



Sustainable Higher Education Research Alliances (SHERA)

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Baseline Study Report

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Prepared by:
Institute of International Education (IIE)
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ACRONYMS AND ABBREVIATIONS

ANBIOCORE	Animal Biotechnology and Coral Reef Fisheries
ARI	Acute Respiratory Infections
BIPV	Building – Integrated Photo-Voltaics
BPDPKS	Badan Pengelola Dana Perkebunan Kelapa Sawit
CCR	Center for Collaborative Research
CDSR	Center for Development of a Sustainable Region
DAAD	Deutscher Akademischer Austauschdienst (German Academic Exchange Service)
EEMS	Environment, Energy and Maritime Sciences
FSS	Food Security and Self Sufficiency
GOI	Government of Indonesia
HEI	Higher Education Institution
IBRC	Indonesian Biodiversity Research Center
IGBB	Institute for Genomics Biocomputing and Biotechnology
IPB	Institut Pertanian Bogor, Bogor
IRBC	Indonesian Biodiversity Research Center
IT	Innovative Technologies
ITB	Institut Teknologi Bandung, Bandung
ITS	Institut Teknologi Sepuluh Nopember, Surabaya
ITK	Institut Teknologi Kalimantan, Balikpapan
M&E	Monitoring and Evaluation
MIT	Massachusetts Institute of Technology
MOU	Memorandum of Understanding
MSU	Mississippi State University
NCSTT	Natural Center for Sustainable Transportation Technology
NGO	Non-Governmental Organization
NZEB	Net-Zero Energy Building
SHERA	Sustainable Higher Education Research Alliances
SMART CITY	Scientific Modelling, Application Research and Training for City-centered Innovation and Technology
SSU	Savannah State of University
PEER	Partnerships for Enhanced Engagement in Research
PHID	Public Health and Infectious Disease
TUM	Technical University of Munich
UBB	Universitas Bangka Belitung, Bangka
UCB	University of Colorado, Boulder
UCD	University Colorado, Denver
UF	University of Florida
UGM	Universitas Gadjah Mada, Yogyakarta
UI	Universitas Indonesia, Depok
UIUC	University of Illinois, Urbana-Champaign
ULM/UNLAM	Universitas Lambung Mangkurat, Banjarmasin
UMG	Universitas Muhammadiyah Gorontalo
UNDANA	Universitas Nusa Cendana, Kupang
UNDIP	Universitas Diponegoro, Semarang
UNG	Universitas Negeri Gorontalo, Gorontalo
UNIBRAW	Universitas Brawijaya, Malang
UNIPA	Universitas Negeri Papua, Manokwari
UNPAD	Universitas Padjajaran, Bandung
UNPATTI	Universitas Pattimura, Kota Ambon
UNRAM	Universitas Mataram, Kota Mataram
UNS	Universitas Negeri Sebelas Maret, Surakarta
UNSRAT	Universitas Sam Ratulangi, Manado

UNSRI	Universitas Sriwijaya, Palembang
UNSYIAH	Universitas Syiah Kuala, Kota Banda Aceh
UNUD	Universitas Udayana, Denpasar
URI	University of Rhode Island
US	United States
USG	United State Government
UTS	Universitas Teknologi Sumbawa, Sumbawa

EXECUTIVE SUMMARY

The Sustainable Higher Education Research Alliances program (SHERA) is a five-year university research partnership program between Indonesia and the United States (US) that aims to increase the research capacity of the Indonesian higher education sector and improve the enabling environment for quality research within Indonesian higher education institutions (HEI). By establishing Centers for Collaborative Research (CCR) within top Indonesian universities, SHERA and the Government of Indonesia (GOI), Ministry of Higher Education, Research and Technology (Kemenristekdikti) bring Indonesian and U.S. scholars together to conduct world-class research in focus areas critical to the country's development, further enhance the capacity of top Indonesian scholars and promote knowledge sharing with universities and affiliate higher education institutions across the country. In its first year, the project created five university consortia, each consisting of a lead Indonesian university, referred to as a Lead CCR, and at least three Indonesian universities and at least one U.S. university, referred to as affiliates members. In total, there are 30 universities, consisting of 22 Indonesian HEIs and eight U.S. HEIs. See Annex I for a complete list of participating universities.

During its first year of project implementation, SHERA conducted a baseline study with the purpose of understanding the current conditions within the project's CCRs, such as the level of capacity for collaborative research and past and current experience with public and private partnerships, as well as the CCR's overall experience, resources and activities as they related to SHERA's results framework. Understanding these issues will help SHERA define the necessary level of support and capacity building efforts to ensure that CCRs succeed in implementing their activities per their approved work plans and SHERA meets its targets and achieves its objectives during the program period.

SHERA collected baseline study data during April and May 2017 and presented the initial findings during kick-off meetings at CCR meetings from July-September 2017. After presenting the findings and clarifying any questions, each CCR provided feedback, comments and adjusted their responses as necessary. The needed revisions were partially due to different perceptions of some questions, including the level within each institution that should be represented in their response (either institution or faculty-level, depending on the location of the CCR within each institution). SHERA then analyzed and re-coded the newly revised data, which was completed in November 2017.

To analyze the results, SHERA used a four-scale scoring system. A score of 1 (one) is the lowest and indicates that significant capacity building is required for the CCR to perform well within SHERA's framework. A score of 4 (four) is the highest and indicates that the CCR is quite capable of achieving its set targets and implementing quality program activities. Within the baseline study, SHERA focused on three areas:

1. Each CCR's partnership capacity and understanding of its roles and responsibilities;
2. Each CCR's collaborative research capacity, including the institutions' research quality, access to journals and readiness to utilize IT-based virtual platforms; and
3. Each CCR's current state within SHERA's results framework's three goal-level intermediate results and six outcomes, including the ratio of publications to citations, usability/replicability of research outcomes, quality of scholars in research methods, inclusive research enabling environment, and ability of the CCRs to gain external resources for sustainability.

Overall, most CCRs scored in the low-middle range (score of 2), meaning that they have some knowledge and experience with partnerships, collaborative research and activities included in SHERA's results framework. However, it would tell a slightly different picture if looking at the following three indicators where SHERA uses as the basis for baseline survey data collection and analysis, 1) partnership capacity; 2) collaborative research capacity; and 3) where do CCRs stand on SHERA's results framework.

In *partnership capacity*, ITB and Universitas Indonesia (UI) have the most experience partnering in collaborative activities with other Indonesia-based HEIs, while Institut Pertanian Bogor (IPB) and UI

have the most experience in working with U.S.-based HEIs in a similar capacity. These experiences are valuable, as the Lead CCRs can then mentor their Indonesian affiliate partnership members that have minimal exposure or experience working with other Indonesian HEIs and U.S. based institutions. Universitas Sriwijaya (UNSRI), affiliate member within NCSTT, and Universitas Papua (UNIPA) and Universitas Mataram (UNRAM), affiliate members within Animal Biotechnology and Coral Reef Fisheries (ANBIOCORE), led by IPB, are three examples of Indonesian universities with minimal to no experience partnering with either Indonesian or U.S.-based institutions, and will greatly benefit from mentorship from the Lead CCRs.

In *partnerships*, the affiliate members' awareness and understanding of the project implementation processes, roles and responsibilities, expectations for managing reporting and communications varied among CCRs. In general, the affiliates reported having minimal understanding of their CCR's purpose, as well as the reporting and accountability process. Most of the responses provided were clearly their best guesses or ideals related to what a CCR should be, as opposed to clear and realistic statements of what their CCRs are based on their knowledge. Most affiliates simply listed that the CCRs are involved in "research activities." Also, SHERA found that some affiliates had high expectations of CCR outcomes, while they struggled to identify their roles and responsibilities in the process. This finding is understandable, however, given that SHERA conducted the baseline study in early 2017, and affiliate members' awareness of their roles and responsibilities was still being negotiated and determined in collaboration with their respective Lead CCR. Overall, the affiliates of Scientific Modelling, Application Research and Training for City-centered Innovation and Technology (SMART CITY), led by UI, reported the lowest overall understanding and awareness of their role within the CCR. While the remaining CCR affiliate members seem to have a slightly better understanding, it is important to note that there remain affiliate members of the other CCRs who illustrated minimal awareness and understanding of their respective CCR's business process, roles and responsibilities, and expectations of CCR accountability, notably by Universitas Lambung Mangkurat (ULM), within CCR on Acute Respiratory Infections (CCR ARI) led by Universitas Padjadjaran (UNPAD), Universitas Udayana (UNUD), within ANBIOCORE, and Universitas Bangka Belitung (UBB), within Center for the Development of a Sustainable Region (CDSR) led by Universitas Gadjah Mada (UGM).

In *collaborative research capacity*, IPB and UGM scored the highest among the five Lead CCRs. Specifically, both institutions noted easy access to research methods courses. Compared to other Lead CCRs, both also cited a high-level of confidence in their staff members' English language ability, as well as their institutions' efforts to include women scholars in research activities. Other strengths highlighted by these two institutions included their IT-capacity, which will enable them to conduct online courses and mentoring to their affiliates, and their experience executing agreements with U.S. HEIs, which can be shared and disseminated to other CCRs for learning purposes and current and future collaborative research activities. However, all five Lead CCRs seem to require additional guidance in similar areas, specifically access to science journals within their research area. Additionally, all cited that their institutions do not prioritize investing in dedicated resources for partnership activities, meaning that they do not have – at the point of data collection—a full time staff member focused on building partnerships with either HEIs or private sector entities. It should be noted, however, that this does not indicate that these institutions cannot establish partnerships, as the findings show that partnerships do exist in various forms with the GOI, international HEIs and the private sector.

In addition, there are affiliate members who have sufficient IT-capacity, staff who comfortably speak English, and offer research methods courses at their institutions. This is notable for the CDSR affiliate member at IPB, CCR ARI affiliate member at UNUD, SMART CITY affiliate member at UNPAD, and affiliate members at ANBIOCORE Universitas Brawijaya (UNIBRAW) and UNUD. These same institutions also noted that their institutions prioritized the participation of women scholars in research activities. For Indonesian HEIs in remote areas of the country, IT issues may not end up being the challenge that SHERA had initially assumed, as CCR ARI affiliates located in the furthest regions in west and east of the country, Universitas Syiah Kuala (UNSYIAH) and Universitas Pattimura (UNPATTI) indicated a strong IT capacity within their institutions.

On the CCR's current state within SHERA's *Results Framework*, all the Lead CCRs have a middle-low score meaning that the project will need to build the capacity of the CCRs and provide technical assistance to ensure achievement of the intended outcomes by project completion. Several notable challenges that are commonly faced by the CCRs are the institutions' lack of platforms to track the number of published papers that have been cited; records of how research initiatives results have been replicated, applied or taken to the market; and institutional policies for research and management that are gender inclusive. One outlier was ITB, who successfully reported their ratio of citations to publications produced by Indonesian researchers (Intermediate Result 2 of SHERA's results framework). At a minimum, their tracking system can be shared with other CCRs to support their tracking and reporting.

The score within each CCR's affiliate members is understandably lower. Although there are some notable findings to highlight, including CDSR affiliate members at IPB and UBB who reported obtaining significant external resources on joint research projects with private and public sector partners and building formal relationships with several U.S. and Indonesian institutions in the past; ANBIOCORE affiliate members at Universitas Nusa Cendana (UNDANA) and Universitas Negeri Papua, NCSTT affiliate member Institute Teknologi Kalimantan (ITK), CCR ARI affiliate member UNRAM, and SMART CITY affiliate member UNPAD, who all reporting obtaining external resources for joint research projects in the past.

The findings from the baseline study resulted in a recommendation from SHERA on the target setting for SHERA's results framework through project completion. SHERA experienced a delay in producing the recommendations due to the CCR's own delay in aligning their work plans within the project's monitoring and evaluation (M&E) framework. SHERA has diligently worked with each CCR on their work plan and targets per performance indicator, which is critical to achieving the intended outcomes. At the end of the process, SHERA believes that the targets proposed by the CCRs were overly ambitious in some areas, and SHERA continues to work with them to identify increasingly realistic targets. See the detailed target recommendations in Annex 2.

