

***...stimulating science and technology based entrepreneurship,  
assisting with education reform, and promoting economic  
development for the people of the Caribbean...***

## **2014 Year-In-Review**

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The CSF is an independent, non-profit, non-governmental organization with headquarters in Barbados and representatives in several other Caribbean countries. Please visit <http://caribbeanscience.org> for more information about the CSF and its projects, or contact Prof. Cardinal Warde at [warde.csf@gmail.com](mailto:warde.csf@gmail.com) (or 1-617-699-1281). Online donations to the CSF can be made at <http://caribbeanscience.org/donation/>.

## Executive Summary

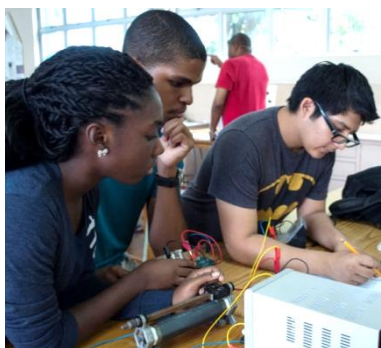
2014 has been an extremely exciting and productive year for the CSF, with continued progress towards its goals of stimulating technology-based entrepreneurship, and accelerating Science, Technology, Engineering and Math (STEM) education reform in the Caribbean. In 2014, in addition to increasing the momentum on its four ongoing projects, four new initiatives were started. Both ongoing and new projects are summarized below.

1. **SPISE** was held for the third year, with 22 top STEM students, 16 to 17 years of age, from 11 Caribbean countries participating. As with previous years, the students studied university-level calculus, physics, biochemistry, entrepreneurship, Caribbean Unity and Mandarin, as well as hands-on projects in under-water robotics and electronics. In 2014, new workshops were incorporated into the program, covering topics such as strategy and planning for college applications, and developing an effective CV. A highlight of the career seminar series was an inspirational talk, in person, by Grenadian Nicholas Brathwaite of Riverwood Capital.
2. The **Student Internship Program** was launched as a new project by CADSTI-New England in 2014 in close collaboration with the CSF. In this program, SPISE graduates have the opportunity to participate in summer internships at U.S. biotech and high tech companies, and at companies in the Caribbean. In 2014, 4 interns participated: one student at the biotechnology company Synageva located in the Boston area, two at Foursquare Rum Distillery in Barbados, and one at a Boston University biology research laboratory.
3. The second **Sagicor Visionaries Challenge** attracted a record 250 student teams from 7 Caribbean countries, up from 170 entries from 12 countries in 2013 (the inaugural year). In this competition, participating teams of students compete with innovate designs for STEM-based solutions to practical problems facing their secondary school or community. The National Competitions were held in November - December 2014, and the winners of the National Competitions will be attending the Regional Competition planned for July 2015 in Tampa, Florida.
4. The Caribbean **STEM Teacher Training Project**, another new initiative of the CSF that started in 2014, is being conducted jointly with the Caribbean Academy of Sciences (CAS). Two-day training workshops for primary school (Forms 1-3) teachers are being held in 2015 in St. Vincent, Antigua, Jamaica and Barbados. The focus is on Problem Based Learning (PBL) and Inquiry Based Science Education (IBSE) as teaching tools. Through this program, the CSF hopes to promote more student interest and excitement in science and engineering.
5. The **Barbados Youth Robotics Camp** is also a new initiative of the CSF, and planning is well underway by the CSF Volunteers for Barbados to hold the inaugural program in the summer of 2015. Participants will be 9 to 12 year old students who will work in co-operative groups to build robots. Through this program, the CSF hopes to stimulate these young students' interest in science through hands-on experimentation, and increase the number of students focused on STEM in secondary school and beyond.
6. In the **ALCUENET Project**, a collaboration between 17 countries in Latin America, the Caribbean and European Union, the CSF continued to participate in workshops to develop policy and prioritize topics for research, development and innovation within the areas of energy, information and communications technology, bio-economy, bio-diversity and climate change.
7. In 2014, the CSF also continued to participate in the **ERANET-LAC Project** - a Network of the European Union and the Community of Latin American and Caribbean States on joint innovation and research activities that plans the coordination of existing and new projects in ICT, bio-economy, bio-diversity/climate, energy and health, to promote synergy. In 2016, the CSF is considering funding one ICT project within the Caribbean under the auspices of ERANET-LAC.
8. In 2014 the CSF began the planning of **CaribVenture**, the potentially most significant initiative of the CSF. It is being structured as a partnership between the CSF, CADSTI, and well-known technology investors, executives and entrepreneurs in Silicon Valley. Through CaribVenture, the CSF intends to help foster an entrepreneurial culture in the Caribbean by providing Caribbean-based start-ups and early-stage businesses with opportunities to qualify for initial seed funding. Focus will be on companies with the potential to grow to US\$ 100 million in revenues within the first 5 years. CaribVenture will begin with an annual Regional business-plan competition, and will offer the winners access to networks of experts and potential investors in the Diaspora.

