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## Sustainable Higher Education Research Alliances

### Local Researchers Break Barriers through USAID SHERA Support

Two UNSYIAH researchers in Aceh, Dr. Gholib (S.Pt., M.Si) and Dr. drh Al Azhar (M. Kes.), found themselves in a cycle. They wrote academic papers exploring their research on Aceh cattle, which they submitted numerous times to accredited journals, only to be rejected for publication. Then there was the matter of funding, as their university had limited resources to support this process. Their experience was not unique, though, as this cycle plagued many ANBIOCORE affiliate researchers at UNSYIAH. Recognizing their affiliate's need for training in academic English writing, ANBIOCORE organized a workshop with their U.S. affiliate, Mississippi State University (MSU), to address the issue.



*Dr. Gholib and researchers analyzing samples.*

In the July 2018 'Training on Scientific Communication and Proposal Writing: International Training on Improvement Capacity Building and Scientific Publication,' MSU Prof. Erdogan Memili trained and mentored Indonesian researchers on how to write proposals and scientific publications. Drs. Gholib and Al Azhar were two of 40 researchers from UNSYIAH who participated in the training. "The training, especially the mentoring had a very significant impact on our researchers. It was very useful for upgrading our knowledge and skills,"

recalled Prof. Dr. drh. Muslim Akmal, ANBIOCORE Partnership Manager at UNSYIAH Aceh.

As a result of the training, Drs. Gholib and Al Azhar successfully submitted their academic papers to the Scimago Journal Ranks (SJR), an internationally recognized, publicly available portal for journals and country scientific indicators. "We're so glad that finally, we had an opportunity to submit the papers to a journal publication using USAID SHERA's funding, and now the papers have been accepted and are being reviewed," Prof. Muslim added.

For Dr. Gholib, being accepted by SJR is a major achievement. "This is my first time submitting an academic paper to an open-access publication. I am so happy that finally I will have a publication in a prestigious journal," said Dr. Gholib. It was not easy for him to submit his academic paper to SJR, as SJR has very strict requirements and it is not free. "But thank God, ANBIOCORE provided resources and funding so that I could submit my paper," he added. Dr. Al Azhar also explained that while he had previously produced three publications, his SJR-accepted academic paper was his first to be published in the Scopus index. "I must admit that ANBIOCORE contributed to this achievement. After participating in the training on academic writing, I received a lot of insight and knowledge that was very useful for my writing skills," said Dr. Al Azhar.

Prof. Muslim noted that his institution has learned valuable lessons by joining ANBIOCORE. Research, publications, and other capacity building activities under ANBIOCORE project have aided UNSYIAH's university accreditation process. Researchers have also learned how to conduct and manage valuable, transparent, and accountable research. "Although we may not be under [the current iteration of] ANBIOCORE in the future, all of the best practices that we've received will still be very useful in the future," said Prof. Muslim.

### Background

Interdisciplinary Graduate Education & Research in Animal Biotechnology & Coral Reef Fisheries to Achieve Indonesia Food Security (ANBIOCORE) is a USAID SHERA-funded Center for Collaborative Research (CCR). ANBIOCORE is led by Institut Pertanian Bogor (IPB). ANBIOCORE works on a strategic collaborative engagement in animal (livestock and fisheries) biotechnology for sustainable food production through innovative research and high-quality education.

Syiah Kuala University (UNSYIAH) in Aceh is one of seven ANBIOCORE affiliate institution which works in the livestock research cluster.

### Impact

For UNSYIAH, the greatest impact of joining ANBIOCORE has been the improved capacity of its researchers in writing scientific papers. Two academic papers have been accepted in an internationally recognized publication, which is a major achievement for both for the researchers and the university. This provides credibility and opens the door to many new opportunities and networks.

Additionally, ANBIOCORE has provided opportunities for UNSYIAH students to be actively involved in capacity building activities, such as training on academic writing and research collaboration with other universities. "We're happy that ANBIOCORE has helped our students expand their knowledge by providing resources," said Prof. Muslim.