I. BACKGROUND

SHERA is a five-year university research partnership program between Indonesia and the U.S. that aims to increase the research capacity of the Indonesian higher education sector and improve the enabling environment for quality research within Indonesian HEIs. By establishing CCRs within top Indonesian universities, SHERA and Kemenristekdikti bring Indonesian and U.S. scholars together to conduct world-class research in focus areas critical to the country's development, further enhance the capacity of top Indonesian scholars and promote knowledge sharing with universities and affiliate HEIs across the country. In its first year, the project created five university consortia, each consisting of a lead Indonesian university (referred to as Lead CCR), and at least three Indonesian universities and at least one U.S. university, referred to as affiliate members. In total, there are 31 universities, consisting of 23 Indonesian HEIs and eight U.S. HEIs.

SHERA's objectives are as follows:

- Enhance the research capacity of Indonesian HEI's in the fields of science, technology, and innovation (ST&I); and
- Support the development of targeted Indonesian HEIs by:
 - Bringing together Indonesian and U.S. researchers to conduct world-class research, and enhancing the general understanding of international research partnerships;
 - Focusing on critical research issues for Indonesia's development in line with Kemenristekdikti's Master Plan;
 - Enhancing the skills and expertise of Indonesia's top researchers, and enabling them to share these resources within their own institution as well as across Indonesian HEIs in diverse regions of the country; and
 - Expanding the institutional environment for research, and increasing access to research and professional development opportunities for women.

During its first year of implementation, SHERA conducted a baseline study of all CCR members to understand the:

1. Existing conditions within the CCR, particularly related to collaborative research capacities;
2. Current practices and experience regarding public and private partnerships; and
3. CCRs' level of experience, resources and activities as they relate to SHERA's results framework.

By understanding these areas, SHERA can better identify areas of support and capacity building for the CCRs' success in implementing their activities and achieving their targets.

II. METHODOLOGY

SHERA's methodology for the baseline study used a qualitative descriptive approach through a structured online questionnaire covering the following areas:

- Partnership capacity; defined as an institution's experience and readiness to conduct collaborative research within its CCR, which covers:
 - Understanding of CCR's business process or organizational structure for implementing activities or tasks,
 - Roles and responsibilities
 - Expectation for participation in the CCR
 - Accountability and feedback
 - Previous collaboration experience working with Lead CCR
 - Previous partnership experience with U.S.-based institutions
 - Previous partnership experience with Indonesia-based institutions

- Collaborative research capacity; defined as an institution's experience and readiness to implement SHERA-funded activities, which covers:
 - Staff/researchers' capacity in research methods
 - Access to academic journals in science and technology
 - Engagement with private and/or public sector entities in collaborative research
 - Having a memorandum of understanding (MOU) with U.S.-based institutions
 - Availability of virtual platforms for publication
 - Staff/researchers' capacity in the English language
 - Availability of dedicated resources for partnership engagement
 - Availability of IT infrastructure to provide continuous online mentoring to CCR members
 - Level of women's participation in research activities

- CCRs' institutional conditions measured against SHERA's results framework; defined as an institution's baseline value prior to implementation of the project that covers SHERA's intermediate results and the expected outcomes, as follows:
 - Number of peer-reviewed scientific publications resulting from U.S. government (USG) support for research and program implementation
 - Ratio of citations to publications produced by Indonesian researchers
 - Number of academic research initiatives whose findings have been replicated, applied or taken to market
 - Increased training in research methods, writing and presentation skills
 - Increased professional exchanges and collaborations
 - Institutional policies in support of research and management developed in CCR members
 - CCR best practices documented and disseminated to Indonesian HEIs
 - Formal relationships established among U.S. and Indonesian institutions
 - Indonesian institutions obtaining external resources for their joint research projects

II.1. Data Collection Process and Analysis

Data collection took place from April - May 2017. SHERA developed a dedicated group listserv where CCR members could post questions related to the data collection process. The university staff member at each CCR institution assigned the role of CCR Monitoring, Evaluation and Learning (MEL) Specialist was responsible for completing the questionnaire. Due to the varied geographic locations of the participating HEIs, SHERA conducted the baseline survey through an online form. During the data collection process, SHERA regularly monitored the submitted data and sought clarifications to ensure that the information provided was as intended per the original questionnaire.

SHERA based its data analysis on a minimum standard for each question using binominal data and four class data using a Likert Scale, as shown below:

- Very Good (4): Data is exceeding the standard where the data is well-documented, frequently reviewed and evaluated, as well as there is a practice to increase the quality
- Good (3): Data is standard and it is documented, frequently reviewed and evaluated, as well as there is a practice to improve the quality
- Moderately Good (2): Data is below standard, although there is an awareness to complete the standard data, it is lacking support and practice to improve the quality
- Not Good (1): Data is not available or data quality is lacking

II.2. Challenges/Limitations of Study

During the baseline study implementation, SHERA experienced several challenges that potentially limited the study's findings. These challenges include:

- The CCR institutions' characteristics significantly vary between those who have worked with international institutions and those who have not. This potentially affected data quality as it was difficult to categorize these institutions as if they are on a level playing field. Therefore, SHERA's analysis was slow to understand the unique issues of the respective institutions and avoid over-generalizing specific issues.
- Different and various interpretations of the survey questions occurred, likely since communication was primarily virtual, which potentially affected the CCR member's responses. Specifically,
 - Due to confusion regarding the data collection process and which area of the university should be represented (university or faculty-level), the data might be inconsistent.
 - SHERA then rechecked with the respective institution to ensure that information provided was sufficient even though not all institutions responded with re-clarifications.
- Varying capacity levels of those entering the data, as those assigned to this role did not always have the complete context of the baseline study's purpose. SHERA found that some individuals simply entered the data to the best of their knowledge, while other sought out the needed information from the proper sources within the institution to accurately respond.
- Unavailability of certain data from institutions affected scoring of certain baseline sections, therefore, in the findings, some respondents received a "0". SHERA encouraged those institutions to resubmit/revise the information, however some still did not provide updated responses and, in turn, their scores remained at "0".

III. BASELINE FINDINGS

III.1. Overall Findings

Overall, the results from the responses to the baseline questionnaire shows that the CCRs are starting program implementation at the same level. The data –taken from the CCRs—is a combination of responses from the members of each CCR, both the lead and affiliate members. The finding shows that each CCR is at the mid-low level, receiving an average score of two out of four. CCRs received a score of a “2” in the areas of both partnership and collaborative research capacities, indicating that partnerships and collaborative research are present among the CCRs. While many institutions only acknowledged having partnerships with other HEIs (either Indonesia or U.S.-based institutions) and experience in joint research activities, the project noted that only several institutions provided detailed information of the types of partnerships and collaborative research. This indicates that activities that have occurred in the past have not been properly documented and stored. These results led to SHERA’s recommendation that the institutions better document their activities and/or save the documentation in easily accessible files, and that there is the need to have more partnership and collaborative research occur in the future. There were some institutions that noted having no past or current experience with partnerships and/or collaborative research (see Section III.2 for more details). The scoring for each CCR can be seen in Table I.

Table I - CCR Baseline Scores Per Research Area

CCR	Average Score (Rounded Up)	Partnership Capacity	Collaborative Research Capacity	Results Framework
CDSR – UGM (Environment, Energy and Maritime Science, EEMS)	2	2	2	1
ANBIOCORE – IPB (Food Security and Self-Sufficiency, FSSS)	2	2	2	1
NCSTT – ITB (Innovative Technologies, IT)	2	2	2	1
CCR ARI – UNPAD (Public Health and Infectious Disease, PHID)	2	2	2	1
SMART CITY – UI (Urban Planning and Development, UPD)	2	2	2	1

Analysis Among Lead Centers for Collaborative Research

The following analysis considers three areas - partnerships, collaborative research and SHERA’s results framework - to give a more detailed description of where the Lead CCRs stand at the inception of SHERA. Within the areas of *partnerships*, IPB and UI scored the highest, illustrating that, compared with other Lead CCRs, both institutions have had a greater number of previous partnerships with either U.S.-based or Indonesia-based HEIs, and that they will likely have a better understanding of the CCR’s business process and its roles and responsibilities within the CCR. The other three Lead CCRs scored slightly less, and this is the area where SHERA might provide additional support to ensure Lead and affiliates have similar awareness and understanding and/or support IPB and UI in sharing their lessons learned and best practices in this area.

Within the area of *collaborative research*, IPB and UI also scored the highest, indicating greater access to academic journals in science and technology, more researchers with a strong capacity in research methods, greater accessibility to virtual platform for publications, greater experience in engagements

with private and/or public institutions in collaborative research, and more women researchers participating in research activities, when compared to the other Lead CCRs. Although the other three Lead CCRs were only slightly behind., illustrating that there is not much difference among the Lead CCRs in collaborative research.

Regarding the CCRs’ experience, resources and past activities as they relate to SHERA results framework, four Lead CCRs scored a “2” and UNPAD scored a “1”. This finding shows that SHERA will need to work closely with the Lead CCRs to achieve its intended outcomes by project completion. Notable challenges regarding this area are as follows:

- The institutions noted many publications published, although they did not monitor the number that have been cited.
- Few academic research initiatives have been replicated, applied or taken to the market. While several Lead CCRs mentioned that this had occurred, they could not provide detailed information, such as which institution or corporation replicated the research and their success.
- There are minimal gender inclusive institutional research and management policies.

Detailed scoring for each Lead CCR is shown in the table below.

Table 2 - Lead CCRs’ Baseline Scoring Results

Lead CCRs	UGM (CDSR)	IPB (ANBIOCORE)	ITB (NCSTT)	UNPAD (CCR ARI)	UI (SMART CITY)
Partnerships	2	3	2	2	3
Collaborative Research	2	3	2	2	3
SHERA’s Results Framework	2	2	2	1	2

Analysis per Center for Collaborative Research

Center for the Development of a Sustainable Region - UGM (Energy, Environment and Maritime Science)

The difference is minimal in the findings between the Lead CCR and its affiliates related to partnerships and collaborative research, in which both received a score of “2”. UGM as the Lead CCR, however, scored slightly higher than the affiliates combined (2 and 1, respectively). UGM particularly scored stronger in the number of publications to citations, courses on research methods, institutional research management and policies, documentation and sharing of best practices, and access to external resources for joint research projects. These strengths are areas in which the CDSR affiliates can learn and improve their quality from the Lead CCR. Table 3 outlines the scoring for all areas within CDSR.

Table 3. CDSR Baseline Scoring

Indicators	CDSR Affiliates	CDSR Lead	Total
Partnerships	2	2	2
Collaborative Research Capacities	2	2	2
SHERA’s Results Framework	1	2	2
Average Score	2	2	2

Animal Biotechnology and Coral Reef Fisheries - IPB (Food Security and Self-Sufficiency)

IPB as the Lead CCR scored higher than all CCR affiliates combined. IPB particularly scored high in partnerships and collaborative research capacities, illustrating strength in research methods, researchers’ capacity in English language, IT-capacity and women’s participation in research activities.

IPB scored low, however, in access to science and technology journals as well as dedicated resources for partnerships, in which the latter is equal across all three affiliate members, in which few or no institutions have dedicated partnership resources.

In terms of collaborative research capacity, the affiliates generally scored low, however it is interesting to note that UNIBRAW has more women scholars participating in research activities compared to other CCR affiliate members. All affiliates seem to have sufficient IT-capacity that will enable them to participate in online mentoring.

In regard to the institutions' conditions related to SHERA's results framework, both the Lead CCR and all affiliates scored low. Table 4 outlines the scoring for all areas with ANBIOCORE.

Table 4. ANBIOCORE Baseline Scoring

Indicators	ANBIOCORE Affiliates	ANBIOCORE Lead	Total
Partnerships	2	3	2
Collaborative Research Capacities	2	3	2
SHERA's Results Framework	1	2	2
Average Score	2	3	2

National Center for Sustainable Transportation Technology - ITB (Innovative Technologies)

Within the partnerships and collaborative research capabilities area, this CCR demonstrated minimal difference between its Lead CCR and affiliate members. However, ITB demonstrated strength in staff capacity in English speaking, an aspect that other Indonesia-based affiliates seem to be lacking. The one exception was Universitas Diponegoro (UNDIP), that scored quite high in this area. The Lead CCR also illustrated more experience in signing MoUs with U.S.- based HEIs and, when compared to the Indonesia-based institutions, cited more women scholars participating in research activities. On the latter, ULM and Universitas Sam Ratalungi (UNSRAT) scored the lowest, and will require assistance in this area from the Lead CCR.

In regard to where the CCR stands on SHERA's results framework, both the Lead and affiliates scored in the mid-low level, although ITB as Lead notably cited that they have a high ratio of citations of their publications. This is an area where ITB can support its Indonesia-based affiliate members to improve their numbers of citations to publications and provide tools to track this data. Table 5 outlines the scoring for all areas within NCSTT.

