data not yet available	
Germany / Hong Kong Joint Research Scheme	12	1.0	14	1.1	14	1.2
PROCORE – France / Hong Kong Joint Research Scheme	10	0.7	15	1.0	11	0.8
Fulbright – RGC Hong Kong Senior Research Scholar / Research Scholar Award Programmes	6	1.3	6	1.0	7	1.1
Competitive Research Funding Schemes for the Local Self-financing Degree Sector						
Faculty Development Scheme	50	38.3	59	37.4	40	27.3
Inter-Institutional Development Scheme	10	4.6	5	2.0	5	2.2
Institutional Development Scheme	6	40.1	2	14.3	2	8.2

^ The Areas of Excellence Scheme runs every two years

The utilisation of investment income generated from different pots of endowment of the Research Endowment Fund

Earmarked Research Grants (ERG)

The investment income from \$16 billion of the endowment of the Research Endowment Fund (REF) provides the source of funding for the ERG to support research projects and activities. The ERG is the major source of funding for academic research in the eight UGC-funded universities, and is allocated on a competitive basis. Currently, about 80% of the ERG mainly provides funding support for projects carried out by individual Principal Investigators. The remaining 20% is allocated to eight other funding schemes¹.

2. In the 2017/18 academic year, the ERG pot registered a deficit of \$165 million. In the 2018/19 academic year, it will continue to operate on a deficit budget² with an estimated deficit of \$102 million.

Theme-based Research Scheme (TRS)

3. The funding for the TRS, supported by the investment income from \$4 billion of the endowment of the REF, is intended for funding longer-term research that is strategically beneficial to the development of Hong Kong. With an annual expenditure of around \$200 million, the first five rounds of TRS exercises (i.e. from the 2011/12 to 2015/16 academic year) covered three research themes³. Upon the introduction of the fourth research theme “Advancing Emerging Research and Innovations Important to Hong Kong”,

¹ Namely the Collaborative Research Fund, the Humanities and Social Sciences Prestigious Fellowship Scheme, the Fullbright-Research Grants Council (RGC) Hong Kong Senior Research Scholar/Research Scholar Award Programmes, the National Natural Science Foundation of China /RGC Joint Research Scheme, The French National Research Agency/RGC Joint Research Scheme, the European Union - Hong Kong Research and Innovation Cooperation Co-funding Mechanism by the RGC, the Germany/Hong Kong Joint Research Scheme, the PROCORE-France/Hong Kong Joint Research Scheme, and conference grants for research postgraduate students.

² The yearly deficit is met by the ERG’s surplus accumulated over the years.

³ The TRS was launched in 2010, with the following three themes selected: “Promoting good health”; “Developing a sustainable environment”; and “Enhancing Hong Kong’s strategic position as a regional and international business centre”. Starting from the 2016/17 exercise (sixth round), a new theme “Advancing emerging research and innovations important to Hong Kong” was introduced in addition to the existing three themes.

the expenditure for the sixth TRS exercise (the 2016/17 academic year) was increased to \$230 million. Owing to a significant decline in the investment return of the REF in the previous two years, the RGC has decided to reduce the annual budget for the seventh (the 2017/18 academic year) and the eighth (the 2018/19 academic year) TRS exercises to \$180 million.

Research Projects of Local Self-financing Degree-awarding Institutions

4. Regarding the funding for supporting the academic and research development of the local self-financing degree sector on a competitive basis, it has been operating on the investment income from \$3 billion of the endowment of the REF. There are three funding schemes for the local self-financing degree sector, namely the Faculty Development Scheme, the Inter-Institutional Development Scheme and the Institutional Development Scheme (IDS). Starting from 2019/20 academic year, the IDS will branch out into two grants, namely the Research Infrastructure Grant (RIG) and the new Collaborative Research Grant. The RIG will adopt the existing mode of operation of the IDS.

5. In the 2019/20 academic year, the projected investment income of the endowment for supporting various funding schemes for the local self-financing degree sector is estimated at about \$130 million. Based on the experience in the 2018/19 academic year, an overall budget of \$90 million earmarked for various funding schemes for the self-financing degree sector should be sufficient to meet the funding requirement in the 2019/20 academic year.

Tuition Waiver for Local Research Postgraduate Students at UGC-funded universities

6. The REF had a further injection of \$3 billion in 2018. The investment income generated from this pot of endowment is used to provide non-means-tested tuition waiver for local research postgraduate students, with a view to incentivising local students to engage in research work in the higher education sector. The Tuition Waiver Scheme was launched in June 2018, and the investment income from the \$3 billion injection is expected to be sufficient to cover the funding requirement in the 2019/20 academic year⁴.

⁴ As it takes time to generate investment income from the \$3 billion endowment to fund the studentships scheme, as a one-off measure, the Education Bureau has deployed existing resources for the UGC to provide tuition waiver for local students enrolled in UGC-funded research postgraduate programmes in the 2018/19 academic year.