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### USAID SHERA Research Partnership Enhances Capacity of State Laboratory in East Java

As one of the world's most populous countries, Indonesia must maintain its livestock supply to ensure food security. Balai Besar Inseminasi Buatan (BBIB) Singosari, the Center for Artificial Insemination, supplies 60 percent of frozen semen production for Indonesia's livestock supply needs in Indonesia, making it the largest center of its kind in the country. Despite its large output, BBIB Singosari struggled to improve its researchers' capacity. "We provide resources, such as laboratory and its facilities, frozen semen, research samples, reagents, and experts for external partners. But our researchers have limited opportunity to join in collaborative research due to their daily routines," said Drh. Enniek Hewijanti, Head of BBIB Singosari.

In 2018, Universitas Brawijaya (UB), an ANBIOCORE affiliate institution, opened the door to international partnerships for BBIB Singosari. In partnership with ANBIOCORE, BBIB Singosari researchers directly participated in the research process with UB scholars, enhanced their knowledge related to Madura cattle, and even became co-authors on two Scopus-indexed academic publications. BBIB Singosari's researchers also participated in ANBIOCORE trainings and workshops, including an academic writing training led by Dr. Erdogan Memili from Mississippi State University in early 2019.



Enniek (second from the right) showcasing BBIB's laboratory facilities to visiting scholars.

"Being part of ANBIOCORE is an added value for BBIB Singosari. This collaboration is considered by the central government as an international engagement between Indonesian and the US institutions," remarked Enniek. As a state-owned laboratory under the Ministry of Agriculture, this is a great achievement for the organization, as the central government considers international collaboration a key indicator for the improved capacity of the organization. According to Enniek, BBIB Singosari has received broader recognition from reputable universities since joining ANBIOCORE, thanks to the USAID SHERA program's broad network in Indonesia and the U.S. As a result, many Indonesian universities have visited BBIB Singosari to learn more about its animal biotechnology research.

Although ANBIOCORE completed its grant under the USAID SHERA program in January 2020, the CCR is maintaining its partnership with BBIB Singosari and UB as it continues to collaborate with both institutions on animal biotechnology research. As Enniek shared, "We have built the network and will utilize it for further potential collaboration."

## Background

Led by Institut Pertanian Bogor (IPB), Center for Collaborative Research (CCR) Interdisciplinary Graduate Education & Research in Animal Biotechnology & Coral Reef Fisheries to Achieve Food Security (ANBIOCORE) focuses on strategic collaborative engagement in animal (livestock and fisheries) biotechnology for sustainable food production through innovative research and high-quality education.

## Impact

BBIB Singosari's collaboration with ANBIOCORE provided the CCR's researchers with valuable access to laboratory space and free frozen semen research samples. In turn, the ANBIOCORE partnership also provided added value for BBIB Singosari.

Through ANBIOCORE, BBIB Singosari gained access to an international partnership network that helped the research institution achieve government indicators, conduct collaborative research with reputable universities, enhance the capacity of its researchers, and co-author academic publications.



Enniek (center, holding poster) celebrating the CCR-BBIB Singosari partnership at an ANBIOCORE's event in 2019



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### SHERA Training Improves Hospital Services and Research Capacity in Banda Aceh

When two UNSYIAH researchers attended CCR ARI's Good Clinical Practices (GCP) training in July 2017, the university originally saw the training as a good learning opportunity for some of its staff. However, once the researchers returned and began sharing their lessons learned, Prof. Maimun Syukri, the Dean of the Faculty of Medicine, saw that the training could have a broader impact in the community. If UNSYIAH itself replicated the training for doctors at the university and in the local hospital RSUD Zainoel Abidin, the doctors' skills could be enhanced, and the hospital services would be positively impacted. Moreover, by holding the training locally in Banda Aceh, it would be less expensive to conduct, making it possible for UNSYIAH to train more faculty and doctors.

