



**Karunya INSTITUTE OF TECHNOLOGY AND SCIENCES**

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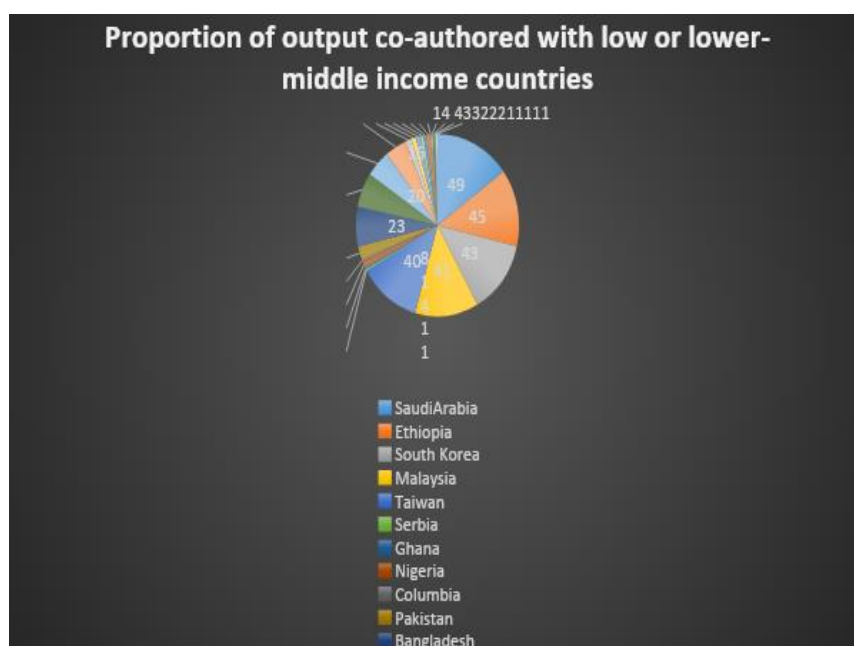
## SDG17 Partnerships for the Goals

The vision of Karunya, which means ‘Compassion’, is to be an institution with social concern to address the problems of humanity through technical education, research and development, products, patents and extension. Our mission is to find solutions to human problems in areas relating to Water, Food, Health Care and Energy through scientific, social and technological research as well as policy formulation.

The raison d’être of SDG17 is to promote global partnership for sustainable development and meet the other 16 SDGs. It requires partnerships between governments, the private sector and civil society. The 2030 agenda of SDG17 is universal and calls for action by all countries – developed and developing – to ensure no one is left behind. A quote by Mother Theresa embodies the vision of SDG17: "None of us, including me, ever do great things, but we can all do small things, with great love, and together we can do something wonderful." That is the spirit imbibed by Karunya Institute of Technology and Sciences (KITS) in executing the vision of SDG17.

### 17.1.1 Proportion (in terms of number) of output co-authored with low or lower-middle income countries

All the KITS publications are mapped against the SDGs and during the assessment period, a total of 1007 papers were published that were related to the first 16 SDGs. **A significant proportion of these papers were co-authored with researchers from low or lower-middle income countries, further enhancing the global partnership to achieve the SDGs.**



### 17.1.2 Partnership for Development and Dissemination of Information

Dissemination of information by publication of research in journals and conferences is a key aspect of partnership. All the KITS publications are mapped against the 16-SDGs and during the assessment period, a total of 1007 papers were published that were related to the first 16 SDGs. The details of all the publications are available in the following link

#### Distribution of Publication based on SDGs

| SDG    | Number of SCOPUS indexed/WoS Publications |
|--------|---|
| SDG 1  | 27  |
| SDG 2  | 46  |
| SDG 3  | 100                                       |
| SDG 4  | 63  |
| SDG 5  | 430                                       |
| SDG 6  | 108                                       |
| SDG 7  | 191                                       |
| SDG 8  | 32  |
| SDG 9  | 177                                       |
| SDG 10 | 10  |
| SDG 11 | 105                                       |
| SDG 12 | 76  |
| SDG 13 | 60  |
| SDG 14 | 15  |
| SDG 15 | 21  |
| SDG 16 | 10  |
| Total  | 1471                                      |

### 17.2.1 Relations to support the goals - Partnerships for Policy Development

KITS has been in the forefront in advisory roles for water resources in Tamilnadu and Kerala over the years in various committees and has made significant contributions to flood relief activities, wetland development, drinking water schemes, waste water treatment in rural areas etc. KITS is a member of the committee that drafted the Kerala State Water Policy.