Table 5. NCSTT Baseline Scoring

Indicators	NCSTT Affiliates	NCSTT Lead	Total
Partnerships	2	2	2
Collaborative Research Capacities	2	2	2
SHERA's Results Framework	1	2	2
Average Score	1	2	2

Center for Collaborative Research for Acute Respiratory Infections - UNPAD (Public Health and Infectious Disease)

The Lead CCR and its affiliates scored a "2". It is important to note that UNRAM appeared to have a better understanding of the CCR when compared to other affiliate members, while, interestingly, they have less experience working with Indonesia and U.S.-based institutions and have no prior experience participating in research collaboration with the Lead CCR. Of all the affiliates members, ULM and

UNSYIAH were the two institutions who have participated in research collaboration with the Lead CCR in the past. Both institutions also mentioned having experience partnering with other Indonesian HEIs as well.

Within the area of collaborative research capacity, even though all members scored a “2,” UNRAM seems to have the highest IT-capacity, although they were unsure whether their system would support online knowledge sharing with other CCR members. Again, it is interesting to note that UNPATTI indicated having the most women scholars participating in research activities compared to other CCR members. ITB noted having obtained significant resources for their joint research projects, which is another area in which their experience can benefit other affiliates in building their capacity. Table 6 below outlines the scores for all areas of the baseline assessment within CCR ARI.

Table 6. CCR ARI Baseline Scoring

Indicators	CCR ARI Affiliates	CCR ARI Lead	Total
Partnerships	2	2	2
Collaborative Research	2	2	2
SHERA’s Results Framework	1	1	1
Average Score	1	2	2

Scientific Modeling, Application, Research, and Training for City-centered Innovation and Technology - UI (Urban Planning and Development)

UI as the Lead CCR illustrated the most experience in partnership capacity and collaborative research, and scored highest on conditions related to SHERA’s results framework compared with the combined scores of all affiliate members. This illustrates that UI will be able to impart knowledge to the affiliate members within these areas. SHERA specifically notes the benefit for the affiliates to learn about research methodology and related activities.

Overall, the affiliates have some experience with collaborative research, compared with their experience in partnerships and their current condition as it relates to SHERA’s results framework. Table 7 illustrates the scores for all areas of the baseline survey within SMART CITY.

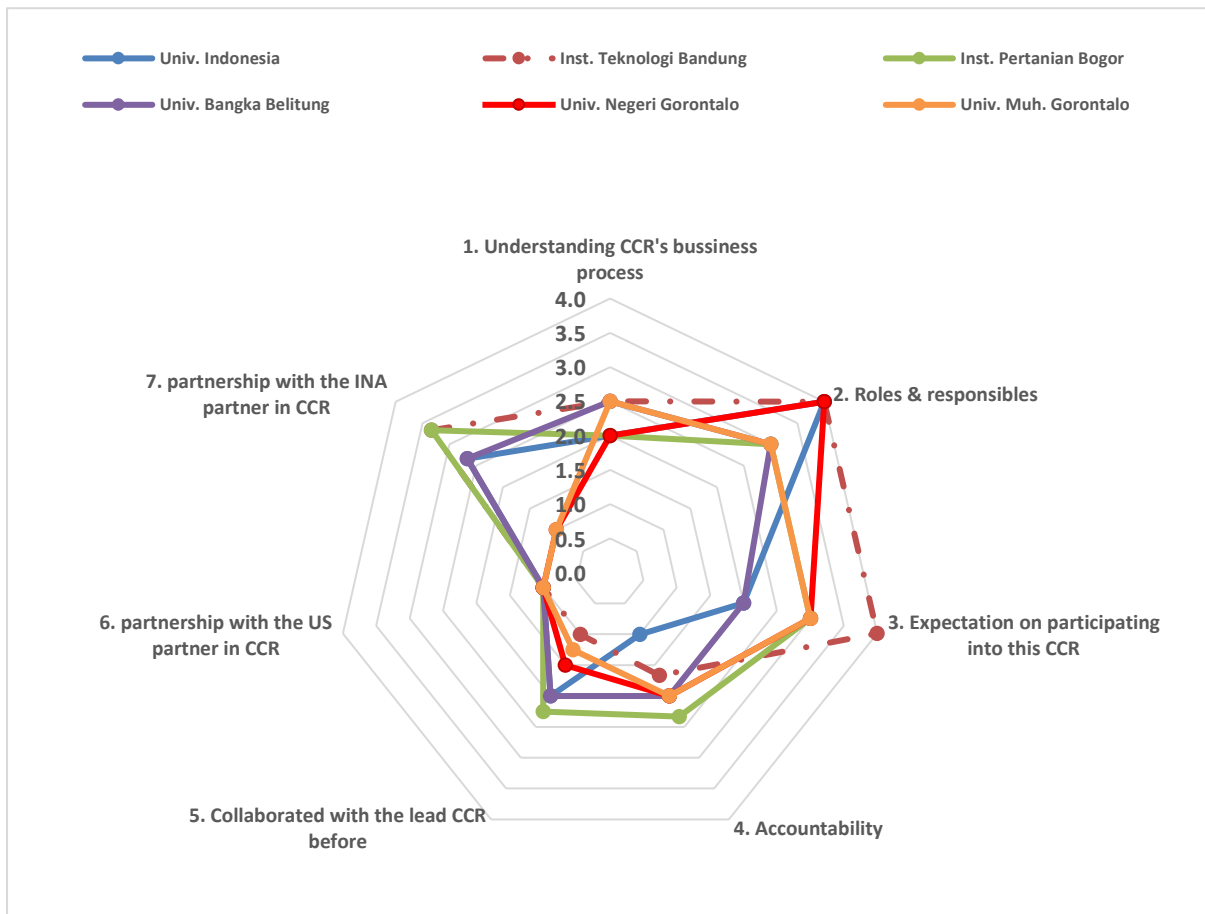
Table 7. SMART CITY Baseline Scoring

Indicators	SMART CITY Affiliates	SMART CITY Lead	Total
Partnerships	1	3	2
Collaborative Research	2	3	2
SHERA’s Results Framework	1	2	2
Average Score	2	3	2

III.2. Findings per CCR Affiliate Member

The detailed findings of affiliate members are broken out per CCR and per the baseline assessment focus area in this section.

Figure 1. CDSR Affiliates' Partnership Capacity



Understanding the CCR's Business Process

Partnership Capacity

CDSR will conduct a sustainable multidisciplinary collaboration with the goal of implementing a hybrid energy system, fostering energy-efficiency and developing the supporting network to create a sustainable tropical archipelago.

Other CCR members stated that the CCR is a consortium of several universities in Indonesia and the U.S. aimed at increasing capacity and addressing challenges related to environment, energy and maritime sciences in Indonesia. They also included that SHERA will bring together Indonesian and U.S. scholars to conduct world-class research in focus areas critical to the country's development.

Roles & Responsibilities

Some partnership members understood their role as working on joint research publications and participating in capacity building activities, while others understood their role as conducting collaborative research with the Lead CCR Indonesian institution.

Expectations of participating in the CCR

Most of the partnership members expect to experience close collaboration and networking with other CCR members, opportunities to enhance their research and publication capacity, and increased research outcomes that will be published and presented to the public.

Accountability

Most CDSR partnership members will participate in regular meetings with the Lead CCR institution. This will be an opportunity to provide feedback related to the partnership. The respondents were flexible on the medium for the virtual meetings, assuming it is user friendly. Respondents believed that the anticipated audits and the online MEL and accounting system would also support their accountability.

Previous collaboration with the Lead CCR

Three universities have collaborated with the Lead CCR university, UGM, prior to their involvement with SHERA. This includes UI, IPB and UBB in different projects. UBB has a close partnership with the Lead CCR, which focuses on capacity building in energy, environment and maritime science; curriculum development and post-graduate collaboration.

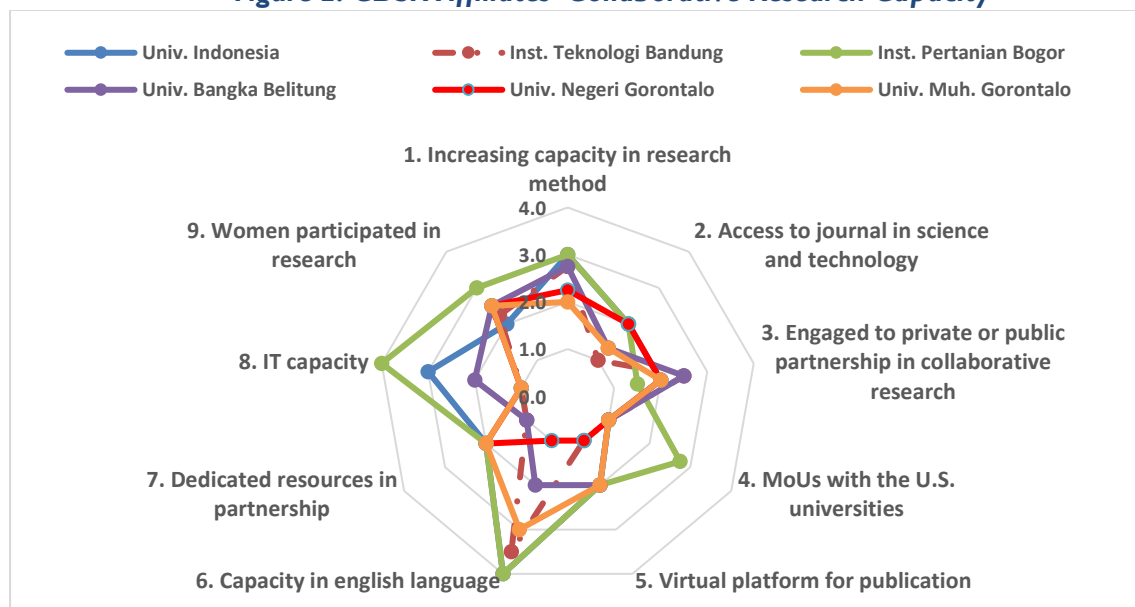
Previous partnership with the U.S partners

The Indonesian affiliate universities have no prior experience partnering with the US partner, UCB.

Previous partnership with Indonesian partners

Most Indonesian affiliate members have experience with partnership activities with the other Indonesian affiliate universities, except UNG and Universitas Muhammadiyah Gorontalo (UMG). From their past partnership experience, they gained higher standards related to research management and publication production, and experience managing student exchange and training programs. The primary challenges they experienced during their past partnerships work was the high cost of transportation and communication among partnership members across the country; and the time-consuming work of coordinating work, especially related to paper writing, when the partners were in diverse geographic locations.

Figure 2. CDSR Affiliates' Collaborative Research Capacity



Collaborative Research Capacity

Increasing capacity in research methods

All institutions have courses on research methods available to students at all levels. UMG was the most specific, in that it provided details that they conducted a research methods workshop in 2014 for lecturers and researchers.

Institutions also indicated that their research projects and laboratory work managed by each institution involved students at every level as well as lecturers. Most of the short research courses were attended by researchers, students, lecturers, and technicians.

Access to journals in science and technology

All affiliate partners have published work in science and technology journals with the exception ITB. Most of the partners indicated they are aware of research published that has been quoted by Indonesians or non-Indonesians scholars and researchers. One example is IPB, where 21 citations have been counted, including two journals indexed in Scopus. Another example is UI, which indicated that their research was published in the journal of PharmTech Research.

Engaged with the private and public sector in collaborative research

All CDSR affiliate institutions are engaged with private and/or public-sector entities in collaborative research. For example, UNG, UBB, ITB and IPB have international partnerships with universities in Asia and the Americas, while IPB have worked as a partner with USAID on other collaborative research projects focused on sustainability and accessing technology readiness level tools, respectively.

Regarding private sector partnerships, UI and Universitas Negeri Sebelas Maret (UNS) have partnerships with Pertamina and Astra, while other institutions are engaged with the public sector, including Lembaga Ilmu Pengetahuan Indonesia (LIPI), Badan Tenaga Nuklir Nasional (Batan), Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN).

Memorandum of Understandings with US universities

IPB has entered five MoUs with a U.S. institution over the past three years within the areas of education and research. The benefits they gained and best practices they learned through these activities were related to increasing student exchange, journal articles, competence of researchers, citations of scientific papers, and significantly increasing their publications numbers.