In summary, the CSF continues to make excellent progress towards its goals of stimulating technology-based entrepreneurship and accelerating STEM education reform in the Caribbean. 2015 looks even brighter than 2014.

# 2014 UPDATES BY PROJECT AND 2015 PLANS

## 1. SPISE - Student Program for Innovation in Science and Engineering



The annual SPISE, offered since 2012, is an intensive 4-week, residential summer enrichment program for Caribbean high-school students 16 to 17 years of age who are gifted in science, engineering and mathematics, and interested in pursuing careers in these fields. In keeping with the overall CSF mission of helping to diversify the economies of the Caribbean, the goals of SPISE are to: (1) help address the low numbers of Caribbean students pursuing advanced degrees in science and engineering, and (2) groom the Caribbean's next generation of technology entrepreneurs and leaders in science, engineering and business.

SPISE is modeled after the well-known and highly successful MITES program at MIT (<http://web.mit.edu/mites/>) for which Professor Cardinal Warde also serves as the Faculty Director. SPISE students participate in rigorous university-level courses in calculus, physics, biochemistry, entrepreneurship, Caribbean unity and Mandarin, as well as hands-on projects in under-water robotics, renewable energy, electronics and computer programming.

The SPISE learning environment discourages rote learning, and teaches the students how to focus on understanding and applying the fundamentals so as to achieve mastery of the material, and thus to be able to solve complex problems. Grades are not emphasized; mastery of the subject is. Instructors in the SPISE are university professors from the Region and the Diaspora (including MIT). Some are senior management professionals from leading biotechnology and pharmaceutical companies. These instructors bring unique expertise and perspectives to the students, as well as important networking connections. In SPISE, students are exposed to and coached by role models from the Diaspora and the Region on career paths and choices.

The program culminates with student project competitions in which each student team gives an oral presentation of their hands-on project and then demonstrates the workings of their project. CADSTI-New England and the CSF offer student internships for SPISE graduates at U.S. and Caribbean companies (see Student Internship Program). SPISE graduates from 2012 and 2013 are enrolled at some of the world's top science and engineering universities, and several have full scholarships - a tremendous early return on the investment of their sponsors. The cost to sponsor a student is US\$ 6000 plus round-trip air fare to Barbados. Key partners which provide in-kind support include the University of the West Indies-Cave Hill Campus, and the Caribbean Examinations Council (CXC).

