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Feature Story – the 26th IBO!

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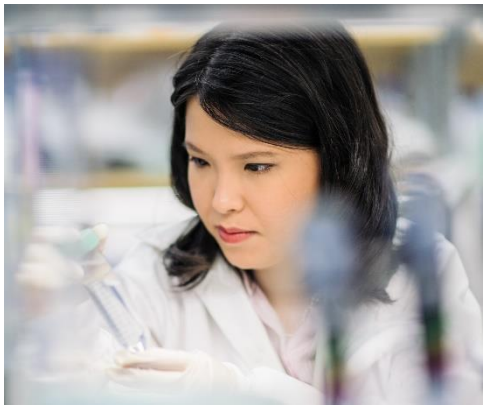
Message from the President



Dear Friends,

SIBiol has gone from strength to strength this year. First, I would like to congratulate the Singapore team on their stellar performance in the Denmark IBO this year, with three golds and one silver and a placing of 3rd in the world (behind USA and China). Many thanks go to Dr Beverly Goh for leading the team, as well as fellow team members Dr Ng Ngan Kee, Dr Chen Zhong, MOE Liaison officer Ms Tay Wee Beng and our SIBiol intern, Mr Stanley Quek, who was also the lead alumni trainer for this year.

SIBiol has made a number of innovations this year, starting with inviting teachers to attend the IBO training sessions. I would like to thank everyone who trained the IBO students and in particular, those who allowed teachers to attend. Not only did the teachers gain a good insight into the work of SIBiol in organizing the IBO training sessions, this allowed SIBiol to send an additional observer, Mr Stanley Quek, to the IBO this year. I hope this momentum can be sustained such that we can provide additional training to our lead alumni trainer/SIBiol intern and such that the Singapore team can benefit from the jury participation of our talented alumni.

In addition, Ms Sapna Ananth Narayana and Dr Shawn Lum organized a highly popular seed biology workshop, and Dr Ng Ngan Kee and I organized a Research Ethics workshop this year. Dr Adrian Elangovan and I have also organized a Public Forum with the Science Centre Singapore to celebrate SG50 this year with the theme of "the Past, Present and Future of Singapore Biology and Biology Education". On the panel, we have Dr Lim Tit Meng, CEO of the Science Centre Singapore, Dr Prakash Kumar, who is doing a major collaborative research project aimed at improving the rice crop and Dr Lee Sing Kong, who has held leadership positions in the National Institute of Education. I moderated this panel.

SIBiol has also made progress on other fronts - in particular, the Research Trust Fund is on track to be launched later this year with the work of Dr Prakash Kumar. I would also like to thank our Hon. Secretary and Hon. Asst Secretary Dr Abigayle Ng and Dr Jani Thuaibah for cleaning up the membership records and keeping the society's work going, as well as our Hon. Treasurer Ms Sapna Ananth Narayana for responsibly taking care of the society's budget and accounts. In addition, SIBiol will be launching a Singapore Junior Biology Olympiad next year, working together with the Science Centre Singapore.

It is with a heavy heart that I step down from the President position this year in order to focus on the Singapore Junior Biology Olympiad. I greatly thank the Council for having supported me these last two years and wish the next Council all the very best.

Best regards

Fullwood

Melissa Fullwood, President, 41th Council

Singapore excels at the 26th International Biology Olympiad!

By Stanley Quek, Samuel Fong, Chang Jia Geng, Daniel Tan, Theophila Toh

Once again, our students have brought glory to Singapore. Despite the tricky questions and challenging practicals, our students have beaten the odds and have been awarded three gold medals and one silver medals, placing Singapore 3rd amongst the 61 delegations participating in the 26th International Biology Olympiad, behind only the United States of America and China. Our team includes: Daniel Tan Chee Hian from Hwa Chong Institution (4th, Gold medal), Samuel Fong En Lei from Raffles Institution (12th, Gold medal), Chang Jia Geng from Raffles Institution (17th, Gold medal), Theophila Toh Ying Lin from NUS High School of Maths and Science (42nd, Silver medal). A really big congratulations to the students, you guys were amazing!

The Jury Team comprised of Dr Beverly Goh and Dr Ng Ngan Kee, the two co-leaders, Ms Tay Wee Beng, the MOE officer, Dr Chen Zhong, the observer jury, and Stanley Quek, the Chief Alumni Instructor. The Jury Team checks the practical and theory papers before they are given to the students, and ensures the students have been marked fairly after the exams. This year, the Jury Team contributed immensely to the refinement and verification of the exams.

Photo taken at the Opening Ceremony for the 26th IBO.
Back row (From left): Dr Chen Zhong, Ms Tay Wee Beng, Dr Beverly Goh, Dr Ng Ngan Kee, Mr Stanley Quek
Front row (From left): Daniel Tan Chee Hian, Chang Jia Geng, Samuel Fong En Lei, Theophila Toh Ying Lin

Let's see what the students feel about their experiences:

IBO 2015

What does a pianist, a very pretentious Instagrammer, and 2 cross country runners have in common? Well, they are all bound together by the shared love for Biology. And this is our journey towards the IBO 2015 held in Aarhus Denmark.

We first started as awkward unfamiliar faces staring at one another in the DNA gallery during the SBO finals. When the SBO results and IBO results were announced, some were ecstatic, some were relieved, and some had expected to do well all along (at least not me). And this was where our long journey as a training team started. Indeed, even in the context of a competition, the team had great fun together, and I was indeed glad that there weren't intra-team conflicts that destabilised the learning atmosphere. As the months flew past, we arrived at the training (and selection) camp. The camp was indeed a tough one, with late nights and early mornings interspersed by series of practical and theoretical tasks to simulate the actual IBO. Yet, it was definitely a memorable experience living with the same group of like-minded for a week, doing the practically (pun intended) crazy things we wouldn't have a chance to do elsewhere.

After the final selection of the IBO representatives were announced begins the last stretch of intensive preparation and trainings. This includes twice weekly practical trainings, table top discussions on topics we'd research on, and a last push to go through past year exam papers and cram just that tiny little bit of information into our head. Yet, I am sure that the team had a fair share of fun too, notably the seining session at Changi Beach.

And then came the IBO, as we departed Singapore at 00:35 hours on a quiet Saturday morning, knowing (and not knowing at the same time) what to expect in Aarhus. While we definitely had high cortisol levels in our blood, it was dampened by the kind hospitality of the Danes, the friendly and crazy environment we shared with other delegates and the breath-taking nature of the Danish countryside. IBO, we learnt, is more than a competition. It is an expedition, a field trip, a journey, a party, a community. And in a blink, the week has passed. Freed from the burden of worrying about the exams (we can't do much to change it, anyways), we thoroughly explored the rich history, culture and nature of the mighty and

magical Southern Isles. The sights and sounds included the Deer Park, the Moesgaard Museum (which, I must admit, is the British Museum equivalent in Aarhus!), the Open Air Museum (Imagine recreating the Medieval times, brick by brick, horse by horse!) and last but not least, LEGOLAND! (Did you know? Lego was invented in Denmark!)

And at long last, when a quaint little town hall in the middle of Aarhus was transformed into a dance floor with people taking selfies, letting their hair down, gorging on scrumptious food, you know that that is the IBO spirit. The colour of our medals was only secondary (perhaps tertiary, quaternary…) to everything else we had enjoyed in Aarhus.

The cold never bothered us anyway.

~Samuel Fong

This is going to sound obnoxious, but I have to say it anyway. I was quite disappointed when they announced my name for the fourth-place winner. Yes, I know everybody around me wasn't expecting me to get first, or second or whatever. But I expected myself to do it. That's me – I'm never content with anything short of my personal best. And so it was both exhilarating and disappointing that I'd come in fourth place, just shy of the top three.

To me, on some level, there was never any real obstacle to getting a perfect score for the test. Theory questions could be answered correctly given careful analysis and logical thought or sometimes pure regurgitation, practical questions simply required sufficient understanding coupled with an ability to follow instructions. And indeed, If I'd just done slightly better on that one practical that I bombed out on, I could have been third, second or even first, instead of fourth.

But such is the nature of competition – no matter how good you are, how much you've prepared, there's always someone who's done a little bit more, knows a little bit more. In the end, despite the bittersweet taste of a victory cum defeat, I guess fourth is pretty alright as well. In the end, as hackneyed as this may sound, all that matters is that I achieved a personal best, and learned more about the subject I've come to love.

~Daniel Tan

The week-long trip has been a superb experience. I tried Danish food, music, art and had a great time observing plants, rocks and wildlife. While the exams themselves were worrying and tiring (not forgetting the jet lag), I found the trip extremely enlightening as a whole. I managed to learn a lot from peers about their country and their culture, such that IBO felt like a trip around the world. The itinerary was great, consisting of a day at LEGOLAND and a city tour which brought us to Viking museums and cathedrals.

One of the most memorable moments was spending time alone on the coast the morning after the theory paper, studying rocks while enjoying the breeze and calls of seabirds -- something you might not get at East Coast Park! As for the exams, I remember how terribly I did in my first practical! But luckily, I forgot about the negative feelings by putting on a great smile, and thankfully the hiccup did not carry over onto the other three practicals. All in all, I feel really blessed to have been given the chance to represent Singapore at the Olympiad, and what more that it was held in such a beautiful country!

~Chang Jia Geng

Let's just skip the bits on commute and fast-forward to the actual experience. It was so amazingly unbelievable! It was everything I thought it would be and more. The experience was truly, truly once in a life time. The first thing that comes to my mind when I think of IBO is, when will I ever again get to hang out and party with some of the best and the brightest youths in the world? These kids are going to MIT, Harvard, Princeton, top universities in their countries. I made some really cool friends over in Denmark. The food was great (I still talk and think about the roasted pork belly with the crispy skin we had on cultural night), the drinks were too. But most of all, the people were amazing. We were allowed to make embarrassing biology jokes, be total nerds and everyone was just eager to know someone new. It was GREAT!

We worked so hard for the tests and when they came, they came. Maybe it was because I was distracted by LEGOLAND and international friends, or maybe it was because previous trainings helped me, but I managed to put my slip-ups behind me fast. Eventually I realize

that there isn't any use dwelling on what's already happened, just enough so that you learn from your mistakes. And now, I know not to hack away at a fish so that its heart breaks, thus leading to your own heart break…….

At the end of the day, I still felt like I could have done better. But I have been unduly rewarded with the experiences I'd been through. Our team got way closer and I love that so much. Praying together, doing stupid "sneezing" poses, laughing at our own silly antics… I really had a great time at the IBO. I missed Singapore and Asian food so much but I didn't want to leave either. I didn't want to leave our seaside hotel, the 16 degrees Celsius weather, and the lovely people of Aarhus and IBO.

Alas it was time to return home. Our necks heavy with our medals, hearts light from a euphoric and unique experience. I've learnt so much and I'm so glad things turned out the way they have. Just seeing everyone around me, not least the others in the team, reminds me that I could have done better and I agree. Things have always been easy for me and I've never worked my hardest, and IBO was a challenge that matched up to my perceived potential. And it felt like because I never worked really hard, I didn't fully know how to. But I learned along the way and tried. And even though IBO is over, as cliché and stupid as this sounds, it's only my beginning.

~Theophila Toh

Just some of the alumni, professors, staff, and students that made this all possible! (Notice the black IBO shirt!)

THE DANISH IBO SAGA

INTERNATIONAL
BIOLOGY OLYMPIAD
2015 AARHUS DENMARK

The team's natural accommodations

By Stanley Quek

The International Biology Olympiad is an annual competition that celebrates students' passion for Biology. High school students from all over the world compete in national Olympiads, eager for the chance to participate in this gathering of talents.

This is the story of the 26th IBO, the epic Danish Saga, from the point of view of a young jury member and former student participant.

The 4:30 sun rose on the competition, the IBO flags fluttering in the wind. The calm didn't last for long however, as hundreds of students and jury members flood into Denmark, swamping the usually quiet city of Aarhus. Built into the remnants of an old fjord by Vikings, the historical city set the scene for the ultimate showdown of skill and wit.