Capacity in the English language

Most participating CDSR Indonesian affiliate institutions have a very good understanding of the English language, except for UBB and UNG, in which less than 50% of their science and technology faculty can speak with international partnership members in English.

Dedicated resources for partnerships

Except for UBB, all CDSR affiliate institutions have a dedicated person to support partnership activities as they relate to collaborative research.

IT capacity

Except for UMG and ITB, all CCR affiliate institutions have virtual communication platforms to facilitate knowledge sharing.

Participation of women researchers

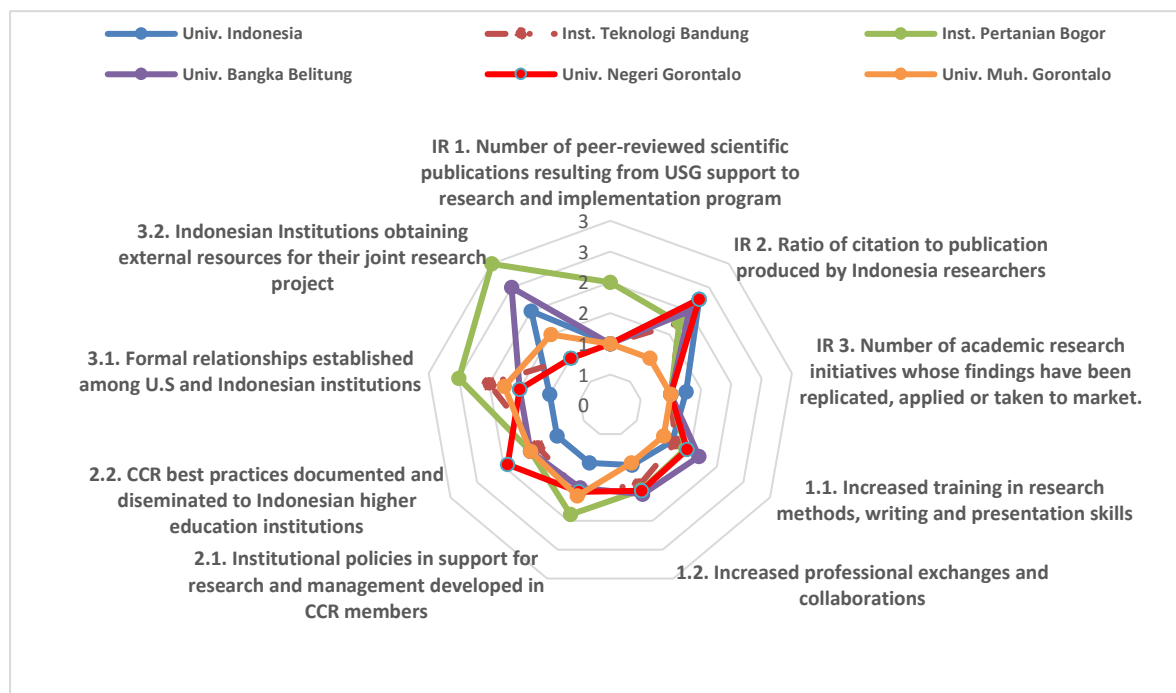
Participation of women researchers within the CCR affiliate institutions ranges from <30% to 75%. On average, there are less than 25 women researchers within the participating CCR (research unit or faculty), except for IPB and UNG, which each have 50 women researchers.

To increase this number, they suggested creating recruiting strategies that target women and providing financial support for women researchers or students. UMG suggested increasing outreach activities in local high schools, as Gorontalo is not meeting its current quota of women participating in science and technology activities. IPB mentioned the importance of having more policies focused on affirmative action and gender integration in universities' overall core business as a good strategy to increase the number of women in research. While UNS suggested that the first step to increase women's participation in research is through increasing the number of women lecturers.

Virtual platform for publications

Except for ITB and UNG, all the CCR affiliate institutions have a virtual platform for research publications.

Figure 3. SHERA's Results Framework and CDSR Affiliates



Existing Conditions related to SHERA's Results Framework

IR.1. Number of peer-reviewed scientific publications resulting from USG support for research and program implementation

IPB is the only CDSR institution that have a highest confident o mention that they have some peer-reviewed scientific publications.

IR.2. Ratio of citations to publications produced by Indonesian researchers

Of the total number of publications produced by researchers since 2014 at participating CCR affiliate member Indonesian institutions (26), 10 were related to the CCR research focus area. Of these, there is no data on the number of citations.

IR.3. Number of academic research initiatives whose findings have been replicated, applied or taken to market

The only affiliate institution that has data on this indicator is IPB, which has had four (4) research findings within the CCR research focus area since 2014 that have been replicated.

I.1. Increased training in research methods, writing and presentation skills

Various CCR affiliate members reported that their scholars have presented at international and national conference since 2014, 35%-50% of which were women researchers. The topics within the CCR research focus area included sustainable building, energy & environment, photovoltaic systems, transdisciplinary research on environmental problems in Southeast Asia, and solar cells.

CDSR affiliate institutions held short-term training within research methods, writing and presentation skills, which ranged from 2-10 trainings since 2014 in total. Additionally, UNS, UBB and UI reported 30% of their researchers participating in short-term training with USG support.

1.2. Increased professional exchanges and collaborations

There is not much finding on this area where all affiliates institutions have quite a low professional exchange and collaborations with other instituons.

2.1. Institutional policies in support of research and management developed in CCR members

Both IPB and ITB have research policies and systems in place that are documented and well-known by all staff members, who are regularly familiarized with these policies and systems through meetings, workshops, seminars, and up-to-date information on the university's website. Specific to research policy related to gender mainstreaming, IPB reported having these in place at their institutions.

2.2. CCR best practices documented and disseminated to Indonesian higher education institutions

Each CCR affiliate reported having administration and management policies and systems that are documented and well known by necessary staff and regularly updated. Most Indonesian institutions' policies are aligned with the national regulations of Kemristekdikti. IPB reported annually updating their administration and management policies by adapting them to new university strategic plans. None of the CCRs currently have websites other than their university websites.

3.1. Formal relationships established among U.S. and Indonesian institutions

Except for UI and UNS, all CDSR affiliate members have joint research projects with the private and/or public sector, which include *BATAN, Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN) Gorontalo*, and Ehime University. The joint research projects topics include transformation systems on low land rainforest, environmental pollution, and marine biodiversity.

Respondents reported increased publications and access to external research resources to support the research process itself because of the joint research activities. Overall, related to access to research and publications, institutions utilized the research engines platform such as Scopus, Research Network, Scientific Publication online, Scientific Forum & Organization, and e-Library.

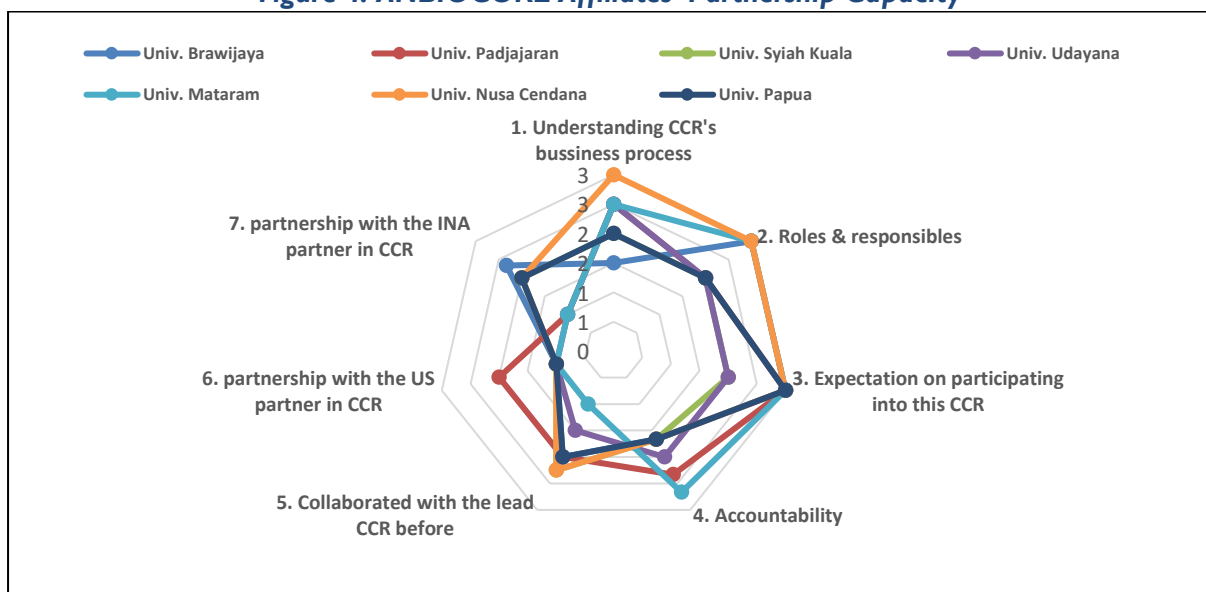
3.2. Indonesian institutions obtaining external resources for their joint research project

Affiliates reported having accessed funding for their joint research project. Specifically,

[REDACTED]

Animal Biotechnology and Coral Reef Fisheries (ANBIOCORE) Food Security and Self-Sufficiency

Figure 4. ANBIOCORE Affiliates' Partnership Capacity



Partnership Capacity

Understanding CCR's business process

Most of ANBIOCORE's affiliate members understand that the CCR is a consortium of universities from across the region and country and in the U.S., and an interdisciplinary collaboration. They also understand that the CCR requires participation from all members and that each plays a role in increasing research capacity as it relates to the research topic. They also understand that the CCR supports post-graduate student research towards their dissertations.

Roles & Responsibilities

Several affiliate partners provided details regarding their unique role. Specifically, UNPAD, which will research the Pasundan cattle in West Java and UNRAM, which will focus on coral reef fisheries research, all clearly stated their role.

Expectations of participating in the CCR

Expectations of the affiliates ranged significantly, with some more focused on their participation and others focused more on longer-term impact. For example, UNPAD expects to gain useful data on the production of high-quality Pasundan cattle, UNRAM anticipates publishing at least five papers in international journals, UNIPA expects to increase their research and publication capacity due to mentorship activities with other partnership members, and UNIBRAW anticipates increased opportunities for knowledge sharing among the CCR members.

Accountability

CCR affiliate members will remain accountable in their collaboration efforts through regular performance reporting, utilizing standardized monitoring tools, and open communication among CCR members through a virtual communications platform. All affiliates noted that, to do the above, they must first have a strong understanding of the CCR's goals, anticipated activities, and the required data recording and reporting process. Level of understanding varied, and UNRAM seemed to have the highest understanding. It is understandable that at the time of baseline data collection not all Leads CCRs had trained their respective affiliates on the program.

Previous collaboration with Lead CCR

UNDANA reported having collaborated with IPB on curriculum revisions in the past.

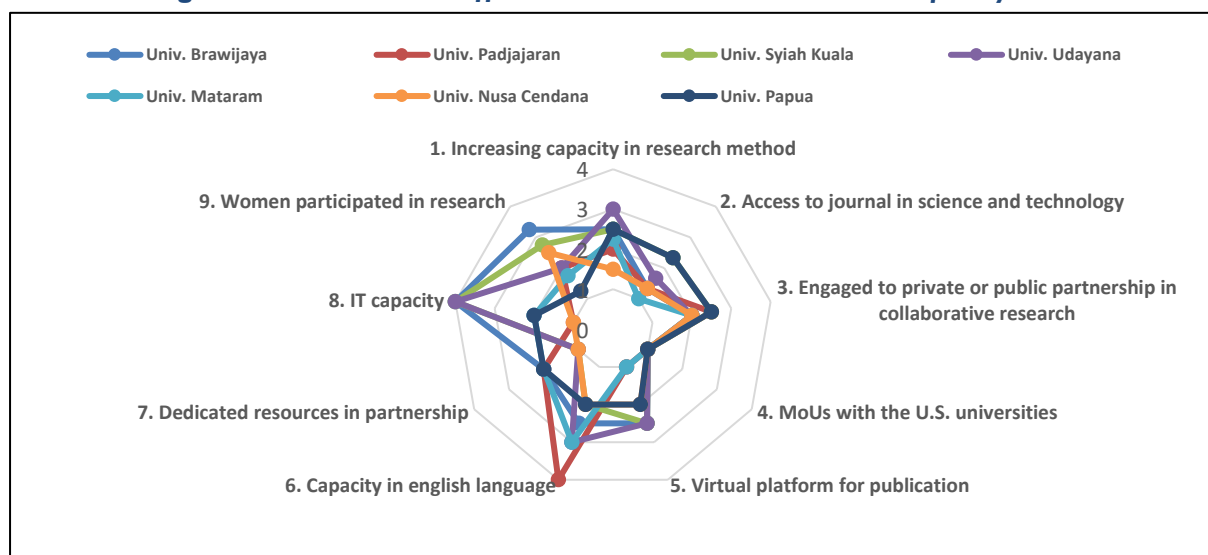
Partnership with the U.S partners in CCR

UNPAD reporting having a longstanding working relationship with URI. From their experience, they reported experiencing start-up challenges related to confusion regarding team roles and the implementation strategy.