**Details of the Research Matching Grant Scheme
and the Matching Mechanism**

The proposed Research Matching Grant Scheme (the Scheme) is devised by making reference to the mode of operation of the Matching Grant Scheme (MGS), which was first introduced in 2003. Details of the Scheme are as follows –

Timeframe

2. The Scheme will cover a period of three years from 1 July 2019 to 30 June 2022.

Coverage

3. The private donations and matching grants under the Scheme should only be used for the purposes of funding research in universities/institutions and meeting research-related expenses (excluding capital works projects), regardless of disciplines. The Scheme covers the following eight University Grants Committee (UGC)-funded universities (including their self-financing/subsidiary post-secondary education establishments) and 12 local self-financing degree-awarding institutions¹ –

The eight UGC-funded universities (including their self-financing institutions/arms)

- (i) The University of Hong Kong
- (ii) The Chinese University of Hong Kong
- (iii) The Hong Kong University of Science and Technology
- (iv) City University of Hong Kong
- (v) Hong Kong Baptist University
- (vi) The Education University of Hong Kong

¹ The Research Grants Council (RGC) may revise the list of institutions as appropriate (e.g. to cover any newly established degree-awarding institutions).

- (vii) The Hong Kong Polytechnic University
- (viii) Lingnan University

The 12 local self-financing degree-awarding institutions

- (ix) Gratia Christian College
- (x) Tung Wah College
- (xi) Caritas Institute of Higher Education
- (xii) Centennial College
- (xiii) The Hang Seng University of Hong Kong
- (xiv) The Open University of Hong Kong
- (xv) Technological and Higher Education Institute of Hong Kong
- (xvi) Hong Kong Nang Yan College of Higher Education
- (xvii) Hong Kong Shue Yan University
- (xviii) Hong Kong College of Technology
- (xix) Chu Hai College of Higher Education
- (xx) Yew Chung College of Early Childhood Education

Principle of Application

4. All private donations received by universities/institutions and contract research projects commissioned/research and development expenditure met by the private sector during the period covered by the Scheme are eligible for matching.

5. To ensure fairness in the provision of matching grant, “double matching” or “double subsidisation” is not allowed. In other words, projects which have already obtained publicly-funded financial assistance (such as the Innovation and Technology Fund, and the Research Endowment Fund and the Research Impact Fund under the RGC), other publicly-funded grants, and donations which have already received public fund matching pursuant to other matching grant schemes (such as the MGS) are not eligible for matching under this Scheme.

Matching Formula

6. Based on the MGS, the matching mechanism for the Scheme is as follows –

- (a) To encourage all universities/institutions to apply for matching, a matching grant at a “floor” level (\$50 million) will be set aside for each university/institution as a guaranteed minimum over the three-year period of the Scheme. A university/institution which has successfully secured private donations within that guaranteed minimum amount will be provided with a matching grant up to the “floor” level;
- (b) By the end of the three-year period, funding under the guaranteed minimum which has yet to be matched by the universities/institutions concerned will be opened up for allocation to other universities/institutions with matching grants above the “floor” on a first-come-first-served basis;
- (c) To prevent a single university with strong fund-raising ability from capturing a dominating share of the matching grant, an upper limit or a “ceiling” (\$500 million) will be applicable to the aggregate amount of government matching grants received by each university/institution;
- (d) The matching should be \$1 for \$1 of grant received by a university/institution up to the “floor” level (i.e. \$1 government grant for every \$1 of private donations secured by the university/institution). For matching grants beyond the “floor” level but below the “ceiling”, a \$1 for \$2 matching ratio applies (i.e. \$1 government grant for every \$2 of private donations secured). The universities/institutions will not receive matching grants from the Government beyond the “ceiling” level; and
- (e) Requests for government matching grants for over and above the “floor” level by universities/institutions will be considered on a first-come-first-served basis.

Disclosure and Audit

7. To ensure the accountability and transparency of the operation of the Scheme –

- (a) the UGC Secretariat will co-ordinate all participating universities'/institutions' disclosure of donations and the intended use of both the private donations and the matching grants received. Universities/institutions are also required to disclose in their annual accounts the amount of donations/matching grants received and the income generated from donations/grants; and the total amount of expenditure using the donations/grants broken down into broad category of purposes;
- (b) the use of donations and government matching grants received shall be subject to audit. Auditors are required to confirm to the UGC Secretariat that the universities/institutions concerned have met the conditions of the grants, reported the actual uses of the donations/grants, and the intended use of the unspent donations/grants as well as the date of use; and
- (c) the universities/institutions are required to ensure that the matching grants received are only used to meet research-related expenses (excluding capital works projects) and that the money is spent in a cost-effective manner.