In April 2019, UNSYIAH successfully conducted its own GCP training for its doctors and researchers. The training aimed to provide participants with new perspectives on current health issues, particularly in respiratory infections. Additionally, new protocols and standards for handling patients were introduced. "The outcome of this training was to have GCP-certified doctors that could improve services in the hospital and the quality of the research," noted Dr. Ichsan, UNSYIAH's SHERA Partnership. Seeing the positive outcomes of the first training, the Dean soon convinced RSUD Zainoel Abidin, a state-owned hospital in Banda Aceh, to organize and replicate a similar training in May 2019 for its clinical doctors in the hospital.



*Dr. Ichsan sharing the GCP training with his colleagues.*

According to Ichsan, those trainings had a significant impact on UNSYIAH faculty and RSUD Zainoel Abidin. It improved the capacity of UNSYIAH's researchers as they learned new knowledge on current health issues, while for RSUD Zainoel Abidin, the training significantly contributed to its accreditation appraisal process. As a result, RSUD Zainoel Abidin successfully maintained its status as a state-owned hospital with 'Paripurna' (perfect) scores in the hospital's research implementation and number of GCP-certified doctors. The trainings also presented the opportunity for UNSYIAH to broaden its networks, as UNSYIAH invited experts in from other universities to participate. Furthermore, Prodia, one of the largest clinical laboratory chains in Indonesia, provided the facilitator for the training, as well as funding support. Collaboration with Prodia demonstrated to UNSYIAH that by expanding partnerships beyond academia, there is great potential for broader public health research and outreach.

The trainings also presented the opportunity for UNSYIAH to broaden its networks, as UNSYIAH invited experts in from other universities to participate. Furthermore, Prodia, one of the largest clinical laboratory chains in Indonesia, provided the facilitator for the training, as well as funding support. Collaboration with Prodi demonstrated to UNSYIAH that by expanding partnerships beyond academia, there is great potential for public health research and outreach.

### Background

The Good Clinical Practice training, first led by USAID SHERA's Center for Collaborative Research Acute Respiratory Infections (CCR ARI) in 2017, sought to improve local doctors' capacity in disease prevention. One of CCR ARI's affiliates, Universitas Syiah Kuala (UNSYIAH), soon took the training back to Banda Aceh and began to replicate it for medical practitioners and researchers alike.

CCR ARI, led by Universitas Padjadjaran from 2017-2020, sought to enhance the capacity among Indonesian university to perform quality and high-impact research on disease prevention.

### Impact

CCR ARI has significantly contributed to the improved capacity of Unsyiah's Faculty of Medicine. Ichsan noted, "Through SHERA and CCR ARI, Unsyiah has had good opportunities to improve our researchers' capacity, including the opportunity to submit academic papers to international conferences and to participate in international trainings." Unsyiah has also begun to adopt knowledge-sharing practices. For example, if its researchers attend an international seminar or training, they are now encouraged to share their experience and training with their colleagues and faculty members. On an institutional level, Unsyiah learned to look for new external opportunities for funding and collaboration. Through its GCP training collaboration with Prodia and the local government, Unsyiah now understands that public-private partnerships present unique opportunity for effective public health outreach in local communities.





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### SHERA Improves the Quality of Medical Research in Eastern Indonesia

Located in Maluku Province, UNPATTI has become one of the most reputable universities in eastern part of Indonesia. However, it was still a challenge for UNPATTI to collaborate with other institutions due to its geographic isolation. “We [UNPATTI] are very far away from Jakarta and any reputable institutions that are mostly located in Java. It needs more effort for us to engage with many institutions,” said Dr. dr. Bertha J. Que, the Dean of the Faculty of Medicine at UNPATTI.

According to Bertha, UNPATTI’s Faculty of Medicine had the resources and motivation to develop its research on respiratory infections but was hampered by the lack of opportunity to collaborate with other reputable researchers, particularly at the international level. Therefore, when CCR ARI reached out to UNPATTI at the start of the USAID SHERA program, UNPATTI was eager to become of the CCR’s affiliate institutions.