Partnership with the Indonesian partners in the CCR

IPB explained that the challenge to entering into a partnership with Indonesian universities has to do with their different designation levels given by Kemristekdikti. Some top-tier institutions have more autonomy over their administrative and financial management, while lower-tier institutions are fully managed by the government. This makes it difficult for those institutions to collaborate because the difference requirements in managing grants is quite challenging. Nevertheless, IPB has successfully worked with lower-tier Indonesian university in the past, such as UNUD, and shared that, through the partnership, UNUD was able to gain enhanced veterinary professional development and better teaching quality.

Figure 5. ANBIOCORE Affiliates' Collaborative Research Capacity



Collaborative Research Capacity

Increased capacity in research methods

All Indonesian affiliate members reported having a research methods course available to all students. Specifically, UNIPA reported having such a course focused on collaborative research with non-governmental organizations (NGO).

Among the Indonesian affiliate institutions, enhanced overall capacity to support research infrastructure and facilities is needed, especially in producing the scientific writing and international publications.

Access to science and technology journals

With the exception of UNRAM, all of ANBIOCORE's affiliate institutions have published in and have access to science and technology journals. IPB is the only institution which has published research in science and technology journals directly related to the CCR's research topic and some have been indexed by Scopus.

Engaged in collaborative research with private and public-sector partners

All the CCR affiliate institutions have engaged in research collaborations with private and/or public-sector partners, with the majority being local public-sector entities, such as the Ministry of Agriculture, Kemenristekdikti, and local government organizations. In addition, UNIPA, UNSYIAH and UNRAM have had international private sector partnerships in the past.

MoUs with U.S. partner universities

None of the Indonesian affiliate partners currently have institutional MoUs with the US universities, however some have professional relationships with one of the U.S. institutions from previous faculty exchanges.

Capacity in the English language

The Indonesian affiliate CCR partner universities reported a 40% - 60% capacity in the English language except for IPB and UNPAD, which reported an 85% - 100% capacity in English.

Dedicated resources for partnership activities

All participating affiliate universities have dedicated resources to support partnership activities, except for UNUD, UNDANA, and UNSYIAH.

IT capacity

IT capacity varied throughout the Indonesian affiliate partner institutions. UNPAD and UNRAM reported having limited internet access; UNDANA reported having no dedicated IT department or individuals to maintain the institutions' systems; and UNIPA reported good IT infrastructure, but unreliable access to electricity. All the above reported uncertainty in their ability to conduct virtual knowledge exchange or video-conferencing with other CCR members.

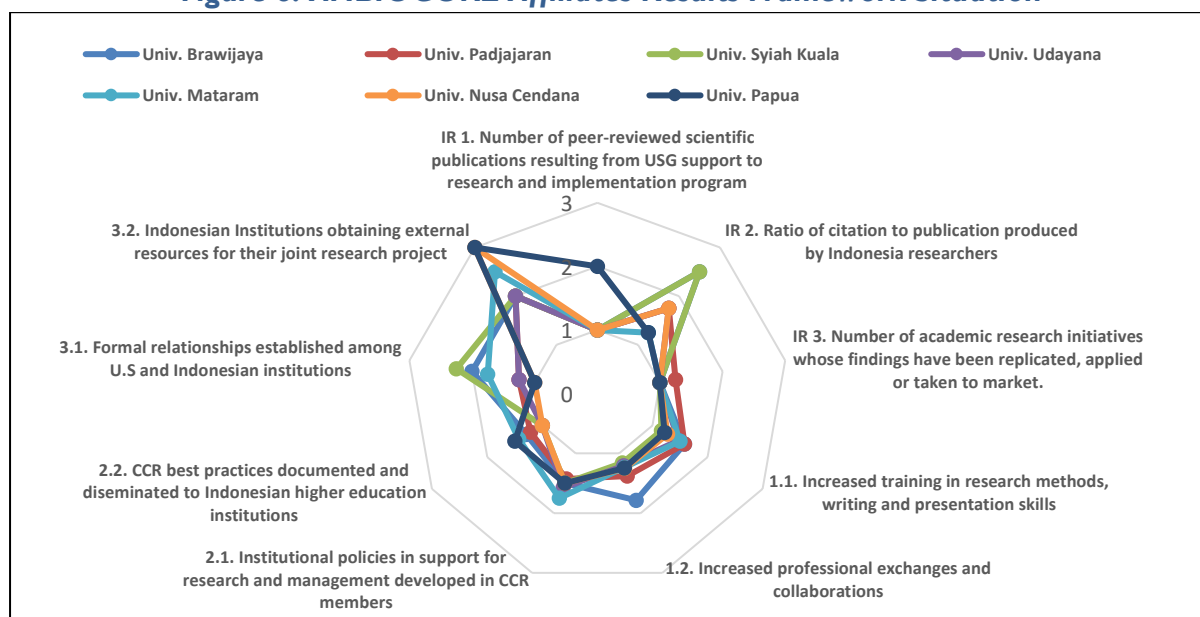
Participation among women researchers

Overall, the participation of women researchers at CCR affiliate members is approx. 40- 50%. IPB reported having strong data records related to the participation of women researchers, and over the last three years more than 300 women per institution participated in related research activities. They suggested that improved institutional policies and affirmative action initiatives would support increased gender integration at their respective institutions. To increase the number of scholarships and fellowships provided to women, they suggested increased training opportunities in science and technology research for women researchers, as well as targeted and strategic inclusion in all stages of the research process.

Virtual platform for publication

All affiliate member institutions have access to virtual platforms for research publication, except for UNRAM, UNPAD, and MSU.

Figure 6. ANBIOCORE Affiliates Results Framework Situation



Existing Conditions related to SHERA's Result Framework

IR.1. Number of peer-reviewed scientific publications resulting from USG support for research and program implementation

UNIPA has published peer-reviewed papers with financial support from the USAID-funded Indonesian Biodiversity Research Center (IBRC) program.

IR.2. Ratio of citations to publications produced by Indonesian researchers

Both UNPAD and UNIBRAW reported close to 50 publications each within the CCR research topic, however neither have good data on the number of citations received. To extract this information, they will need to manually find this through a platform such as Google Scholar.

IR.3. Number of academic research initiatives whose findings have been replicated, applied or taken to market

Other participating institutions either did not respond to this question or did not have the data to be able to report accurately.

1.1. Increased training in research methods, writing and presentation skills

In general, when compared to other CCR affiliate members, UNPAD, UNIBRAW, and UNUD have the highest number of scholars who presented at conferences on CCR-related topics over the last three years. Each reported between 50-160 scholars presenting at conferences. The other respondents reporting 20 scholars or less presenting at conferences on CCR-related topics over the same period. They didn't receive any USG support in conducting the short-term training course in research methods, writing and presentation skills.

1.2. Increased professional exchanges and collaborations

Most of the participating institutions conduct research collaboration on a national level, with four-20 scholars participating in this type of research annually. Of those scholars participating, 40% are women. UNIBRAW had the greatest number of scholars participating (20). UNPAD had the next highest number with 12 scholars participating in research. The primary research collaboration-related challenges reported by the institutions included the amount of funding provided for the activities and the additional work that comes with long-distance coordination. From their past research collaboration experience, institutions reported the benefits included increased opportunity for knowledge transfer among the scholars and joint publications in national and international journals.

UNIBRAW reported the greatest number of scholars participating in national and international faculty exchange within the CCR-related research (22 scholars), 70% of which were women.

2.1. Institutional policies in support of research and management developed in CCR member institutions

Except for UNIBRAW, all Indonesian affiliate member universities reported having institutional policies to support research and management, however they noted that these policies are not well disseminated to staff nor reviewed and updated regularly.

2.2. CCR best practices documented and disseminated to Indonesian higher education institutions

UNIBRAW, UNIPA, UNPAD and UNRAM reported having strong documentation and dissemination of their institutional policies.

3.1. Formal relationships established among U.S. and Indonesian institutions

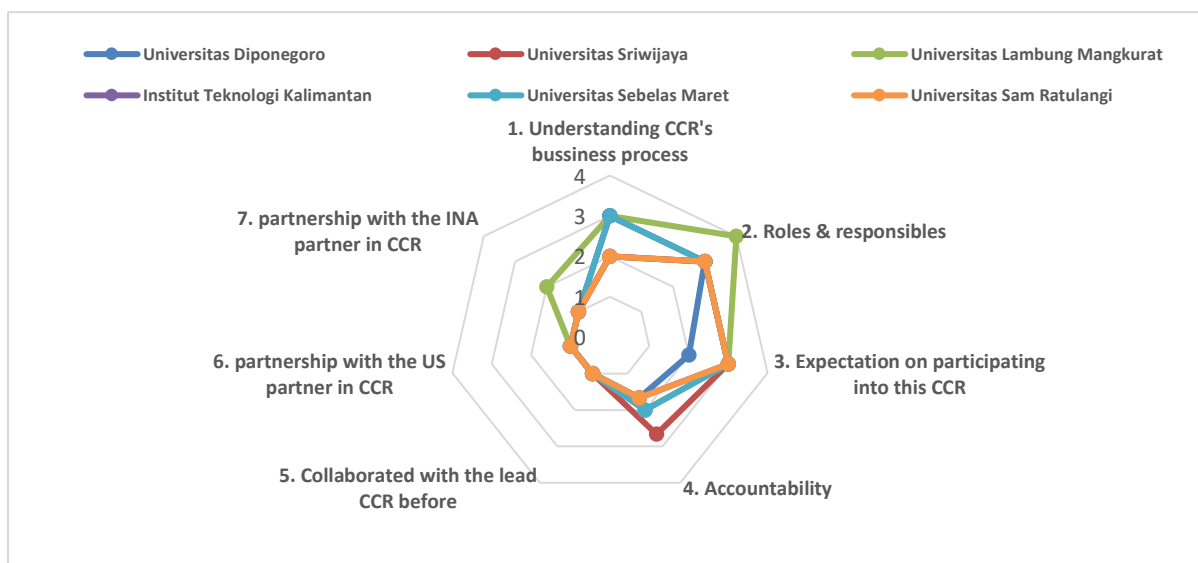
UNRAM and UNSYIAH reporting having a joint research project at the national level related to the CCR topic. These two also have a research network, an online scientific publication platform, scientific forum, and scientific organization to access resources nationally and internationally. Most of the institutions subscribe to an e-library that functions as a research search engine, such as pro-quest.

3.2. Indonesian institutions obtaining external resources for joint research projects

All institutions have obtained resources for their joint research, mostly from local government, except UNRAM, which obtained resources from national and international private sector institutions. UNIPA, UNRAM and UNDANA showed the strongest external resources for their research among CCR affiliate members.

National Center for Sustainable Transportation Technology (NCSTT) Innovative Technologies

Figure 6. NCSTT Affiliates' Partnership Capacity



Partnership Capacity

Understanding the CCR's business process

NCSTT Indonesian affiliate members ULM, UNS and ITK reported a relatively clear understanding of NCSTT's business process, stating, "a high-quality and international collaborative research on electric vehicles and transportation. The main goals are to improve research activities in this field as well as a leverage and build capacity of universities in Indonesia and to intensify involvement of female researchers. in addition, it is helping us to increase the number of publications and learn more about the quality and process of international research." UNSRAT explained it more generally as accelerating their national institutional accreditation. Other respondents only provided a very basic and brief description.

Roles & Responsibilities

Each Indonesian affiliate member reported their unique role within the CCR, however there were several that included details that noted a higher level of understanding compared with others. For example, ITK explained its role as leading the research in transportation safety; UNS explained its role as focusing on research and development; ULM explained its role as supporting three working groups in research sub topics; UNSRAT explained its role as focusing on e-trike validation and certification, electric bus validation and certification planning, and business and transit-oriented development and transport safety; and UNSRI explained its role as focused on policy, planning and business development.

