Addressing Humanitarian Goals

Anisha M. Apte

After the first successful year of this new IEEE Antennas and Propagation Society (AP-S) Committee on Promoting Equality (COPE), we proudly begin the new year of 2022. Many projects that were implemented in 2021 will continue their work as per the COPE agenda and mission. With that said, we will find new avenues of expansion as 2022 kicks off.

During the past few months, we identified such areas where the COPE agenda can be explored further in the direction of the IEEE diversity statement: "IEEE's mission to foster technological innovation and excellence to benefit humanity requires the talents and perspectives of people with different personal, cultural, and disciplinary backgrounds." IEEE is committed to advancing diversity in the technical profession and promoting an inclusive and equitable culture that welcomes, engages, and rewards all who contribute to the field, without regard to race, religion, gender, disability, age, national origin, sexual orientation, gender identity, or gender expression.

Collaboration is the key to equality, diversity, and inclusion. I want to thank Prof. Weng Chew and Dr. Ajay Poddar for their proactive leadership of COPE

> ## EDITOR'S NOTE
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> As the IEEE Antennas and Propagation Society (AP-S) Committee on Promoting Equality (COPE) makes progress, it gives us immense pleasure to bring this initiative to your attention via the "COPE Corner" column in *IEEE Antennas and Propagation Magazine*.
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toward collaboration across IEEE technical Societies, Sections, and Chapters, industries, and beyond. This cooperation can offer engineering expertise and know-how for achieving a number of the United Nations (UN) Sustainable Development Goals (SDGs)—for example, offsetting poverty and hunger as well as promoting clean water and sanitation, climate action, affordable and clean energy, human well-being, economic growth, and responsible consumption and production.

Past history has revealed that transformative technology improves the standard of living, progresses the quality of life, and stimulates coordination and agreement. However, new technologies also have the possibility to undermine hope and destroy the ecosystem of our planet Earth if not used appropriately. For example, increased levels of air and water pollution, growing energy consumption versus production, and the associated electricity waste cause issues of systematic long-term risk.

New technologies are a good vehicle for sustainable development, but they also raise thought-provoking questions. The IEEE code of ethics inspires our members to go all out to comply with ethical engineering design and sustainable development practices. This is vital, given the worldwide scale of the impending ecological, societal, and governance challenges that will affect living conditions for our current and future generations. Furthermore, IEEE has a call to action to its Societies to cultivate professional and educational agendas promoting and supporting capacity building for engineering and technical professionals through outreach to underserved regions where those resources are negligible.

IEEE Societies provide a road map that enables professional volunteering forces to work together to arrive

at a sustainable approach for advancing technology to make a difference on a local level. Examples include smart agriculture, low-cost electrical energy solutions, and remote health care. Collaborating with IEEE and leveraging its different entities (such as technical Societies) in addition to industry, academic institutions, and local communities will strengthen society as a whole and promote equality in underserved communities. This shows why collaboration is so important across and beyond IEEE, specifically in the sustainable development space. IEEE collaborations aim to raise the world's standards to make technology better, safer, and more sustainable for industry and society globally.

From the last five decades, we know that technology changes our day-to-day lives. It is important to know "how technology is transforming humanity." For example, the evolution of technology from the 18th century (steam, water, and mechanical production) to the mid-21st century (artificial intelligence, quantum computing, nanotechnology, radio astronomy, remote sensing, personal communication, and health care) shows the historical timeline of improving the quality of life.

However, we live in a technologically divided world. During the pandemic, most business and education activities transitioned to virtual online platforms, but online undertakings have exposed deep societal discrimination for those without devices or reliable high-speed Internet connections, including an uninterrupted electrical power supply. This shows why collaboration and partnering would be beneficial.

The UN envisions 2030 SDGs describing 17 goals to transform our world. Goal 17 refers to partnerships. Grassroots leadership and technical know-how are key enablers of sustainable development solutions. I am involved in the IEEE Microwave Theory and Techniques Society (MTT-S) and AP-S, elected by members-at-large voting this year to serve a three-year term as an AP-S Administrative Committee (AdCom) member. I will be working with the AP-S leadership and IEEE sister Societies to form partnerships and engagement for fulfilling the long-term COPE goal for the benefit of humanity.

