

No. Misc.1/20/2018-CDN (Vol-II)
Government of India
Ministry of Science and Technology
Department of Science & Technology
(CDN Section)

Technology Bhawan,
New Mehrauli Road,
New Delhi – 110 016

Dated: 09.03.2020

OFFICE MEMORANDUM

Subject: Monthly Summary to the Cabinet for the month of December, 2019.

The undersigned is directed to enclose a copy of the Monthly Summary of Important policy decisions taken and major achievements of the Department of Science & Technology for the month ending 29.02.2020 for information.

2. This has already been approved by Secretary, DST.



(Balram Goel)

Under Secretary to the Govt. of India

To,

All Members of the Council of Ministers

Copy with enclosures, forwarded to:-

1. Vice Chairman, NITI Aayog, NITI Bhawan, New Delhi.
2. The Chairman, Union Public Service Commission
3. Chief Executive Officer, NITI Aayog, NITI Bhawan, New Delhi.
4. The Principal Secretary to the Prime Minister, Prime Minister Office, South Block, New Delhi – 110 011.
5. All Members of NITI Aayog, NITI Bhawan, New Delhi.
6. Secretary to the President of India
7. Secretary to the Vice-President of India
8. Secretaries to the Government of India (as per list)
9. The Principal Director General, Press Information Bureau, Ministry of Information & Broadcasting
10. The Director, Cabinet Secretariat, New Delhi - 4.
11. Shri Sanjay Kumar Mishra, Sc. 'G', DST for uploading the monthly summary on DST's website.
12. Sr. PPS to Secretary, DST.

Department of Science & Technology
Monthly Report
February, 2020

I. Important policy decisions taken and major achievements during the month:

A. Science for Society

1. **National Science Day Function** was held at Vigyan Bhawan, New Delhi on 28th February 2020. **The focal theme was “Women in Science”**. **Hon’ble President of India Shri Ram Nath Kovind was the Chief Guest** and Hon’ble Minister of S&T and ES Dr Harsh Vardhan presided over the function.
2. **Hon’ble President of India Shri Ram Nath Kovind conferred National Awards for Outstanding Efforts in Science & Technology Communication under different categories** along with National Award for Young Woman showing Excellence through Application of Technology for Societal Benefits and Augmenting Writing Skills for Articulating Research (AWSAR) Awards (1st position in PhD & PDF categories). Hon’ble Minister of S&T and ES Dr Harsh Vardhan gave Rajendra Prabhu Memorial Shield in Science Media & Journalism 2019 along with SERB Women Excellence Awards and other AWSAR awards.
3. Prof. Gagandeep Kang, Executive Director of the Translational Health Science and Technology Institute (THSTI), Faridabad delivered an invited talk on the occasion.
4. The Selection Committee Meeting for the National Awards for Women's Development was held during the month February 2020 under the Chairmanship of the Secretary, DST. **The National Award for Young Woman Showcasing Excellence through Application of Technology, for Societal Benefits of Rs.2.0 Lakh was conferred** upon a) Dr. Shweta Rawat, Scientist E, Defence Institute of Physiology and Allied Sciences (DIPAS), DRDO, Timarpur, Delhi and b) Dr. Shalini Gupta, Associate Professor, Department of Chemical Engineering, Indian Institute of Technology(IIT), Delhi. The Awards were presented to the awardees by Hon’ble President of India, on National Science Day, 28 February, 2020.
5. The **Expert Committee meeting of Technology Intervention for Addressing Societal Needs** (TIASN) was held on 5-6 February 2020 to evaluate 14 new proposals and 15 ongoing proposals.

