



**Asian Network on  
Climate Science and Technology  
(ANCST)**

## **Asian Network on Climate Science and Technology Achievements in 2017**

**28 December 2017**

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**Fourth Year Final Report to** Cambridge Malaysian Education and Development Trust (CMEDT) and Malaysian Commonwealth Studies Centre (MCSC)

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## ACKNOWLEDGEMENT

Universiti Kebangsaan Malaysia's Southeast Asia Disaster Prevention Research Initiative (SEADPRI-UKM) would like to acknowledge the support of the Cambridge Malaysian Education and Development Trust (CMEDT) and Malaysian Commonwealth Studies Centre (MCSC) for funding the establishment and operations of the Asian Network on Climate Science and Technology (ANCST). The support of the Advisory Committee on Protection of the Sea (ACOPS), the Guy Carpenter Asia-Pacific Climate Impact Centre, City University of Hong Kong and the Indian Institute of Science, Bangalore is also much appreciated. National and international partners of ANCST who have co-financed workshops and other activities are also gratefully acknowledged.

## Asian Network on Climate Science and Technology (ANCST) Achievements and Future Plans (version2)

### 1.0 Introduction

Climate change is one of the greatest challenges of our time and its adverse impacts undermine the ability of all countries to achieve sustainable development. This is recognised in the three major global agreements of 2015 i.e. the Paris Agreement of the UN Framework Convention on Climate Change, Sendai Framework on Disaster Risk Reduction and 2030 Agenda for Sustainable Development. Increases in global temperature, sea level rise, ocean acidification and other climate change impacts are serious threats that have to be addressed. The survival of many societies and of the biological support systems of the planet is at risk. Whilst global level cooperation facilitate means of cooperation, context specific and continuous capacity enhancement, data and knowledge improvement is required to identify practical solutions to mitigate the issue. Such solutions are best marshalled by a network of regional experts who are already engaged in scientific and technological work in their respective areas.

The Collaborative Agreement between UKM and the CMEDT/MCSC signed on 19 November 2013 to establish ANCST provided support for (i) **administrative functions**; (ii) promotion of disaster prevention and climate resilience in Asia through collaborative **capacity building and outreach programmes**; (iii) **academic and research activities** through staff exchanges and collaborations of common interests; and (iii) facilitation of **student exchanges** to enhance awareness and strengthen ties between the institutions. The robust **structure of ANCST (Annex 1)**, which has underpinned its remarkable progress was conceived by principal partners and key players in the region from two international workshops, organised under the aegis of UKM and CMEDT/MCSC, the first in **Bangalore, India** (July 2011) and the second in **Bangi, Malaysia** (November 2012).

#### Key Catalyst

A major achievement of the CMEDT/MCSC in support of human sustainability is the establishment of the Asian Network on Climate Science and Technology (ANCST) in 2013.

Led by **Professor Lord Julian Hunt FRS**, founder Trustee of CMEDT, Emeritus Professor at Cambridge and University College London, former Chief Meteorological Officer of the United Kingdom and a world leader in this field of endeavour, and by his counterpart in Malaysia, **Professor Joy Pereira FASc.**, Principal Research Fellow of UKM's Southeast Asia Disaster Prevention Research Initiative (SEADPRI-UKM) and Vice-Chair of the Working Group of the Intergovernmental Panel on Climate Change (IPCC), the ANCST initiative has swiftly created a **unique and flourishing international network**, which has already had a considerable impact.

ANCST facilitates collaboration and exchange of information between researchers engaged in scientific and technological aspects of climate science, climate change, natural disasters, as well as associated impacts and adaptation specific to Asian conditions and phenomena. Solution pathways to key Asian issues are pursued through strategic alliances, collaborative projects, high level science-policy interfacing, capacity building and outreach, from its base at **UKM**, with support from world-class Commonwealth institutions in **Cambridge (Cambridge's Centre for Climate Change, DAMTP, ACOPS)**, **Hong Kong (Guy Carpenter Asia-Pacific Climate Impact Centre at the City University)** and **India (Indian Institute of Science Bangalore & Indian Institute of Technology Delhi)**. Prominent Asian experts lead **Special Topic Groups** that constitute the core of ANCST at the regional level. They lead ANCST members from **multiple disciplines and age cohorts in Asia** working together on a clearly defined specific topic related to climate science and technology.

### 2.0 Achievements

#### 2.1 Administrative Functions

The administrative functions of ANCST in monitoring progress and planning activities was facilitated by three meetings in 2017 held on 19 January 2017 (Bangi), 24 May 2017 (Hong Kong) and 15 November 2017 (Petaling Jaya). A meeting was also held with Dr. Anil Seal, Director of CMEDT/MCSC in Cambridge on 19 October 2017, to

brief him on progress and future plans. Since its establishment, key members of the **ANCST International Steering Committee (Annex 2)** have met about 3-times per year to plan and monitor the high level of activities conducted in the region. A total of **13 meeting notes** have been shared with members of the **ANCST International Advisory Committee (Annex 3)**, who then provide guidance and strategic inputs to expand the influence of the network in the region. Four annual reports have been prepared by Professor Lord Hunt and Professor Pereira, which includes detailed financial statements and copies of receipts of expenditure for the funds disbursed annually by CMEDT/MCSC, which is managed by the UKM Bursar.