The partnership of MTT-S, AP-S, IEEE Humanitarian Activities Committee (HAC), IEEE Smart Village and other IEEE entities as well as industry, academic institutions, and local communities will strengthen society and promote diversity, equity, and inclusion (DEI). More importantly, inspiring forward-thinking AP-S technology professionals to collaborate, shape, and share research can help in connecting the dots to achieve the SDG.

COPE members have been actively working throughout 2021, even during the COVID-19 pandemic; most importantly, the Chapter Activities Committee (CAC) played a crucial role in stimulating local members and our community worldwide with the help of more than 200 AP-S Chapters globally. The collaboration helped advance COPE goals by addressing the technology divide issues and supported know-how and funding for online tutoring for virtual education in schools, including supplying computers, Internet access, and the required logistics. The collaboration with the IEEE Special Interest Group on Humanitarian Technology (SIGHT)/HAC played a big role in advancing technology for humanity. Figure 1 shows a screenshot of a panel discussion held on 9 November 2021 with the IEEE HAC on achieving the SDG and overcoming societal inequities.

Creating sustainable mindsets is critical for societal prosperity, the preservation of nature, future business success, and the credibility of the concept of sustainability itself. We recently divided COPE into three thrust areas by focusing on three enablers:

- self-awareness, leading to resilient cooperation with others
- an inclusive standpoint, resulting in an advanced global mindset that allows persons to find sustainable solutions to humanitarian problems and DEI issues
- societal cognizance, leading to sustainability in vital economic progressions.

AP-S COPE INITIATIVE

AP-S COPE aims to fund projects that make good use of IEEE expertise, exhibiting a strong technological component and clear engagement with the community, indicating that the proposed solution is both desired and feasible. Relationships, ideally documented, are established with stakeholders who will be involved in the project implementation with a clear, detailed, and credible project assessment matrix, implementation plan, and budget. The team should demonstrate combined experience to credibly execute the proposal as well as identify and address potential risks, and the project must have a real, tangible impact. If a proposal is missing the mark in two or more of these areas, it might not be ready for funding.
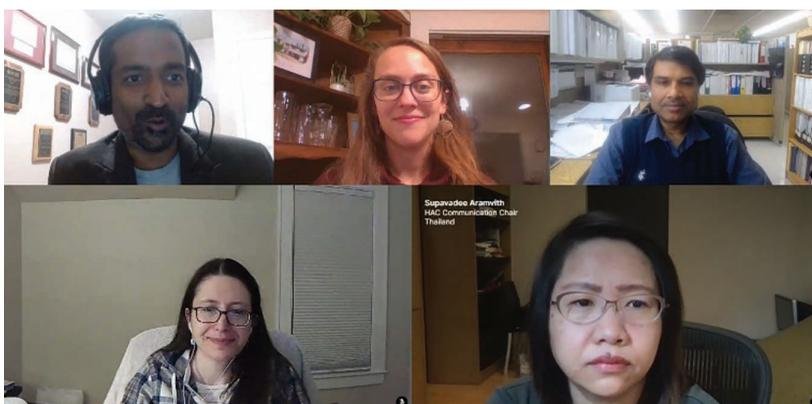

FIGURE 1. The panel discussion held on 9 November 2021 (from top left): Sampath Veeraraghavan (chair, IEEE HAC), Julianna Pichardo (IEEE SIGHT), Ajay Poddar (MTT-S AdCom member), Holly Schneider Brown (IEEE HAC), and Supavadee Aramvith (IEEE HAC).

AREAS OF FOCUS

AP-S COPE is prioritizing an immediate impact on poverty mitigation and inequality reduction through the following project areas for marginalized and underserved populations:

- the upgrading of quality of life
- science, technology, engineering, and mathematics (STEM) education
- information and communications technology
- sustainable power sources
- water, sanitation, and hygiene.

Projects must be successfully completed and submitted to AP-S through a final report indicating the status of the project and utilization of funds at the end of each calendar year. Expense vouchers should be submitted as supporting documents for audit. A spreadsheet, "AP-S COPE Project Budget Template 2021," should be submitted for the budget proposal during the application, and an expense report should be provided on completion of the project. Fund utilization should be clearly indicated.

Each AP-S Chapter/Joint Chapter/Student Branch Chapter may submit multiple proposals. These are subject to review and scrutiny, and the total project funding will not exceed US$3,000 for any calendar year.