6. **Inauguration of CORS Network for states of Maharashtra & Karnataka and Political Map of India, Hindi & Sanskrit Edition by Dr. Harsh Vardhan, Hon'ble Minister of Science & Technology**, Health & Family Welfare and Earth Sciences during National Science Day on 28th Feb, 2020 at Vigyan Bhawan, New Delhi.
7. **MoU has been signed on 6th February, 2020 between the Survey of India and the Govt. of Madhya Pradesh for establishment of CORS** (Continuous Operating Reference Stations) Network and Large Scale Mapping of 55,000 Rural and Urban habitations using UAV/Drone technology in the august presence of Shri Govind Singh Rajput, Hon'ble Minister for Revenue & Transport, Govt. of Madhya Pradesh & Lt. Gen. Girish Kumar, VSM (Retd), Surveyor General of India at Vallabh Bhavan, Bhopal.
8. **Field visit by ICAS probationers in LSM Project, Haryana:** Indian Civil Accounts Service (ICAS) Probationers visited the Punjab, Haryana & Chandigarh GDC, SoI for a field visit to understand the high resolution mapping activity being undertaken by SoI under LSM Project for State of Haryana. Field visit was arranged at District Karnal on 26.02.2020 and PD, LSM Project, Haryana Sh. Prashant Kumar, Director explained the mapping process using Professional grade UAV to the officers. A presentation on Large Scale Mapping using UAV/Drone Technology was also made for the officers.
9. **Training to IAS probationers of LBSNAA, Mussoorie:** On special request from Director, LBSNAA, **basic Surveying and Mapping training was imparted to the IAS probationers (Officer trainees) of LBSNAA, Mussoorie in two phases by SoI, Dehradun.** In phase-I, a team of trainers and Officer in-charge visited LBSNAA, Mussoorie with surveying instruments to impart practical surveying training. A presentation was also made to explain the basics of Surveying & Mapping technologies. In phase-II, 180 IAS probationers (in two batches of 90 each) were given overview of SoI mandate & activities. A tour was also arranged to showcase & explain facilities and museum at Geodetic & Research Branch, Dehradun.
10. Loan Agreement signed by Technology Development Board (TDB) on 26th February, 2020 with M/s Yashraj Biotechnology Limited, Mumbai for project titled **"Development & Commercialization of products and services derived through Pluripotent stem cell technology for disease modeling biomarker discovery and drug toxicity testing"** for a loan assistance of Rs. 2000.00 lakh against total project cost of Rs. 4615.36 lakh.

11. 2nd ISC meeting was held on 13th February, 2020 at TDB office for the project proposal titled **“Manufacture & commercialization of affordable refreshable Braille Display”** submitted by M/s Kritikal Solutions Pvt. Ltd., Noida.
12. ISC meeting was held on 20th February, 2020 at TDB office for the project proposal titled **“Development of Cloud Genee Project” submitted by M/s Unicloud Labs Private Limited.**
13. Project Monitoring Committee Meeting was held on 1st February, 2020 by TDB at Gujarat for the project titled **‘Birla Excel Solvent Spun Cellulosic Fibre Plant’** in respect of the project of M/s Grasim Industries Ltd., Mumbai.
14. Project Monitoring Committee Meeting held on 26th–27th February, 2020 at project site in Pune for the project titled **‘Establishing commercial plant using congealing technology to produce Lutein and other carotenoids’** in respect of the project of M/s OmniActive Health Technologies Limited, Mumbai.
15. Committee of Experts (CoE) Meeting held on 27th February, 2020 at TDB office, FAI Building, New Delhi for the project titled **‘Development and Commercialization of indigenous low cost disposable laparoscopy trocars’** in respect of the project of M/s Alfa Corpuscles Private Limited, New Delhi.
16. **DST organised Industry Academia Conclave on Hydrogen and Fuel Cell** on 27th-28th February, 2020 at Indian Institute of Science Education and Research, Thiruvananthapuram which deliberated various research models and R&D roadmaps for Hydrogen and fuel cell and its industry applications. The event was attended by 5 industries, 50 academics, 10 R&D institutions and 10 policy makers.
17. As a follow up to advise by parliamentarians, a **programme for improving the ground water quality and addressing water pollution in Unnao & Mathura was discussed** on 4th February, 2020 with the technical experts from IIT Delhi, IIT Kanpur, IIT Bombay & DTU and officials from UP Government UPPCB, UP Jal Nigam & CPCB for identifying the problems and suggest possible solutions.
18. Indo Dutch DST-NOW Joint call launched on Cleaning Ganga and agri water.
19. A Meeting with experts/members of National Advisory Committee (NAC) and National Steering Committee (NSC) was held on 3rd Feb, 2020 under the Chairmanship of Secretary, DST towards **finalization of the draft SSR Policy and Implementation Guidelines on SSR** at India International Center (IIC), Lodhi Road, New Delhi.