SPISE 2014 served 22 top STEM students from 11 Caribbean countries (Anguilla, Antigua & Barbuda, Barbados, Belize, Dominica, Guyana, Grenada, Jamaica, St. Lucia, St. Vincent and the Grenadines, and Trinidad & Tobago). All of the students successfully completed rigorous university-level courses in calculus, physics, biochemistry, entrepreneurship, Caribbean Unity and Mandarin, as well as hands-on projects in under-water robotics, renewable energy and electronics. New workshops were incorporated in 2014 on college application strategy, planning and execution, and on developing an effective CV. In addition, the students participated in a career seminar series where they heard first-hand about the career paths, decisions and experiences of six eminent professionals in science and engineering from the Diaspora and the Region, including venture capitalist and Grenadian Nicholas Brathwaite, founding partner of Riverwood Capital.

All SPISE 2014 students participated free of charge, thanks to generous donations from numerous corporate and individual sponsors. The 2014 corporate sponsors were: the Caribbean Development Bank, Scotiabank East, U.S. Embassy for Barbados and the Eastern Caribbean, Central Bank of Barbados, Light and Power Holdings, Barbados Ministry of Labour, Social Security & Human Resource Development, Sandy Lane Charitable Trust, the Nation Publishing Co. Limited, Belize Telemedia Limited, Belize Public Utilities Commission, Belize Natural Energy Charitable Trust, CGX Energy Inc., Guyana Ministry of Education, Massy Foundation, Trinidad and Tobago Ministry of Planning and Sustainable Development, Bishop Anstey High School East & Trinity College East, LUCELEC, DOMLEC, Dominica Secondary Schools Supporters Association (DASSSA), Dominica National Telecommunications

and Regulatory Commission (NTRC), Fast Cash BIM Ltd., Dominica Business Systems, Jamaica National Commercial Bank (NCB), Nicholas Brathwaite's PETNA Foundation, and CADSTI.

The 2014 individual sponsors were: Diane Beckles (USA), Terrene Blackman (USA), Suzette Clinton (USA), Geoffrey Cole (USA), Richard Fauconier (USA), Elson Gaskin (Barbados), Rodney Mayers (Barbados), KK Consultants (Barbados), Peterson Architects (Barbados), Ronald & Shirley Baynes (Barbados), Gregory Nichols (Barbados), Liza George (Antigua), John and Dorothy Herzog (USA), Kim Jean (USA), Lisa Jones Johnson (USA), Edward and Bernadine Layne (USA), Sekazi Mtingwa (USA), Arlette Palmer (USA), Oonah Roberts (Guyana), Alan and Penny Smith (UK), Colin Walcott (Barbados), Hilbourne Watson (USA) and Emerson Yearwood (USA).

The SPISE 2014 student final project presentations (open to the public) were in robotics, renewable energy, entrepreneurship and Mandarin to the public on August 15th. The audience included Dr. Larry Palmer – the U.S. Ambassador for Barbados and the Eastern Caribbean, Dr. DeLisle Worrell - Governor of the Central Bank of Barbados, Mr. Peter Williams - Managing Director of Light and Power Holdings, Dr. Esther Byer-Suckoo – Barbados Minister of Labour, Social Security & Human Resource Development, Hon. Ronald Jones – Barbados Minister of Education, Science, Technology and Innovation, Dr. Rikhi Permanand from the Trinidad and Tobago Ministry of Planning and Sustainable Development, Mr. Collin Cunningham and Ms. Klao Bell-Lewis of the Caribbean Development Bank, Ms. Petal Jetoo from the Guyana Ministry of Education, Ms. Jacqui Cuke of Sandy Lane Charitable Trust, parents and business professionals.



In the robotics demonstrations, the students designed and built underwater robots (from kits donated by the MIT Sea Grant program) for the task of retrieving floating balls and sunken objects, and placing them into a basket. The renewable energy demonstrations featured a vertical-axis wind turbine, a solar-powered cell-phone charger, a solar-powered boat, and a circuit that converts stored power in a battery (direct current output) to house-hold alternating-current. For entrepreneurship, teams of students pitched their business plans, and fielded tough questions from the audience. The students also performed three skits in Mandarin.