Expectations of participating in the CCR

Overall, all NCSTT affiliate institutions indicated similar and detailed expectations in participating in the CCR. This included (1) increasing the number of researchers participating in exchange; (2) participating in the Massachusetts Institute of Technology (MIT) Professional Development short course in the fields of technology, innovation, manufacturing, leadership, management, and technology policy; (3) increasing the number of Ph.D. exchange students conducting research in Indonesia and the U.S.; (4) participating in international conferences on vehicle electrification technology, (5) increasing the number of publications in high-impact international journals to boost the profile of Indonesian HEIs; and (6) increasing the number of patents submitted to serve the future transportation industry. UNDIP provided an increasingly macro-level expectation that included, "leverage[ing] and

build[ing] the expertise in transportation and infrastructure development for integrated transportation solution[s] in Indonesia.”

Accountability

All affiliate institutions reported experience ensuring the accountability of their collaborative work through regular internal meetings (direct and virtual), and through regular performance evaluation. Additionally, UNSRAT and ITK reporting having submitted regular reports to the lead in the past to stay accountable for their research activities.

Past collaboration with the Lead CCR

None of the affiliate members in Indonesia have prior collaboration experience with the lead university, ITB.

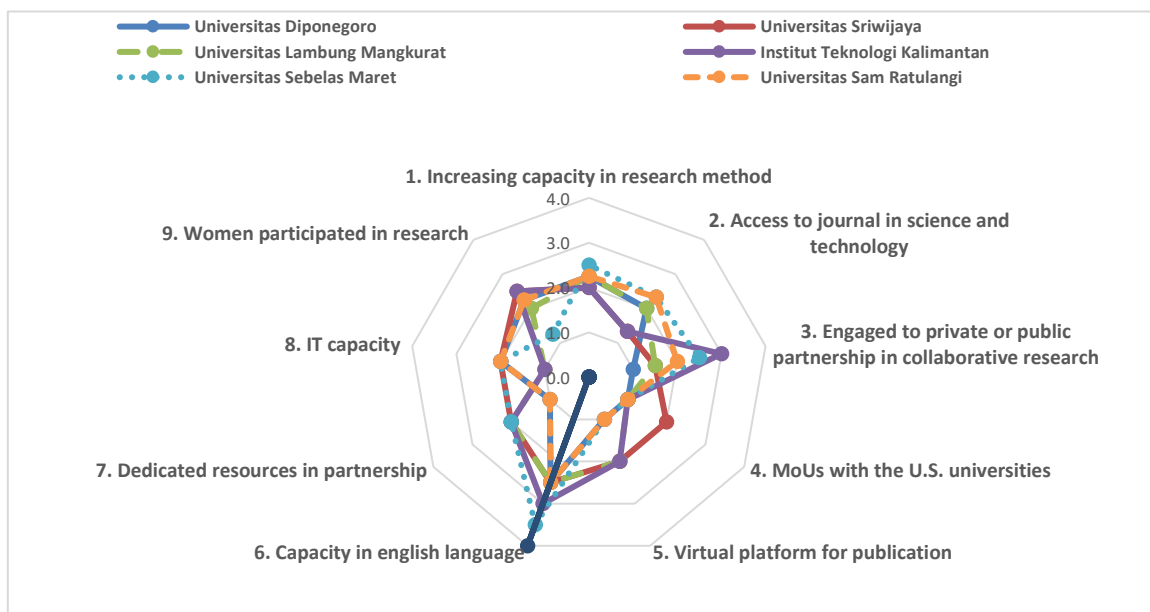
Partnership experience with the U.S partner in the CCR

All affiliate partners reported having no prior partnership experience with the US partner, MIT.

Partnership experience with the Indonesian partners in CCR

Only ULM reported experience working with the Indonesian affiliate partners in the past. Based on this experience, they cited partnership challenges including limited local communication infrastructure and the high cost of accessing better communication services, which impacted their ability to communicate with other partnership members. They reported that in-person meetings and workshops were used to meet and address issues. From their partnership experience, the institutions reported the benefits including the exchange of skills, experience and knowledge; and technology transfer among the participating universities.

Figure 7. NCSTT Affiliates’ Collaborative Research Capacity



Collaborative Research Capacity

Note: For NCSTT, only the Indonesian partners responded to this section.

Increasing capacity in research methods

Overall, the NCSTT affiliate institutions reported increasing capacities in research methods due to required academic curriculum for undergraduate and graduate students that involved research projects and laboratory work. UNS, UNDIP, and UNSRAT provided more details in their response, indicating that post-graduate students, researchers and support staff are involved in research methods

courses. Affiliates' identified research capacity needs included conducting experiments using hi-tech equipment, enhanced laboratory facilities, and increased writing skills for publications in reputable journals and proposals for research funding.

Access to science and technology journals

UNSRAT and UNS each reported having more than one published article in a science and technology journal between 2014 to 2016.

Engaged in private and public partnerships

ITK reported having the most public and private partnerships related to collaborative research (8), and UNSRI and UNS each reported having one public or private sector partnerships.

MoUs with U.S. universities

While UNSRI reported having no MoUs with U.S. universities, they indicated strong experience partnering with a foreign university for collaborative research, namely Kyung Hee University in Korea within the topic of construction engineering management through scholar exchanges; participation in conferences, symposia, courses and workshop; and exchange of technical data. They reported benefiting greatly from the joint research program and knowledge sharing during the workshops.

Capacity in the English language

The capacity of the CCR affiliate institution' staff and researchers in the English language varied widely amongst the respondents. UNS, ITK and UNSRI reported that 50% of their general staff was comfortable writing in English, while 90% of their science and technology staff was comfortable writing in English.

Dedicated resources in partnership

All of institutions have dedicated resources for partnership activities except for UNSRAT, which has none.

IT capacity

All Indonesian affiliate CCR members reported strong IT capacity except for ITK and ULM, which reported an inability to conduct tele-conferencing with international partners or participate in shared web platforms due to a lack of proper infrastructure.

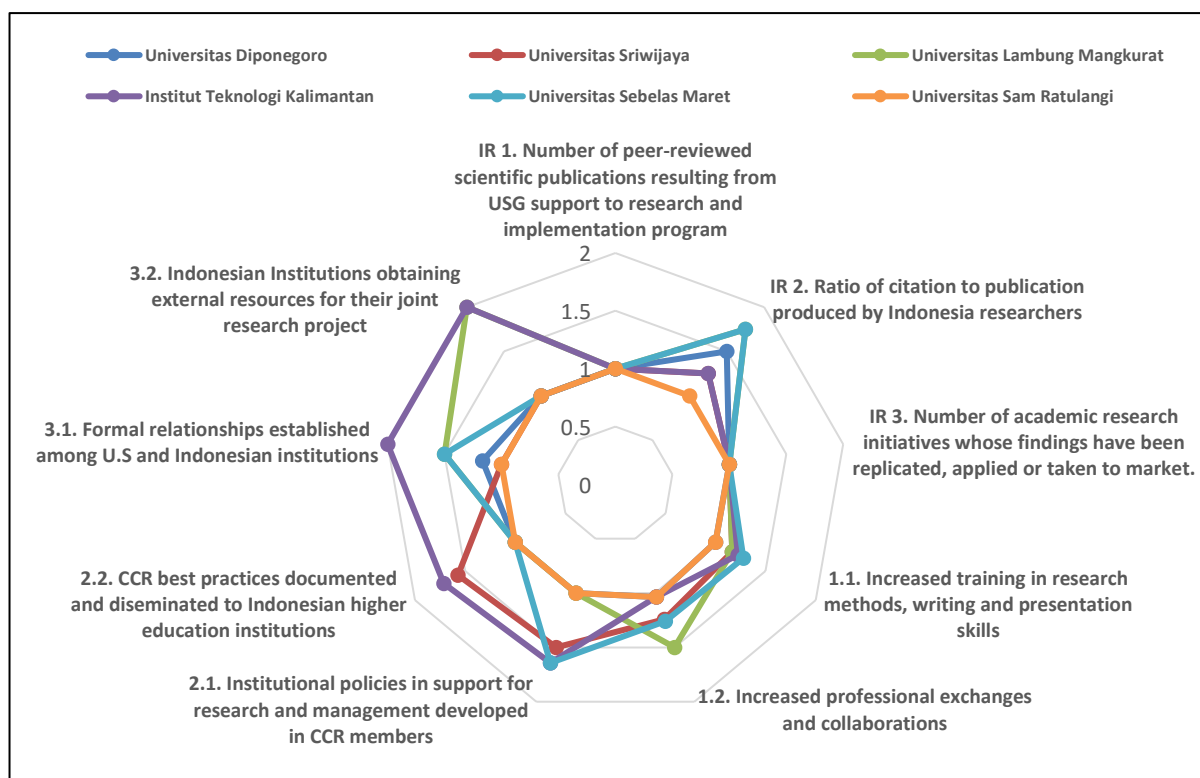
Women's participation in research

While ITK, UNSRI and UNSRAT reported that 40-50% of their researchers participating within science and technology research were women, all other affiliates reported this to be closer to 10% - 30%.

Virtual platforms for publications

ULM, ITK and UNSRI are the three CCR members that have virtual platforms for publications.

Figure 8. SHERA's Results Framework and NCSTT Affiliates



Existing Conditions related to SHERA's Result Framework

IR.1. Number of peer – reviewed scientific publications resulting from USG support for research and program implementation

None of the responding institutions have received USG support for research and program implementation that have led to the development of peer-reviewed scientific publications.

IR.2. Ratio of citations to publications produced by Indonesian researchers

UNDIP appears to have the highest number of publications, 487 since 2014 in their science and technology faculty. Other CCRs reported less, however SHERA cannot provide an exact number because the exact numbers within the research focus area were not shared. All the above information is only related to publications, as the affiliate partners did not have data on the number of publications which have been cited.

IR.3. Number of academic research initiatives whose findings have been replicated, applied or taken to market

The affiliate partners didn't have available data relevant to this indicator.

I.1. Increased training in research methods, writing and presentation skills

In general, most institutions have limited availability to relevant data and couldn't report on this indicator. This lack of data is either since they have not tracked this information to-date or because those completing the assessment were not granted access to this information.

Several could provide information related to presentations at conferences specifically. UNS and ULM reported that they both had presented at conferences on electric vehicles and railway technology, however the exact number of presentations was not provided. ITK reported having 16 scholars in total present at a conference, with 50% of those being women.

1.2. Increased professional exchanges and collaborations

ULM reported participating in collaborative research on a relevant topic domestically, while working with Institut Teknologi Sepuluh Nopember (ITS) and UNDIP on analysis and evaluation of railway track on soft soil. Additionally, they reported working as part of a consortium with Technical University of Munich (TUM, Germany) and University of Nottingham (UK). In addition, UNS reported participating in a research collaboration project domestically as a part of the national electric car project, however they did not provide the names of the other partnership members.

2.1. Institutional policies in support for research and management developed in CCR members

Overall, all Indonesian affiliate institutions have institutional policies that support research and management that are updated either annually or every three years. Additionally, respondents reported that faculty and staff are made aware of these policies through institutional website, emails, and workshops. None of the institutions, however, have policies related to the inclusion of women in research.

2.2. CCR best practices documented and disseminated to Indonesian higher education institutions

All Indonesian affiliate institutions reported that they do not have documented best practices that have been disseminated to faculty and staff at their institutions.

3.1. Formal relationships established among U.S. and Indonesian institutions

None of the affiliate institutions have established relationship with US institutions. Conversely, ITK has established a national joint research project with ITS in materials and metallurgical engineering. And regarding to the access research engines, UNS responded that they have a subscription paid by their university itself.

3.2. Indonesian institutions obtaining external resources for their joint research projects

ULM and ITK were the only affiliate members to respond to this question and the both reported having obtained external resources for their joint research projects.