In 2022, Dr. E J James, Pro Vice Chancellor served as the Chair of the Working Group on “River Basin Planning: Roadmap for governance and administration. River Basin Planning committees (RBPCs) in India are inter-governmental bodies that are responsible for planning and managing the water resources of a river basin. RBPCs are typically composed of representatives from the central government, state governments and local bodies. They include representatives from other stakeholders, such as water users, environmental groups and academicians where Karunya University is partnering.

- KITS also conducted the Water Summit on 17th September 2022, the recommendations of which have been incorporated in the Water Vision 2047 Document released by Government of Tamilnadu. The Water Summit helped in developing specific recommendations for policy action on water conservation, overexploitation of fresh water sources, quality deterioration, water stress, scarcity and quality, impact of climate change in water resources, limitations in water governance and stake holder participation. By bringing together experts from different fields, Water Summit generated effective solutions to water challenges recommending a policy document to government of Tamilnadu. KITS collaborated with an NGO DHAN Foundation that works for environmental upliftment and social development in this initiative.
- KITS is a member of the Kerala Planning Board Technical Committee for Major and Medium projects, specifically to discuss the DPR on a link canal in the Idamalayar irrigation project.
- KITS is also a member of the Kerala Planning Board Working Group on Drinking Water and Sewerage.
- KITS is also an expert member of the State Wetland Authority of Kerala (SWAK)
- KITS is a Member of the Central Water Commission's (CWC) Research Committee on Surface Water (RCSW), which is an advisory body that provides guidance and support to the CWC on research and development related to surface water. The RCSW is composed of experts from CWC, other government agencies, academia, and the private sector and KITS played a significant role in the various deliberations of this committee.

### **17.2.2 Relations to Support the Goals – Cross-Sectoral Dialogue / Conferences**

KITS conducted an International Conference on Integrated Water Resources Management - Prospects and Challenges in December 8 to 10, 2022. The focus was to provide an opportunity to learn about the latest developments in IWRM research and practice, to network with experts from around the world, and to identify opportunities for collaboration. The conference contributed to the advancement of knowledge and understanding of IWRM, and developed innovative solutions to water challenges.

KITS participated in the India Water Week 2022 that discussed the Water Security for Sustainable Development with equity, specifically on the strategies for Demand and Supply Management

East Kolkata Wetlands (EKW) is a complex of natural and human-made wetlands located on the eastern fringes of the city of Kolkata, India covering an area of 12,500 hectares and includes a variety of wetland habitats. KITS has published a document for the management of EKW and published a paper along with the Central Water Commission in the Journal of Hydraulics. Since the EKW is facing a number of challenges, including pollution, encroachment, and climate change, the published document help in conservative measures.

KITS has made available 50 acres of land for dedicated joint research on Eucalyptus germplasm to Institute of Forest Genetics and Tree Breeding (IFGTB) - a national institute founded in April 1988 under the Indian Council of Forestry Research and Education (ICFRE),

an autonomous council under the Ministry of Environment and Forests, Government of India. The institute identifies and evolves varieties of species used in afforestation and social forestry that contributes to the national goal of achieving a growth of 3 to 4 cubic meters of biomass per ha per year.

KITS being a leader in water resources has engaged with SUEZ-India Water Management Solution in assisting them in developing appropriate solutions for the implementation of 24x7 water supply on a Build, Transfer and Operate (BTO) basis, to ensure safe urban water supply. The Coimbatore Corporation signed a deal with the Suez Group in January 2018 to upgrade, operate and maintain the existing water supply system in Coimbatore City. In this connection, a water R&D laboratory was established on campus jointly with Suez.

### **17.2.3 Relations to support the goals - Global Partnership for Data Collection and Process Development**

**Karunya is a collaborator in The AERONET (AErosol RObotic NETwork) program which is a federation of ground-based remote sensing aerosol networks established by NASA and PHOTONS (PHOtométrie pour le Traitement Opérationnel de Normalisation Satellitaire; Univ. of Lille 1, CNES, and CNRS-INSU) and is greatly expanded by networks (e.g., RIMA, AeroSpan, AEROCAN, NEON, and CARSNET) and collaborators from national agencies, institutes, universities, individual scientists, and partners. For more than 25 years, the project has provided long-term, continuous, and readily accessible public domain database of aerosol optical, microphysical and radiative properties for aerosol research and characterization, validation of satellite retrievals, and synergism with other databases. The network imposes standardization of instruments, calibration, processing and distribution.**