The Singaporean students emerged from the Green House, their minds going through the various flora they had just seen. They made their descent from the little hill, heading back towards the Radisson Blu Hotel. As they approached, they saw other competitors piling onto the buses, ready to commence their IBO journey.

Marching towards IBO

Tired as we were, the enthusiastic local guides were enough to lift our spirits. As national pride swelled during the opening ceremony, students decorated with their national identities paraded on stage. The crowd

gave a mighty roar as the Danish team stepped into the spotlight, a jubilant show by the crowd reminiscent of our reaction during the Singapore IBO held a few years ago. As I glanced around the hall, I could see the eager determination on the faces of the competitors. I found myself thinking back to my own participation as a student in 2013, feeling the same sense of trepidation, and yet, hopeful optimism, the drive to do the best we can, whilst trying to remember to enjoy ourselves. The IBO is an experience no one will ever forget, and the camaraderie formed amongst fellow competitors will last a lifetime.

Team Singapore arrives on stage

Team Singapore, Brazil, and students from Italy and Bulgaria

Even before the team photos could be taken, the students were straining to break away from their "guardians", yearning to meet other eager competitors. Our own team never forgot their own bond though, as they flitted from table to table together, meeting others as representatives of Singapore.

It was soon to be a reluctant farewell though, as the students were chaperoned back to their hotel, away from their jury members. They trembled as they thought about the task that lay in front of them. I stood rooted as they were herded away, my own memories floating back to the surface. I remember the tension, the uncertainty, and even the slight hint of fear as I was led away from the jury during my own IBO. I realized that was how the team, my juniors, were feeling now. I gave them one last determined nod as I silently willed them on. I have trained them, accompanied them as they prepared, and answered their every query. I had no doubt they will be able to handle whatever's going to be thrown at them.

As the red blazers disappeared into the buses, I returned to my own hotel room, ready for my own battles. The very next day, I was staring at various plant specimens, furiously

The Singapore Jury (except the photographer) checking the practicals!

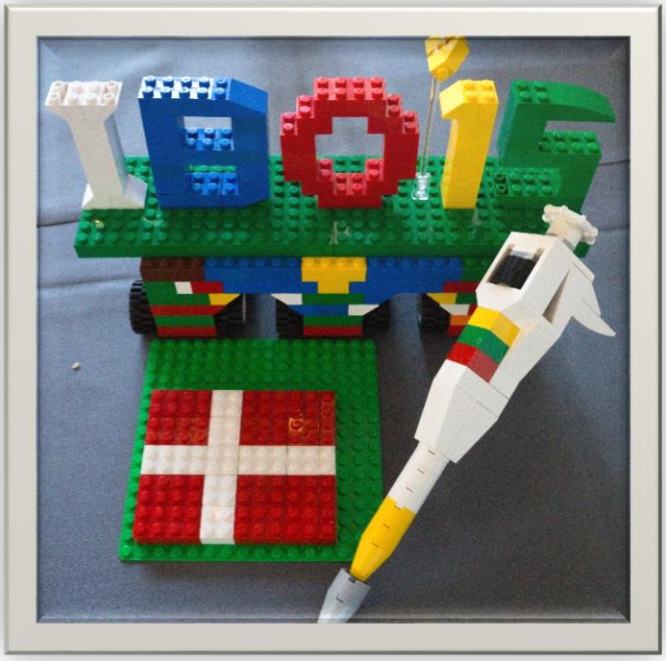
punching in answers on my laptop. No, I didn't become a student again. The jury team was hard at work, meticulously checking the exams the students would receive. The room was buzzing with activity, a multitude of languages were heard as jurors discussed amongst themselves. Occasionally, the odd representative would march up stage, seeking to clarify a possible error. As I looked up from my work, I saw I was surrounded by many others, all attempting the insanely tricky, yet exciting task. Even the observer from Norway, who had no participating students, couldn't contain her excitement. If only the students shared our unbridled joy and excitement...

Barely a kilometer away, the students were curiously peeking through a Snap-on microscope lens. Reflected light traveled through the tube, refracting as it went through the lens, before finally entering the sensor of the student's tablet. A finger taps on the trigger, capturing a magnified image of the dense, interlacing fibers of a piece of rye bread. The student sighs, satisfied, his photo taking skills will surely be put to the test tomorrow. But in what way he wasn't yet sure. He looks over to his team members, one was literally shaking, while the others were talking and joking with the other participants. "Hey dudes, I'm gonna take a selfie with my specimens tomorrow!" The other student could only shake his head and smile, imagining the reaction of the jury if, while checking the exams, they saw her face next to the specimens.

The next morning, a dense cloud cover blanketed the sky. In a building located within the scenic Aarhus University, distinct sounds could be heard. The sound of plastic contacting the floor, followed by mumbled curses in foreign languages, filled the room. The Singaporean student rubbed the sweat off his forehead, desperately reaching for his micropipette. Time was running out! Three protocols to be done at the same time, whose idea was this anyway? In another room down the hall, research assistants shuffled around, entering the values displayed on the many spectrophotometers in the room. Out of the corner of his eye, another pink card was raised. A blur of white flew into the room, another microtitre plate incoming. Even on the green grass outside, peace was not found. A sickly smell oozed out of a huge, white tent. Students ignored the stench, struggling to insert pins in the fresh carcass. A Tablet was raised, the shutter snaps, too bright! The student adjusts the pins, hoping to

avoid the glare. Try again, hurry! Much better! A fly buzzed lazily, waiting for the perfect opportunity to land on the now exposed stomach.

Back in the majestic Radisson Blu hotel, the atmosphere was just as intense. As I spoke into the microphone, suggesting yet another slight revision to the question, the other jury members were deep in concentration, rapidly reading the other questions? As I sat down, I glanced behind me and saw a Vietnamese English dictionary, the 13 man team rapidly translating the three hour exam. It was going to be a long night for them. I turned back to my screen. This statement makes sense, but will the students understand it? Would they be suckered into applying the wrong concept? A thick Danish voice filled the room again, another revision had been made. A few mumbles were heard, translations had to be changed again. For English speaking Singapore, it would just be another revision to be checked. Perhaps our job is easy, a few more questions and we will be done by dinner. I attempted to scroll to the next question, but the screen remained frozen. The jury had been plagued by numerous IT glitches, but nothing major the amazingly professional IT crew couldn't fix. I waited a minute, still nothing. The jury member beside me offered to let me use her computer, but I was sure it would be fine in a while. Unfortunately, a few impatient clicks later, a sad face appeared on my now blue screen, the crash dump value inching up agonizingly. An early dinner might not be such a bad idea after all, I thought as I sunk into my chair. I checked the schedule: another day of papers for us tomorrow, while the students are going to... that's not fair.



Despite the long hours, some of the jury members found their own source of amusement

A high pitched scream pierced the air. The adjacent girl closed her ears, how does a guy scream so high? The roller coaster reached

After the roller coaster, hand eye coordination still on point (Photo by Samuel Fong)

the bottom and climbed again. The screaming was incessant. On the ground, mouths were open in amazement at the various Lego sculptures, the occasional sound of shutters clicking could be heard. A media crew handed a microphone to a student, eager to hear their thoughts on the previous day's exams. Excited screams could be heard everywhere as the horde of Biology students invaded the famous LEGOLAND. The true battlefield, however, laid a few kilometers to the north.

Annotations and circles filled the printout. The jury looked at the clock, 11:30 pm. Despite the Danish summer, the sun had already disappeared. I leant over, asking for help with a question. I ran up to the front, computer in hand, we needed to finalize the papers now! I explained my point of view as the head examiner took notes. I raced back to consult the other jury members. They offered a few suggestions, I took them. I made what must have been my tenth trip to the front. A few minutes later, the head examiner waited eagerly next to me, expecting the last points of input. Shortly before midnight, a thunderous applause filled the room as the last revisions were debated and added. Our work was over for now.

The sun of the new day shone unabated through the clear blue sky. A student drummed his fingers nervously. Sweat appeared on his forehead as his brows scrunched together. His finger hovered over the screen, hesitating. He closed his eyes and said a little prayer. As his finger impacted the screen, a green dot appeared in the previously blank cell. So much studying, yet nothing can prepare one for this. Question 45, just five more and I'll be done, he thinks. He glanced at the clock, 12:00 noon, one hour left, but the luxury of time offered no comfort. This monster of an exam was unlike anything he had seen. His eyes grew wide as he remembered something, there was still an afternoon exam to contend with. This was going to be a long day.

In the center of Jutland, stood a proud mountain. Its name, Himmelbjerget, meant Sky Mountain, and it certainly lived up to its name, all of its 14700 cm (147 m) that is. Sufficiently amazed by the nonetheless magnificent view, and an equally savory lunch, the jury members climbed into little steamboats. As we munched on the fresh berries we found, we eagerly anticipated our scenic cruise back to civilization. Jurors from many countries used this opportunity for idle conversations, tired of the serious debates from the days prior. It turns out the other countries have noticed the success of our strong alumni system, as no less than ten other IBO alumni were present in our midst. Their

The Singapore Jury at the peak of Himmelbjerget

participation ranged from as recent at 2014, all the way back to the 1990s. All reminisced about the good old days of being a student in IBO. Our conversations flowed through many different courses. We talked about anything, from our various excursions, to our emotions during and after the exams, to more everyday topics such as weird museums in Oslo, to the structure of names in different cultures (plus my frustration with the assumption that the first name always come before the family name).

Probably as a joke, or perhaps under the influence of Scandinavian trolls, the guides set the meeting point to be at the white tent where the dissection was held. I fancied a sniff, it was well sanitized. We waited there, a buzzing feeling spread as we anticipated our first meeting with our students in days. The excitement level rose as the first of them made their way over, eager to be reunited with their mentors. Not wishing to wait any longer, I raced into the university building, excitedly looking for our students. As expected, they were already on their recently returned hand phones, engrossed in their quest to connect to the non-existent WIFI. Not too engrossed though, for the moment the moment they saw me, they kept their devices as high fives and hugs were traded. Shushing out their unnecessary advanced apologies, I herded them out of the building, where the rest of the jury was waiting. A few exasperated complaints and laments later, the students calmed down sufficiently to let it go. No alcohol had been drunk, but the sudden release of the enormous stress they had been under the last few days finally bubbled over, as we gushed over their experiences, their awkward digs at each other, and a few points of gossip. Some other students glanced over, wondering how the usually reserved Singaporeans had suddenly exploded into this over-excited gaggle, sometimes roaring with laughter, sometimes shouting as fingers jabbed at each other, pointing out certain embarrassing experiences.

Friends from IBO 2013, we never forget the friends we make!

After sleeping off the night's celebrations, it was now the jury's turn to feel nervous, as the students' papers were released to us. With bated breath, we waited as the papers slowly loaded on our screen. As more IT issues hit, the checking of papers was unfortunately

Well, there's one Singaporean, where are the others?