## 2. SPISE Internship Program

The Student Internship Program, launched in 2014 by CADSTI-NE (see [www.cadsti-ne.org](http://www.cadsti-ne.org)) in collaboration with the CSF, facilitates internships for Caribbean post-secondary or tertiary students at U.S. biotech and high tech companies and laboratories, as well as at companies in the Caribbean. These internships are approximately 1 – 3 months in duration, and give the students first-hand working experience to see how STEM is applied to research and development. By immersing students in such an environment, CADSTI-NE hopes to increase the low numbers of Caribbean students pursuing advanced degrees in science and engineering. The long-term goal is to stimulate more technology-based entrepreneurship within the Caribbean, in order to help to diversify the economies of the region and raise the standard of living of the people.

Specifically, the internships at companies provide an opportunity for students to:

- See the diverse career paths available in that industry
- Learn new laboratory techniques and skills
- Observe how equipment is operated, maintained, and controlled
- Network with individuals associated with that industry
- Observe the operations and infrastructure of a company

In 2014, CADSTI-NE and CSF facilitated four internships for students from the Caribbean, including one at Synageva BioPharma (<http://www.synageva.com/>) - a large biotech company in the Boston area, two internships at Foursquare Rum Distillery in Barbados, and one at a Boston University biology research laboratory. Students in the biology/biotechnology internships observed and also carried out experimental techniques such as PCR, plasmid preparation, mutagenesis, genotyping, cell culture, transfection, SDS-PAGE, Western blot, Q-TOF LC/MS, HPLC, and capillary isoelectric focusing. Students in the Foursquare Rum Distillery internships observed systems operators in the control room, chemists conducting quality control tests in process and on the final product, and electricians and mechanical engineers servicing machinery such as the compressor, boiler and pumps. Thus, the interns observed the practical applications of biology, chemistry, physics, math, computer science, and engineering to discovering, developing and manufacturing products. Importantly, the students were exposed to the broad range of career opportunities possible with a degree in one of the STEM disciplines.

*“My internship was eye-opening. I got to perform a whole lot of protein biochemistry lab procedures including SDS-PAGE and Capillary Isoelectric Focusing”*—Candice, 2014 summer intern and SPISE graduate.

In 2015, CADSTI-NE and CSF are facilitating student internships during the months of June – August for SPISE graduates, including internships at:

- Synageva BioPharma (<http://www.synageva.com/>) in the Boston area - biotechnology/biology
- Genesis Engineering Solutions (<http://www.genesisesi.com/>) in Washington D.C. (female student preferred) – high tech/ engineering
- LIME Cable & Wireless in Barbados and Jamaica – high tech/ engineering
- Foursquare Rum Distillery in Barbados – biology/chemistry/engineering

The exact dates of each internship will depend on the particular student and host company, but are anticipated to comprise approximately 1-3 months. LIME Cable & Wireless internships may be extended after the summer for students taking a gap year. Travel costs to and from the internship, and J-1 Visa-associated fees will be provided by CADSTI-NE or CSF. Other expenses may also be covered. To select the student interns, the CADSTI-NE Admissions Committee ranks the students according to the student internship program criteria. Selected students are then matched to the available internships. CADSTI-NE Admissions Committee members are not permitted to review applications of students from countries with which they have affiliations or for whom they personally know family members.

### **3. Sagicor Visionaries Challenge (SVC)**

The SVC is a design competition in which students in Caribbean schools work in teams and use STEM to develop effective, innovative and sustainable solutions to the challenges facing their school or community. The overall goal is to create more sustainable Caribbean communities. The SVC is a collaborative project between Sagicor, the CSF, and the Caribbean Examinations Council (CXC). The belief is that through greater community involvement, Caribbean people can live more sustainably and build a better future.