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# AERONET

## AEROSOL ROBOTIC NETWORK

+ AEROSOL OPTICAL DEPTH
+ AEROSOL INVERSIONS
+ SOLAR FLUX
+ OCEAN COLOR
+ MARITIME AEROSOL

Web Site Feature AERONET Data Synergy Tool - Access Earth Science data sets for AERONET sites

-Home

Home

- + AEROSOL/FLUX NETWORKS
- + CAMPAIGNS
- + COLLABORATORS
- + DATA
- + LOGISTICS
- + NASA PROJECTS
- + OPERATIONS
- + PUBLICATIONS
- + SITE INFORMATION
- + STAFF
- + SYSTEM DESCRIPTION

The AERONET (Aerosol Robotic Network) program is a federation of ground-based remote sensing aerosol networks established by NASA and PHOTONS (PHOtométrie pour le Traitement Opérationnel de Normalisation Satellitaire; Univ. of Lille 1, CNES, and CNRS-INSU) and is greatly expanded by networks (e.g., RIMA, AeroSpan, AEROCAN, NEON, and CARSNET) and collaborators from national agencies, institutes, universities, individual scientists, and partners. For more than 25 years, the project has provided long-term, continuous, and readily accessible public domain database of aerosol optical, microphysical and radiative properties for aerosol research and characterization, validation of satellite retrievals, and synergism with other databases. The network imposes standardization of instruments, calibration, processing and distribution.

AERONET collaboration provides globally distributed observations of spectral aerosol optical depth (AOD), inversion products, and precipitable water in diverse aerosol regimes. Version 3 AOD data are computed for three data quality levels: Level 1.0 (unscreened), Level 1.5 (cloud-screened and quality-controlled), and Level 2.0 (quality-assured). Inversions, precipitable water, and other AOD-dependent products are derived from these levels and may implement additional quality checks.

The AERONET - Ocean Color (AERONET-OC) is another component of the AERONET program, provides the additional capability of measuring the radiance emerging from the sea (i.e., normalized water-leaving radiance) with sun-photometers installed on offshore platforms like lighthouses, oceanographic and oil towers. Similarly, the Maritime Aerosol Network (MAN) component of the AERONET program provides ship-borne aerosol optical depth measurements from the Microtops II sun photometers. These instruments have been deployed periodically on ships of opportunity and research vessels to monitor aerosol properties over the World's Oceans. The Solar Radiation Network (SolRad-Net) provides high-frequency solar flux measurements and is collocated with AERONET sites.

The processing algorithms have evolved from Version 1.0 to Version 2.0 and now Version 3.0. The Version 3 databases are available from the AERONET and PHOTONS web sites. Version 2 data may be downloaded from the web site through 2018 and thereafter upon special request. New AERONET products will be released as new measurement techniques and algorithms are adopted and validated by the AERONET research community. The AERONET website also provides AERONET-related news, a description of research and operational activities, data visualization, web services, related Earth Science links, and an AERONET staff directory.

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AERONET DATA ACCESS

DATA SYNERGY TOOL

- + Data Display

AEROSOL OPTICAL DEPTH (V3)- SOLAR

- + Data Display
- + Download Tool
- + Download All Sites
- + Climatology Tables
- + Web Service

AEROSOL INVERSIONS (V3)

- + Data Display
- + Download Tool
- + Download All Sites
- + Web Service

The KITS water resources research team developed a review document on strategies for sediment traps in hydropower projects of Himalayan Region. A patent on water purification was filed along with Cape Breton University, Canada on this domain.

Another example of international collaboration and research is a joint patent filed by Karunya with Zuckerberg Institute for Water Research, Ben-Gurion University of the Negev, Israel. This patent was related to a biosynthesis of Isopropyl myristate using bacteria and method of purifying arsenic contaminated water using the prepared Isopropyl myristate.

## **17.2.4 Relations to support the goals - International Collaboration and Research**

KITS has evolved Project Management Action Plan for conserving Point Calimere Ramsar site from an eco-hydrological point of view a Point Calimere is a wetland site designated to be of International importance under the Ramsar Convention, also known as "The Convention on Wetlands", an international environmental treaty signed on 2 February 1971 in Ramsar, Iran, under the auspices of UNESCO.

KITS together with "Padasekhara" committee is an active participant and advisor in the Eco-hydrological analysis and water management of the "Kol" wetlands, which is also a Ramsar site in Kerala. The output from this assessment would be beneficial for farmers and for enhancing the biodiversity in the ecosystem.

