# Steering Committee member list

| Country | Organization | Name | Title |
|---|---|---|---|
| Brunei | UBD | Dr. Abdul Ghani Haji Naim | Assistant Professor, Faculty of Science and Director, Institute of Applied Data Analytics |
| | UTB | Assoc. Prof. Dr. Somnuk Phon-Amnuaisuk | Director, Centre for Innovative Engineering at UTB |
| Cambodia | NIPTICT | Dr. Sopheap SENG | President |
| Indonesia | MCIT | Mrs. Woroindah Widiastuti | Senior Technology Advisor |
| | Tel-U | Ir. MSc. PhD. Ashwin Sasongko SASTROSUBROTO | Chairman of Telkom University Research Center for ICT Public and Business Policy |
| Laos | NUOL | Assoc. Prof. Dr. Khamphoui Southisombath | Acting Dean, Faculty of Engineering |
| Malaysia | MIMOS | Mr. Boon Choong Foo | Senior Director, Wireless Innovation |
| | UTM | Prof. Ir. Dr. Abu Sahmah Bin Mohd Supa'at | Dean of Research, Innovative Engineering Research Alliance |
| Myanmar | UCSY | Prof. Dr. Myint Myint Sein (Ms.) | Pro-Rector |
| Philippines | MU | Prof. Alejandro Ballado | Dean, School of Electrical, Electronics and Computer Engineering |
| Singapore | I2R | Prof. Dim-Lee Kwong | Executive Director |
| | NUS | Prof. Chua Kee Chaing | Dean of Faculty of Engineering |
| Thailand | CU | Dr. Widhyakorn Asdornwised | Assistant Professor, Department of Electrical Engineering |
| | NECTEC | Dr. Chai Wutiwiwatchai | Executive Director |
| Vietnam | PTIT | Assoc. Prof. Dr. Habil., Dr.-Ing. HOANG Dang Hai | Vice President |
| | VNU | Prof. Dr. Nguyen Ngoc BINH | Professor in ICT, Vietnam National University, Univ. of Engineering & Technology(VNU-UET), President, Radio & Electronics Assoc. of Vietnam (REV) |
| Japan | NICT | Dr Mizuhiko Hosokawa | Vice President |

## Past Steering Committee meetings:

| | |
|---|---|
| 2019 | March 12, Bangkok, Thailand |
| 2018 | November 28, Jakarta, Indonesia |
| | March 6, Bangkok, Thailand |
| 2017 | November 24, Bandar Seri Begawan, Brunei Darussalam |
| | March 7, Bangkok, Thailand |
| 2016 | November 25, Hanoi, Vietnam |
| | March 11, Phnom Penh, Cambodia |
| 2015 | November 27, Kuala Lumpur, Malaysia |

## ASEAN IVO Forum events:

| | |
|---|---|
| 2019 | November 20-21, Manila, Philippines (planned) |
| 2018 | November 27-28, Jakarta, Indonesia |
| 2017 | November 23-24, Bandar Seri Begawan, Brunei Darussalam |
| 2016 | November 24, Hanoi, Vietnam |
| 2015 | November 26, Kuala Lumpur, Malaysia |

# List of ASEAN IVO members

Total: 54

| Country | Organization | Abbreviation |
|---|---|---|
| Brunei | Universiti Brunei Darussalam | UBD |
| | Universiti Teknologi Brunei | UTB |
| Indonesia | Agency For The Assessment And Application Of Technology | BPPT |
| | Ministry of Communications and Information Technology | MCIT |
| | Telkom University | Tel-U |
| | Indonesian Institute of Sciences | LIPI |
| | Institute Technology Bandung | ITB |
| | Universitas Syiah Kuala | Unsyiah |
| | Universitas Muhammadiyah Yogyakarta | UMY |
| Cambodia | National Institute of Posts, Telecommunications and Information and Communications Technology | NIPTICT |
| | Institute of Technology of Cambodia | ITC |
| Laos | Faculty of Engineering, National University of Laos | NUOL |
| Myanmar | University of Computer Studies, Yangon | UCSY |
| | University of Computer Studies, Mandalay | UCSM |
| | Computer University (Thaton) | Thaton |
| | Yangon Technological University | YTU |
| Malaysia | MIMOS Berhad | MIMOS |
| | Universiti Teknologi Malaysia | UTM |
| | Universiti Putra Malaysia | UPM |
| | Universiti Sains Malaysia | USM |
| | Universiti Tunku Abdul Rahman | UTAR |
| | Multimedia University | MMU |
| | Universiti Malaysia Perlis | UniMAP |
| | University of Malaya | UM |
| | Universiti Tun Hussein Onn Malaysia | UTHM |
| Philippines | Mapua University | MU |
| | Polytechnic University of the Philippines | PUP |
| | Advanced Science and Technology Institute, Department of Science and Technology | DOST-ASTI |
| | University of the Philippines, Diliman | UPD |
| Singapore | Institute for Infocomm Research | I2R |
| | School of Humanities and Social Sciences, Nanyang Technological University | NTU |
| | Faculty of Engineering, National University of Singapore | NUS |
| | Singapore Advanced Research and Education Network | SINGAREN |
| | Singapore University of Technology and Design | SUTD |
| Thailand | Chiang Mai University | CMU |
| | Chulalongkorn University | CU |
| | King Mongkut's Institute of Technology Ladkrabang | KMITL |
| | National Electronics and Computer Technology Center | NECTEC |
| | National Institute of Metrology | NIMT |
| | Thai-Nichi Institute of Technology | TNI |
| | Office of Information Technology Administration for Education Development, Commission on Higher Education | UniNet |
| | King Mongkut's University of Technology Thonburi | KMUTT |
| | Thailand Institute of Scientific and Technological Research | TISTR |
| Vietnam | Hanoi University of Science and Technology | HUST |
| | Vietnamese Academy of Science and Technology, Institute of Information Technology | IOIT |
| | Posts and Telecommunications Institute of Technology | PTIT |
| | Vietnam National University, International Francophone Institute | VNU-IFI |
| | Vietnam National University, Information Technology Institute | VNU-ITI |
| | Vietnam National University, University of Engineering & Technology | VNU-UET |
| | The University of Danang, Danang University of Science and Technology | DUT |
| | Vietnam National University – Ho Chi Minh City, University of Information Technology | UIT-HCM |
| | Le Quy Don Technical University | LQDTU |
| Japan | National Institute of Information and Communications Technology | NICT |
| | NEC Solution Innovator | NES |