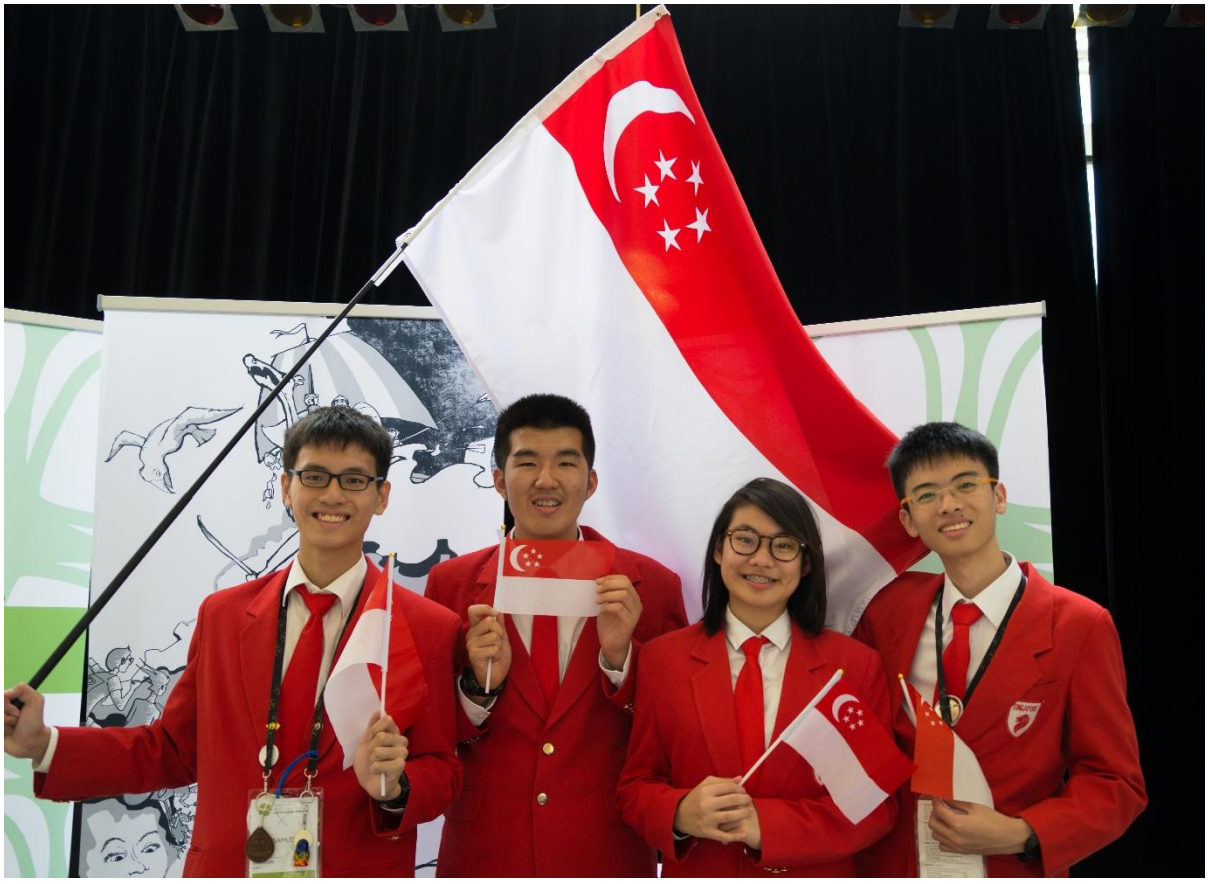
delayed. This was a blessing in disguise though, as when the jury met with the students again that evening, we had no idea how they did, and when constantly pressed to tell them, we could truthfully tell them that we had no idea. I felt pity for the students though, everyone was so eager to hear little snippets of their performance. After much persuasion, our own team finally relaxed and managed to enjoy themselves. To my great pleasure, they were not tied to each other anymore. They had come out of their shells and had each made new friends. It was really difficult to find all four of them in the same place, and for my part, a game of twister with some of the other students kept me from worrying about them. Just as I was about to relax, students from other countries started prodding me for their results, or at least to persuade their jury to tell them. Some worries are truly international.

Unfortunately, the technical issues took slightly more time to resolve than anticipated, and during the final afternoon, the decision was made to postpone the medal ceremony. As I glanced to look at my students, I saw slight disappointment in their eyes, they would have to be "tormented" a while more. The rest of the closing ceremony passed, ending with an upbeat song celebrating the IBO spirit. As the students left for the Gala dinner, the jurors convened one last time to finalize the results. Our experienced jury could guess that we were well placed, and we made our way to the absolutely gorgeous Centralværkstedet. The students in their red blazers and ties waved eagerly to us. I reassured them without giving them details, and left

The Singapore team and their guide Amalie

to eat somewhere else to give them space. Even from my table across the room, I saw as their new friends came over for mutual reassurance. The camaraderie seen at the IBO is unparalleled, and as the team's new friends joked with them, my own friends from my IBO two years prior came over and did the same with me. Singapore always does well, they said, I did not have to worry. In that moment I remembered my own experiences from two years ago, the uncertainty, the irrational fear that I wouldn't get a medal, and yet, the silent optimism and joy, and the friendly support I received from my then new friends. I looked back at the team and I knew they were feeling the same, and I knew that no matter how they did, I would be proud of them. I have seen them grow from uncertainty, thrust into the daunting prospect of perhaps representing Singapore in the IBO. From listening intently during the weekly lessons under the guidance of experienced Professors, to their exhausted expressions as the seniors and I pushed them through practical after practical, paper after paper, to their disbelieving faces at being selected for the team. During their own practice, I have seen their determined spirit, I have replied to their many questions, both face to face and online, I have had to reassure them many times that they would be fine. Now, as they stand on stage, beaming with pride as their medals are awarded to them, I can’t help but feel immensely proud of them. I know that they will eventually guide the future batches, as I have guided them, as my seniors have guided me, and that Singapore's success in this competition is secure in their hands.

You guys are the best! And I would love to do this whole thing with you again!



Congratulations to The Red Blazers, I hope your experience is as amazing as the one I had two years ago!

SIBIOL WORKSHOPS

Seed Biology

By Shawn Lum, Sapna Ananth and Stanley Quek

The Singapore Institute of Biology held a Teachers Professional development workshop at the National Institute of education by organizing the 'Seed Biology workshop' on the 7th of March 2015, Saturday 9.30am to 1.00pm at the NSSE/NIE Biology lab. This workshop was open to MOE teachers and Science HODs of Secondary Schools and JCs' in a bid to upgrade their skills and knowledge in the field of Botany. Lectures and demonstration for this workshop were conducted by Dr Shawn Lum and Mrs Sapna Ananth Narayana of NIE.

Seed conservation can provide an opportunity to study Botany and understand the threat faced by endangered plant species in order to eventually consider successful plant species recovery programme which would include restoration and reintroduction of seed. Preserving plant and seed material is extremely important, as it allows for research to be done without damaging the natural population. Seed banks are also like having an insurance policy. When the wild population goes extinct, we can rely on this bank.

Participants at the Seed Biology Workshop. What is a seed? How did seeds first evolve? How do we get our students interested in botany research? All these questions and more were answered as the participants and workshop coordinators, Dr Shawn Lum and Mrs Sapna Ananth, explored the different adaptations and physiological properties of the various seed purchased for the workshop. Highlighted was the alarming trend of our secondary and JC students losing interest in botany, and the relative lack of knowledge about this significant subject. As a garden nation, we are surrounded by an amazing diversity of flora. It would be a shame if such a repository of knowledge were lost to us before we could understand them.

All the participants thoroughly enjoyed the workshop. Following were some of the feedback provided by the HODs'/ teachers:

- Highly knowledgeable & creative with realistic examples
- Inspiring and great ideas to implement
- Diverse array of seeds, fruits displayed during workshop shows effort and dedication
- Very good theoretical refurbishment plus loads of specimen to view and dissect
- Good application of seed morphology and physiology to everyday life
- Good balance of theory and practical with enough depth for content

On behalf of Singapore institute of Biology we thank Dr Nura from Singapore Botanical garden who was kind enough to lend collection of rare seeds from the seed Bank for the workshop. These rare seeds helped in a great way to understand and explain conservation of biodiversity to the participants, provide a first-hand experience about seeds and evolution. We thank National Institute of Education for their support and for providing the venue.

Mrs Sapna Ananth of NIE presenting certificate of gratitude to Dr Nura of Singapore Botanical Gardens

Research Ethics

By Melissa Fullwood

The Teacher's Workshop on Research Ethics was held in the Department of Biological Sciences in NUS on 4 July 2015. Three teachers attended. The workshop was organized by Dr Ng Ngan Kee, who discussed animal ethics, and Dr Melissa Jane Fullwood, who discussed human ethics. There was a good discussion of the topics, and ways by which teachers can navigate the complex landscape of ethical and regulatory framework in Singapore. The instructors would like to thank Stanley, SIBiol Intern, for his support, and the Department of Biological Sciences for allowing us to use the venue.

Singapore Junior Biology Olympiad

One of the most exciting new initiatives planned by SIBiol for next year is the inaugural Singapore Junior Biology Olympiad (SJBO). The purpose of this new initiative is to pique young students' natural inquisitiveness, through which they may discover their lifelong passion for Biology. We hope the tricky questions and challenging practicals will allow the students to realize that there is more to Biology than what they see in their curriculum. Students may also use this as an earlier stepping stone to gain experience which will serve them well in the Singapore Biology Olympiad and eventually, whilst representing Singapore in the International Biology Olympiad.

SIBiol Public Forum

The 2015 Public Forum on July 25, 2015, in conjunction with the Annual General Meeting of SIBiol and in the spirit of SG50, showcased a panel discussion on "The Past, Present and Future of Singapore Biology and Biology Education". SIBiol and the Singapore Science Center jointly presented a Public Forum on "Community and Urban Farming in Singapore". A/P Lim Tit Meng, Prof Lee Sing Kong, and Prof Prakash Kumar spoke on the panel, which was moderated by Dr Melissa Fullwood.

Research Trust Fund

SIBiol is pleased to announce that a new grant call will be announced this year from the Research Trust Fund. Please stay tuned for more details!

ONE YEAR ON: REFLECTIONS FROM THE PAST

By Cleon Kho

When I first heard of the competition, I knew instantly I wanted to participate in it, wanting to challenge myself against the very best in both Singapore and the world. It gave me the chance to push myself to the limit, and freely explore the different realms of Biology, without the constraints of a syllabus like in school.

During the actual competition, I really appreciated having the opportunity to speak to different people from all around the world, forging friendships that I will probably never forget; and of course, representing your country is something always special. Simply put, it was an amazing week back then in Bali. Looking back, the effort and time I put in to reach IBO was worth it, and I wouldn't trade the experience for anything in the world.

Competition aside, it was fascinating learning how different organisms work, especially with respect to the local context. Studying Biology definitely taught me to better appreciate the unique flora and fauna found on our tropical island home, and now, I can never see a crab or Heliconia plant the same way again! As a platform for young biologists, this competition has no equals, and the biology minded friends we meet along the way will accompany us as we continue to study the beautiful world we live in.

THE SINGAPORE INSTITUTE OF BIOLOGY

c/o CMA INTERNATIONAL CONSULTANTS PTE LTD, 1 LIANG SEAH ST #02-11, LIANG SEAH PLACE, SINGAPORE 189022

http://www.sibiol.org.sg/

THE SINGAPORE INSTITUTE OF BIOLOGY

41st COUNCIL

ANNUAL REPORT (2014/2015)

GENERAL REVIEW

The objectives of the Institute were actively promoted during the year as reflected by the activities organized by the Council. These are summarised below.

THE 41st COUNCIL

The 41st Council has held four meetings in 2015 to carry out the business of the Institute. Members of the 41st Council of the Institute for the year 2014/2015 comprised the following Officers:

President:	Dr Melissa J. Fullwood
Immediate Past-President:	Dr Beverly Goh
Vice-President:	Dr Chen Zhong
Honorary Secretary:	Dr Abigayle Ng
Honorary Treasurer:	Ms Sapna Ananth Narayana
Assistant Honorary Secretary:	Dr Jani Thuaibah Isa Tanzil
Assistant Honorary Treasurer:	Dr Bina Rai
Council Members:	Dr Adrian Elangovan
	Professor Prakash Kumar
	Mr Deepak Babu
	Dr Tam Wai Leong

MEMBERSHIP

From September 2014 to July 2015, three new ordinary members and three new life members were admitted to the Institute. The membership profile of SIBiol as of **July 20, 2015** is shown in table 1.

Table 1. SIBiol membership profile (2014 to 2015)

Category	2014	2015
Patrons	2	2
Honorary Fellows	4	4
Fellows	5	5
Ordinary Members	58	61
Associate Members	6	5
Student Members	12	12
Life Members	80	83
Total	**167**	**172**

We thank Dr Jani Thuaibah Isa Tanzil (Asst. Hon. Secretary 41st Council), Ms Sapna Ananth Narayana (Hon. Treasurer), Mr Stanley Quek (SIBiol Intern) and CMA (SIBiol secretariat) for their hard work in tidying and updating membership records.