B. National Technology Mission

1. 3rd Meeting of Mission Governing Board (MGB) for “National Mission on Interdisciplinary Cyber Physical System (NM-ICPS) was held on 14th February, 2020 DST, Technology Bhawan, New Delhi. **It was decided to establish 17 number of Technology Innovation Hub’s (TIH) in the current financial year.**
2. Initiated the Cluster proposals under the “**Quantum Information Technologies with nitrogen vacancy and magnetic resonance**” of Interdisciplinary Cyber Physical System (ICPS) Programme of the Department of Science and Technology (DST), GoI, New Delhi.
3. Initiated the Cluster proposals under the “**Quantum Information Technologies with ion-trap and optical-lattice devices**” of Interdisciplinary Cyber Physical Systems (ICPS) Programme of the Department of Science and Technology (DST), GoI, New Delhi.
4. Initiated the Cluster proposals under the “**Quantum Information Technologies with superconducting devices and Quantum Dots**” of Interdisciplinary Cyber Physical Systems (ICPS) Programme of the Department of Science and Technology (DST), GoI, New Delhi

C. Technology Development

1. National Science Chair Advisory Committee of Science and Engineering Research Board (SERB), New Delhi has selected five **National Science Chair** and the awardees have agreed to take up the position and contribute to Indian science. **SERB Women Excellence Award** was given to three women scientists by the Hon’ble President of India on National Science Day on February 28, 2020, at Vigyan Bhawan. **SERB-FIRE (Fund for Industrial Research Engagement)** was held on February 19-20, 2020, wherein more than 12 companies engaged in semiconductor research participated.
2. One patent was granted to International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI), Hyderabad for **improved gas flow field plate for use in Polymer Electrolyte Membrane Fuel Cells (PEMFC)**. ARCI developed tandem layer medium temperature 2m long solar receiver tubes were tested on parabolic trough test rig. The performance was found to be on par with commercial receivers.
3. Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST), Trivandrum **developed Nitinol based Occlusion device for Non-surgical closure of Atrial Septal Defect (ASD)**. SCTIMST **also developed affordable Stent Graft and its delivery system for the treatment of Thoracic Aortic Aneurysm.**

4. At Indian Institute of Astrophysics (IIA), **Bengaluru new grids of transmission spectra were developed for hot Jupiters by solving transfer equations with non-zero scattering albedo.** Both forward and retrieval model spectra are obtained for a number of hot Jupiters, and the synthetic spectra are compared with the available observed spectra obtained by using Hubble Space Telescope and Spitzer Space telescope. Using observed (with the 2-m the Himalayan Chandra Telescope (HCT)) and published spectra in the optical region, a few novae, namely T Coronae Borealis, GK Persei, RS Ophiuchi, V3890 Sagittarii and V745 Scorpii, and the symbiotic star BX Monocerotis were studied in detail during quiescence. The effect of weak gravitational lensing on the morphology of the cosmic microwave background temperature and polarization fields was studied using the shapes and alignment of hot and cold spots structures. An augmented spectro-polarimeter was installed and tested at the tunnel telescope of the Kodaikanal Solar Observatory for measuring the solar chromospheric magnetic field using the H α line.
5. Indian Institute of Geomagnetism (IIG), Mumbai has **installed a new experimental facility namely “All Sky Camera” at Indian Antarctic station Maitri in collaboration with National Institute of Polar Research, Tokyo.** The observations will facilitate the study of auroral current system responsible for geomagnetic substorm. This has relevance to space weather.
6. Researchers from Institute of Nano Science & Technology (INST), Mohali have **designed a synthetic polymer which can mend its own cracks when exposed to ultraviolet light.** The polymer can be used as smart coating for photovoltaic devices to prevent damages thereby increasing the performances of such devices.
7. **Innovative products developed under SRIJAN programme were exhibited** and a panel session on “Making India Non-Fossil Fuel Based Economy” was organized on the Technology Information, Forecasting & Assessment Council (TIFAC) foundation day on 10th February, 2020. Three study reports were also released namely:
 - Study on Development and Application of the Greenhouse Gas and Air Pollution Interactions and Synergies (GAINS)-City Model for Indian Cities with NEERI Nagpur.
 - Conservation of Agro-biodiversity and Ecosystem Management: A Study in Indian Agro-climatic Zones with ISEC Bangalore.
- The Technology Vision 2035 Technology Roadmap – Water sector.