# Figures for 2016-2019 projects

| Start date (Fiscal Year) | | Project Title | Period (years) | Countries | Members | Researchers |
|---|---|---|---|---|---|---|
| 2019 | 1 | Relay Station Network Based on Low-power Wide-area Network (LPWAN) Technologies for Disaster Management | 2 | 6 | 9 | 23 |
| | 2 | AgriBKChain: a blockchain-based network for agricultural traceability and product advertising | 2 | 4 | 4 | 9 |
| | 3 | FarmTab: Precision Agriculture System using Internet of Things and Artificial Intelligence for Urban Farming | 2 | 4 | 6 | 8 |
| | 4 | Prevention of 4 Disasters and Their Single Recovery Networks based on Internet-of-Things with Airborne Capability (PATRIOT-41R-Net) | 2 | 5 | 5 | 6 |
| | 5 | GNSS and Ionospheric Data Products for Disaster Prevention and Aviation in Magnetic Low- Latitude Regions | 2 | 4 | 6 | 9 |
| | | **Total** | | | **30** | **55** |
| 2018 | 1 | Event Analysis: Applications of computer vision and AI in smart tourism industry | 2 | 7 | 8 | 8 |
| | 2 | Cyber-Attack Detection and Information Security for Industry 4.0 | 3 | 3 | 3 | 6 |
| | 3 | Scalable Distributed IoT Framework based on Mobile Robot Technology for High Performance Greenhouse Plants | 2.5 | 3 | 4 | 6 |
| | 4 | Smart Aquaculture Quality Monitoring (AQM) System with Internet of Things (IoT) | 2 | 4 | 7 | 7 |
| | 5 | NAPC: Networked ASEAN Peat Swamp Forest Communities | 2 | 5 | 7 | 15 |
| | 6 | A mesh-topological, low-power wireless network platform for a smart watering system | 2 | 5 | 6 | 19 |
| | | **Total** | | | **35** | **61** |
| 2017 | 1 | A Hybrid Security Framework for IoT Networks | 2 | 4 | 6 | 9 |
| | 2 | Smart Lighting for Internet of Things and Smart Homes | 3 | 3 | 6 | 9 |
| | 3 | IoT System for Public Health and Safety Monitoring with Ubiquitous Location Tracking | 2 | 4 | 5 | 12 |
| | 4 | Evapotranspiration (ET)-Based Irrigation System with Internet of Things (IoT) Integration for Smart Farming Application Addressing the ASEAN Impending Water Crisis | 3 | 4 | 5 | 10 |
| | 5 | Study and evaluation of heterogeneous network for smart community and smart city applications | 2 | 3 | 4 | 10 |
| | | **Total** | | | **26** | **50** |
| 2016 | 1 | Open Collaboration for Developing and Using Asian Language Treebank | 3 | 6 | 6 | 14 |
| | 2 | ASEAN Language Speech Translation thru' U-STAR | 3 | 7 | 8 | 17 |
| | 3 | Mobile IoT | 2 | 4 | 4 | 6 |
| | 4 | ASEAN forum for Software Defined System on Disaster Mitigation and Smart Cities | 3 | 7 | 10 | 12 |
| | 5 | IoT Open Innovation Platform | 3 | 4 | 5 | 6 |
| | 6 | Cambodia NerveNet Field Testing | 3 | 3 | 3 | 6 |
| | 7 | TV White Space (TVWS) Experimental for Application in Remote Area | 2 | 3 | 4 | 8 |
| | 8 | Research and development on short distance communication and imaging for applications in ASEAN region | 3 | 5 | 11 | 13 |
| | | **Total** | | | **51** | **82** |