## 2.2 Capacity Building and Outreach Programmes

ANCST convened nine events involving some 400 participants from the region in 2017 comprising researchers, practitioners and decision-makers from the government, private and non-government sector. The events funded by the MCSC/CMEDT, Newton-Ungku Omar Fund (NUOF) and key partners have contributed to disseminate information on policy relevant climate science and technology. The workshop reports are available on the ANCST website and plans are afoot for their publication. Highlights include the following:-

- **Launching of Malaysia Window to Cambridge** at UKM, Bangi, Malaysia (19 January 2017): ANCST provided the foundation for the recognition of UKM's SEADPRI as an IRDR International Centre of Excellence (ICoE) for Disaster Risk and Climate Extremes of the United Nations International Strategy for Disaster Reduction (UNISDR). This achievement was recognised and rewarded by the MCSC/CMEDT with additional support for the "Malaysia-Window-to-Cambridge at UKM" programme, **which aims to enhance the capacity of early career researchers in atmospheric science and climate change for building disaster resilience in the region** (see section 2.4 for additional information).
- **Workshop on Disaster Resilient Cities**, Kuala Lumpur, Malaysia (9-10 March 2017): ANCST was a joint-convenor of this event with the City Hall of Kuala Lumpur (DBKL), National Disaster Management Disaster Agency (NADMA), Town and Country Planning Department Peninsular Malaysia (JPBD), SEADPRI-UKM and other NUOF project partners. Over 100 participants attended the workshop, primarily technical representatives including risk assessors, climate scientists, planners, engineers and geologist from government and the private sector. This workshop **marks the start of the flagship collaboration of ANCST with cities**, to serve as the pathway for transferring co-designed products and services of UK-Malaysian research consortiums for advancing climate adaptation in urban areas of tropical Asia.
- **Urban Meteorology and Climate Conference**, Hong Kong, China (25-26 May 2017): ANCST was the lead convenor of the Conference with City University of Hong Kong. The two-day Conference involved ten invited speakers and about 30 local speakers with over 50 participants. It resulted in the **establishment of a Special Topic Group on Urban Meteorology and Climate**, led by Prof. Johnny Chan & Prof. Jimmy Fung of Hong Kong. The conference report was accepted for

### Key Drivers

**Special Topic Groups (STG)** led by prominent Asian experts bring ANCST Members together by convening workshops and training courses, conducting joint research, exchanging research findings and laying the foundation for creation of common data bases. These currently include:-

- ❖ **STG on Disaster Prevention and Climate Resilience**, led by Professor Rajib Shaw, Keio University, Japan;
- ❖ **STG on Atmospheric Composition and Climate Change**, led by Professor Mohd Talib Latif, Universiti Kebangsaan Malaysia;
- ❖ **STG on Climate Change, Floods and Anthropogenic Activities**, led by Professor Zulkifli Yusup, Universiti Teknologi Malaysia;
- ❖ **STG on Urban Meteorology and Climate**, led by Professor Johnny Chan & Prof. Jimmy Fung, Hong Kong; and
- ❖ **STG on Asian Atmosphere-Ocean Processes**, led by Professor Manju Mohan, Indian Institute of Technology Delhi.



*The launch of the Malaysia Window to Cambridge at UKM on 19 January 2017 was officiated by YABhg. Tun Ahmad Sarji Abdul Hamid and witnessed by over 60 distinguished participants from academia, government agencies and the private sector.*

publication in *Current Science*. Papers presented at the conference will be published on the open access journal, *Geoscience Letters*.

- **Workshop on LiDAR for Landslide Hazard Mapping and Monitoring**, Putrajaya, Malaysia (11-13 July 2017): ANCST was a joint-convenor of this event with the Department of Mineral and Geoscience Malaysia (JMG), British Geological Survey and other NUOF project partners. The workshop was officiated by the Secretary General of the Ministry of Natural Resources and Environment Malaysia (NRE), the National Focal Point Ministry for Climate Change. A total of 44 participants attended the workshop that included a field demonstration of Terrestrial LiDAR Scanning; **promoting the latest technology for delineating critical slopes prone to landslides and rock-falls**, which are expected to increase in frequency due to extreme rainfall events.
- **Training Workshop on Geohazards and Disaster Risk Reduction**, Cameron Highlands, Malaysia (9-13 October 2017): ANCST was the lead convenor of this event, which was held in conjunction with the 30<sup>th</sup> National Geoscience Conference 2017 (NGC 2017). The training focused on **communication of science to multiple end-users in cities** including planners, regulators and insurers. Trainers comprised UK and Malaysian experts with participation of about 30 early career researchers from the region.
- **Workshop on Disasters and Heritage Areas**, Cebu, Philippines (15 October 2017): ANCST was the lead convenor of this side-event at the 53<sup>rd</sup> Annual Session the Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP). The workshop was officiated by the Director of the CCOP Technical Secretariat, with three lead papers illustrating the need for disaster risk reduction in the heritage areas of Mount Kinabalu and Klang Gates Quartz Ridge in Malaysia as well as Bohol Island in the Philippines, in light of the changing climate. ANCST served as a catalyst to **create awareness of climate driven hazards and disasters in heritage areas to geological agencies in East and Southeast Asia** and this will be further advanced by the CCOP to all their member states in Asia on a programmatic basis.
- **Forum on Flood Modelling for Insurers: From Data to Decisions**, Bangi, Malaysia (7 November 2017): ANCST was a joint-convenor of this annual SEADPRI event, with the Malaysian Association of Risk and Insurance Management (MARIM), Asia-Pacific Network for Global Change Research (APN), JBA Risk Management and UKM. Held in the aftermath of the catastrophic floods in urban Penang, ANCST enabled the **seminal discussion on approaches to model pluvial flash flooding in urban areas** due to extreme rainfall, which is a major problem in Asian cities. The Forum was attended by about 50 representatives from government, academia, non-government organisations and the private sector in the country.
- **Training Workshop on the Predictability of Extreme Weather Events**, Petaling Jaya, Malaysia (14-16 November 2017): ANCST was the lead convenor of this event with the

## Key Achievements

Since its establishment ANCST has **assembled some 800 scientists in Asia**, comprising researchers, policy-makers, private sector practitioners and early career researchers, **through 28 workshops and associated events**.