Since joining CCR ARI, UNPATTI’s faculty have actively participated in international conferences, workshops on academic writing, exchange programs, and collaborative research activities. As a result of this productive partnership, UNPATTI’s Faculty of Medicine established an Ethical Committee to improve its research capacity in respiratory infections. This Ethical Committee consists of experts, researchers, and faculty members and seeks to promote high ethical standards for healthcare research. According to Bertha, “The Ethical Committee is the most significant achievement of the Faculty of Medicine UNPATTI. It wouldn’t be possible without any supports from CCR ARI.”

UNPATTI did not stop there, however. In its efforts to enhance the level of quality research, UNPATTI’s faculty obtained external resources in 2018 to procure a -80 degree-Celsius freezer for research equipment. “Because of the CCR ARI’s activities, we also successfully convinced the university to provide research equipment, and even we received additional support for the electricity supply,” Bertha explained.

Though CCR ARI concluded its work under the USAID SHERA program in 2020, its networks remain active. Currently, UNPATTI is continuing several research activities with UNPAD on respiratory infections and is in the process of securing additional external funding for the work. “We’re glad that we had the opportunity to be involved in CCR ARI’s activities. [...] we have had many opportunities to broaden our networks with other institutions,” Bertha concluded.

### Background

Under the USAID SHERA program, Center for Collaborative Research Acute Respiratory Infections (CCR ARI), sought to enhance the capacity among Indonesian universities to perform quality and high-impact research on disease prevention.

With support from CCR ARI, the Faculty of Medicine at Universitas Pattimura (UNPATTI), established an Ethical Committee to improve the quality of its research. This committee was the first of its kind in eastern Indonesia.

### Impact

Under the USAID SHERA program, UNPATTI established an Ethical Committee to institute high ethical standards in public health and medical research. This has greatly improved the university’s ability to conduct research on respiratory infections according to ethical, world-class standards.

Since joining CCR ARI, UNPATTI’s researchers have also had the opportunity to collaborate with a variety of experts and researchers from Indonesia and the U.S., in addition to joining workshops and trainings on academic writing. This has allowed its researchers to begin presenting their research results at international conferences and disseminating their work to a broad, global audience.



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### SHERA Leads to New Networks and Recognition for Emerging University

Established in 2006, UBB is considered an emerging university in Indonesia. As a new higher education institution (HEI), it was not easy for UBB to gain recognition amongst its stakeholders and peers. “We [UBB] are still young compared to Universitas Indonesia, Universitas Padjadjaran, or any other state-owned university in Indonesia. Not many people know where UBB is,” said Wahri Sunanda, S.T., M. Eng., Dean of the Faculty of Engineering UBB.

It was a challenge for UBB to improve its capacity in the first years of its establishment. Few UBB researchers had academic papers published in the Scopus index journal at that time. According to the 2017 university ranking issued by the Ministry of Research, Technology and Higher Education (Kemristekdikti), UBB ranked only 370 out of 2,500 HEIs in Indonesia.



*Speakers, guests, and local government representatives at the opening ceremony of ICoGEE 2019*

Despite these challenges, UBB never stopped seeking opportunities to collaborate with other Indonesian HEIs, as it knew that broadening its networks was vital for improving its research and management capacity. In 2017, Universitas Gadjah Mada (UGM), the lead university of CDSR, asked UBB to join the consortia as an affiliate. “It was an honour for us [UBB] to be trusted to join in international collaboration. We had heard that this collaboration [CDSR] will involve U.S. institutions so that we will be able to learn from U.S. scholars as well,” Wahri added.

Since joining CDSR, UBB has participated in many activities, such as workshops on writing academic papers, site visits to Semujur Island to conduct research on microalgae, and presenting at international conferences. Through these activities, UBB’s researchers and lecturers have also had the opportunity to build networks with other Indonesian scholars and researchers.