# ASEAN IVO Projects 2019

## 1  Relay Station Network Based on Low-power Wide-area Network (LPWAN) Technologies for Disaster Management

**Topic:** ICT for Environment Protection and Disaster Prevention
**Members:** **NECTEC(THA)**, NICT(JPN), UTB(BRN), MU(PHL), ASTI(PHL), NUOL(LAO), TCEI(LAO), UCSY(MMR)

Natural disasters often cause significant disruption in public utilities and services. The loss of communication network is especially vital when the disasters are taking place because data under those situations are crucial either for analytics or strategic planning, such as rescue or evacuation. Thus, a backup telecommunication channel is mandatory in this case. For some disasters, such as landslides or flash floods, where their triggers could be monitored in mountainous or rural areas quite far away from towns and where the electricity from the power line is not an option, a low-power and long-range communication channel is required as well. Therefore, in this project, we propose a relay station network as a solution to such situations. The relay station network consists of an array of relay stations that their only function is to forward the received data to the next station until the data reach the destination (base) station. As for the realization of the proposed system, we will show how to apply it into two applications: the landslide monitoring system and the intelligent remote monitoring system for dam safety.

## 2  AgriBKChain: a blockchain-based network for agricultural traceability and product advertising

**Topic:** Secure and Sustainable Connected Society
**Members:** **HUST(VNM)**, UPM(MYS), UTB(BRN), NICT(JPN)

We propose a blockchain-based network, namely AgriBKChain, to solve challenges of trusted traceability and advertising for agricultural products. We identify two objectives of our project:
- Providing trusted information of origin and culture of agricultural products, such as location identification, production diary, harvesting and storing processes, and how to serve
- Connecting to existing networks in Japan, Europe, and US for product advertising and export. For example, blockchain-based EXA network in Fukuoka, Japan and TE-FOOD in Germany

## 3  FarmTab: Precision Agriculture System using Internet of Things and Artificial Intelligence for Urban Farming

**Topic:** ICT Solutions from Farm to Meal
**Members:** **USM(MYS)**, UTAR(MYS), HUST(VNM), UNHAS(IDN), UB(IDN), Kyoto University(JPN)

The objective of FarmTab is to boost the productivity of urban farming by automating the farming process by embedment of Internet of Things (IoT) and Artificial Intelligence (AI) technologies into one platform. FarmTab is designed to enable seamless data collection from various sensors such as pH level, temperature, humidity and moisture in urban farm condition. The AI models track and predict various environment impacts on crop yield for urban farm.

## 4  Prevention of 4 Disasters and Their Single Recovery Networks based on Internet-of-Things with Airborne Capability (PATRIOT-41R-Net)

**Topic:** ICT for Environment Protection and Disaster Prevention
**Members:** **Tel-U(IDN)**, JAIST(JPN), MICA(VNM), UTM(MYS), AIT(THA)

This project is highly motivated by the very high probability of disaster occurring in ASEAN countries beside the Africa with vulnerability of between 51.71% - 74.36% based on the study of United Nations in 2006. The recent earthquakes in Palu, Sulawesi, Indonesia and tsunami at Pantai Carita of Banten, urgent us to realize our developed algorithm of coded random access. This PATRIOT-41R-Net project includes drone as the flying relay helping victim to have wireless connections as well as finding them in the location where the risk is high for rescue team to find.
This PATRIOT-41R-Net project plans to make an experiment at Padang City, Sumatera, Indonesia as the place experienced earth quake and tsunami several years ago. Padang is selected as the place for experiment because the city is concerning a lot the disaster and is developing the advanced technologies for disaster monitoring and recovery. With this project, the people can have direct access to the level of danger in nature for more well prepared.

## 5  GNSS and Ionospheric Data Products for Disaster Prevention and Aviation in Magnetic Low-Latitude Regions

**Topic:** ICT for Environment Protection and Disaster Prevention
**Members:** **KMITL(THA)**, CMU(THA), NUOL(LAO), YTU(MMR), NICT(JPN)

This project aims to expand ionospheric observational infrastructure in Thailand, Myanmar and Laos and perform data analysis from multi-sensor sources including GNSS, ionosonde and VHF radar station located at the magnetic equator and low-latitude regions. The added data sources as well as existing observational data will be analyzed. We will then generate the data products such as ROTI maps, Spread F statistics, which are useful for communication alternatives during disaster and disturbance detection for aeronautical navigation purpose. The plasma bubbles based on the new VHF radar station on Chumphon campus will be studied. Finally, all the data products will be updated on Thai GNSS and Ionosphere Data Center website.