The five Special Topic Groups of ANCST have **enabled enhanced connectivity between scientists of multiple disciplines and age cohorts working on climate issues in Asia**.

**Key climate science and technology topics advanced** by ANCST include monsoon dynamics, land-sea interactions, climate change effects on the urban environment, and climate-driven disaster risk reduction and resilience.

**Targeted science-policy interfacing** with regional and global institutions has **resulted in four major collaborative projects worth over £2.2 million from external sources**, where the role of ANCST is to provide the pathway for enhanced regional synergies.

ANCST **facilitated the advancement of science, technology and innovation through multi-sector and multi-disciplinary partnerships** via its events and collaborative projects, to support implementation of the Sendai Framework on Disaster Risk Reduction and Paris Agreement.

The ANCST website portal received over 350,000 visitors in 2017 – the highest number in recent years since commencement of **email alerts on participation in IPCC as well as training and networking opportunities for early career researchers**.

The academic impact of ANCST is in **communicating knowledge gaps and requirement of policy-makers in Asia** through 10 scientific papers and some 28 workshops reports on the website.

The inaugural training programme in 2017 has **unearthed a talent pool of 40 high calibre young scientists for ANCST in Asia**.



Malaysian Meteorological Department (MMD) and other partners. The focus was on potential efforts and **approaches for developing highly relevant forecast products for climate extremes**. The training was conducted by UK and Malaysian experts with participation of about 30 early career researchers from the region. The trainees also spent time interacting with key members of ANCST.

- **Regional Science-Policy Dialogue: Science, Technology and Innovation for Bridging Disaster Risk Reduction and Climate Change Adaptation**, Putrajaya, Malaysia (16 November 2017): ANCST was the lead convenor where partners included the UNISDR Asia Science Technology Academia Advisory Group (ASTAAG), International Council for Science Regional Office for Asia and the Pacific (ICSU-ROAP), Asia-Pacific Network for Global Change Research (APN), National Disaster Management Agency (NaDMA) and Ministry of Natural Resources and Environment (NRE). The discussion focused on the **needs of the region for innovative science products and services that could bridge climate change adaptation and disaster risk reduction**. The strategic purpose was to lay the foundation for a regional science initiative that could be potentially supported by the Green Climate Fund with involvement of the private sector, which would bridge the two communities helping the Paris Agreement and Sendai Framework within ASEAN.

The **ANCST Website Portal** (<http://www.ancst.org/>) serves as a **central resource for current, accurate and accessible information on climate science and technology**. It is continuously updated with focus on highlighting publications and workshop reports as well as expanding the content of Special Topics Groups. In 2017, a new feature i.e. the ANCST Bulletin Board was initiated, where short emails alerts are sent out to the ANCST membership for time-sensitive news i.e. calls for expert review and chapter scientists by the IPCC, calls for application to participate in workshops or training for early career researchers, invitations to participate in new regional initiatives, etc. The STG Leaders generally avail themselves to this service to enhance communication with scientists in the region.

The **ANCST Database** currently contains the contact information of **nearly 800 experts and policy-makers working on climate science and disaster resilience in Asia**, some of whom are Members of ANCST. Events convened by ANCST provide an opportunity to grow its membership and expand the database. In 2017, the ANCST brochure was updated and new brochures were developed highlighting the substantial achievements of ANCST. Hardcopies of these brochures are circulated at all events to enhance the profile of ANCST.

### 2.3 Academic and Research Activities

Targeted high level science-policy interfacing is critical for strengthening linkages with key strategic partners to **influence regional research priorities and facilitate development of regional initiatives**. High level science-policy interfacing have enabled ANCST to contribute to the mainstreaming of policy relevant solutions for building climate resilience in the region. This has been augmented by the involvement of ANCST in informal discussions at international platforms and institutions for climate change and disaster risk reductions (i.e. IPCC, UNFCC and UNISDR Global Platform, ASEAN, APEC Climate Center, Pacific Meteorological Council and Ministerial Meeting, World Bosai Forum, etc.).



*High-level science policy interfacing: Professor Tan Sri Zakri Abdul Hamid, Science Advisor to the Prime Minister of Malaysia and Professor Ian Boyd, Chief Scientist, Department for Environment, Food and Rural Affairs (Defra) delivered keynotes in the 2015 ANSCT Workshop, providing insights for the Newton-Ungku Omar Fund Project in Malaysia, where the role of ANCST is to provide the pathway for enhanced regional synergies.*

The participation of ANCST tapered down in 2017 in three collaborative projects worth over £200,000, funded by the ASEAN-India Green Fund, Asia Pacific Network for Global Change Research (APN) and the Newton-Ungku Omar Fund Linkages Programme administered by the British Council. In conjunction with support from regional and national institutions and the collaborative projects, ANCST has maintained a high level of activities in the region, **to facilitate synergies for knowledge development and information exchange** on climate change adaptation, disaster risk reduction, loss and damage assessments and urban hazards. This is in fulfilment of the commitments of ANCST to advance science, technology and innovation for implementing the Sendai Framework on Disaster Risk Reduction in Asia.

Under the aegis of CMEDT/MCSC, a new 3-year collaboration also commenced in 2017 with a grant of about £2 million from the Newton-Ungku Omar Fund Bridges Programme administered by Innovate UK, where ANCST provides the pathway to enhance synergies in the region. Led by Professor Lord Hunt and Professor Pereira, the collaboration involves geological and atmospheric sciences with strong participation from the private sector, to deliver **innovative new business models for risk reduction of multi-hazards in Kuala Lumpur**. Organised under a multi-disciplinary and multi-sector consortium, it directly supports the National Science to Action (S2A) initiative, inspired by the Honourable Prime Minister of Malaysia. Staff exchange between Malaysia (UKM, UM, etc.) and University of Cambridge (DAMTP, ACOPS) will also be greatly facilitated by this collaboration.