The goals of the SVC are to:

- Boost institutional capacity in STEM in secondary and high schools in the Challenge countries.
- Ignite interest among youth in the Challenge countries for innovation in STEM to help build and integrate sustainable communities.
- Integrate knowledge gained from formal and informal education to enable tomorrow’s leaders to build more sustainable communities

Student teams receive assistance from a teacher in their school as well as from mentors provided by the CSF. Mentoring is done in person or remotely, and may include any or all of the following activities: providing feedback on ideas, answering questions related to ideas, reviewing competition materials, and sharing expertise and experiences. Competition entries are first evaluated and judged at the national level in each of the Challenge countries. The presentation at the National Competition comprises two parts: an oral 2-minute PowerPoint presentation, consisting of two slides, to the entire audience, followed by an at-the-booth exhibit and question and answer session that complements and adds further detail to the oral presentation. The winning school in each country moves on to the Regional competition. Representatives of each winning national school team and their teacher also participate in a 7-day, all-expenses-paid STEM Ambassador Program to Florida.

The 2nd Annual SVC was held in 2014. The aims and format were very similar to those of the 2013 competition, with some modifications. As with the previous year, teacher and student sensitization workshops were conducted in the countries where the challenge was being staged. Approximately 250 student teams from Antigua and Barbuda, Barbados, Belize, Dominica, Guyana, St. Lucia, Tampa (Hillsborough County) and Trinidad & Tobago submitted entries to the SVC at the national level during the project submission period from September - November. The National Competitions took place during the months of November and December in Antigua (6 entries), Barbados (12 entries), Belize (32 entries), Dominica (35 entries), Guyana (more than 70 entries), St. Lucia (30 entries) and Trinidad (6 entries). The National winners were:

<b>NATIONAL CHALLENGE 2014</b>		
<b>COUNTRY</b>	<b>SCHOOL</b>	<b>PROJECT NAME</b>
Antigua & Barbuda	Christ The King High School	Nevo Oven
Barbados	Queen's College	The Green Way to Get Styrofoam Away
Belize	Bishop Martin High School	Chaya Mayan Power for Modern Times
Dominica	St. Martin Secondary School	Techno Gardeners
Guyana	Abram Zuil Secondary School	Paddy husk Particle Board
St. Lucia	St. Mary's College	Amylo-plastikos
Trinidad & Tobago	Five Rivers Secondary School	Cardboard Box Pellet recycling Project

Awards to the winning teams included a computerized Caribbean Science & Technology Mobile Centre, and 6 CXC-approved science kits (3 biology, 2 chemistry, 1 physics), as well as a trophy and certificate.



**Scenes from National Competitions, SVC 2014**

The winner of each National Competition will participate in the Regional SVC in July 2015 in Tampa, Florida to compete for the overall Regional award, and also take part in a 7-day all expenses paid trip as part of the STEM Ambassador Program. The students will have the opportunity to visit Disney World's EPCOT Centre, Kennedy Space Centre, the Museum of Science and Industry (MOSI) and University of South Florida (USF) labs. They will focus on nanotechnology, rocketry, alternative energy, hydroponics and sustainable agriculture.

## 4. STEM Teacher Training Workshops

The CSF STEM Teacher Training Workshop is a two-day training event for primary school teachers within the Caribbean. The goal is to train teachers in the use of Problem Based Learning (PBL) and Inquiry Based Science Education (IBSE) as teaching tools. Targeted teachers are those teaching Forms 1 -3 (students in the 10 to 13-year old age range). Teachers are selected by their relevant Ministries of Education, and are educators who are passionate about introducing their students to elements of STEM. These teachers will become future trainers of other teachers.

The PBL/IBSE inductive approach gives ample space to observation, experimentation, and teacher-guided construction by the child, and draws on the child's own knowledge. It is anticipated that this approach will promote more student interest and excitement in science and engineering prior to their entrance into secondary school. Furthermore, it is believed that the successes gained at the primary level will lead to a focus on the sciences at the secondary level. Ultimately, this should lead to higher numbers of students pursuing advanced degrees and careers in science and engineering, and should help develop the Region's next generation of technology leaders.