ACTIVITIES OF THE INSTITUTE

4.1 SIBiol Public Forum at Science Centre Singapore (25th July 2015, 10:00am – 11.30am)

The 2015 Public Forum was organised in celebration of Singapore 50th year anniversary. The event was jointly organised by SIBiol and the Science centre Singapore and held on the 25th of July 2015 from 10am to 11:30am, before the 41st SIBiol AGM at 12pm. The public forum took on the format of a panel discussion on "The past, present and future of Singapore Biology and Biology Education". The distinguished panelists consisted of Professor Lee Sing Kong and Associate Professor Lim Tit Meng, both Honorary Fellows of SIBiol, as well as Professor Prakash Kumar, who is part of the 41st SIBiol council, and was moderated by Assistant Professor Melissa Fullwood, President of the 41st SIBiol council. A copy of the forum programme and information on the panelists can be found in Annex 1.

4.2 The 15th and 16th Singapore Biology Olympiads (SBO 2014 and SBO 2015)

The theory exam for the 15th Singapore Biology Olympiad was held on 15th November 2014 -- 291 students from 23 JCs and Through-Train Schools participated. After the theory round, 36 top students (from 23 JCs & TTS) were shortlisted for the practical exams.

The practical exams were held on 3rd December 2014 and the final results of the 2014 15th SBO were as follows: 8 Golds, 6 Silvers, 14 Bronzes and 8 Certificates of Merit awarded. The 8 Gold medallists and 1 Silver medallist were selected and interviewed on 23rd February 2015. Subsequently, 8 students were shortlisted for Singapore Team training for the 26th IBO, 12 - 19th July 2015.

We thank the following organisers of the 15th SBO: Dr Beverly Goh, Dr Sam Choon Kook, Assoc. Prof. Chew Shit Fun, Dr Shawn Lum, Dr Chen Zhong, and Dr Tan Lik Tong (NSSE, NIE), Dr Ng Ngan Kee, and Dr Melissa Fullwood (NUS).

The 16th SBO is scheduled to take place on the 14th November 2015 (Theory) and 2nd December (Practical) at NIE, NTU. The 27th IBO will be held in Hanoi, Vietnam from 17th to 24th July 2016.

4.3 The 26th International Biology Olympiad (IBO 2015), Aarhus, Denmark

The 26th International Biology Olympiad in 2015 (IBO 2015) was hosted by Denmark and was held from 12th to 19th July 2015 in Aarhus. The participation of Team Singapore at the 26th IBO was supported by the Ministry of Education, Singapore and SIBiol.

Team Singapore did well again this year and placed 3rd out of 61 countries with 3 golds and 1 silver. Table 2 shows the results of Team Singapore among the 239 students who participated this year.

Name	School	Award
Daniel Tan Chee Hian	HCI	4th Gold
Samuel Fong En Lei	RI	12th Gold
Chang Jia Geng	RI	17th Gold
Theophila Toh Ying Ling	NUSH	42nd Silver

Table 2. Results of Team Singapore in the 26th IBO

The team was led by Dr Beverly Goh and Dr Ng Ngan Kee. Dr Chen Zhong (NIE), Tay Wee Beng (MOE) and Stanley Quek Tee Kai (SBO/IBO Alumni representative sponsored by SIBiol) were Observers. Our heartfelt congratulations and appreciation goes out to the team for doing our country proud once again, and particularly the trainers and team leaders for all of their hard work.

A new initiative for this year was that SIBiol has released certain IBO training sessions for teachers to observe. The goals include raising additional funds to send an additional Observer (IBO intern) to the IBO and promoting better understanding of SIBiol's work by school teachers to improve performance at the IBO and participation in SBO. These sessions were very popular. SIBiol thanks all trainers who made their sessions available to teachers to come and learn. We raised sufficient funds to send Mr Stanley Quek to the IBO this year. We hope this can become a long-term, self-sustaining innovation.

4.4 Publications and Website

We thank Mr. Timothy Tan for maintaining and updating the SIBiol website. A newsletter for the year is being prepared and will be uploaded to the website, which also contains the past records of SIBiol newsletters.

4.5 SIBiol Book Prize

SIBiol has traditionally supported various educational institutions by sponsoring book prizes to the top graduating biology student of the institute. This year, SIBiol sponsored book prizes to the National Institute of Education (NIE, NTU), National University of Singapore, Singapore Polytechnic.

4.6 SIBiol Prize for Early Career Biologists

In celebration of the 40th year anniversary of SIBiol, to recognize the achievements of early career biologists and to promote the career development of SIBiol members at critical stages in their scientific careers, SIBiol announced the SIBiol Prize for Early Career Biologists, a single unrestricted cash grant of S$500.00 to be awarded to an outstanding early career scientist who is an Ordinary or Life Member of SIBiol in support of the scientist's research activities.

Unfortunately, the institute did not receive any applicants, and the Council decided to discontinue this prize out of lack of interest.

4.7 SIBiol Workshop

The SIBiol Teacher's Workshop was renamed to "SIBiol Workshop" to foster a more inclusive workshop. This year, we had two workshops.

The first was organised by Dr Shawn Lum and Ms Sapna Ananth Narayana on seeds. Fifteen participants attended the workshop. The workshop was held at the National Institute of Education (NIE) on 7th March 2015 (Saturday) 9.30am to 1.00pm at NSSE/NIE Biology lab. The institute would like to express gratitude towards Dr Nura Bte Abdul Karim (Asst. Dir. of Horticulture) for loaning us many seeds including some very rare seeds from the Singapore Botanic Garden, as well as to the Singapore Botanic Garden for the seed loan and the NIE for the venue.

The second SIBiol workshop was conducted by Dr Melissa Fullwood and Dr Ng Ngan Kee on research ethics. Dr Ng presented on animal ethics and Dr Fullwood presented on human ethics. Three participants attended this workshop, which was held on 4th July 2015 (Saturday) 9 am to 1.00 pm at Department of Biological Sciences, NUS. We would like to thank DBS for providing us with a venue for the workshop.

4.8 SIBiol Research Trust Fund

The Singapore Institute of Biology Research Trust Fund (SIBiol RTF) supports and facilitates research on local topics or questions in biology by SIBiol members. To date, the SIBiol RTF has
supported over 30 research projects.

The usual custom for the RTF grant was that the interest from a fixed deposit account would have been used for this grant. However, in recent years, the interest rates have fallen and therefore insufficient interest was available. Moreover, SIBiol had to input additional funds for the audit of the RTF every year. Faced with a fund that was not performing its intended goals, and in view of the costs of maintaining the fund, we sought to understand whether we might be allowed to draw down on the principal capital.

Following an exercise in understanding the source of the Research Trust Fund, whereupon we discovered that the Research Trust Fund was set up by Prof. A. N. Rao through asking for donations, and the main donor was the Lee Foundation, we asked the Lee Foundation for permission to draw down on the principal capital. This was allowed.

As such, this year, SIBiol would like to launch the SIBiol Research Trust Fund Research Grant. Each Research Grant awards up to SGD 5,000 for: (i) an original two year project (renewable for another term, subject to progress assessment), or (ii) funding interns to perform research under an existing grant.

In recognition of Prof. A. N. Rao's contributions to science and his hard work in setting up the SIBiol Research Trust Fund, it is proposed that RTF Research Grant be renamed to the "SIBiol Research Trust Fund Grant in honor of A. N. Rao". If all are in agreement, the proper procedures will be pursued and external approvals will sought. Following this, the first call will be launched.

The theme for this year's grant call will be "Conservation and Environment" and the applications will be open to Ordinary and Student members of the SIBiol. Student members must be in the 3rd year of graduate studies or later and may apply together with a Lab Head who is a SIBiol member. The grants are strictly for covering the cost of consumables or internship assistance and cannot be used for the purchase of equipment. Awardees are also expected to give a presentation at the SIBiol AGM.

More information on how to apply will be made available on the SIBiol website (http://www.sibiol.org.sg/rtf).

4.9 Singapore Junior Biology Olympiad (SJBO)

SIBiol has begun preparations for the inaugural SJBO, to be held in 2016, with the theory test held end May and the practical (if arranged), to be scheduled for end July/start of August, after the International Biology Olympiad and the AGM is over such that there is no conflict. The discussions are being conducted by A/P Lim Tit Meng (co-chair), Dr Beverly Goh (co-chair), with Dr Goh Yan Yih and Dr Melissa Jane Fullwood as committee members. The event will be co-organized with the Science Centre of Singapore, which will also provide a venue for the practical test. CMA (SIBiol secretariat) will assist in the registration and collection of payment. CMA is also sourcing for a website provider for the online provision of the theory test.

4.10 Secretariat

SIBiol will continue to engage CMA for their secretariat services and to serve as a venue for the place of business of SIBiol and to receive mail.

4.11 SIBiol Intern

The SIBiol Intern for this year is Mr Stanley Quek, who was also the chief alumni trainer. He has been instrumental in pursuing a number of initiatives under the Council's direction, and has greatly contributed to the work of SIBiol. He was the chief alumni trainer for the IBO.

ACKNOWLEDGEMENTS

SIBiol gratefully acknowledges the support and contributions of the following persons and organizations (in no particular order) to its various activities during the year 2014/2015:

Ms P Amuthavali (National Institute of Education, Nanyang Technological University)

Dr Chen Zhong (National Institute of Education, Nanyang Technological University)

A/P Chew Fook Tim (Dept of Biological Sciences, National University of Singapore)

A/P Chew Shit Fun (National Institute of Education, Nanyang Technological University)

Mr Chiu Jing Hua (SIBiol IBO Alumni)

Ms Chow Mei Lun (National Institute of Education, Nanyang Technological University)

Ms Anne Dhanaraj (Science Centre Singapore)

Dr Adrian Elangovan (Singapore Polytechnic)

Dr Melissa Jane Fullwood (Yale-NUS College, National University of Singapore)

A/P Ge Ruowen (Dept of Biological Sciences, National University of Singapore)

Dr Beverly Goh (National Institute of Education, Nanyang Technological University)

Dr Goh Yan Yih (NUS High School)

Dr James Guest (Advanced Environmental Biotechnology Centre, Nanyang Technological University)

Dr Cynthia He Yingxin (Dept of Biological Sciences, National University of Singapore)

A/P He Jie (National Institute of Education, Nanyang Technological University)

Dr Ho Boon Chuan (SING Herbarium, Singapore Botanic Gardens)

Ms Ho Yen Yen Rebecca (National Institute of Education, Nanyang Technological University)

Ms Ho Ying Qin (SIBiol IBO Alumni)

Mr Ho Wah Chai (National Institute of Education, Nanyang Technological University)

Prof Alex Ip (Dept of Biological Sciences, National University of Singapore)

Mr Jin Chentian (SIBiol IBO Alumni)

Dr Koh Chong Lek (National Institute of Education, Nanyang Technological University)

Prof Prakash Kumar (Dept of Biological Sciences, National University of Singapore)

Mr Javan Lee Tze Han (SIBiol IBO Alumni)

Mr Leng Kuen Yong Mobius (National Institute of Education, Nanyang Technological University)

Ms Angela Leong Feng Ping (SIBiol IBO Alumni)

Dr Matthew Lim (Dept of Biological Sciences, National University of Singapore

A/P Lim Tit Meng (Science Centre Singapore)

Ms Lim Pei Ling (SIBiol IBO Alumni)

Mr Lim Ze Ming (National Institute of Education, Nanyang Technological University)

A/P Loh Chiang Shiong (Dept of Biological Sciences, National University of Singapore)

Mr Loh Kieng Wee (SIBiol IBO Alumni)

Dr Adrian Loo (Gardens by the Bay)

Dr Shawn Lum (National Institute of Education, Nanyang Technological University)

Prof Paul Matsudaira (Dept of Biological Sciences, National University of Singapore)