In 2017, publications by key members of ANCST include articles and workshop reports in journals. Reports of events are also uploaded to the ANCST website (<http://www.ancst.org/>) to enhance outreach. The Springer publication of ANCST on Climate Change Adaptation in Southeast Asia is currently under review.



Professor Rajib Shaw (second from left), Chair of the UNISDR Global Science, Technology, Academia Advisory Group provides a high profile for ANCST in Asia through his leadership of the Special Topic Group on Disaster Prevention and Climate Resilience. He chaired the APN Special Session on Slow Onset Hazards at the Regional Science-Policy Dialogue on 16 November 2017.



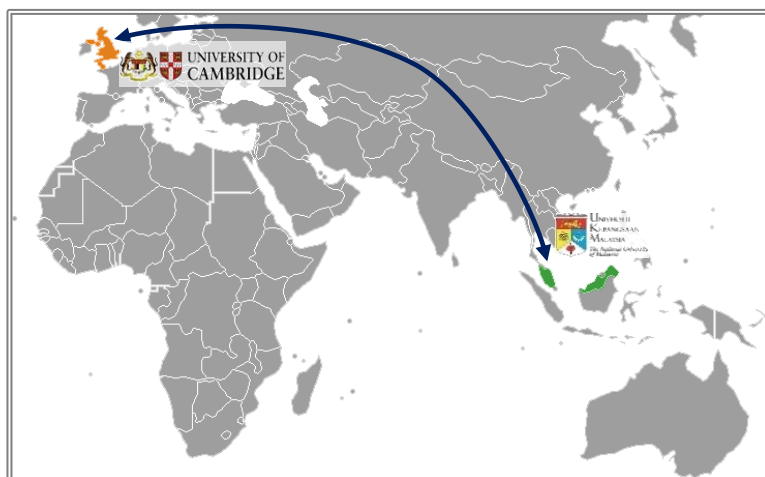
The regional linkages of ANCST is expanding through Professor Datuk Mazlan Othman, the newly appointed Director of International Council for Science Regional Office for Asia and the Pacific (ICSU-ROAP) based in Kuala Lumpur, who delivered the keynote address at the Regional Science-Policy Dialogue on 16 November 2017.

## Key Publications

- ❖ Fung, J. C. H., Chan, J. C. L. & Hunt, J. C. R. 2017. Urban meteorology and climate research in Asia. *Current Science* 12:6, 1023-1024.
- ❖ Pereira, J.J., Hunt, J. C. R. & Nurfashareena, M. 2017. Forecasting urban climate extremes. *SEADPRI Bulletin* 15, pp. 12
- ❖ Hunt, J. C. R., Chan, J. C. L. & Wu, J. 2016. Asian Urban Environment and Climate Change, *Current Science*, 10:8, 1398-1400.
- ❖ Pereira, J.J. & Hunt, J. C. R. 2016. ANCST Advances Local Level Disaster Prevention through Climate Science. *SEADPRI Bulletin* 13, pp. 8.
- ❖ Pereira, J.J. & Hunt, J.C.R. 2016. Future Cities: Science to Action for Building Resilience of Urban Communities to Climate Induced Hazards. *SEADPRI Bulletin* 12, pp. 2.
- ❖ Hunt, J.C.R. & Pereira, J.J. 2015. International collaboration vital in reducing impact of natural disasters. *The Guardian*. 13 Mar 2015.
- ❖ Bhat, G.S. & Hunt, J.C.R. 2015. Atmosphere-ocean interactions in the Indo-Pacific basin and their impact on Asian climate. *Current Science*, 108, 10 April 2015.
- ❖ Pereira, J.J., Hunt J. C. R. & Chan, J. C. L. 2014. Science and Technology for Disaster Prevention and Climate Resilience in Asia. *ASM Science Journal* 8(1): 1-10.
- ❖ Pereira, J.J., Reza, M.I.H. & Hunt J. 2014. Science and Technology for Disaster Prevention and Climate Resilience in Asia. *ASM Science Journal* 8(1): 83-85.
- ❖ Hunt, J. & Pereira, J.J., 2012. How Social Media Can Play a Major Role in Disaster Forecasting and Recovery. <http://blogs.reuters.com/great-debate-uk/2012/11/22/>
- ❖ Hunt, J. & Pereira, J.J. 2012. When access to information may mean the difference between life and death. *South China Morning Post*, November 26, 2012, A15.

## 2.4 Student Exchanges: Malaysia Window to Cambridge at UKM

Malaysia Window to Cambridge at UKM (MW2C@UKM) is the **culmination of collaboration between University of Cambridge and SEADPRI-UKM** that was initiated in 2012, which led to the signing of the cooperation agreement between UKM and the Cambridge Malaysian Education and Development Trust (CMEDT), in association with the Malaysian Commonwealth Studies Centre (MCSC) on 19 November 2014, with the aim to establish the Asian Network for Climate Science and Technology (ANCST).



In 2017, the MCSC/CMEDT rewarded ANCST with additional funding support for the “Malaysia-Window-to-Cambridge at UKM” programme, for enabling the recognition of UKM’s SEADPRI as an IRDR International Centre of Excellence (ICoE) for Disaster Risk and Climate Extremes of the United Nations International Strategy for Disaster Reduction (UNISDR). The programme aims to **enhance the capacity of early career researchers** in atmospheric science and climate change for building disaster resilience in the region. The programme also serves as a **gateway to Cambridge, with broader UK-Asia interactions** provided by ANCST. The launch was officiated by YABhg. Tun Ahmad Sarji Abdul Hamid on 19 January 2017 in Bangi, Malaysia, with more than 60 distinguished participants from universities, government agencies and the private sector in attendance. Presentations were made by Professor Lord Hunt and Professor Pereira on the progress and future plans of ANCST, in addition to remarks from Prof. Dato’ Dr. Imran Ho Abdullah, Deputy Vice Chancellor (Industry and Community Partnership), representing the UKM Vice Chancellor.