8. TIFAC in collaboration with National Remote Sensing Centre (NRSC), Hyderabad has **developed a web portal called BHUVAN JAIV OORJA (<https://bhuvan-app1.nrsc.gov.in/bioenergy/home>)**, which was inaugurated on February 10, 2020. This geospatial tool is for online visualization to assess biomass resources, land use and logistics for planning and sustaining biofuel plant.
9. **GNSS/GPS and soil moisture training programme at IISc, Bangalore on February 24-25, 2020 was organised** under National programme on National Network Project on Assessment of Regional Hydrological Systems using Space Borne Gravity Observations. The main aim of the training programme was to do the capacity building/ exposure of all the researchers involved in the above said networking programme.
10. A review Meeting of the Expert Committee on **“Capacity Building & Training on Geospatial Technologies and Applications (Summer/Winter School)”** was held on 21 February, 2020 New Delhi-110016. The main focus of the meeting was to review all the 32 training programs (Level I/ II & orientation) conducted in the last summer and winter at pan India level; modified the course curriculum; introduce new pathways to attract the young researchers etc. It is envisaged that around 800 participants were exposed to the geospatial technologies and its applications during the above said training programme.
11. **Review project on “Demonstration of MW scale Solar energy Integration in weak grid using Distributed Energy Storage architecture (D-SIDES)”** on 5-6th February, 2020 discussed the strategic plan and future roadmap.
12. Review of a project entitled **“Driving Efficient Low-energy-cooling Technologies: Assessment to Tech-transfer (DELTA-T)”** on 18th February, 2020 revealed development of low energy cooling test bed (LECTB) / chamber to study energy consumption, water use, and demand analysis of cooling systems to test the performance of control algorithms for low energy cooling systems.
13. **“Integrated Urban Model For Built Environment Energy Research (iNUMBER)” project** reported notable outcomes Developed the methodology for assessing the relationship of the urban forms on the energy consumption.
14. Review of a project entitled **“Innovative Residential Cooling Technologies: Performance Evaluation and Validation”** discussed the prototype testing protocols and evaluation process of Global Cooling Prize on 20 Feb 2020. Programme on Global Cooling Prize was also reviewed.

15. Two projects on Methanol Production from Indian Coal reviewed on 20th February, 2020 at DST, New Delhi reported **development of a process scheme for Coal to methanol generation and handling gas cleanup and methanol synthesis.**
16. 8 proposals recommended for support under the Technology Assessment and Convergent Solutions Stream against the Call for Water nexus with Energy Food and health.

D. International Cooperation

1. **BRICS S&T Cooperation:** Pursuant to the implementation of BRICS Science & Technology Ministerial Campinas Declaration, the BRICS STI Working Plan 2019-2022 and the New BRICS STI Architecture adopted in September 20, 2019 in Campinas, Brazil, the 1st Meeting of the BRICS STI Steering Committee was held in Moscow on February 10th-11th, 2020. India was represented by Science Counsellor in Moscow. The meeting agreed to develop a digital platform (BRICS STI Cooperation Platform), by March 2020, for coordinating and managing the BRICS Science, Technology and Innovation (STI) activities.

The Committee discussed and finalized 2020 Calendar for the BRICS Science, Technology and Innovation (STI) activities that includes 8thBRICS STI Ministerial Meeting (1-2 June 2020), 6thBRICS Funding Parties Meeting & 2nd BRICS Steering Committee meeting (26-30 May 2020) and 5th BRICS Young Scientist (7-11 September 2020). It was decided to review all the ongoing activities under BRICS STI MoU and prepare a report indicating achievement and shortfalls, take corrective measure and improvement of program.

2. **India's S&T engagement with Japan:** Science and Technology in Society forum, Japan (STS forum) is a global S&T based Think Tank and its annual sessions in Kyoto, Japan provides a platform for open discussions on the societal aspects of progress in S&T. It also holds annual thematic workshops in different countries including in India. The 5th STS forum Japan-India workshop was held in New Delhi on 26th February 2020 and was attended among others by policy makers, S&T professionals, and Industry from Japan and India. The Workshop discussed the themes of (i) Strengthening the start-up initiative by Japan-India collaboration in STI and (ii) Improvement of the quality of life by utilizing big data and AI. Speakers from both the countries provided their country scenario and perspectives on the themes.