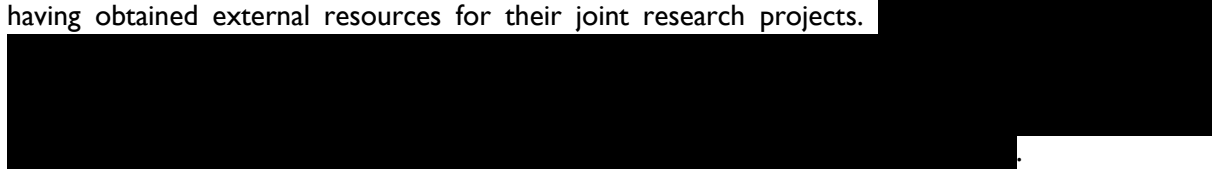
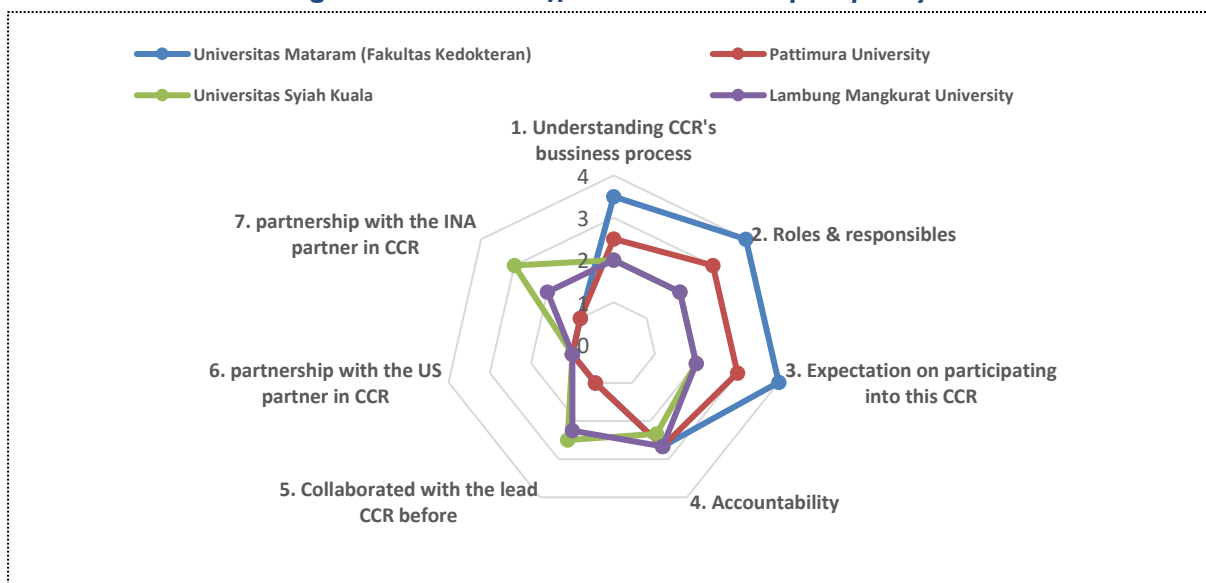


Figure 9. CCR ARI Affiliates' Partnership Capacity



Partnership Capacity

Note: CCR ARI U.S. affiliate institutions, UCD did not respond to this section, even after several attempts from SHERA, via the Lead CCR, to elicit a response.

Understanding the CCR's Business Process

Of the CCR ARI Indonesian affiliate members, UNRAM was the best able to articulate the CCR's business process, including the goal and outcomes of the CCR. Other Indonesian affiliates did not appear to have this level of understanding and only provided a brief statement that the CCR is a joint research project. ULM and UNSYIAH illustrated the least understanding, as they only briefly mentioned research. UNPATTI mentioned the joint research component and included a focus on sustainability.

Roles & Responsibilities

UNRAM illustrated the greatest understanding of their role and responsibilities within the CCR, including their level of involvement and required outputs (i.e., publications and scholar's involvement, etc.). Specifically, they noted their role as participating in research, capacity building and improving their institution's research policy. UNPATTI also exhibited a strong understanding of their roles and responsibilities in this partnership, which included being involved in the disease burden assessment activities in the hospital (research component); and participating in epidemiological and clinical research capacity building, training and mentoring, applied training within the context of clinical research, and professional exchanges and collaboration (education component); as well as creating and/or strengthening their institutional environment for research and grants management, and participating in research collaboration in the CCR (policy component).

Expectations of Participating in the CCR

UNRAM was clearly able to express their expectations, which included strengthening their institution's research capacity, particularly by providing experience in conducting multistage research and producing publications in reputable international journals, establishing a sustainable inter-institutional collaboration with the public and private sectors and improving their institution's research policy, particularly by supporting an environment for academia to thrive in the field of research and participating in PhD and post doc program through CCR support, if possible. UNPATTI also had a strong understanding of their expectations, and stated that they would improve staff research skills as

well as strengthen collaboration across universities. The remaining affiliate institutions expressed less than clear expectations.

Accountability

Based on most of the responses, it does not appear that the institutions have yet agreed upon the accountability methods as a part of participating in the consortium. However, the Indonesian affiliate institutions expressed a general understanding that feedback will be an essential component, which could take place through various means, such as regularly scheduled meetings and email communication.

Previous Collaboration with the Lead CCR

Except for UNRAM and UNPATTI, all Indonesian affiliates institutions have collaborated with the lead institution, UNPAD, in the past. Though the topics and activities were not specified, they cited several difficulties with the past research collaboration, including reaching an agreement on institutional needs that can be provided by the lead partner (mentioned by UNSYIAH).

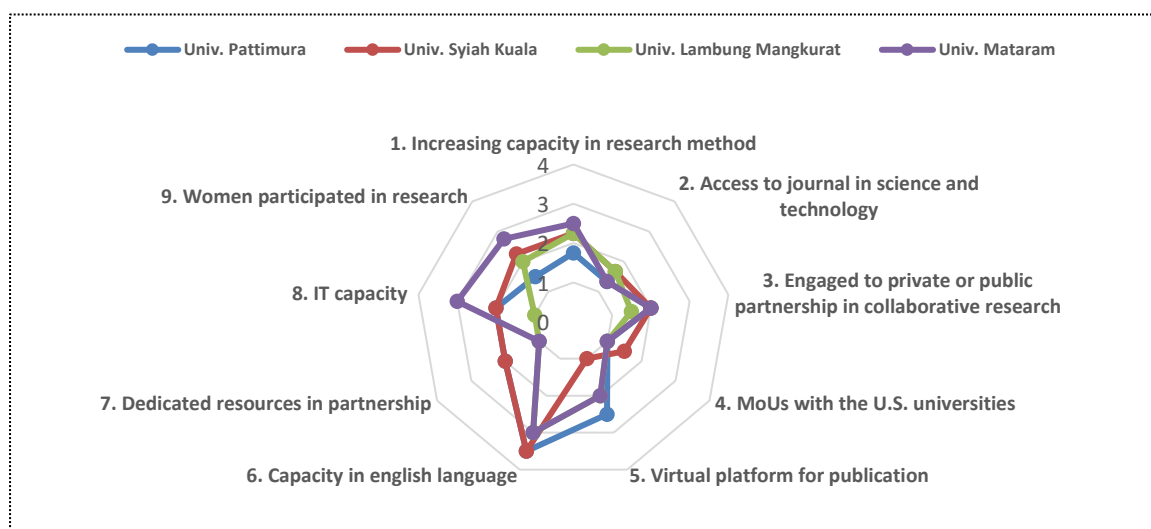
Past Partnership with the U.S Partner in the CCR

All affiliate members cited no prior experience working in a partnership relationship with the U.S. institution.

Past Partnership with Indonesian Partners in the CCR

UNSYIAH appears to have the most experience working with Indonesian institutions. Although they did not indicate which institutions they've worked with, they reported the benefits from this relationship, including building a positive partnership, publishing collaborative work, and gaining good data management and work planning skills. ULM also confirmed their experience working in partnership relationships with Indonesian universities, however they also did not mention which ones. Other institutions cited they have not worked with the other Indonesian affiliate institutions in the past.

Figure 10. CCR ARI Affiliates' Collaborative Research Capacity



Collaborative Research Capacity

Increasing Capacity in Research Methods

All responding affiliate institutions reported offering research capacity building opportunities to undergraduate and graduate students and, in the case of UNSYIAH and ULM, to post-graduates, which includes both university staff and researchers.

Respondents also shared areas where research capacity could be enhanced, which included more equipment and facilities to support lab-based projects; access to laboratory management and equipment resources; increased resources for strengthening capacity to write international publications; greater financial and technical support for journal writing and submission; rewards for scholars who are published in reputable international journals; and increased professional support.

Access to Journals in Science and Technology

Based on the findings, it does not appear that the affiliate institutions have access to journals in science and technology. Although all the institutions mentioned that they have some publications in these types of journals, it isn't clear whether they tracked if these publications are being cited. There is also a lack of knowledge in which journals they have published, since only UNSYIAH and ULM were able to provide a list of published journals. Conversely, it may simply be that those who filled out the baseline questionnaire did not have access to that information.

Engaged in Private or Public Partnerships in Collaborative Research

All responding institutions reported some experience in public and/or private partnerships as it relates to research collaboration. UNRAM has partnered with the Ministry of Education and several public Japanese institutions; UNPATTI has partnered with the Ministry of Health to conduct a household health survey and research on traditional medicine, and has partnered with other national universities and international NGOs on maternal and child health and nutrition issues; UNSYIAH has partnered with Goettingen University (Germany), McMaster University (Canada) and Yang Ming University (Taiwan) on joint research projects. UCD did not respond to this question.

MoUs with U.S. Universities

It is interesting to note that while most of the affiliates have –to some extent—collaborated with non-Indonesia-based institutions, this does not mean that they entered any formal agreements. Even without formal agreements, the Indonesian institutions reported some specific benefits that resulted from the relationship. Specifically, UNSYIAH reported the benefits of knowledge sharing to their joint publications, and increased research capacity more generally. While ULM has not entered any agreements with US-based universities.

Capacity in the English Language

Most Indonesian affiliate institutions indicated that their department have a high capacity level in the English language. On average, responding Indonesian institutions reported that between 50% to 75% of their science and technology faculty and staff can communicate in English. UNRAM reported the lowest confidence (60%) in their English language capacity.

Dedicated Resources for Partnerships

Only UNPATTI and UNSYIAH reported having dedicated resources to manage partnerships with other institutions.

IT Capacity

All responding institutions indicated good IT capacity within their departments. ULM, however, noted that they will need to improve their IT quality to properly participate within CCR ARI.

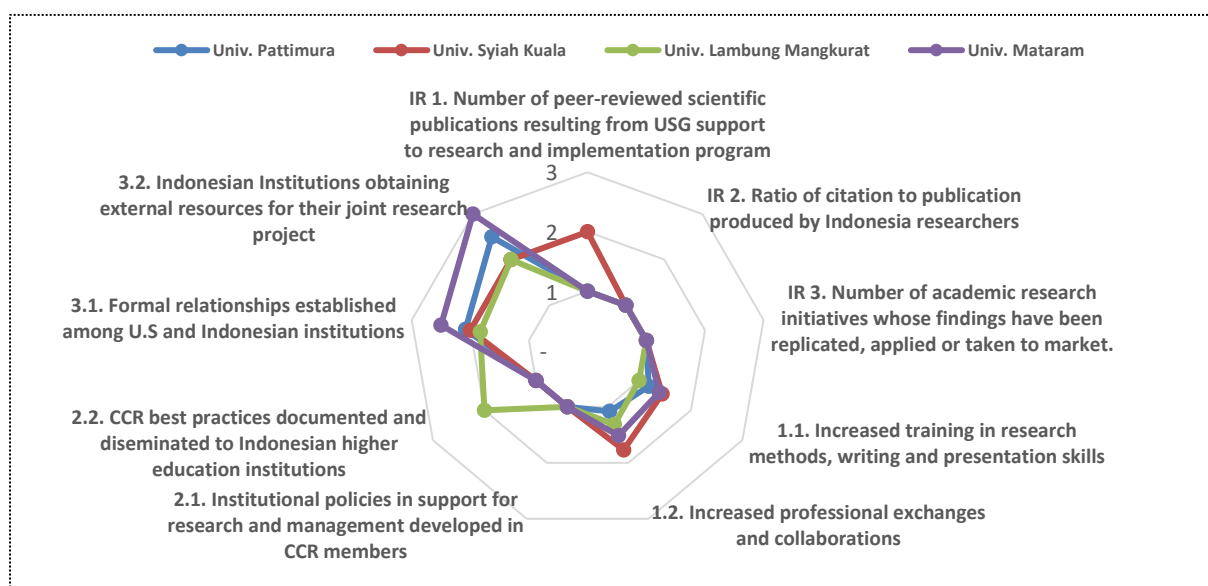
Women's Participation in Research

The findings on women's participation in research activities for these affiliate institutions are quite good. Institutions with a relatively high level of female participation in research within their department include UNSYIAH at 40%, ULM at 75% and UNRAM at 100%. While UNPATTI reported that only 12% of women within their department are involved in research. When asked how to increase the number of women involved in science and technology research, institutions suggested more research funding for women, rewards for female researchers, focusing on improving the research skills of women, and creating policy that prioritizes women in research activities.