*Continued on next page.*

### Background

Being recognized internationally is a tremendous achievement for Universitas Bangka Belitung (UBB). Through participation in the Center for Development of Sustainable Region (CDSR), UBB has improved its capacity and broaden its networks internationally. Its culminating achievement under SHERA was hosting an international conference for the first time in 2019.

CDSR is one of SHERA’s five Centers for Collaborative Research (CCRs), which focuses on multidisciplinary collaboration in conducting research to promote energy efficiency and independence in Indonesia.

### Impact

Since joining CDSR, UBB has encouraged its researchers to produce more publications and increase submissions to international conferences. These activities have positively impacted UBB’s accreditation process.

Through its collaboration with CDSR, UBB is currently seeking sustainability support from the local government and private sectors to develop further research on microalgae as an alternative renewable energy source. Researchers from UBB and CDSR have presented the research to the local government are currently waiting to hear more from the government.



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However, UBB's greatest achievement since joining CDSR was hosting the International Conference on Green Energy and the Environment in September 2019. This was the first international event ever hosted by UBB. "We were very honoured yet challenged. We had never hosted any international events before, but we tried our best to make the event successful," said Wahri, who acted as the Chairman of the event.

The first challenge UBB faced in hosting the conference was convincing participants to submit academic papers. UBB was less popular compared to other large universities in Indonesia for hosting an international conference. Subsequently, the first two months of open registration saw paper submissions far below the target. "Participants maybe didn't know submission deadline while also convincing participants that the conference is trustworthy" Wahri said. UBB turned to CDSR lead university UGM for assistance, who then used its large sphere of influence to spread the word and attract interest in the event.



*Scholar presenting at ICoGEE 2019, hosted by UBB.*

Another challenge UBB faced was inviting international speakers. With its lack of experience in hosting international events, UBB was not sure who would speak at the conference. Fortunately, Wahri knew some international scholars from when he attended a conference in Thailand in 2018 and he invited them to become speakers. CDSR also helped him to invite other international scholars to attend the conference and all Wahri's colleagues in the UBB Faculty of Engineering helped prepare for the event. "We're so glad that the conference finally went very well and smoothly, although it was our first time hosting an international conference," Wahri shared. In the end, the conference boasted 4,766 participants, 46.8% of which were women.

Many lecturers and researchers from UBB submitted and presented their academic papers at the conference, in addition to scholars from across Indonesia. This then increased the number of UBB Scopus-indexed academic papers. Since joining CDSR in 2017, UBB has published 40 academic papers. This increase in publications has directly contributed to the university's accreditation by the Government of Indonesia. "We used to be [ranked] 370, but in 2019 we were in 191. This is a very big achievement for us," remarked Wahri.

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## Changing Research Paradigms to Support Local Communities

Through CDSR, Dintani Yudhita Noorzakiah Naimah learned how to build valuable cross-disciplinary networks amongst researchers in Indonesia. By working with researchers from different universities, she has had more opportunities to learn from experts in a variety of fields who also work on renewal energy solutions. “The strength of CDSR is in its excellent networks. I have met many researchers from various universities and with different expertise,” said Dintani, reflecting on the role CDSR has played in her life.

The first time she heard about CDSR in 2017, Dintani was impressed with CDSR’s renewable energy business concept. CDSR has a unique approach, in that it considers the social aspects of renewable energy in addition to the technical aspects of its research. This approach led her to join CDSR as an independent researcher. Dintani soon became involved in three CDSR research projects, including its *Developing Matrix of Women Role in Sustainability Design*. She was drawn to this work as she had previously conducted research on the same topic when she pursued her Master’s in Sweden. The project was eventually presented at a 2018 exhibition for the Small Grant Project, hosted by the United Nations Development Programme (UNDP). “I was excited knowing that UNDP is interested in our topic and that they decided to adopt the research method,” Dintani remarked.