Secretary DST Prof. Ashutosh Sharma chaired the session (i) on collaborations on start-ups and shared the start up scenario in India. The Workshop provided recommendation that includes: Exploring Joint degrees and Ph.Ds programs for emergence of joint start

ups; holding Hakathons and Grand Challenges alternately in India and Japan; seeking and demonstrating S&T solutions to common issues; joint funding of start-ups by academia and industry; Hand holding of start-ups by big companies in both countries and fostering women centric start-ups. Exploiting the complementary strengths of India and Japan and Technology Alliance between the Governments and Industry of India and Japan were recommended. The workshop also recommended democratization of data and sought consensus between the corporate and society.

3. DST participated in Mission Innovation gathering at Riyadh, Saudi Arabia and contributed in designing the Innovation Challenge Impact Report and Mission Innovation thrust Beyond 2020.
4. **DST participated in ACREX India: an International conference-cum-exhibition of Air Conditioning, Health, Ventilation and Intelligent Buildings**, held during 27-29 February, 2020. DST showcased prototypes developed under eight national and bi-lateral projects. All the prototypes evinced keen interest from industry leadership and technologies and concepts could be advanced through industry partnership. The event witnessed more than 10000 attendees and participation of about 400 industries.

E. Human Capacity Building

1. Call for Submission of research proposals under Science and Technology of Yoga and Meditation (SATYAM) has been floated in public domain.
2. **Scholarship For Higher Education (SHE):**
 - o 1446 SHE scholars received their scholarship for pursuing B.Sc./M.Sc. Degree course in basic and natural sciences.
 - o 67 INSPIRE Scholars/visitor's queries were responded.
3. **INSPIRE Fellowship:** 315 INSPIRE Fellows received their fellowship for pursuing their doctoral degree program.
4. **INSPIRE Faculty Fellowship:** 11 INSPIRE Faculty Fellow's grant was released for pursuing their Post-doctoral program.
5. 1st meeting of the Technical Advisory Committee (TAC) of the project – India Innovation and Systems Survey 2019 being implemented by UNIDO was held at UNIDO's New Delhi office on 13th February, 2020.

6. 4th Meeting of DST sponsored network mode project entitled Assessment of Government of India's Gender Mainstreaming Programmes for '**Women in Science**' was held on February 20th Feb, 2020 at Administrative Staff College of India, New Delhi.
7. **National Science Chair:** National Science Chair Advisory Committee Meeting was held on February 7, 2020, to select National Science Chair from a pool of nominations. Committee deliberated at length and finally five selections were made for 2020. The NSC awardees have agreed to take up the position and contribute to Indian science in a significant way.
8. **SERB Women Excellence Award:** Selection Committee meeting was conducted on February 11, 2020. A number of awardees were selected and the top three names were presented with the award by the Hon'ble President of India on National Science Day on February 28, 2020, at Vigyan Bhawan.
9. **SERB-VORTEX (Vision Oriented Thought Exchange):** First SERB-VORTEX (Vision Oriented Thought Exchange) was organized in IIT Bombay (February 13, 2020) in the area of chemical sciences to bring in contributions from the community about special calls, benchmarking of reviews and other concerns of researchers.

F. Scientific Infrastructure Building

1. **Promotion of University Research and Scientific Excellence (PURSE):** The Minutes of the Ninth Meeting of Programme Management of PURSE were finalized and the Universities were intimated about the recommendations of Programme Management Board on PURSE.
2. **Sophisticated Analytical and Technical Help Institutes - (SATHI):** The 4th Meeting of Sophisticated Analytical and Technical Help Institutes (SATHI) – "SATHI Ki Baat" held on 20th February, 2020 at DST by involving IIT Delhi, IIT Kharagpur and BHU- Varanasi to review the work progress of recently supported SATHI centres.
3. **Sophisticated Analytical Instrument Facilities (SAIF):** The Facility Management Committee were held in February, 2020 at IIT Chennai to monitor the performance of the SAIF Centre, to consider its requirement for the ensuing year and to discuss for its future course.
4. The design and development of in-kind items for Facility for Antiproton and Ion Research (FAIR) and Thirty Meter Telescope (TMT) projects is in progress. For **FAIR project, documentation for shipping 36 out of 42 Power Converters was in progress, paving**

the way for their shipping to FAIR, Germany. For TMT project, design and development of in-kind items from the country continued in full swing during the month.