The Workshop promotes themes such renewable energy, robotics and food production as key components in hands-on science education and curricula. It also helps teachers to identify several local issues that secondary school teachers face in teaching science and technology. In addition, teachers leave with a plan for operationalizing PBL and ISBE as teaching tools, including a draft of the site-based PBL or IBSE program, an implementation strategy, and a plan for assessing/monitoring the program's effectiveness.

The Workshops are conducted jointly with the Caribbean Academy of Sciences (CAS) and led by Prof. Winston Mellowes of CAS. He believes that: (1) we must pay greater attention to the teaching of mathematics at the elementary school level, and (2) that scientific principles need to be communicated clearly and effectively so that students understand and can apply the concepts.

In 2015, the inaugural Workshops will take place in Antigua, Barbados, Jamaica and St. Vincent. These Workshops are funded in part by the U.S. Embassy for Barbados, the Eastern Caribbean and the OECS, and the U.S. Embassy for Jamaica. There is no registration fee for attendance at the Workshops, and the CSF covers air transportation for the delegates, and all costs of teaching materials and supplies. Typically, the CSF asks the host country to provide a venue for the Workshop and lunches for the delegates, the training staff and the CSF support staff (approximately 30 people per Workshop).

On January 28-29, 2015, the CSF and the CAS collaborated to host the first STEM training workshop for Regional primary school teachers. The workshop took place at the Methodist Church Hall in Kingstown, St. Vincent, and was made possible by grant funding from U.S. Embassy for Barbados, the Eastern Caribbean and the OECS, as well as through the cooperation of the Ministry of Education of St. Vincent and the Grenadines.

The aims of the workshop were to: (1) have teachers expand their understanding of science, science education and how students learn science, (2) identify strategies, resources and activities for Inquiry and STEM-based science teaching, and (3) increase the confidence of teachers in their planning, teaching and assessing inquiry based approaches. Identification of further knowledge and skills needed for competency in the teaching of inquiry based science was an additional focal point. It was also anticipated that a network of colleagues would be further developed, in order to provide support in innovation regarding the teaching of science.



**Teachers taking part in hands-on activities during the January 2015 Workshop in St. Vincent**

Twenty teachers from Barbados, Dominica, Grenada, St. Lucia and St. Vincent and the Grenadines took part in two exciting days of stimulating lectures, interactive and engaging hands-on experimentation using readily available materials, and were introduced to the use of UNESCO micro-science kits, which provide miniature versions of functional science lab apparatus. The training they received was delivered by facilitators: Professor Winston Mellowes - Professor Emeritus, UWI St. Augustine; Professor Theodore Lewis - Professor Emeritus, UWI St. Augustine; Mrs. Petal Jetoo - National Science Coordinator Ministry of Education Guyana; Dr. Bhual Kumar - Professor, Columbia University; and chief facilitator Dr. Rowena Kalloo - University of Trinidad and Tobago.

It is anticipated that when these teachers return to their home countries and school communities, they will serve as ambassadors and share their knowledge with their colleagues and students. Feedback from the participants indicated that they found they found the sessions informative, relevant, productive, thought provoking and fun.

## 5. Barbados Junior Robotics Camp

The Barbados Junior Robotics Camp, led by the CSF Volunteers for Barbados (CSF-VOL-BB), is an annual summer enrichment program for young Barbadian students interested in robotics. The aim of the day camp is to introduce basic technology and engineering concepts to children between the ages of 9 to 12. While no previous experience in robotics is required of the students, the camp is targeted at children who have a keen interest and curiosity in STEM, and enjoy hands-on work. For the inaugural 2015 Junior Robotics Camp, approximately 20 students will be selected from applicants from schools across Barbados.

The Barbados Junior Robotics Camp is consistent with CSF's primary goals of helping to increase the numbers of Caribbean students pursuing advanced degrees in science and engineering, and helping to diversify the economies of the Region and raise the standard of living of the people by stimulating more technology-based entrepreneurship within the Region.