After the UNDP adopted CDSR’s work, the UNDP then replicated the research methodology and approach and expanded it into in four areas across three provinces in Indonesia: Semau Island, Gorontalo, Nusa Penida and Wakatobi. UNDP also appointed Dintani as the project’s program manager. This accomplishment has allowed Dintani to continue her research beyond SHERA.



*Dintani presenting her research at a 2018 training in Gorontalo*

Despite this achievement, getting there was not easy. Dintani remembered that when she first joined CDSR, she had to learn the rules and regulations for conducting research. This included practices like creating progress reports for her research. “I called it ‘learning by doing.’ While conducting my research, I always asked people in CDSR about the regulations that I had to follow. Pak Rachmawan [CDSR’s Program Director] helped me a lot in this situation,” said Dintani. Another challenge that she faced during the research was time limitations and proper financial reporting. Her research had to meet the timelines given by CDSR and SHERA, so she needed to collect the data and write the manuscripts on time. For the financial reporting, she also needed to stick to the budget that had already been approved by CDSR and SHERA.

While it was a steep learning curve at times, Dintani grew a lot from those challenges and feels they brought her success. Dintani reflected, “From CDSR, I learned that we need to change the paradigm- that researchers should not only work for publication, but research finding can be enriched with other disciplines. It can be salable and bring more benefits to other parties or communities.”

## Background

Dintani Yudhita Noorzakiah Naimah, a researcher with the Center for Development of Sustainable Region (CDSR), has experienced the positive gains cross-sectoral collaboration can bring to research. Through networking and collaboration with researchers from a variety of fields, her renewable energy research methodology has been adopted and expanded by the United Nations Development Programme in Indonesia.

CDSR is one of SHERA’s five Centers for Collaborative Research (CCRs), which focuses on multidisciplinary collaboration in conducting research to promote energy efficiency and independence in Indonesia.

## Impact

CDSR greatly improved Dintani’s capacity as an independent researcher by leading several workshops on research best practices. Working with CDSR also gave her the opportunity to collaborate with other researchers from diverse universities in Indonesia and abroad. As a result of her SHERA-funded research with CDSR and having the opportunity to collaborate with other institutions, her research method is now being recognized by UNDP and being replicated across three provinces in Indonesia.



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### From Research Concept to Reality: Sustainability Energy Solutions in Indonesia

Indonesia faces an enormous challenge in combatting its high levels of pollution. As the most populous country in Southeast Asia, it experiences high traffic volume from transportation fueled by non-renewable energy. To help solve this problem, researchers at ITB have long been interested in developing electrical vehicles, as they are both environmentally friendly and sustainable. They built out a concept and prototype, but they lacked two important ingredients: Funding and key partnerships. They needed to hire experts, procure software, and establish relationships with the private sector.

When the USAID SHERA program was introduced to ITB in 2017, Dr. Bentang Arief Budiman and his fellow researchers realized this was the opportunity to make their concept a reality. Under the newly formed National Center for Sustainable Transportation Technology (NCSTT), the team set out to develop an E-trike, a battery-powered electric trike that could be used as a goods delivery vehicle. They formed a research cluster focusing specifically on establishing partnerships for e-trike mass production and developing battery technology. “After USAID funding was available through SHERA, we started to hire experts, build partnerships, and develop the prototype,” Bentang reflected.



NCSTT's E-trike Prototype

The USAID SHERA program also gave NCSTT the opportunity to broaden its networks and establish partnerships with the private sector. To support the development of the E-trike prototype, NCSTT approached Bakrie and Brothers, an Indonesian company that focuses on manufacturing and infrastructure, for future mass production. This private sector partnership is critically important for the future development and sustainability of the product. NCSTT also built partnerships with other universities such as Universitas Sebelas Maret, which has its own battery factory, to develop the E-trike batteries.