ANCST undertook three major activities under the Malaysia-Window-to-Cambridge at UKM” programme in 2017. The activities were implemented in collaboration with SEADPRI-UKM, ACOPS and other partners. The three activities are briefly described below.

### MW2C@UKM Fellowship for Young Scientists

Announced on the ANCST website in January 2017, five applications were received, four from Malaysia and one from Pakistan. The applications were evaluated and ranked by eight scientists from the UK (4), Australia (1), China (1), Philippines (1) and the ICSU-ROAP Chair of the Disaster Management Scientific Steering Committee. The double blind review resulted in the top three candidates coming from Malaysia. The ANCST International Steering Committee agreed to award the Fellowship to the best candidate from Malaysia and Pakistan. Only the Malaysian candidate from UKM took-up the award as the candidate from Pakistan was not accepted into the NCAS Climate Modelling Summer School at University of Cambridge (11-22 September 2017), which is aims to enhance the capacity of natural scientists in climate modelling. The next announcement for the award will be posted on the ANCST website in 2018.



*Participants of the NCAS Climate Modelling Summer School at University of Cambridge (11-22 September 2017) in front of the Department of the Chemistry, University of Cambridge after their final lecture. The Malaysian candidate, Dr. Nurfashareena Muhamad (third from right) was under the supervision of Professor Mike Davey of DAMTP during her stay in Cambridge. She joined UKM as an academic staff in November 2017 and is set to be a future star of ANCST.*



## MW2C@UKM Training on Geohazards and DRR, 9-13 October 2017, Cameron Highlands

The role of ANCST was to advertise the workshop on the website and oversee its implementation in conjunction with SEADPRI-UKM and ACOPS. Notice for the training was announced on the ANCST website. Trainees included about 20 early career researchers (below 30 years old): 10 from the Philippines, Indonesia, Myanmar and Vietnam and 10 from two institutions in Malaysia (UKM & UM). Trainers came from the UK and Malaysia.

The training focused on enhancing the capacity of geologists as science communicators by sharing professional experience on the different modes of risk communication. The training workshop comprised two technical sessions on geohazards, a field trip, a sharing session on regional perspectives, and a session on communicating geoscience. The communication session focused on crucial skills and strategies for communicating science to non-specialists and addressed local context and capacity requirements.

The trainees had an opportunity to interact with geoscience experts from the region and Malaysia during sessions that were held in conjunction with the National Geoscience Conference 2017 in Kuala Lumpur. Regional trainees shared their experiences and knowledge related to the issues of geohazards and disaster risk reduction. There was a request for **ANCST to provide an avenue for young scientists to document case-studies** based on their country experience. This is now an off-shoot activity that is under development.

## MW2C@UKM Training on the Predictability of Extreme Weather Events, 14-16 November 2017, Petaling Jaya

The role of ANCST was to advertise the workshop on the website and oversee its implementation in conjunction with SEADPRI-UKM and ACOPS. Notice for the training was announced on the ANCST website. Trainees included about 20 early career researchers (below 30 years old); nine from India, Pakistan, Thailand, Philippines, Indonesia, Myanmar and Vietnam while the others were from Malaysia (UKM, UM, UTM & MMD). Trainers came from the UK, India, Hong Kong, Japan and the ASEAN region.

The trainees had an opportunity to meet with high-level policy makers and eminent scientists from the region during the Regional-Science Policy Dialogue organised by ANCST on 16 November 2017 in Putrajaya. Extensive interaction with senior ANCST leaders was also incorporated into the programme, where they also joined the ANCST Business Meeting 3/2017. There were requests for ANCST to provide more such interactive training for early career researchers. It was also proposed that the trainees be recognised in some form, for example as **ANCST Young Scientists that are affiliated to the Malaysia Window to Cambridge at UKM**, with an avenue to submit case studies or research reports for publication, and opportunities to host events in their respective countries.



*Regional early career researchers benefitted from the insights of Malaysian and UK experts during the field trip in Cameron Highlands during the training.*



*The trainees presented case studies of hazards in their respective countries and received feed-back on their science communication skill as part of the training.*



*Professor Lord Julian Hunt called for more fundamental research in the tropics during his Keynote Address at the Training on Predictability of Extreme Weather Events, 14-16 November 2017.*



*The early career climate scientists tested their television persona when they visited the weather forecast studio at the Malaysia Meteorology Department during the Training on Predictability of Extreme Weather Events, 14-16 November 2017.*

### 3.0 Work Plan for 2018

The Business Meeting of ANCST on 15 November 2017 in Petaling Jaya proposed the following activities in Year 5. Funding will be sought from multiple sources including CMEDT/MCSC to convene the meetings as follows:-