Prof Rudolf Meier (Dept of Biological Sciences, National University of Singapore)

A/P Henry Mok (Dept of Biological Sciences, National University of Singapore)

Dr Abigayle Ng (Raffles Institution JC)

Dr Ng Ngan Kee (Dept of Biological Sciences, National University of Singapore)

Dr Ong Bee Lian (Dept of Biological Sciences, National University of Singapore)

Ms Ong Hwee Choo Rosalind (National Institute of Education, Nanyang Technological University)

Mr Stanley Quek Tee Kai (SIBiol IBO Alumni)

Dr Sam Choon Kook (National Institute of Education, Nanyang Technological University)

Ms Sapna Ananth Narayana (National Institute of Education, Nanyang Technological University)

Mr Darren Sim Zong Han (SIBiol IBO Alumni)

Mr Sin Kim Hoe (Ministry of Education)

Ms Siti Alimah Bte Aliyas (National Institute of Education, Nanyang Technological University)

Mr N Sivasothi (Dept of Biological Sciences, National University of Singapore)

A/P Augustine Tan (National Institute of Education, Nanyang Technological University)

Mr Tan Hong Kim (Ministry of Education)

A/P Hugh Tan Tiang Wah (Dept of Biological Sciences, National University of Singapore)

Dr Tan Lik Tong (National Institute of Education, Nanyang Technological University)

Ms Tan Ming Ming (Ministry of Education)

Mr Timothy Tan Ter Ming (National Institute of Education, Nanyang Technological University)

Dr. Jani Thuaibah Isa Tanzil (Earth Observatory Singapore, Nanyang Technological University)

Ms Tay Wee Beng (Ministry of Education)

Prof Dick Thomas (Microbiology, NUHS, National University of Singapore)

Mr Toh Nguk Hwee David (National Institute of Education, Nanyang Technological University)

Mr Tong Shaw Wei (National Institute of Education, Nanyang Technological University)

Ms Tong Xueyin (SIBiol IBO Alumni)

Dr Karenne Tun (National Parks Board, Singapore)

Dr Darren Yeo (Dept of Biological Sciences, National University of Singapore)

Ms Yong Ann Nee (Dept of Biological Sciences, National University of Singapore)

A/P Yu Hao (Dept of Biological Sciences, National University of Singapore)

Ministry of Education, Singapore

Singapore Botanic Garden

Department of Biological Sciences, National University of Singapore

Natural Sciences & Science Education, National Institute of Education, Nanyang Technological University

Science Centre Singapore

Singapore National Academy of Sciences

Recorded by Dr. Abigayle Ng, Hon. Secretary, 41st SIBiol Council

Vetted by Dr. Melissa Fullwood, President, 41st SIBiol Council

Annex 1

To celebrate SG50, the Singapore Institute of Biology (SIBiol) and Science Centre Singapore jointly present:

A Panel Discussion on "The past, present and future of Singapore biology and biology education"

Maxwell Auditorium, Level 1, Science Centre Singapore
Saturday, 25th July 2015 | 10.30 - 11.30 am

Programme

On-Site Registration: 9.45 -10.15am

Panel Discussion: 10.30 -11.30 am

Panelists

Assoc. Prof Lim Tit Meng
Science Centre Singapore

Associate Professor Lim Tit Meng has been Chief Executive at the Science Centre Singapore since 2010. He has held many leadership positions at NUS, including that of Vice Dean from 2003 to 2008. A/P Lim's scientific background includes Zoology and Life Sciences, and his current research focuses on the cell death mechanisms involved in Parkinson's Disease and Leukemia. He is a major contributor to science education on a national level, playing an active role in shaping the biology curriculum.

Prof. Lee Sing Kong
National Institute of Education

Professor Lee Sing Kong is a horticulturist by training and a Professor of Biological Sciences at the Nanyang Technological University. After an illustrious career in the civil service, Prof Lee joined NIE in 1991 and was in various positions of leadership. He spearheaded several initiatives, most notably, the redesigning of NIE's organisational structure based on the matrix model. In 2000, as Dean of the Graduate Programmes and Research Office, he implemented a wide range of professional development initiatives for teachers.

Dr. Melissa Jane Fullwood
Nanyang Technological University

Dr Melissa Fullwood is a Principal Investigator at the Cancer Science Institute, a joint Principal Investigator at the Institute for Molecular and Cell Biology (IMCB) and a Nanyang Assistant Professor at the School of Biological Sciences in NTU. Her current research is on 3-dimensional genome organization and transcription in cancer. She is an NRF Fellow and won the Singapore Young Scientist Award in 2014. She is the President of SIBiol.

Tea Reception: 11.45 am - 12.30 pm

Free Admission with registration! www.sibiol.org.sg

THE SINGAPORE INSTITUTE OF BIOLOGY

c/o DEPARTMENT OF BIOLOGICAL SCIENCES, NATIONAL UNIVERSITY OF SINGAPORE

10, KENT RIDGE CRESCENT, SINGAPORE 119260

http://www.sibiol.org.sg/

THE SINGAPORE INSTITUTE OF BIOLOGY

40th COUNCIL

ANNUAL REPORT (2013/2014)

1. GENERAL REVIEW

The objectives of the Institute were actively promoted during the year as reflected by the activities organized by the Council. These are summarized below.

2. THE 40th COUNCIL

The 40th Council held five meetings during the year to carry out the business of the Institute. Members of the 40th Council of the Institute for the year 2013/2014 comprised the following Officers:

President:	Dr Melissa J. Fullwood
Immediate Past-President:	Dr Beverly Goh
Vice-President:	Dr Karenne Tun
Honorary Secretary:	Dr Abigayle Ng
Honorary Treasurer:	Ms Sapna Ananth Narayana
Council Members:	Dr Chen Zhong
	Dr Adrian Elangovan
	Dr James R. Guest
	Dr Adrian Loo
	Dr Tan Lik Tong
	Dr Jani Thuaibah Isa Tanzil

3. MEMBERSHIP

Four new members were admitted to the Institute during the year. In addition, we appointed two new Fellows and promoted two Fellows to Hon. Fellows. We are sad to report on the passing of Prof. A N Rao, who was an ex-President and Hon. Fellow of SIBiol. Two other members were removed from the membership records. In addition, we embarked on a campaign to update and correct the membership record, thanks to help from our Secretariat,

CMA, SIBiol Intern Chiu Jing Hua, Hon. Treasurer Ms Sapna Ananth Narayana, Dr Jani Thuaibah Isa Tanzil and Internal Auditor Dr Goh Yan Yih. We greatly thank these members for their assistance. Dr Jani Thuaibah Isa Tanzil was co-opted into the Council. The membership record as at 30 September 2014 is reflected below.

3.1 New Life Members

Mr. Biswajit Guha

Dr. Jani Thuaibah Isa Tanzil

Mr. Ivan Ying Ming Yow

New Ordinary Members

Dr. Sharon Aiting Wong

New Fellows

Dr Beverly Goh

A/P Lim Tit Meng

New Hon. Fellows

Prof. Lee Sing Kong

A/P Diong Cheong Hoong

The membership profile of SIBiol as of **September 30, 2014** is as follows:

Category	**2014**
Patrons	2
Honorary Fellows	**4**
Fellows	**5**
Ordinary Members	**58**
Associate Members	**6**
Student Members	**12**
Life Members	**80**
TOTAL	**167**

4. ACTIVITIES OF THE INSTITUTE

4.1 SIBiol Public Forum at Science Centre Singapore (25th October 2014, 10 am – 12.15 pm)

The 2014 Public Forum was organised by SIBiol organized in celebration of the International year of Family Farming (United Nations). The event was jointly organised by SIBiol and the Science Centre Singapore (SCS), and held at the Science Center Singapore, on Saturday 25th October 2014, from 10am to 12:15pm, before the 41st SIBiol AGM.

The public forum was coordinated and chaired by Dr. Adrian Elangovan, and comprised the following two talks:

1. Dr Shawn Lum and Ms Sapna Ananth from the National Institute of Education

"Community gardening in Singapore"

2. Mr Veera, Managing Director, Greenology Pte Ltd

"The Art and Science of Urban Greening and Farming"

A copy of the Forum is attached as **Annex 1**.

4.2 The 14th and 15th Singapore Biology Olympiads (SBO 2013 and 2014)

The 14th Singapore Biology Olympiad was held between November and December 2013 at NIE/NTU. In total, 334 students from 22 Junior Colleges and Through-train schools sat for the Theory Test on 16th November 2013, from which the top 39 students from 7 JCs/T-t schools were selected for the Practical Test held on 4th December 2013. A total of 5 Gold medals, 7 Silver medals, 13 Bronze medals and 13 Certificates of Merit were awarded in the 14th SBO. Five Gold medallists and 4 Silver medallists from 4 JCs/T-t schools were interviewed and considered for training in the 25th International Biology Olympiad 2014. The organising committee of the 14th SBO (and eventually the training committee for the 25th International Biology Olympiad) was co-chaired by Dr Beverly Goh (NIE/NTU) and Dr Ng Ngan Kee (DBS, NUS). Dr Sam Choon Kook, Dr Koh Chong Lek, Dr Shawn Lum and Dr Tan Lik Tong (NIE/NTU) also served in the committee.

A total of 8 students, representing 4 JCs/T-t schools, were shortlisted and trained from March to June 2014 in preparation for the 25th IBO 2014. The training consisted of intensive theory and practical sessions conducted by academics from NUS, NIE/NTU, and NParks, ending with a stay-in residential training camp from 2nd – 6th June 2014 at NIE/NTU. The SIBiol IBO Alumni assisted in the training and helped mentor the team.

The 15th SBO (SBO2014) will be held at NIE/NTU in Nov/Dec 2014. It will be co-organised by Dr Beverly Goh and Dr Ng Ngan Kee. Dr Sam Choon Kook, Dr Shawn

Lum, Dr Tan Lik Tong and Dr Chen Zhong (NIE/NTU) will also serve in the organising committee, with kind support from the Head, technical and administrative staff at the Natural Sciences and Science Education AG of NIE/NTU, and DBS, NUS.

The Theory Test is planned for 15th November 2014 and the Practical Test on 3rd December 2014. The SIBiol IBO Alumni (comprising past SBO/IBO participants who are now pursuing higher academic studies, and/or working in Singapore) have again mobilised themselves and will be assisting in the annual SBO competition, and IBO 2015 training. Two Alumni team leaders have already been identified.

4.3 The 25th International Biology Olympiad (IBO 2014), Bali

The 25th IBO in 2014 (IBO 2014) was hosted by Indonesia and was held from 5th to 13th July 2014 in Bali. The participation of Team Singapore at the 25th IBO was supported by the Ministry of Education, Singapore and SIBiol.

The IBO 2014 training team was led by Dr. Beverly Goh and supported by Dr. Ng Ngan Kee, Dr. Sam Choon Kook, Dr. Koh Chong Lek, Dr Shawn Lum, and Dr He Jie.

Under the guidance of SIBiol, Team Singapore retained an excellent IBO performance, with Singapore ranking 2nd out of 61 participating countries. The team brought home three Gold Medals and one Silver medal. Qu Xinyi from NUS High School clinched 2nd place, missing out on the Top Gold medal by the narrowest of margins, followed by Cleon Kho Yu Xuan from Hwa Chong Institution in 11th place, Raphael Soh Qin from Raffles Institution in 22nd place, and Timothy Sim Soon-Song from Anglo-Chinese School (Independent) in 46th place. Our hearty congratulations go out to the students! Team Singapore in the IBO 2014 was co-led by Dr. Beverly Goh and Dr Ng Ngan Kee, with Dr Shawn Lum, and Mr Tan Hong Kim (MOE) as Jury Observers. SIBiol supported an additional Jury Observer, Mr Jin Chentian, who was the SBO/IBO Alumni lead in the training team. For more details, please see the MOE press release at: http://www.moe.gov.sg/media/press/2014/07/outstanding-performance-2014-international-science-math-competitions.php?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+singapore-education%2Fpress+(Press+Releases)

4.4 Publications and Website

One electronic issue of the SIBiol Bulletin (Volume 36) was published in 2014. We wish to report a correction to the Annual Report of 2013 – no SIBiol Bulletin was published in 2013. Instead, 2014 covers both years. We apologize for the mistake. The editorial team comprised Dr Melissa Fullwood, supported by Mr Chentian Jin and Mr Chiu Jing Hua. The dropbox link with the digital PDF copy of the Bulletin was emailed to all members, with printed copies sent to members that have request for them. Past issues of the SIBiol Bulletins since 2003 are now available electronically on the SIBiol website at http://www.sibiol.org.sg/bulletin/.