In November 2019, NCSTT successfully launched the E-trike prototype at the 6th International Conference on Electric Vehicular Technology (ICEVT) in Bali. It was a significant achievement for NCSTT, as the prototype was finally introduced to the public. “The conference [ICEVT] itself was the opportunity for us to broaden our networks. We’ve received so many new networks as well as feedback from experts and scholars who attended the conference. That feedback is very useful for NCSTT to improve the technology of the E-trike,” Bentang noted. In addition to this success for NCSTT and its partners, the E-trike prototype development will more broadly benefit Indonesia. As the Government of Indonesia continues to encourage the development of electrical vehicles and boots the surrounding industry, NCSTT is well primed to serve as an important leader of positive change.

### Background

The National Center for Sustainable Transportation Technology (NCSTT) is a USAID SHERA-funded Center for Collaborative Research (CCR). NCSTT is led by Institut Teknologi Bandung (ITB) and seeks integrated solutions for transportation problems in Indonesia.

### Impact

In addition to funding support for the E-trike prototype, SHERA has enabled NCSTT to broaden its networks and build the capacity of its researchers. NCSTT has established a public-private partnership with Bakrie and Brothers to support mass production of the prototype, and has collaborated with other universities in Indonesia and the U.S. Additionally, ITB as the lead university of NCSTT, worked with the Government of Indonesia to develop MIT – Indonesia Research Alliances (MIRA), which aims to maintain the sustainability of the research beyond the USAID SHERA program. Through trainings and workshops organized by SHERA, NCSTT’s researchers and scholars have also had the opportunity and confidence to submit their academic papers to international conferences and prestigious Scopus-indexed journals.



6th ICEVT Participants, Bali, November 2019



# Sustainable Higher Education Research Alliances

## USAID SHERA Fast Tracks Indonesian University on Path to Accreditation and Peer Recognition

Located on Kalimantan Island, ITK was established in 2014 and only offered an electrical engineering program to undergraduate students at its start. As a new university, ITK had limited facilities and researchers, and the university struggled to gain recognition from other Indonesian higher education institutions (HEIs). With limited resources and connections, ITK faced many barriers as it sought to develop its advanced technologies research.

Those challenges were then compounded when the time came for ITK's assessment by the National Accreditation Agency (Badan Akreditasi Nasional), which measured the institution against thresholds for international publications, international conference attendance, and partnerships with other institutions. ITK did not meet any of the requirements at that time. Dr. Mohammad Muntaha, ITK's Partnership Manager, remembered, "It was a hard time for us. We had tried to improve our capacity through many ways, but we hadn't reached the maximum results."

This all changed in 2017 when ITB, the lead university of NCSTT, asked ITK to join its research consortia as an affiliate institution. Through NCSTT, ITK suddenly had the opportunity to join collaborative research on applied engineering and technology for transportation systems, which gave ITK more recognition amongst its peers.

Since joining NCSTT, ITK has been involved in several research activities led by ITB, namely in developing batteries for electric vehicles. In 2018, ITK researchers also participated in two of the CCR's trainings in Banjarmasin and Manado. These trainings helped ITK's researchers improve their skills in writing academic papers in English. As a result, a total of five Scopus-indexed academic papers were published. Additionally, ITK has been able to broaden its networks through attending international events such as the ITB-led 6<sup>th</sup> International Conference on Electric Vehicular Technology 2019 in Bali.

"It's an honor for us to be part of NCSTT and have the opportunity to broaden our networks and to collaborate with researchers from various universities," Muntaha shared.

All these achievements contributed to ITK finally passing its accreditation assessment in 2018, when it successfully gained a 'B' score after having received a 'C' in 2014. Muntaha mentioned that it was the NCSTT activities that played a significant role during the assessment process. "Through NCSTT, the number of international publications and attended international conferences have increased. Other than that, we also have built partnerships with other HEIs and other stakeholders in conducting collaborative research," Muntaha reflected.



