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Commentary

Sustaining Excellence in Biology Competitions: Observations from SIBiol's International Biology Olympiad Experience in the Last Five Years, An SG50 Commentary

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Since 2001, Singapore has consistently performed well at the International Biology Olympiads (IBO). A commentary piece is provided by Team Singapore Delegation Leaders in the 2012 – 2015 IBO competitions as well as the President of the 40th and 41st SIBiol Councils on factors that contributed to the Singapore Institute of Biology's (SIBiol) sustained success in the IBO competition over the last five years.

Singapore began participating in the International Biology Olympiads (IBO) from 2001, returning full (four) team medals annually. Medal tallies ranged from four Silvers to two Golds and two Silvers, until 2009, when the team returned three Gold medals and one Silver medal. In terms of ranking in the IBO competitions, Singapore regularly ranked among the top five countries (based on medals) in most IBO competitions.

In 2012, when Singapore hosted the 23rd IBO, the country attained its highest achievement, winning four Gold medals, including a top Gold medal placing. Although many observers attributed the outstanding performance in 2012 to home-ground advantage, Singapore continued to return excellent results in subsequent IBO competitions overseas, achieving four Gold medals again in 2013, and a sustained result of three Golds and one Silver medal in the 2014, and 2015

IBO competitions, respectively. Additionally, Singapore student competitors attained the prestigious top Gold placing on three occasions (2004, 2009 and 2012), and a 2nd Gold placing in 2014.

Here we outline three key elements that have contributed to the Singapore Institute of Biology's (SIBiol) sustained success in the IBO competition over the last five years.

1) Resources

From the beginning of Singapore's IBO participation in 2001, SIBiol has relied on substantial resources to select, train and nurture our young Biologists. These resources include human capacity in the form of academic trainers and support teams of non-academics, financial and logistics support from the Ministry of Education (MOE), and in-kind support from the many departments and institutions participating in this process of developing Singapore's IBO teams. Singapore is also fortunate that all national schools have a good standard Biology curriculum that is regularly reviewed, revised and current. Hence, much has been achieved on pure human capital and financial resources.

2) Leadership and Collaboration

With the support of the MOE, SIBiol is the administrator and convener of the Singapore Biology Olympiad (SBO), the annual national competition from which members of the Singapore IBO team are selected each year. SIBiol coordinates IBO training sessions for the team, and is the ultimate body that selects the student participants to represent Singapore annually. SIBiol also nominates the Singapore adult Delegation, who represent Singapore in the International Jury during deliberations of examinations and results at the IBO.

Academics from various institutions in Singapore (e.g. National University of Singapore, National Institute of Education, NTU) volunteer to train the Singapore Team annually, and are not paid. As Singapore's participation in the IBO is a National activity, the Management of these institutions (HODs, Directors, etc) also provide support in the form of recognition of staff contributions, in-kind support in the use of facilities, and allocation of non-academic staff to facilitate the activities. A high level of National pride is evident, as all strive to field the best students to represent Singapore in the international arena. (NB: Team Singapore student members are Singapore Citizens who have been educated in national schools in Singapore, according to IBO competition rules).

The benefit of having an independent society like SIBiol taking lead is the elimination of institutional boundaries, obligations and affiliations for all personnel involved in the annual endeavour. This also focusses the activities that lead up to the annual IBO on an overarching National agenda, rather than a sectorial, or institute-based agenda. This model facilitates collaboration amongst academics and personnel from different Institutions towards one singular goal.

3) Alumni Identity and Ownership

The most outstanding outcomes of Singapore's IBO participation only became evident in 2011/2012. This was about the time that SIBiol began formally including our SBO/IBO

alumni in the Singapore Team development process. Alumni members return from their studies, or take time off from their jobs, to provide mentorship to the Singapore Team on a voluntary basis. SBO/IBO alumni members who volunteer are typically driven, passionate, hardworking, and success orientated. At the very least, they are a powerful inspiration to the next generation of Biologists in Singapore. While many of our alumni have gone on to careers in medicine, biology, and science, they proudly claim an inheritance of the SBO/IBO experience and take ownership of this identity.

SIBiol's main purpose of acknowledging that SBO/IBO alumni involvement is key to IBO preparations is succession planning. In the IBO competition, increasing numbers of International Jury representatives from various countries were IBO participants during their school days. Recently, SIBiol sponsored one alumnus to be represented in the Singapore Team delegation in the IBO competitions of 2014 and 2015. On both occasions our alumnus made lasting impressions during International Jury deliberations, exhibiting focus, passion and the highest academic calibre in their contributions. As Singapore continues to participate in this prestigious competition, SIBiol considers that proper succession planning will ensure sustained excellence in this arena.

Hence this is the secret of our success: dedicated faculty; resource support from MOE and related Institutions; leadership and direction from SIBiol facilitating collaboration and partnership between schools, academic institutions and the MOE; and passionate alumni who keep the Biology torch aflame.

Reference websites for information of the Singapore Biology Olympiad, and the International Biology Olympiad:

<http://www.ibo-info.org/countries/singapore>

<http://www.ibo-info.org/pdf/IBO-Guide.pdf>

<http://www.sibiol.org.sg/ibo>

This commentary is co-authored by the Team Singapore Delegation Leaders in the 2012 – 2015 IBO competitions, and the President of the 40th and 41st SIBiol Councils, who is also an alumna of the IBO.