- **ANCST Workshop on Climate, Biodiversity and Mountain Ecosystems:** The workshop will be held in collaboration with the International Centre for Integrated Mountain Development (ICIMOD) and the Intergovernmental Panel on Climate Change (IPCC). The plan is to bring together scientists working on the Hindu Kush Mountain Region (covering 8 countries), to support the IPCC Sixth Assessment Report. Professor Pereira, who is the liaison for ANCST will discuss the date and budget for the workshop with the IPCC and ICIMOD during the IPCC Bureau Meeting on 28-30 January 2018 in Geneva.
- **ANCST Workshop on Climate Change & Green Technology:** The workshop will be held in collaboration with the Asian Institute of Technology (AIT) and the IPCC. The plan is to bring together scientists working on low carbon technology and mitigation in cities in preparation for a special report in IPCC Seventh Assessment Report. Professor Pereira, who is the liaison for ANCST will discuss the date and budget for the workshop with the IPCC during the IPCC Bureau Meeting on 28-30 January 2018 in Geneva.
- **ANCST Workshop on Ocean-Atmosphere Dynamics & Climate Change:** The workshop will be held in India under the leadership of Professor Manju (India) with a focus on regional atmospheric modelling for climate change covering impacts, adaptation and mitigation. The workshop aims to gather Asian researchers involve in various model prediction, skills and customisation to share experiences for capacity building.
- **Conference on Flood Catastrophes in a Changing Environment 2018 (CFCCE 2018):** The Special Topic Group (STG) on Climate Change, Floods and Anthropogenic Activities has proposed a Conference on Flood Catastrophes in a Changing Environment 2018 (CFCCE 2018) to be held in Nanjing, China on 15-18 November 2018. The workshop will be chaired by Professor Yang Guishan of Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences. The plan is to focus on flood and river-lake ecosystems as well as droughts. Professor Zulkifli Yusop of UTM will serve as the liaison for ANCST.
- **International Conference on Atmospheric Composition and Climate Change 2018 (ICACCA 2018):** The conference is proposed to be held on 27-28 March 2018. The plan is to invite several key researchers in Asia and other parts of the world and to discuss the development and share the latest knowledge on atmospheric composition and climate change in Asia. Several experts have already agreed to speak at the conference.
- **Other Plans:** The potential for ANCST to host side-events or interface with policy makers at global and regional events in 2018 such as the World Urban Forum (Malaysia), IPCC Conference on Cities and Climate Change (Canada) and Asian Ministerial Meeting on DRR (Mongolia), 2<sup>nd</sup>

#### Key Plans in 2018

- ❖ ANCST Workshop on Climate, Biodiversity and Mountain Ecosystems in Kathmandu, Nepal;
- ❖ ANCST Workshop on Climate Change & Green Technology in Bangkok, Thailand;
- ❖ ANCST Workshop on Ocean-Atmosphere Dynamics & Climate Change in New Delhi, India;
- ❖ Conference on Flood Catastrophes in a Changing Environment 2018 in Nanjing, China;
- ❖ International Conference on Atmospheric Composition and Climate Change 2018 in Bangi, Malaysia;
- ❖ Side-events and targeted science-policy interfacing at global and regional events in 2018;
- ❖ Commencement of the ANCST Young Scientists programme;
- ❖ Training for early career scientists in Asia and development of modules under the aegis of the Malaysia Window to Cambridge at UKM;
- ❖ Continuous improvement of the ANCST Website Portal and ANCST Bulletin Board to increase the profile of ANCST and grow its membership;
- ❖ Generating publications of ANCST through Special Topic Groups;
- ❖ Development of innovative science-based products and services via regional collaborative projects (e.g. NUOF, APN etc.) that bridge issues of climate change and disaster risk reduction at multiple scales of governance.
- ❖ Transformation of ANCST for long term sustainability, with guidance from CMEDT/MCSC and in consultation with UKM, to tackle key challenges in Asia.

Asian S&T Conference on DRR (Beijing), GEOSEA 2018 (Vietnam) and CCOP annual Thematic Session (Korea) will be explored.

The Special Topic Groups (STG) and ANCST leadership will also be moving ahead with the following plans in 2018:-

- **STG on Disaster Prevention and Climate Resilience [Prof. Rajib Shaw, Japan]:** The STG is planning to host side-events at two major conferences in Asia in 2018 namely the Asia Science and Technology Conference for Disaster Risk Reduction (DRR), which will be hosted by the government of China in Beijing, scheduled on April 2018; and the Asian Ministerial Meeting on DRR, the largest DRR-related meeting in the region which will be in Mongolia, scheduled on mid-July 2018. The STG is also planning a Springer publication on DRR and climate change adaptation.
- **STG on Atmospheric Composition and Climate Change [Prof. Mohd Talib Latif, Malaysia]:** The STG is planning to convene an International Conference on Atmospheric Composition and Climate Change 2018 (ICACCA 2018). A publication is expected from the Conference. The STG website will also be updated to include information on the ICACCA 2018.
- **STG on Urban Meteorology and Climate [Prof. Johnny Chan & Prof. Jimmy Fung, Hong Kong]:** The STG is currently focusing on the publication of special issue on the Urban Meteorology and Climate Conference 2017. The publication is targeted to be ready by the middle of 2018.
- **STG on Climate Change, Floods and Anthropogenic Activities [Prof. Zulkifli Yusup, Malaysia]:** The STG plans to upgrade its website. Abstracts of the Conference on Flood Catastrophes in A Changing Environment 2016 (CFCCE 2016) have been published and can be downloaded from this website. Selected manuscripts will be published in a Scopus-indexed book.
- **STG on Asian Atmosphere-Ocean Processes [Prof. Manju Mohan, India]:** The STG will now be led by Professor Manju Mohan and a discussion will be held in IIT-Delhi to develop a work plan including the organisation of a workshop in 2018. Common procedures of each STG will be followed i.e. linkages with other networks, sharing and storage of meta-data and development of test cases that are relevant for South Asia. The meeting welcomed the leadership of Professor Manju in enhancing the effectiveness of Country Pilots in India.

**Malaysia Window to Cambridge at UKM** will be expanded in consultation with CMEDT/MCSC and the ANCST leadership. The Training Workshops revealed a talent pool of high calibre early career researchers in Asia. ANCST will leverage on this potential by developing mechanisms to tap this talent pool. The suggestions to establish avenues to contribute case studies, research manuscripts, **start the ANCST Young Scientists programme and develop training modules will be taken up in 2018.** Aspects to be considered in the future include training for writing press articles on ANCST issues as part of science communication.

