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Australia.

Dear Peter,

I am very sorry for the long delay in writing this letter. I hope it would still be useful for your purpose.

I would like to share with you my thoughts on the importance of having a mathematical sciences institute, particularly in a country like Australia and Singapore.

First of all, it is undeniable that the mathematical sciences (including statistics) have become increasingly important in the formulation and analysis of today's scientific problems which are both complex and multidisciplinary in nature and which often require sophisticated mathematical tools in their solutions. The applications of the mathematical sciences have permeated almost every discipline of human knowledge, including the physical and biological sciences, computer science, engineering, medicine, economics, finance, social sciences, law and linguistics. In order for science and technology in a developed country to continue to advance, it is imperative that the mathematical sciences play a substantial role in research and development.

Therefore a developed country needs strong capabilities in mathematical research and research scientists with strong mathematical expertise. Can the departments of mathematical sciences in the universities help in fulfilling these needs? Yes, but only to a certain extent. A national mathematical research institute can do much more in connecting the mathematical sciences with the other disciplines and in creating a great impact on the development of the mathematical sciences and their applications as a whole. This is because such an institute provides a meeting place for mathematicians, statisticians, scientists and engineers from within the country as well as from other parts of the world to interact, cross-fertilize ideas and collaborate in research. It also has the flexibility of focusing on different research themes at different times to cater to the needs and interest of researchers from a wide spectrum of disciplines. The environment it provides and the flexibility it has cannot be emulated by the academic departments.

Both Australia and Singapore are disadvantaged by being geographically far from the major academic and research centres of Europe and North America. They also face stiff competition from the rapidly growing economies in the Asia-Pacific region. To keep abreast of the rapidly developing frontiers of the mathematical sciences and to

develop research capabilities so as to remain economically competitive, their need for a mathematical sciences institute becomes crucial. We have done the right thing in establishing the Australian Mathematical Sciences Institute (AMSI) in Australia and the Institute for Mathematical Sciences (IMS) in Singapore.

In order for an institute to be viable, it must have adequate funding with sufficient flexibility in managing the funds. Ideally an institute should have a block grant for a period like five years. This would then allow sufficient lead time and flexibility in the planning of activities. For example, prominent scientists would normally need an invitation well in advance in order to be able to fit their visits to the institute into their schedules. An institute also needs quick response capability in choosing themes on newly emerging areas of importance, which may be difficult to foresee within a five-year time frame.

Last year, the US National Science Foundation (NSF) approved a renewed five-year funding for the Institute for Mathematics and its Applications (IMA) at Minneapolis, with an amount of US\$19.7m for five years. The sum represented a 77% increase from the previous budget of the IMA. This is a resounding affirmation and endorsement of the value and contributions of a mathematical institute.

In a real sense, both AMSI and IMS face greater challenges than IMA, given the comparatively small sizes of our scientific communities and their geographical isolation. In this respect AMSI and IMS are in greater need of continuous adequate funding. I strongly support AMSI's quest for government funding.

Yours sincerely,



Louis Chen
Tan Chin Tuan Centennial Professor
and Director

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