The inaugural VEX®-based Barbados Junior Robotics Camp will be held from July 6-31, 2015 at the Information Technology Lab, University of West Indies - Cave Hill. Applicants must be at least 9 years of age but less than 13 years of age on July 1, 2015. Students from low-income households and girls are encouraged to apply. The aim is a balanced class of 50% girls and boys. Students will participate in team-based projects in a fun environment, supervised by approximately 5 Teaching Assistants, under the direction of the Head Instructor.



The VEX Robotics Curriculum will comprise a mix of class room teaching, and hands-on building through the use of VEX Robotics Kits. VEX is recognized as a leading classroom robotics platform (see <http://www.vexrobotics.com/>). Through this curriculum, the students will be introduced to STEM and robotics. They will learn about the basic components of robots, and see examples of how science and math are applied to engineering. More specifically, the curriculum will include: learning about simple machines and motion (such as pulleys and pendulums), learning about mechanisms such as motors and gear ratios, learning how sensors work, and an introduction to the basics of programming. The students will apply this knowledge to automate fun devices (chain reaction programming) and then build an autonomous robot. At the end of the 4 weeks, the students will present their robots to an audience, and prizes will be given to the teams.

The CSF is seeking US\$ 10,000 sponsorship to cover the major expenses of the Junior Robotics Camp - purchase of the VEX Robotics Kits (inclusive of software), stipends for the Head Instructor and 5 Teaching Assistants, and additional miscellaneous costs.



## 6. ALCUENET

The CSF is a participant in the ALCUENET project - the Latin America, Caribbean and European Union Network on Research and Innovation. It is a collaborative arrangement among 17 Research Organizations, Science Councils and Ministries of Science and Technology that include Argentina, Austria, Brazil (2), Chile, Colombia, Costa Rica, Dominican Republic, Finland, France (2), Germany, Mexico, Norway, Panama, Portugal, Spain and Uruguay. The ALCUENET Website is at <http://alcuenet.eu/>.

ALCUENET partners participate in bi-regional conferences and workshops to develop policy and prioritize topics for research, development and innovation within key areas that are of interest to the three regions: Energy, Information and Communications Technology, Bioeconomy, Biodiversity and Climate Change. ALCUENET also supports the international Science, Technology and Innovation dimension of the Europe 2020 Strategy and Innovation Union Flagship Initiative.

The Caribbean Science Foundation will host the next annual ALCUENET LAC NCP (Latin America and the Caribbean National Contact Points) meeting in Barbados on May 25-27, 2015. CARICOM representatives, ministers of government, country representatives, researchers, small and medium enterprises and other stakeholders will gather to discuss ALCUENET's key areas of interest. The main objectives of this workshop are: (a) to inform and update participants about the opportunities for third countries in the European Union's new innovation and research framework programme - Horizon 2020; (b) to develop and strengthen the capacities of existing LAC NCP and also expand the LAC NCP network. The achievement of both objectives, will allow the generation of the necessary synergies to enhance the science and technology cooperation between both regions (EU-LAC). More details of the meeting will be available at <http://alcuenet.eu/meeting-events.php?event=TKRNNQ>.

## 7. ERANET-LAC

ERANET-LAC is a Network of the European Union (EU) and the Community of Latin American and Caribbean States (CELAC) on Joint Innovation and Research Activities. It strengthens the bi-regional partnership in Science, Technology and Innovation by planning and implementing concrete joint activities, and by creating a sustainable framework for future bi-regional joint activities. The CSF is a participant in the ERANET-LAC Project along with Research Organizations, Science Councils and Ministries of Science and Technology of several member countries including Argentina, Brazil, Chile, Dominican Republic, Finland, France, Germany, Mexico, Norway, Panama, Peru, Portugal, Romania, Spain, Turkey and Uruguay. The primary focus is the coordination of existing and new projects in ICT, Bio-Economy, Bio-Diversity/Climate, Energy and Health, to promote synergy. Two joint calls are planned - in October 2014 and at the end of 2015. The CSF is considering funding one ICT project in the Caribbean under ERANET-LAC as part of the 2<sup>nd</sup> joint call.