Dr. E J James, Pro Vice Chancellor, KITS is a member of the Governing Body of the Wetlands International South Asia Society.

## **17.2.5 Relations to support the goals – Collaboration with NGOs**

### **17.2.5.1 Work on Health in the Community**

KITS has a Centre for Community Academia and Collaborations (CCAC), headed by a Director. This centre handles all community engagements. KITS recognizes the importance of community engagement and actively participates in initiatives that contribute to the health and wellbeing of the local community. These outreach programs often involve student volunteering programs, which provide students with opportunities to make a positive impact on the community while gaining valuable experience.

The thrust areas of KITS being health care, water, food, and energy, an awareness program on the importance of hand wash was organized for the local communities in villages of Pachanampathy, Perumalkoilpathy, Valayankutai Government Primary School and in Seengapathy Government Residential School. The children were provided with a hygiene kit each consisting of soap, comb, coconut oil and nail cutter.

As there are vulnerable communities living near KITS, (CCAC) renders a helping hand on behalf of the institution. The CCAC division is running 14 free Tuition Centers in the 14 vulnerable areas, 220 students of the downtrodden and tribal communities were benefitted and received school kits, white board sets, mats, and playing kits.

CCAC has organized free medical and vision check camp for local communities residing in Siruvani hills of the Western Ghats. CCAC of KITS in collaboration with Vasan eye care hospitals organized the camp for the needy people at Sadvayal Community Hall, where more than 100 individuals benefitted.

In addition, our university promotes and organizes sports events, fitness classes, and recreational activities to the community. We acknowledge the importance of healthy aging and actively support programs that enhance the wellbeing of older adults.

KITS has partnered with 4 global, 8 national, and 10 local institutions to address community-specific health needs as collaborations with local, national, and global health institutions play a pivotal role in enhancing public health. These collaborations involve hospitals, research and

educational institutions, and government bodies working together to achieve common health goals.

KITS, in collaboration with and SEESHA an NGO working towards empowering underprivileged communities, has formed local partnerships with entities like the Primary Health Centre in Pooluvapatti, KG Hospital, and the Forest Department in Coimbatore, focusing on senior care, local healthcare, eye and dental care. These initiatives cover a wide range of programmes and activities such as an Anti-Child Labour Day campaign, awareness programs on hygiene and cleanliness, free COVID vaccination camps, medical camps, sports events for differently-abled individuals, and panel discussions on various health issues. Academic institutions like Bishop Appasamy College, Sri Krishna College of Arts, Kumaraguru College of Arts & Science College, and Nehru Arts & Science College have also joined hands with our institution to provide internships for their social work students.

#### **17.2.5.2 Work on Education and Skill Development in the Community**

KITS through the Center for Community Academia Collaborations and the Division of Civil Engineering jointly organized a skill development program on field practices in Masonry and bar bending for rural youth as Skill development is a national agenda for the Government of India being implemented through the National Skill Development Corporation (NSDC) a not-for-profit public limited company set up by Ministry of Finance as Public Private Partnership (PPP) model. 10 economically marginalized youths participated in the training in line with this national mission.

On a national scale, KITS has signed MOUs with Shibin Nutraceuticals Private Limited, Parry Agro Industries Ltd., Cyrix Healthcare, Jubilee Mission Medical College and Research Institute, Siemens Healthcare Private Limited, and Salzer Electronics Limited, showcasing their commitment to healthcare research and innovation. Through these partnerships with government and non-governmental organizations, KITS offers workshops, seminars, awareness campaigns, vaccine and immunization drives that provide valuable education and resources.

Venturing into the global arena, KITS has established collaborations with institutions such as Cape Breton University in Canada and Vilnius University in Lithuania, emphasizing international academic exchange and research. Further global partnerships have been formed with renowned institutions in the United States, including Harvard Medical School and Boston Child Hospital, Old Dominion University, and Ashcure Pharma S.R.L. in partnership with Regpak Biopharma Consulting, highlighting the university's global vision in advancing healthcare and technology worldwide.

#### **Summary**

Alone to go fast, but together to go far has been a guiding principle of KITS' activities to realize our mission and that is the spirit embodied in SDG 17 – Partnership for the Goals. The aforesaid activities show that the Karunya vision and mission is in complete alignment with SDGs encompassing, long-standing goals and one is reminded of the lines by Robert Frost

The woods are lovely, dark and deep.  
But I have promises to keep,

And miles to go before I sleep,  
And miles to go before I sleep

But a sure beginning is a necessary precursor to achieving a goal...and Karunya is well on its way.