SIBiol maintains its own website address with an outsourced website-hosting to a commercial service provider. The website was revamped and upgraded by Mr. Timothy Tan and Ms. Yong Ann Nee in 2012. The URL is http://www.sibiol.org.sg/.

We thank Mr. Timothy Tan for continuing to maintain the SIBiol website. This year, we revamped the membership form to clarify certain details and make it editable in word. The revised membership form is also on the SIBiol website.

4.5 Asian Youth Journal of Biology (AYJB)

To expand SIBiol's role in the dissemination of knowledge and to enhance its service to members, the 37th SIBiol Council, in collaboration with the Science Centre Singapore, has established an open-access online journal called The Asian Youth Journal of Biology (AYJB), which is now the official journal of The Singapore Institute of Biology. The journal will serve as a platform for the publication of peer-reviewed original articles in the area of biology by young scientists aged 14 to 25. The main objective of AYJB is to increase scientific literacy amongst budding young scientists. In addition to original articles, AYJB will publish review articles and book reviews written by students as well as professional scientists. Each issue will feature a section called "Classroom Sharing" where students and teachers can share their ideas on certain experimental techniques. This section could also profile research centres at JCs and schools.

One issue was published for 2014. Information on the AYJB can is available on the SIBiol website at: http://www.sibiol.org.sg/AYJB/

4.6 SIBiol Book Prize

SIBiol has traditionally supported various educational institutions by sponsoring book prizes to the top graduating biology student of the institute. This year, SIBiol sponsored book prizes to the National Institute of Education (NIE, NTU), and National University of Singapore.

4.7 SIBiol Prize for Early Career Biologists

In celebration of the 40th year anniversary of SIBiol, to recognize the achievements of early career biologists and to promote the career development of SIBiol members at critical stages in their scientific careers, SIBiol has decided is pleased to announce the SIBiol Prize for Early Career Biologists, a single unrestricted cash grant of S$500.00 to be awarded to an outstanding early career scientist who is an Ordinary or Life Member of SIBiol in support of the scientist's research activities. More details are available at the SIBiol website.

The SIBiol Committee to take care of the SIBiol Prize is chaired by Dr Chen Zhong and includes as committee members Dr James Guest and Dr Melissa Fullwood.

4.8 SIBiol 40th Anniversary Celebratory Lunch

SIBiol celebrated our 40th year anniversary lunch at the University Club in the NUS Alumni Centre on 7 June 2014. Around 30 members attended this event.

4.9 SIBiol Internship

To assist in the smooth administration of SIBiol as well as to provide opportunities to talented youth, SIBiol launched an SIBiol internship program. Interns are provided

with a stipend for support. Our first intern (summer and fall) is Mr Chiu Jing Hua, who has assisted with the newsletter and memberships, as well as dissemination of information.

4.10 SIBiol Emergency General Meeting

An Emergency General Meeting was held to update our 40-year-old Constitution. Several changes were discussed and voted upon during our recent Emergency General Meeting held. Following this, we discussed the changes with the Ministry of Home Affairs, which recommended changes to the proposed amendments. The revised Constitution is available on the SIBiol website, and is attached as **Annex 2**.

4.11 SIBiol Workshop

The SIBiol Teacher's Workshop was renamed to "SIBiol Workshop" to foster a more inclusive workshop. This year, we had one workshop, organized by Dr. Melissa Fullwood with Ms Lim Pei Ling, an IBO alumna, as the Teaching Assistant. The audience consisted of teachers and professors. The workshop was held on June 28 (Saturday), 2014, 3.00-6.30 pm at the Cancer Science Institute, NUS. We thank the Cancer Science Institute for their support. SIBiol is planning further SIBiol Workshops.

4.12 SIBiol Research Trust Fund

SIBiol runs a Research Trust Fund, the objective of which is to support and facilitate research on local topics or questions in biology by SIBiol members by providing Research Grant awards of up to a maximum of S$5,000 for a two- or three-year project (http://www.sibiol.org.sg/rtf).

The funds were a generous gift from the Lee Foundation, under the SIBiol Council headed by Professor Rao. Approximately S$100,000 was placed into a fixed deposit, and when sufficient interest accrued, a call for awards was made. Unfortunately, in recent years, interest rates have fallen drastically, and it has been difficult to accumulate enough interest. On top of this, the SIBiol Council needs to pay for auditing as required under the Charities Act.

As such, the SIBiol Council proposes to draw down on the principal sum. As the principal sum is $100,000, if we award $10,000 every year (either as a single award or as two awards), the funds will last for another 10 years. The Council raised this question at our recent Emergency General Meeting, and the members in attendance agreed with the idea. We have checked with the Ministry of Culture, Community and Youth (MCCY) on how to proceed as the original records of the donation have been lost after handovers of multiple councils. MCCY advised us to contact the Lee Foundation, as the original donor. The Lee Foundation could not find any records of the original donation, but said that they had no objection to drawing down on the principal sum if the money had come from them.

Upon hearing this, MCCY advised us to have this voted upon, as a resolution. As such, for this upcoming Annual General Meeting, we propose the following resolution: "SIBiol Research Trust Funds may be disbursed from the principal sum

and interest, instead of only from the interest". Please note that the funds will only be used for the purposes of the research trust fund, and will not be used for any other purpose other than the original intention. The only change that is being made is that the principal sum will be drawn down.

If the resolution is scheduled for voting and adoption at our 41st Annual General Meeting on Saturday, 25 October 2014. Should these resolutions be adopted, SIBiol will be able to begin making arrangements for an upcoming Singapore Research Trust Fund Research Grant call.

4.13 Secretariat

SIBiol has engaged a secretariat, CMA, to serve as a venue for the place of business of SIBiol and to receive mail. SIBiol will continue to explore options for the place of business and to streamline operations.

4.14 Singapore Junior Biology Olympiad (SJBO)

SIBiol has begun preparations for an SJBO, to be held commence in 2016, with the theory test held end May and the practical (if arranged), to be scheduled for end July/start of August, after the International Biology Olympiad is over such that there is no conflict. The discussions are being conducted by A/P Lim Tit Meng (co-chair), Dr Beverly Goh (co-chair), with Dr Goh Yan Yih and Dr Melissa Jane Fullwood as committee members. In addition, we have invited SAAS and STAS to be a part of this event, which will be held together with the Singapore Science Center.

ACKNOWLEDGEMENTS

SIBiol gratefully acknowledges the support and contributions of the following persons and organizations (in no particular order) to its various activities during the year 2013/2014:

Ms P Amuthavali (National Institute of Education, Nanyang Technological University)

Dr Chen Zhong (National Institute of Education, Nanyang Technological University)

A/P Chew Fook Tim (Dept of Biological Sciences, National University of Singapore)

A/P Chew Shit Fun (National Institute of Education, Nanyang Technological University)

Mr Chiu Jing Hua (SIBiol IBO Alumni)

Ms Chow Mei Lun (National Institute of Education, Nanyang Technological University)

Ms Anne Dhanaraj (Science Centre Singapore)

Dr Adrian Elangovan (Singapore Polytechnic)

Dr Melissa Jane Fullwood (Yale-NUS College, National University of Singapore)

A/P Ge Ruowen (Dept of Biological Sciences, National University of Singapore)

Dr Beverly Goh (National Institute of Education, Nanyang Technological University)

Dr Goh Yan Yih (NUS High School)

Dr James Guest (Advanced Environmental Biotechnology Centre, Nanyang Technological University)

Dr Cynthia He Yingxin (Dept of Biological Sciences, National University of Singapore)

A/P He Jie (National Institute of Education, Nanyang Technological University)

Dr Ho Boon Chuan (SING Herbarium, Singapore Botanic Gardens)

Ms Ho Yen Yen Rebecca (National Institute of Education, Nanyang Technological University)

Ms Ho Ying Qin (SIBiol IBO Alumni)

Mr Ho Wah Chai (National Institute of Education, Nanyang Technological University)

Prof Alex Ip (Dept of Biological Sciences, National University of Singapore)

Mr Jin Chentian (SIBiol IBO Alumni)

Dr Koh Chong Lek (National Institute of Education, Nanyang Technological University)

Prof Prakash Kumar (Dept of Biological Sciences, National University of Singapore)

Mr Javan Lee Tze Han (SIBiol IBO Alumni)

Mr Leng Kuen Yong Mobius (National Institute of Education, Nanyang Technological University)

Ms Angela Leong Feng Ping (SIBiol IBO Alumni)

Dr Matthew Lim (Dept of Biological Sciences, National University of Singapore

A/P Lim Tit Meng (Science Centre Singapore)

Ms Lim Pei Ling (SIBiol IBO Alumni)

Mr Lim Ze Ming (National Institute of Education, Nanyang Technological University)

A/P Loh Chiang Shiong (Dept of Biological Sciences, National University of Singapore)

Mr Loh Kieng Wee (SIBiol IBO Alumni)

Dr Adrian Loo (Gardens by the Bay)

Dr Shawn Lum (National Institute of Education, Nanyang Technological University)

Prof Paul Matsudaira (Dept of Biological Sciences, National University of Singapore)

Prof Rudolf Meier (Dept of Biological Sciences, National University of Singapore)

A/P Henry Mok (Dept of Biological Sciences, National University of Singapore)

Dr Abigayle Ng (Raffles Institution JC)

Dr Ng Ngan Kee (Dept of Biological Sciences, National University of Singapore)

Dr Ong Bee Lian (Dept of Biological Sciences, National University of Singapore)

Ms Ong Hwee Choo Rosalind (National Institute of Education, Nanyang Technological University)

Mr Stanley Quek Tee Kai (SIBiol IBO Alumni)

Dr Sam Choon Kook (National Institute of Education, Nanyang Technological University)

Ms Sapna Ananth Narayana (National Institute of Education, Nanyang Technological University)

Mr Darren Sim Zong Han (SIBiol IBO Alumni)

Mr Sin Kim Hoe (Ministry of Education)

Ms Siti Alimah Bte Aliyas (National Institute of Education, Nanyang Technological University)

Mr N Sivasothi (Dept of Biological Sciences, National University of Singapore)

A/P Augustine Tan (National Institute of Education, Nanyang Technological University)

Mr Tan Hong Kim (Ministry of Education)

A/P Hugh Tan Tiang Wah (Dept of Biological Sciences, National University of Singapore)

Dr Tan Lik Tong (National Institute of Education, Nanyang Technological University)

Ms Tan Ming Ming (Ministry of Education)

Mr Timothy Tan Ter Ming (National Institute of Education, Nanyang Technological University)

Dr. Jani Thuaibah Isa Tanzil (Earth Observatory Singapore, Nanyang Technological University)

Ms Tay Wee Beng (Ministry of Education)

Prof Dick Thomas (Microbiology, NUHS, National University of Singapore)

Mr Toh Nguk Hwee David (National Institute of Education, Nanyang Technological University)

Mr Tong Shaw Wei (National Institute of Education, Nanyang Technological University)

Ms Tong Xueyin (SIBiol IBO Alumni)

Dr Karenne Tun (National Parks Board, Singapore)

Dr Darren Yeo (Dept of Biological Sciences, National University of Singapore)

Ms Yong Ann Nee (Dept of Biological Sciences, National University of Singapore)

A/P Yu Hao (Dept of Biological Sciences, National University of Singapore)

Ministry of Education, Singapore

Department of Biological Sciences, National University of Singapore

Natural Sciences & Science Education, National Institute of Education, Nanyang Technological University

Science Centre Singapore

Singapore National Academy of Sciences

Recorded by Dr. Abigayle Ng, Hon. Secretary, 40th SIBiol Council

Vetted by Dr. Melissa Fullwood, President, 40th SIBiol Council

Annex 1

To celebrate the International year of Family Farming (United Nations), the Singapore Institute of Biology (SIBiol) and Science Centre Singapore jointly present

A Public Forum on Community and Urban Farming in Singapore

Mendel Auditorium, Level 3, Science Centre Singapore
Saturday, 25th Oct 2014 | 10.00am - 12.15 pm

Programme

Registration: 9.15 -9.45am

Talk 1: 10.00 -11.00 am
"Community gardening in Singapore"

Dr Shawn Lum and Ms Sapna Ananth
National Institute of Education

Community gardening fosters communication, builds strong relation within community and creates opportunity to work towards a common goal. Look out for fun projects for families on gardening in Singapore. The talk focuses on garden layouts and plant selection for community gardens.