## 8. CaribVenture

CaribVenture is a partnership between the CSF, CADSTI and well-known technology investors, executives and entrepreneurs in Silicon Valley. Through CaribVenture, the CSF intends to help foster an entrepreneurial culture in the Caribbean and facilitate the launch and growth of technology-based start-up Caribbean businesses by providing:

1. Opportunities to receive initial seed funding
2. Access to advisors and mentors including researchers, academics, industry experts and successful entrepreneurs and executives who have created and/or managed successful, globally competitive technology businesses
3. Exposure to angel investors and technology venture capital firms
4. Access to decision makers both inside and outside the Region who can help provide introductions and access to markets, customers and potential strategic partners
5. Annual seed funding on a competitive basis of up to US\$ 100K each to 2 technology businesses that have the potential to be globally competitive and to scale to annual revenues of about US\$ 50M in about 5 to 7 years
6. Exposure to opportunities for potential Series A venture capital funding

Start-up businesses will be identified through the CaribVenture Start-Up Challenge, a business plan competition for individuals or teams based in the Caribbean who have a technology-based business model, a motivated and entrepreneurial founding team, a realistic go-to-market strategy with a feasible work plan and timeline, and the potential for scaling to annual revenues of at least US\$ 50M within 5 to 7 years. Targeted companies include those that have partnerships with businesses or industry experts outside of the Caribbean, and founding members who are based in the Diaspora. The startup businesses, however, must be registered in the Caribbean, have a plan for regionally generated intellectual property through Caribbean based research and development activities, and must have the potential to create hundreds of jobs in the Region.

Preferred will be Caribbean-based technology and technology-enabled entities with business models focusing primarily on serving regional and international markets, not just local market opportunities. These companies must show the potential to create new economic growth sectors and strengthen the economies of Caribbean countries by providing opportunities for high levels of employment (including a significant percentage of knowledge-based workers). Preference will be given to businesses that are either led by entrepreneurs with a track record of success and credible management teams, or entrepreneurs and management teams that are open to guidance, direction and mentorship from CaribVenture and its network of advisors.

Winners of the CaribVenture Start-Up Challenge will incubate at a new CaribVenture Innovation and Impact Center, to be based in the Caribbean, where on-site mentorship and guidance for the start-up leadership team will be available 24/7 from an Entrepreneur-In-Residence. The plan is for CaribVenture to make investments primarily in angel seed rounds, but with the flexibility to participate in Series A rounds. Assuming an initial 3-year period with a target investment of US\$ 100K in each of 2 businesses every year, and assuming an average "hold back" of US\$ 100K for potential follow on investment in each company, then over the next 3 years, CaribVenture could provide about US\$ 1.2M in seed funding to 6 high potential start-up ventures.

To raise these funds (US\$ 1.2M initially), CaribVenture will be seeking investments from high net worth individuals, international and Diaspora organizations, regional companies and regional governments, and co-investments by partners, and others. Further investments could come from multi-national businesses which would co-invest in any of the companies that appear to be a strategic fit for them. The aim is also to set up strategic VC relationships with international VC firms which would agree to review these companies within the first year of funding by CaribVenture, as potential opportunities for Series A investment.

CaribVenture will be managed by a combination of technology and investment professionals with proven experience investing in, creating, developing, and/or managing technology businesses (perhaps within the VC firm). All money raised will be invested directly in the startup businesses. No management fees will be charged. The longer term goal is that 1 or 2 of these companies will achieve a level of success that would allow CaribVenture to be able to raise a US\$ 20M - 30M venture fund at the end of the initial 3-year period.