REGION 1 AP-S COPE INITIATIVE

Dr. Levent Sevgi [AP-S Distinguished Lecturer (DL)] gave a talk on COPE subject matter held at the New Jersey Institute of Technology (NJIT), Newark, New Jersey, organized by the North Jersey IEEE AP-S Chapter. His presentation, "From Engineering Electromagnetics to Electromagnetic Engineering: Teaching/Training the Next Generation," explained the application of antenna and wireless communication technology to help the COPE mission. This in-person event was well attended by students and young professionals (Figure 2).

REGION 9 AP-S COPE INITIATIVE

A Zoom meeting on COPE activities in Region 9 was held on 20 November 2021. The participants were David Jackson (AP-S COPE), Ajay Poddar (AP-S CAC), Lorena Garcia [IEEE Educational Activities Board (EAB) Preuniversity Education Coordinating Committee chair], Andrés Navarro (Section chair, Colombia), and Felix Vega (AP-S secretary). Figure 3 shows a screenshot of the Zoom meeting.

Poddar presented the successful COPE activities in Regions 1 and 8–10, where a number of COPE projects were awarded through collaboration with the AP-S SIGHT, the AP-S CAC, and local IEEE Sections. Garcia presented the Try Engineering website (https://tryengineering.org/), an IEEE preuniversity STEM program. She explained all of the possibilities, resources, and projects available through this portal. We exchanged several ideas on how to establish bridges with AP-S.

FIGURE 2. The Region 1 event. (a) Dr. Levent Sevgi (AP-S DL) gives his lecture. (b) The North Jersey Section volunteers. (c) Dr. Anisha Apte (vice chair, North Jersey AP-S Chapter) addresses the audience and welcomes the speaker. (d) Dr. Levent Sevgi receives a plaque from Dr. Ajay Poddar, IEEE North Jersey Section chair and AP-S COPE cochair. (e) Dr. Edip Niver, chair of the North Jersey Section AP-S Chapter, and Dr. Levent Sevgi at NJIT, Newark, New Jersey on 15 November 2021.

FIGURE 3. The Zoom meeting on COPE activities in Region 9 (from top left): Felix Vega (secretary, AP-S), Ajay Poddar (AP-S CAC), Andrés Navarro (Section chair, Colombia), David Jackson (AP-S COPE), and Lorena Garcia (IEEE EAB Preuniversity Education Coordinating Committee chair).

As the next point in the agenda, Navarro presented some of the activities developed by the IEEE Colombian Section. In particular, he discussed the humanitarian initiative to provide solar panels to rural communities in the La Guajira region and STEM program in Cali, Colombia. He reported the minutes of meeting, and the following action plan was agreed:

- We will renew our invitation to members of the Region.
- A short article will be written for *IEEE Antennas & Propagation Magazine*, highlighting the humanitarian/educational/STEM and related activities developed by IEEE (as a whole) in Region 9. The aim is to motivate more members to participate by showing the extent and nature of our activities. Navarro is the responsible person for this. Jackson suggested getting started by having the Chapter chairs in Region 9 write some text describing COPE-related activities in their Chapters or that they know about in the local vicinity. Then, perhaps, Navarro can take the lead in organizing this into an article, with the help of the Chapter Chairs.
- Currently, there are more than 40 projects submitted to the https://tryengineering.org/ portal that have not started due to a lack of funding. COPE will explore the possibility of funding some of these projects through the COPE initiative. Garcia, Poddar, and Jackson will review and propose the next step. Jackson recommended reviewing the projects that have been submitted so far. In the future, we should encourage Chapters to get involved in designing projects and demonstrations that local schools can use. It is a good idea for IEEE Student Chapters to get involved with local education, as Navarro was describing in Bogota. This could include interacting with local schools for AP-S projects and demonstrations but also for broader IEEE-related topics.
- We will explore the possibility of presenting a project in humanitarian activities for Colombia. Navarro will lead this idea.
- A workshop will be prepared for Region 9 members on how to start humanitarian activities or projects. Proactive volunteers are needed to lead this initiative.

Chew suggested appointing a lead person for each task force and organizing an online meeting among the members. This individual could discuss best practices and share them with other members of COPE in a report. In this manner, each task force can energize the STEM activities of the others. ◗

EDUCATION CORNER

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