Talk 2: 11.00 -11.45 am
"The Art and Science of Urban Greening and Farming"

Mr Veera
Managing Director | Greenology Pte.Ltd

The connection between people and nature is diminishing rapidly in our urban spaces. The sciences that have thought us how to manage and maintain nature are being challenged everyday as species adaptation face unprecedented challenges in the harsh urban environment. The talk will focus on urban greening and urban farming solutions developed by the speaker.

Panel Discussion: 11.45 am– 12.15 pm

Tea Reception: 12.15 -1.00 pm

For online registration, please visit:

www.sibiol.org.sg

Annex 2 SIBiol Constitution

THE SINGAPORE INSTITUTE OF BIOLOGY CONSTITUTION

1) TITLE

The Institute shall be known as The Singapore Institute of Biology, hereinafter referred to as the Institute.

2) REGISTERED PLACE OF BUSINESS

The registered place of business of the Institute shall be at

The Singapore Institute of Biology
c/o CMA International Consultants Pte Ltd
1 Liang Seah St
#02-11 Liang Seah Place
Singapore 189022
Tel : 63362328 Fax : 63362583
Email address: sibiol@cma.sg

or any place which may be decided by the council and approved by the Registrar of Societies.

3) OBJECTIVES

a) To promote the advancement of biology and its applications.

b) To encourage the improvement of education in biology and the training of those interested in biology.

c) To advance the character and status of the profession of biology and its applications and the interests of those engaged therein.

d) To facilitate the exchange of information in biology and its applications through meetings, exhibitions, publications and other ways.

e) To publicise and disseminate information about biology and its applications and on matters concerning the profession.

f) To secure and distribute grants and loans for education and research in biology and its applications.

g) To represent the opinion of the members of the Institute on matters related to the objects of the Institute.

4) MEMBERSHIP

Membership of the Institute shall consist of the following five categories: Honorary Fellows, Fellows, members, Associate Members, and Student Members.

a) The following classes of members of the Institute shall be known as corporate members: Honorary Fellows, Fellows, and Members. Associate Members and Student members shall be known as non-corporate members.

b) Only Corporate members in good standing shall have the right to vote on matters pertaining to the Institute.

c) Honorary Fellows, Fellows and Members shall be entitled to the exclusive use of the following abbreviations: Hon. F.S.I.Biol, F.S.I.Biol, and M.S.I.Biol respectively. Associate Members and Student Members shall not be designated by abbreviations.

d) HONORARY FELLOWS
The Council shall have the power to elect Fellow Members as Honorary Fellows in recognition of outstanding contributions to biology or of services to the Institute. Honorary Fellows shall enjoy such privileges as may from time to time be determined by the Council and shall not be liable to pay entrance fee or subscription.

e) FELLOWS

(i) The Council shall have power to elect Fellows of the Institute.

(ii) A candidate for the Fellowship shall be proposed and recommended by a certificate signed by at least three corporate Members of the Institute of whom at least one must be a Fellow of the Institute. This certificate shall specify the name, professional status and qualifications for the Fellowship of the candidate.

(iii) A candidate must be a Member of the Institute and have such qualifications as are necessary to obtain Membership, and must have at least 10 years' experience of responsible work in biological research or in the teaching or application of biology

f) MEMBERS

(i) The Council shall have the power to elect as a Member a person who possesses a basic degree, Diploma or post-graduate degree in a biological subject or subjects granted by a University or a tertiary Institution recognized by the Council.

or

has had a Polytechnic Diploma or equivalent and at least four (4) years experience in such responsible work in Biology, or its application, or has produced evidence such as published papers, to satisfy Council that he/she has adequate experience and has contributed to the advancement of the study of Biology.

(ii) A candidate for election shall be proposed by one corporate member.

g) ASSOCIATE MEMBERS

(i) The Council shall have power to elect in special cases only as an Associate Member a person who has had a satisfactory general education and at least five years of work which demands a knowledge of biology or its application as shall satisfy the Council.

(ii) A candidate for election as an Associate Member shall be proposed by one corporate member and supported by one other corporate member.

h) STUDENT MEMBERS

(i) The Council shall have the power to elect as a Student Member a person who is undergoing a course of study in biology or related subjects at a recognized tertiary Institution of learning.

(ii) A full-time postgraduate student in a biological subject who is eligible for Membership may be a Student Member

(iii) A candidate for election as a Student Member shall be proposed by one corporate member and supported by one other corporate member.

5) ORGANISATION

The supreme authority of the Institute shall be vested in the Institute in General Meeting. The affairs of the Institute shall be managed by the Council of the Institute, hereinafter referred to as the Council, to be elected and constituted as provided for under the Bye-laws of the Institute.

THE COUNCIL: *Constitution and Election*.

6) The Council of the Institute shall be elected from among corporate members.

7) The Council shall consist of the following Council Members:-

The President
The Past-President
The Vice-President
The Honorary Secretary
The Honorary Treasurer, to be known as the Officers of the Institute, hereinafter referred as the Officers, and
The five General Members

Corporate members in good standing who are Singaporean citizens, permanent residents, or foreigners shall be eligible to hold the office of President, Vice-President, Honorary Secretary or Honorary Treasurer. Up to two members can fill each Office position. The office bearers are responsible for the work division within each Office.

8) Each session of the Council shall commence at the Annual General Meeting and end at the next Annual General Meeting.

9) The President and other office bearers shall be elected at the AGM by a secret ballot vote.

10) The President and other officers shall be elected to hold office for one session and shall be eligible for re-election, except that no member shall hold the same office for more than three successive sessions.

11) The Council may at its discretion co-opt as additional Council members not more than two other corporate members. They shall serve in the Council until

the next Annual General Meeting and shall not be eligible for election as Officers.

12) In the event of a vacancy in the office of President, the Vice-President shall act as the President until such time as when a new President shall be appointed from among the Council members for the remainder of the session. In the event of a vacancy arising in the office of any one of the Officers other than the President, the Council may appoint a Council Member to fill such vacancy until the session expires. In the event of a vacancy arising in the office of any one of the General Members, the Council may appoint a suitably qualified corporate member to fill such vacancy until the term of office expires.

13) A Council Member who without leave of the Council is absent from three consecutive Council Meetings in any session of the Council shall be deemed to have vacated his/her office, subject to the Council so resolving.

14) The President shall take the Chair at all meetings of the Institute and of the Council at which he/she is present and shall regulate the proceedings.

15) In the absence of the President, the Vice-President shall preside at General and Council Meetings. In the absence of the President and Vice-President, the Meeting may elect any Council Member to take the Chair.

16) The direction and management of the concerns of the Institute shall be vested in the Council, subject to the provisions of the Constitution and the Bye-laws, and all resolutions of General Meetings passed in accordance with the Bye-laws. The decision of the Council shall be final and binding on all members.

17) The council may meet not less than four times a year during one session. Notice of each Council meeting together with the agenda shall be sent by the Honorary Secretary to all Council Members at least one week before the date of every Council Meeting

18) At least three or more Council Members shall constitute a quorum at every Council Meeting.

19) All questions at Council Meeting shall be decided by a majority vote of all those Council Members present and voting. In the event of a tie in voting, the Chairman shall have the casting vote.

20) The Council may make, vary or rescind Rules and Regulations for any purposes, subject to the provisions of the Constitution and Bye-laws.

21) It shall be the duty of the Honorary Secretary to conduct the correspondence of the Institute, to attend and take the minutes of such Council or General Meetings as may be held and to superintend the publication of such papers as the Council may direct. He/she may appoint such persons as may be necessary to assist in the discharge of his/her duties and be responsible for the supervision of such persons.

22) It shall be the duty of the Honorary Treasurer to direct the collection of the subscriptions, the preparation of the accounts, and the expenditure of the funds as approved by the Council and to present all accounts to the Council for inspection and approval. He/she may appoint such persons as may be necessary to assist in the discharge of his/her duties and be responsible for the supervision of such persons.

FINANCE

23) The Council shall direct that true accounts be kept of all sums of money received and expended by the Institute and of matters in respect of which such receipts and expenditure take place and of all properties, credits and liabilities of the Institute.

24) All monies belonging to the Institute received by the Honorary Treasurer shall be deposited in the account of the Institute to be opened at a bank approved by the Council. Payments of all accounts that are certified as correct by the Council shall be made therefrom by cheque signed by the Honorary Treasurer or by a person nominated by the Council and either the President, Vice-President or Secretary.

25) The funds of the Institute may only be expended in furtherance of the objects of the Institute and for the maintenance and running of the Institute. No expenditure exceeding $20,000 for any one item shall be incurred without the previous approval obtained at an Annual General Meeting or Emergency General Meeting.

26) The Council may authorize the Honorary Treasurer to make payments on account of recurrent expenditure not exceeding $3,000 a month. The Honorary Treasurer shall have the power to retain in his/her hands for current expenses for the Institute a sum of money not exceeding $3,000.

27) The financial year shall close on the thirty-first day of March in each year.

28) Two Honorary Auditors for the enduing session shall be appointed by a resolution of the corporate members at each Annual General Meeting. No member of the Council shall be eligible to act as Honorary Auditor. The Honorary Auditors shall be eligible for re-election.

29) The Honorary Auditors shall have access at all reasonable times to the accounts of the financial transactions of the Institute and they shall sign and verify the Annual statement of Accounts before it is submitted by the Council to the Annual General Meeting.

MEETINGS

30) The Institute may hold the following types of Meetings:

a) The Annual General Meeting of members of the Institute only

b) Emergency General Meetings of corporate members only for the purpose of making, altering and rescinding the Constitution and Bye-laws or any other business for which such meetings may be convened

c) Professional Meetings

d) Council Meetings

e) Committee Meetings

31) The Annual General Meeting shall be held no later than the thirtieth of July on a date to be fixed by the Council. The following shall be the business of the Annual General Meeting:

a) To receive and adopt the annual report of the Council

b) To receive and adopt the statement of accounts

c) To receive the Report of the Scrutineers on the election of Council Members

d) To appoint the Honorary Auditors for the ensuing session

e) To amend the Constitution and Bye-laws by moving resolutions agreed to by the Council or requesting in writing by at least 10% of the total corporate membership, such request having been submitted at least two weeks before the Annual General Meeting to the Honorary Secretary

f) To consider any other matter put forward by the Council or requested for in writing by any member, such request having been made at least two weeks before the Annual General Meeting to the Honorary Secretary

32) Not less than four weeks' notice shall be given to members of the date, place and time of the Annual General Meeting. The circular letter informing members of the Annual General Meeting shall also request for motions and resolutions to be discussed at the Annual General Meeting. Notice of motions and resolutions to be discussed at the Annual General Meeting shall be sent to all corporate members at least one week before the date of the Annual General Meeting.