**Communication and Outreach** will be maintained at a high-level. The ANCST Website Portal and ANCST Bulletin Board will be continuously improved and the profile of ANCST will be enhanced to grow its membership. The ANCST leadership will work on developing mechanisms to sustain its operations via enhanced collaboration between the principal partners i.e. the Coordinating Centre, Committees and STG Leaders.

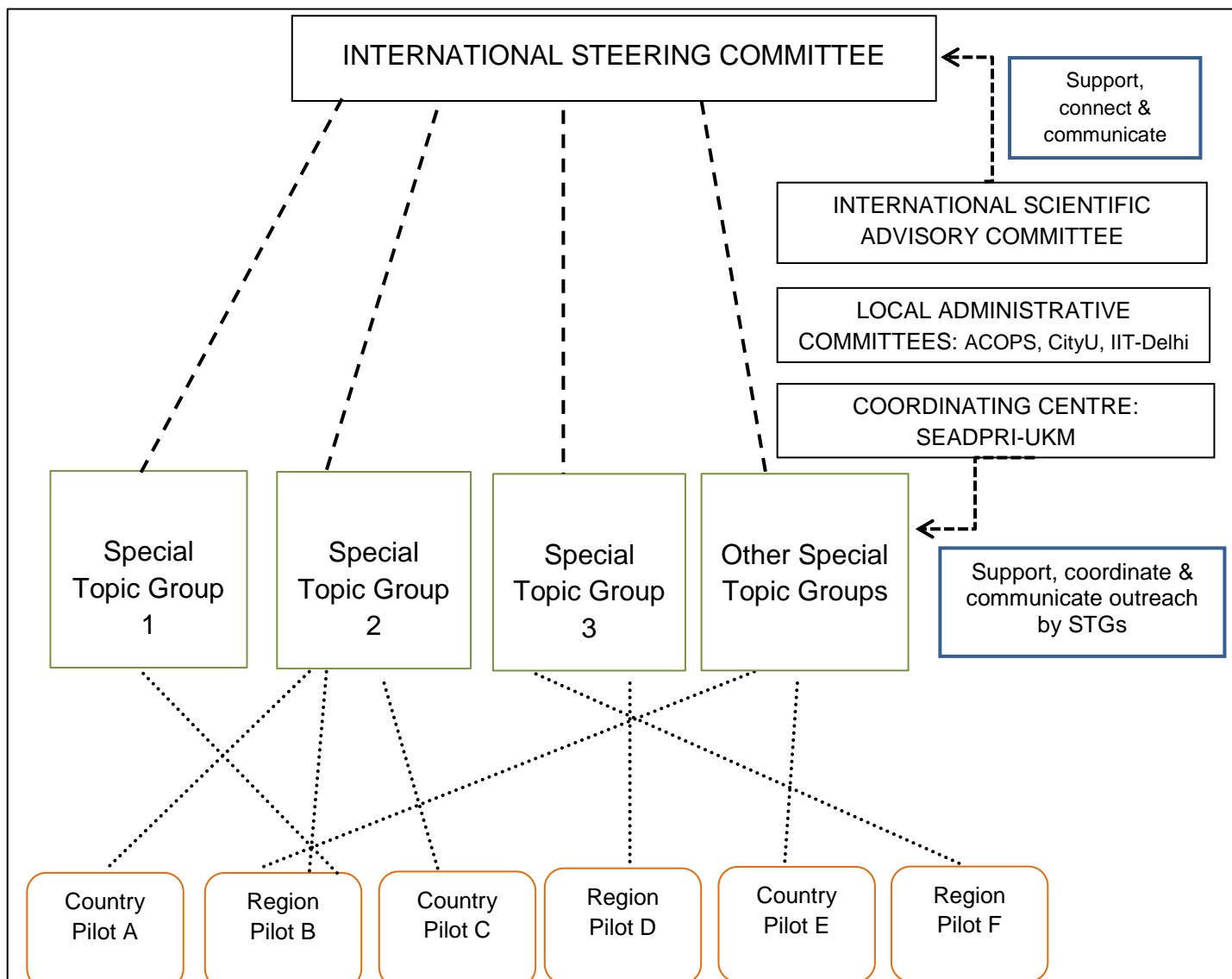
## Key Challenges

*It is important to understand the interconnection between the global and local effects of climate change, and how climate change has direct and indirect impacts, now and for the future, on the human population, the whole biosphere and the geosphere. The most important of these impacts include deteriorating human health in critical areas of the world, the loss of forests, increased floods, problems with agriculture, a deteriorating atmospheric environment, rising temperatures, and pollution. The water environment in rivers and oceans and along coasts is also at risk. These impacts have direct and indirect effects on human health. Some of the most critical situations occur in urban areas.*

*Professor Lord Julian Hunt  
Debate on Climate Change  
House of Lords, 21 December 2017.*

## Annex 1

### Organisation of ANCST [Revised 24 May 2017]



#### Special Topic Groups:

1. Disaster Prevention and Climate Resilience (Prof. Rajib Shaw, Keio University, Japan)
2. Atmospheric Composition and Climate Change (Prof. Mohd. Talib Latif, Universiti Kebangsaan Malaysia)
3. Asian Atmosphere-Ocean Processes (Prof. Manju Mohan, Indian Institute of Technology Delhi)
4. Urban Meteorology and Climate (Prof. Johnny Chan & Prof. Jimmy Fung, Hong Kong)
5. Climate Change, Floods and Anthropogenic Activities (Prof. Zulkifli Yusup, Universiti Teknologi Malaysia)
6. Downscaling and regional based parameterisations (Proposed)
7. Climate change mitigation, carbon sequestration and low carbon economy (Proposed)
8. Climate related data for variability and change in regions (Proposed)
9. Climatic hazards and heritage areas (Proposed)
10. Climate, biodiversity and ecosystems change (Proposed)



**ANCST International Steering Committee: Terms of Reference and Members****Introduction**

The **Asian Network on Climate Science and Technology (ANCST)** is funded by the Cambridge Malaysian Education and Development Trust (CMEDT) and Malaysian Commonwealth Studies Centre (MCSC), with the Southeast Asia Disaster Prevention Research Initiative of Universiti Kebangsaan Malaysia (SEADPRI-UKM) serving as the Coordinating Centre. ANCST was formally launched on 19 November 2013 in Putrajaya, Malaysia.