*ITK researcher presenting during a 2018 NCSTT program coordination meeting.*

### Background

As a new higher education institution, Institut Teknologi Kalimantan (ITK) faced challenges in developing advanced research on technologies. In 2017, the National Center for Sustainable Transportation Technologies (NCSTT) opened the door for ITK to improve its capacity through collaborative research. As a result of its partnership with NCSTT, ITK successfully upgraded its accreditation status from a 'C' to 'B.'

Led by Institut Teknologi Bandung (ITB), NCSTT is one of the USAID SHERA program's five Centers for Collaborative Research (CCRs), which focuses on seeking integrated solutions for transportation problems in Indonesia.

### Impact

It was a challenge for ITK to follow all USAID regulations and rules at the beginning of the USAID SHERA program, as it was the institution's first time joining an international collaborative research project. Since 2017, ITK has grown under the mentoring and support it has received from NCSTT and the overall USAID SHERA program. It has achieved newfound success in publishing Scopus-indexed academic papers, increasing its visibility at international conferences, and seeking potential research partnerships.



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### Universitas Udayana Establishes SMART CITY Research Center

When UNUD joined the USAID SHERA program in 2018 as an affiliate university in CCR SMART CITY's consortia, the university's researchers suddenly had the opportunity to collaborate with other experts and broaden their networks. Through the program's support and mentorship, UNUD began to increase its number of publications and produced nine Scopus-indexed academic papers.

However, one overarching challenge persisted. SMART CITY's research focused on urban planning and development issues, which meant that its researchers were coming from diverse scientific background and departments at UNUD. The interdisciplinary nature of the research made it quite challenging at times for UNUD's researchers to conduct collaborative work, particularly when trying to coordinate and communicate outside their respective departments and faculties. "Although we were the affiliate of SMART CITY, we didn't have a local forum to regularly discuss any issues related to urban planning and development issues," said Dr. Gusti Ayu Made Suartika, Head of UNUD's Research Cluster.

To overcome this challenge, UNUD began to discuss research management best practices with UI, SMART CITY's lead university. Then, during the August 2018 Management and Partnership Monitoring and Evaluation Workshop in Bali, the CCR provided further training and encouraged its local partners to establish their own research hubs. "Starting from that moment, UNUD decided to establish its own research center," Suartika reflected.



*UNUD at a 2018 SMART CITY workshop*

UNUD's CCR researchers took this idea to the university and local government, who in turn fully supported the initiative. Today, the UNUD SMART CITY Research Center is active under the university's Research and Community Service Institution (Lembaga Penelitian dan Pengabdian Masyarakat) and is directly monitored by the Rector. The local government also supports the center and invites the researchers to provide scientific advice on urban planning issues in Bali.

The establishment of the SMART CITY Research Center has provided UNUD's researchers with many opportunities to improve their capacity. For example, the center held a public lecture in May 2019 in collaboration with the Embassy of Japan's Energy Attaché in Indonesia, which drew 150 students and faculty members from UNUD. Additionally, to broaden its networks, UNUD's SMART CITY Research Center has sought out collaboration with Indonesian research partners from a variety of universities outside the SMART CITY consortia and is now preparing to host the Third International Conference on SMART CITY Innovation in October 2020. "This research center will be continuously developed for further research collaboration to support the local government. We are glad that finally, we were able to establish our own research center," Suartika concluded.

### Background

SMART CITY, led by Universitas Indonesia (UI), is one of the USAID SHERA program's five Centers for Collaborative Research (CCRs). It focuses on urban planning and development issues in Indonesia.

SMART CITY helped one of its affiliate universities, Universitas Udayana (UNUD), to establish its own interdisciplinary research center by providing training on research management and policy development.

### Impact

UNUD's establishment of its own SMART CITY Research Center was a significant achievement for this university. When UNUD originally joined the USAID SHERA program, it anticipated that it would focus on publishing academic papers. However, this research center was a hugely positive, unexpected outcome for the university. Through the research center, UNUD has been able to broaden its network, engage with the local government of Bali, and address urban planning and development issues.



*UNUD meeting with Government of Bali and the Government of Japan in 2019.*