II. Important policy matters held up on account of prolonged inter-ministerial consultations:

NIL

III. Compliance of CoS Decisions:

No. of CoS decisions pending for compliance	Proposed action plan/ time lines for compliance of CoS decisions
<p>Department of S&T circulated a draft cabinet note on 'Financial and Administrative reforms for efficient functioning and delivery of science and technology in India' on 17.01.2017. Subsequently on the advice of PMO the matter was referred to the Committee of Secretaries which met on 26.05.2017.</p> <p>As desired by Committee of Secretaries following main issue is being considered in consultation with Department of Expenditure, Department of Economic Affairs and Department of Personnel and Training:</p> <p>1. Revival of posts in scientific Departments / Ministries.</p>	<p>This Department has already taken up these issues with the concerned Departments i.e. Department of Expenditure, Department of Economic Affairs and Department of Personnel and Training. Present status of this issues is as under:</p> <p>1. Department of Expenditure has exempted 07 scientific Ministries / Departments from seeking revival of scientific posts lying vacant for more than 02 years. Regarding similar powers to autonomous bodies under Department of Science and Technology, DoE has sought data on posts with autonomous bodies, which is being compiled.</p>

IV. No. of cases of 'sanction for prosecution' pending for more than three months:

Nil

V. Particulars of cases in which there has been a departure from the Transaction of Business Rules or established policy of the Government:

Nil

VI. Status of implementation of e-Governance:

The practice of submitting files through the electronic mode is being vigorously pursued in DST.

Total No. of Files created in DST during the month (physical +e-files)	Total No. of e-files during the month
349	250

All tour/leave applications of DST's personnel are being submitted through its portal.

VII. Status of Public Grievances:

No. of Public Grievances redressed during the month	No. of Public Grievances pending at the end of the month
107	98

VIII. ACC Vacancy Monitoring System (AVMS):

(i) Confirmation that the incumbency details of all the posts in the Ministry/Department and its organizations falling under the purview of the ACC have been updated on AVMS.

Updation on the AVMS portal is carried out regularly.

(ii) Status regarding compliance of the directions of ACC:

S. No	Subject	Directions details	Direction issued vide	Report of Compliance/ Latest Status/ Remarks
1.	Department of Science and Technology- Extension of additional charge of the post of Mission Director for National Mission on Interdisciplinary Cyber Physical Science entrusted to Dr. K. R. Murali Mohan, Scientist 'G' for a further period of 06 months w.e.f. 09.10.2019.	The ACC has directed the Department to finalize the RRs to the post of Mission Director for National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS) within 03 months.	No. 22/16/2019-EO(SM.II) dated 05.11.2019	The framing of RRs is done in consultation with DoPT which were referred to them. DoPT in this regard have observed that since the post of Mission Director, NM-ICPS is not included in the 'list of posts exempted from consultation with UPSC' the Administrative Ministry may seek clarifications from UPSC in this regard. UPSC has been approached for exemption from consultation with UPSC. The whole process may take more than 06 months. Vide OM dated 21.01.2020, DoPT has been requested to apprise the Competent Authority in the ACC of this position.

2.	Modification of the recruitment rules for appointment of President of Jawaharlal Nehru Centre for Advance Scientific Research (JNCASR) in line with UGC Regulation 2010.	ACC has directed the Department of Science & Technology to expedite aligning the RRs for appointment of President of the Jawaharlal Nehru Centre for Advance Scientific Research (JNCASR) in line with UGC regulations, 2010 within one month time from the date of issue of the order.	No. 22/15/2019-EO(SM.II) dated 14.01.2020.	The Recruitment Rules for the post of President, JNCASR has been amended with the approval of the competent authority in alignment with the UGC Regulations, 2010. The same has been communicated to ACC Secretariat vide our letter No. AI/1/51/JNC/2014 dated 25.02.2020.
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(iii) Status of cases where recommendations from PESB have been received but the proposals are yet to be submitted to the ACC Secretariat.

Not Applicable