Dedicated to science, technology and innovation with application to disaster and climate resilience, ANCST brings together academics and researchers from various disciplines to a multidisciplinary platform to strengthen their capacity, while simultaneously interacting with other multi-stakeholder networks, intergovernmental bodies and multi-lateral institutions operating in the region. ANCST does this with the support of various academic and research institutions in Asia, including the City University of Hong Kong, Divecha Centre for Climate Change, IIT-Bangalore and University of Malaya, among others.

The organisation of ANCST comprises an International Steering Committee, International Scientific Advisory Committee, Local Administrative Committee, Coordination Centre, National Platforms or Pilot Centres and Special Topic Groups (see figure). Application for institutional and individual membership can be submitted directly to the Coordination Centre at SEADPRI-UKM or via a national organisation serving as the platform or pilot centre.

**Terms of Reference**

The International Steering Committee is responsible for developing ANCST programmes including outreach and collaboration with other networks. Members of the International Steering Committee are prominent scientists in the field of climate science and technology. The International Steering Committee is an entirely voluntary commitment so there is no explicit workload requirements, beyond reasonable expectations of discharging the activities detailed in these terms of reference or efforts volunteered and documented in agreed meeting notes. The International Steering Committee will communicate primarily through teleconferences and emails at least on a quarterly basis. The function of the Committee is as follows:-

- Identify flagship themes for meetings and collaboration, and promote collaboration and co-funding (where possible and appropriate) with other networks;
- Conduct programmes recommended by the membership and International Scientific Advisory Committee, where relevant and financially viable;
- Plan and organise a reasonable number of meetings, academic conferences and workshops conducted under the auspices of ANCST;
- Secure funding for a reasonable number of young researchers to attend strategic science workshops;
- Promote ANCST to peers and provide scientific oversight and technical input to the National Platforms and Special Topic Groups under its oversight;
- Review the ANCST website and annual reports prepared by the Coordination Centre.

**Members**

The International Steering Committee is responsible for developing ANCST programmes including outreach and collaboration with other networks. Members of the International Steering Committee are as follows:-

- Prof. Joy Jacqueline Pereira, Southeast Asia Disaster Prevention Research Initiative, Universiti Kebangsaan Malaysia (SEADPRI-UKM)
- Prof. Johnny Chan, School of Energy and Environment, City University of Hong Kong
- Prof. Manju Mohan, Indian Institute of Technology, Delhi
- Emeritus Prof. Lord Julian Hunt, Advisory Committee on Protection of the Sea (ACOPS)
- Prof. J. Srinivasan, Indian Institute of Science, Bangalore
- Prof. Jun Matsumoto, Tokyo Metropolitan University
- Prof. Jianping Wu, Tsinghua University, China
- Prof. Rizaldi Boer, Centre for Climate Risk and Opportunity Management in Southeast Asia and Pacific (CCROM-SEAP), Bogor Agricultural University

**ANCST International Scientific Advisory Committee: Terms of Reference and Members****Introduction**

The **Asian Network on Climate Science and Technology (ANCST)** is funded by the Cambridge Malaysian Education and Development Trust (CMEDT) and Malaysian Commonwealth Studies Centre (MCSC), with the Southeast Asia Disaster Prevention Research Initiative of Universiti Kebangsaan Malaysia (SEADPRI-UKM) serving as the Coordinating Centre. ANCST was formally launched on 19 November 2013 in Putrajaya, Malaysia.

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**Terms of Reference**

The International Scientific Advisory Committee comprises internationally renowned experts in the fields relevant to climate science and technology. Members of the International Scientific Advisory Committee are appointed for a period of 3 years. Termination of membership during this period is by mutual consent. Members are expected to take active part in the development of ANCST and communication is primarily via email. The function of the Committee is as follows:-

- Provide strategic advice to the International Steering Committee, based on international trends and scientific development within the field of climate science and technology;
- Provide inputs on programmes that are proposed by the membership as well as the International Steering Committee, National Platforms or Pilot Centres and Special Topic Groups;
- Review and recommend changes in the overall goal and organisational structure of ANCST to accommodate emerging needs and changes during implementation of programmes;
- Propose interaction with multi-stakeholder networks, intergovernmental bodies and multi-lateral institutions operating in the region, to bridge the science-policy interface;
- Review annual progress reports and recommend partners and members to further strengthen ANCST in the region.

**Members**

The International Scientific Advisory Committee comprises internationally renowned experts in fields relevant to climate science and technology. Members of the International Scientific Advisory Committee are as follows:-

- Prof. Datuk Azizan bin Hj. Abu Samah, National Antarctic Research Centre, University of Malaya
- Prof. Alfredo M.F.A. Lagmay, National Institute of Geological Sciences, University of The Philippines
- Dr. Saleemul Huq, International Institute for Environment and Development (IIED)
- Prof. Anand Patwardhan, Shailesh J. Mehta School of Management, Indian Institute of Technology Bombay
- Dr. Matthias Roth, Department of Geography, National University of Singapore
- Dr. Louis Lebel, Faculty of Social Science, Chiang Mai University
- Dr. Yihui Ding, National Climate Center, China Meteorological Administration
- Prof. Ngar-Cheung Gabriel Lau, Institute of Environment, Energy and Sustainability, The Chinese University of Hong Kong
- Prof. Dr. Taroh Matsuno, Japan Agency for Marine-Earth Science and Technology (JAMSTEC)