33) The quorum at an Annual General Meeting shall consist of at least 10% of the total corporate membership in good standing or 10 corporate members, whichever is the lesser. In the event of a quorum not being present, the meeting shall adjourn for thirty minutes of the fixed time of commencement of the Meeting and then after the Annual General Meeting shall proceed in the absence of quorum. The adjourned meeting with insufficient quorum will have the power to alter, amend or make additions to the Constitution and Bye-laws.

34) The council may at any time call an Emergency General Meeting of corporate members for any purpose or at the request in writing of not less than 10% of the total corporate membership.

35) Notice of an Emergency General Meeting shall be sent to all corporate members at least three weeks before the time appointed by the Council for such meeting, the notice giving the date, time and place of such meeting and details of the matters for which the meeting has been called. The rules of quorum and adjournment for an Emergency General Meeting shall be the same as those for the Annual General Meeting. The Emergency General Meeting shall not discuss any matters other than those for which it has been specifically convened.

36) At all General Meeting, questions and resolutions shall be decided according to the majority of votes being cast, the Chairman presiding having the casting vote in the event of a tie in the voting, except that any proposal or resolution involving an amendment to the Constitution or Bye-laws shall not be carried except by a two-thirds majority vote cast.

37) Voting at General Meetings shall be show of hands except for the following matters, which shall be by secret ballot:

a) Voting of Council Members at Annual General Meetings

b) Amendments to the Constitution and Bye-laws

c) Dissolution of the Institute

d) Expenditure of more than $5,000 on any single item

e) Any other matters which may be decided upon by the corporate members.

38) An Inaugural General Meeting of the Institute shall be held to affirm support for the formation of the Institute, to draw up the Constitution and Bye-laws of the Institute, and to elect of those present the first Council. The President, Vice-President, Honorary Secretary, Honorary Treasurer and six General Members shall be elected from among the first Council Members. The first Council shall be responsible for registering the Institute with the Registrar of Societies, recruitment of members, general administration of the Institute and the holding of the first Annual General Meeting as provided for in the Bye-laws, this interval of time constituting one session. The first Council and its Council Members shall be deemed to be vested with the rights and powers of the Council and Council Members respectively under the Constitution and Bye-laws.

39) The Council shall arrange for Professional Meetings of the Institute for the discussion of topics concerning biology and its applications and the reading of papers and for other academic and professional matters from time to time.

GENERAL

40) Should there be any dispute regarding the interpretation of the Constitution or Bye-laws of the Institute, the dispute shall be referred to the Council whose decision on such interpretation shall be final and binding on all members.

41) No additions, deletions or alterations to the Constitution shall be enforced or applied without the prior written approval of the Registrar of Societies.

42) Gambling of any kind such as the playing of paikow or mahjong, whether for stakes or not, are forbidden on the Institute's premises. The use of the

premises for gambling or the introduction of materials for drug abuse and bad characters is prohibited.

43) The funds of the Institute shall not be used to pay the fines of members who have been convicted in court.

44) The Institute shall not attempt to restrict or in any other manner interfere with trade or prices or engage in any Trade Union activity as defined in any written law relating to trade unions for the time being in force in Singapore.

45) The Institute shall not hold any lottery, whether confined to its members or not, in the name of the Institute or its Officers or members.

46) The Institute shall not indulge in any political activity or allow its funds or premises to be used for political purposes.

47) The Institute shall not be dissolved except at an Annual General Meeting or Emergency General Meeting, with the consent of not less than three-fifths of the total attendance expressed by secret ballot.

48) In the event of dissolution of the Institute, all debts and liabilities legally incurred shall be fully discharged and the remaining assets shall be distributed to recognized charitable organisations decided by members at a General Meeting. Notice of dissolution shall be given within seven days of dissolution to the Registrar of Societies.

49) Nothing in the Constitution and Bye-laws of the institute shall be deemed to authorize the Institute or any member or Officer of the Institute to do anything which may be contrary to the provisions of the Societies Act or of any law in force in the Republic of Singapore.

BYE-LAWS

1) REGISTER OF MEMBERSHIP

   A Register shall be kept (hereinafter referred to as "the Register") containing the names of all members of the Institute

2) APPLICATION FOR MEMBERSHIP

   a) Every proposal for election shall be in accordance with the form which shall from time to time be prescribed by the Council and shall be

forwarded to the Honorary Secretary who shall lay it before the Council.

b) When a candidate for admission has been elected, the Honorary Secretary shall give him notice thereof, but his name shall be added to the Register of the Institute until he/she has paid his/her entrance fee, if any, and his first annual subscription (or part of), and unless he pays the fees dues within one calendar month from the day of his election, or within such further time as the Council may grant upon special cause being shown, the election shall be void.

c) The Council shall in all cases have absolute discretion in decided whether any person shall or shall not be admitted to membership of the Institute.

3) CESSATION OF MEMBERSHIP

a) Any member of the Institute may retire from the Institute by sending in his notice of resignation to the Honorary Secretary, provided he has paid up all the subscriptions due to the Institute.

b) Any member may be removed from the Institute by a resolution of the Council passed by a majority of at least three-fourths of the members present and voting at an Emergency Council Meeting of which not less than twenty-one days' previous notice specifying the intention to propose such resolution shall have been sent to the member whose removal is in question and to all members of the Council. Notice of the general nature of the grounds of which such resolution is proposed shall be sent to the Member whose removal is in question at least fourteen days before the meeting, and he/she shall be entitled to be heard by the Council. The Honorary Secretary shall duly notify the decision of the Council to the person concerned.

4) RE-ADMISSION OF MEMBERSHIP

The Council may readmit to membership in the appropriate category any person whose membership has been terminated for any cause, provided he/she satisfies the Council that he is worthy of readmission.

5) SUBSCRIPTIONS

a) The Following entrance fees and annual subscription shall be payable:

Category	*Entrance Fees*	*Annual Subscriptions*
Honorary Fellows	Nil	Nil
Fellows*	Nil	$50.00
Members**	$10.00	$20.00
Associate Members	$5.00	$15.00
Student Members	$5.00	$5.00

b) The annual subscription shall be due on the first day of January in each year for the year commencing on that day. Members elected after the first day of July in any year shall for that calendar year pay half such annual subscription. Any member whose annual subscription remains unpaid after three months shall not be entitled to any of the rights and privileges of membership till such time as he/she had paid the fees and arrears due to the Institute.

c) Any member whose subscription is two years in arrears may be by resolution of the Council be excluded from the Membership of the Institute, after the Council has informed him/her of their intention to do so by letter.

d) Life Membership and Fellowship

(i) *Any fellow may be a life fellow and the lifetime fellowship subscription shall be $500.00

(ii) **Any member may be a life member and the membership subscription shall be $200.00

6) CONDUCT OF MEMBERS

a) All members of the Institute are required to order their conduct so as to uphold the dignity, standing and reputation of the Institute. The Council may make, amend or rescind Rules to be observed by members with regard to their conduct in professional matters relevant to their position as members of the Institute.

b) If a member is convicted of any felony or criminal offence or act in a manner which renders him unfit to be a member, the Council shall have the right to remove his name from the Register thus expelling him/her from the Institute.

7) PROCEDURES FOR ELECTION

a) Nominations for vacancies in the Council shall be invited from corporate members not less than six weeks before the date of the Annual General Meeting. Any eligible member for nomination must be nominated by a corporate member and seconded by another corporate member, such nomination being sent in writing to the Honorary Secretary together with the written consent of the member so nominated. If insufficient nominations to fill all the vacancies are received, those nominated shall be declared elected and nominations for the remaining vacancies be made from the floor and voted on by secret ballot at the Annual General Member.

b) The voting paper for the election shall be distributed at the Annual General Meeting to all corporate members.

c) The Council shall appoint three Scrutineers who are corporate members. Scrutineers shall open the voting slips and count the votes. They shall report the results of the election to the President who will announce them at the Annual General Meeting. The voting papers shall be retained by the Honorary Secretary and destroyed one month after the Annual General Meeting.

8) SUB-COMMITTEES

The Council may appoint committees consisting of corporate members to deal with any special matters and may delegate to any such committees appointed such powers as they may prescribe.

9) PUBLICATIONS

The Council may arrange for the publication of such papers, journals, books and other publications, which may be considered necessary for the furtherance of the objects of the Institute.

10) ANNUAL REPORT

The Council shall draw up a yearly report on the state and activities of the Institute for the session, which shall be presented at the Annual General Meeting

11) RECORDS

The Council shall adopt regulations governing procedure in connection with all financial matters including, inter alia, the compilation of a record of

membership, subscriptions and fees payable, and the preparation of periodical returns and annual audited statements.

12) INSPECTION OF DOCUMENTS

The membership records and account books shall be opened to the inspection of any member and to accredited persons who have an interest in the funds of the Institute, provided that seven days' notice in writing of such inspection is given to the Honorary Secretary.

SINGAPORE INSTITUTE OF BIOLOGY (SIBIOL)

ANNUAL GENERAL MEETING

25 OCTOBER 2014

SINGAPORE SCIENCE CENTRE

(I) SUMMARY OF GENERAL ACCOUNT FUND MOVEMENTS FOR THE YEAR ENDED 30 SEPTEMBER 2014

(II) STATEMENT OF GENERAL ACCOUNT FUND: INCOME AND EXPENDITURE FOR THE YEAR ENDED 30 SEPTEMBER 2014

SINGAPORE INSTITUTE OF BIOLOGY (SIBIOL)

SUMMARY OF GENERAL ACCOUNT FUND MOVEMENTS

FOR THE YEAR ENDED 30 SEPTEMBER 2014

	Current A/C OCBC $	Fixed Deposit A/C OCBC Bank $	TOTAL $
BALANCE B/F: 1 OCT 2013	15,613.59	20,000.00	35,613.59
ADD: Income	14,198.74	Nil	13,618.74
SUBTOTAL	29,232.33	20,000.00	49,232.33
LESS: Expenditure	13,756.55	5,000.00	18,756.55
TOTAL	**16,292.53**	**15,000.00**	**31,292.53**

Prepared by:

Ms. Sapna Ananth Narayana
Honorary Treasurer
40th Council, SIBiol.

Audited by:

(1) _____ _____
Dr. Goh Yan Yih
Honorary Auditor
Date

(2) _____ _____
Mr. Timothy Tan
Honorary Auditor
Date

The above statement was adopted at the SIBiol 40th Annual General Meeting held on 25 October 2014 at the Singapore Science Centre.

Dr. Melissa Jane Fullwood
President, 40th Council, SIBiol.

SINGAPORE INSTITUTE OF BIOLOGY (SIBIOL)

STATEMENT OF GENERAL ACCOUNT FUND: INCOME AND EXPENDITURE
FOR THE YEAR ENDED 30 SEPTEMBER 2014

INCOME	$	**EXPENDITURE**	$
A. Membership Dues		A. SIBiol Book Prize(s)	1,400.00
Existing Members	1165.00		
New Members	1030.00	B. 39th AGM + Public Forum	1,094.55
B. Banking		C. Activities	
Interest from Fixed-Deposits	3.74	IBO/SBO	11,093.80
C. Transfer from fixed deposit	5000.00	D. EGM/40th Anniversary Lunch 2014	928.90
D.DNA Workshop income	2000.00	E. DNA Workshop Costs	1008.95
E. MOE Funding IBO training (SBO2013/IBO2014)	10,000.00	F. Operation	1650.35
		Inc. CMA/SIBIOL Website & Domain	
		G. RTF Audit	580.00
Total Income	**$19,198.74**	**Total Expenditure**	**$18,756.55**
Surplus (S$)			442.19

Prepared by:

Ms. Sapna Ananth Narayana
Honorary Treasurer
40th Council, SIBiol.

Audited by:

(1) _____ _____
Dr. Goh Yan Yih
Honorary Auditor
Date

_____ _____
Mr. Timothy Tan
Honorary Auditor
Date

The above statement was adopted at the SIBiol 40th Annual General Meeting held on 25 October 2014 at the Singapore Science Centre.

_____

Dr. Melissa Jane Fullwood
President, 40th Council, SIBiol.