Virtual Platform for Publications

All the affiliate institutions have a virtual platform for qualified publications except for UNSYIAH.

Figure 11. SHERA's Results Framework and CCR ARI Affiliates



Existing Conditions Related to SHERA's Results Framework

Note: UCD did not provide responses to this section, even after several attempts from SHERA, via the Lead CCR, to elicit a response.

IR.1. Number of peer-reviewed scientific publications resulting from USG support for research and program implementation

UNSYIAH was the one affiliate member to report having peer-reviewed scientific publications because of USG funding in 2014 and 2015. They did not, however, provide details on the type of support or from which agency.

IR.2. Ratio of citations to publications produced by Indonesian researchers

The affiliate institutions reported that they have not monitored the number of times that their publications have been cited.

IR.3. Number of academic research initiatives whose findings have been replicated, applied or taken to market

All responding affiliate institutions reported that none of their findings have been replicated, applied or taken to market.

I.3. Increased training in research methods, writing and presentation skills

UNRAM, ULM and UNSYIAH reported that scholars from their departments have made presentations at conferences, however only UNRAM confirmed that the presentation(s) was on a CCR-related topic, "Cloning and Expression of ESAT6 Recombinant Protein as a Potential Skintest for Diagnosis of Tuberculosis". UNPATTI reported that their department has yet to be involved in increasing any of these skills.

I.4. Increased professional exchanges and collaborations

UNRAM reported collaborations with institutions in Japan, the Netherlands and within Indonesia (UGM), and UNPATTI reported collaboration with the Ministry of Health. While UNSYIAH did not share with whom or how many collaboration programs they've experienced, they did report that they

were on science-related topics, such as medicine; natural, veterinary, marine and social science; and disaster management. ULM reported having no past exchange or collaboration experience.

2.1. Institutional policies in support of research and management developed in CCR members

The finding from the affiliate members' responses indicate that none of the institutions have put focus on this topic so far.

2.2. CCR best practices documented and disseminated to Indonesian higher education institutions

Only ULM reported that such practices have been documented, shared with faculty, and updated annually.

3.1. Formal relationships established among U.S. and Indonesian institutions

Except for ULM, all responding affiliate institutions reported having established relationships with U.S. institutions. These institutions also mentioned that, through their relationships with U.S. institutions, they've been provided access to research journals, through the National Library Journal Access, and other open-access scientific publications.

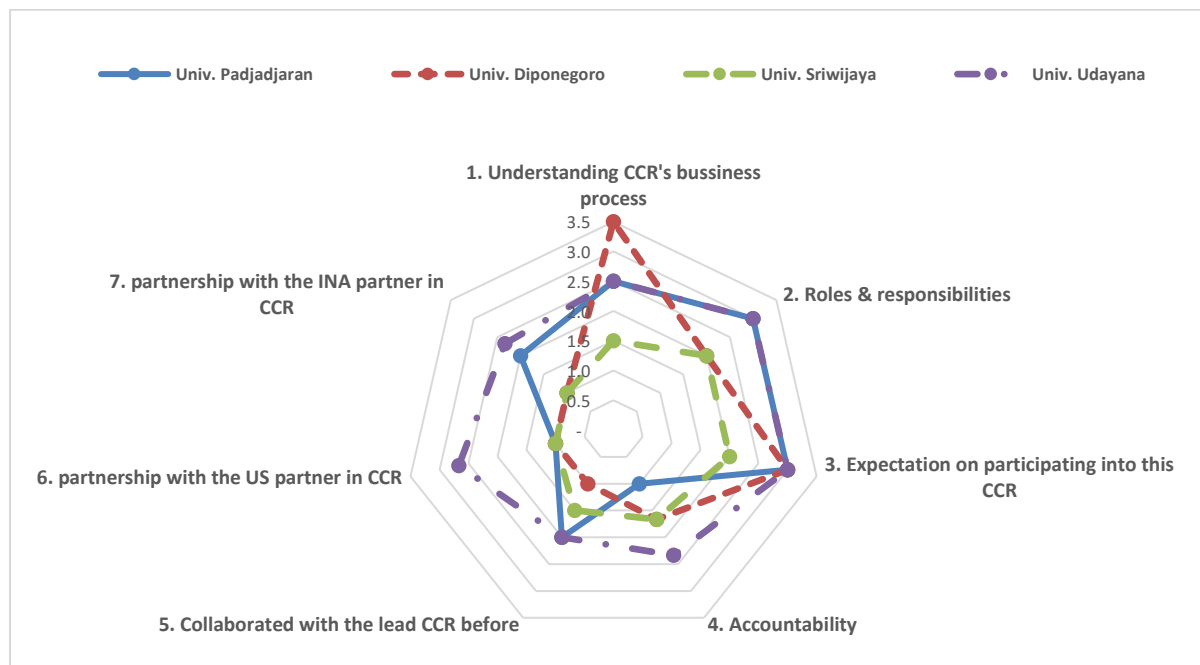
3.2. Indonesian institutions obtaining external resources for their joint research projects

While all affiliate institutions reported having obtained funding and/or support from the Indonesian government and/or private sector entities, UNRAM provided details, including that they have received support from [REDACTED]. Additionally,

[REDACTED]

Scientific Modeling, Application, Research, and Training for City-centered Innovation and Technology (SMART CITY) Urban Planning and Development

Figure 12. SMART CITY Affiliates' Partnership Capacity



Partnership Capacity

Note: All U.S. partner institutions – Savannah State University (SSU), University of Florida (UF) and University of Illinois, Urbana-Champaign (UIUC)— did not respond to this section.

Understanding the CCR's Business Process

Most SMART CITY affiliate institutions expressed their understanding of this project as focused on research collaboration. UNDIIP expressed this succinctly when it reported that SMART CITY's collaborative research focuses on human resources development in higher education, especially in the field of urban development. While UNPAD reported the purpose as increasing Indonesian university's cooperation capabilities within science and technology research, and UNUD and UNSRI reported that this research collaboration project supports capacity. UNSRI seemed to have the least comprehensive understanding, simply stating that they were aware this collaboration is about research.

Roles & Responsibilities

Based on their responses, most of the affiliate institutions appear to have a clear understanding of their responsibilities. Specifically, UNUD stated that the Indonesian affiliates are responsible for developing the research groups for international publications, participating in international conferences, and hosting university exchange trips for research and management improvement. Other institutions mentioned their responsibility to participate in research networking, facilitate focus group discussions, and distribute funds to scholars.

Expectations of Participating in the CCR

Most institutions have high expectations of participating in the proposed collaborative research. Specifically, UNUD's response focused on their long-term expectations, in which they will gain the managerial and research collaboration experience to one day lead a consortium of a USAID-funded project. Alternately, UNDIIP believes that by participating in this CCR, they will be able to build their human capacity. UNPAD's response was more outputs-based, stating that their expectation was to

increase their number of published research papers. Lastly, UNSRI reported that they anticipate gaining more research experience.

Accountability

In their response, UNUD provided a detailed description for how and when to provide feedback to ensure accountability, which included participating in the planning process. UNDIP reported that communication via email would ensure feedback is provided and suggested the possibility of communicating directly with USAID. UNPAD expressed their challenge thus far in providing feedback, demonstrating the need for further discussion with the Lead CCR.

Collaborated with the Lead CCR Before

All institutions have previous experience collaborating with the Lead CCR, UI, except for UNUD. A challenge cited by UNSRI during the past collaboration was differences in instrumentation used by the institutions. Conversely, UNUD mentioned that they learned a lot from the lead, however did not provide any specifics.

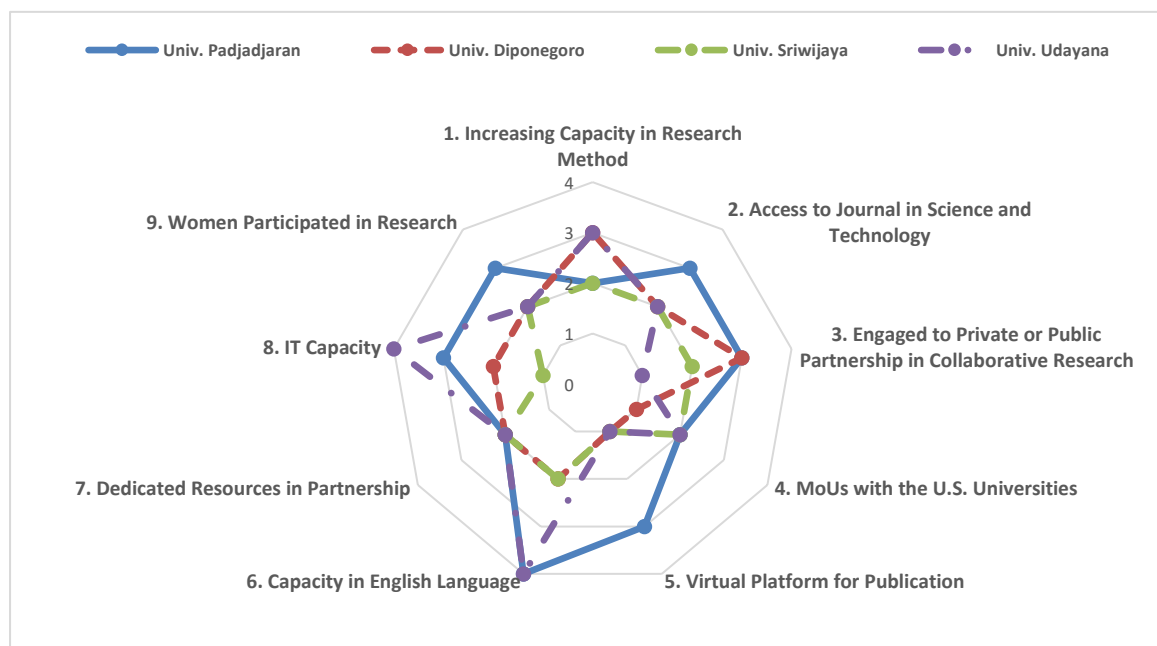
Past Partnership with the U.S Partners in the CCR

UNUD is the only institution that has worked with the U.S. partner institutions in the past, although did not mention which institution(s). Based on their experience, UNUD highlighted that one way to avoid future challenges is to settle on a detailed work plan that outlines expectations around roles and outputs in advance. They also mentioned that, from their experience, their academic staff improved their knowledge and skills related to research and scientific writing. In regard to future challenges CCR may face, UF suggested that CCR should focus specifically on the preparation of research publications on its intended publication platform. This would give them direction to adjust the publication as necessary to the platform they plan to use.

Partnership with the Indonesian Partners in the CCR

UNUD is the only institution who reported having past partnership experience with one or more of the Indonesian CCR members, though it did not provide details on which institutions or the focus of the partnership. They reported that due to this previous research collaboration, the number of high-quality publications increased at their institution.

Figure 13. SMART CITY Affiliates' Collaborative Research Capacity



Collaborative Research Capacity

Increasing Capacity in Research Methods

Indonesia affiliate institutions have courses on research methods, focused on urban and regional planning. The participants are mostly undergraduate, graduate, and post-graduate students. Students and academic staff, including lecturers, researchers, and laboratory technicians, were involved in the delivery of the training/courses, although there is no specific mention of how or the extent of their involvement.

Access to Journals in Science and Technology

Indonesian affiliate institutions have publications in science and technology journals. UNPAD reported having the highest number of publications in these journals. Of note, UNSRI reported having publications in the Journal of Dermatology.

Engaged in Private and Public-Sector Partnerships in Collaborative Research

Except for UNUD, all institutions reported participating in research collaboration with private and public partners.

MoUs with the U.S. Universities

Except for UNDIP, all institutions reported having (or had) MoUs with U.S. universities in general (not limited to the ones in this CCR), primarily related to joint research and lecturer exchange. Several outcomes were named, such as increased journals and proceedings, as well as improved research and writing skills.

Capacity in the English Language

UNDIP and UNSRI both reported their staff capacity in speaking English at 30% and 50%, respectively. Other Indonesian affiliate members cited their staff capacity in speaking English at 75% or higher.

Dedicated Resources for Partnerships

All institutions reported having dedicated resources for partnership engagement.

IT Capacity

All Indonesian institutions believe that their IT capacity is adequate to conduct virtual communication and mentoring.

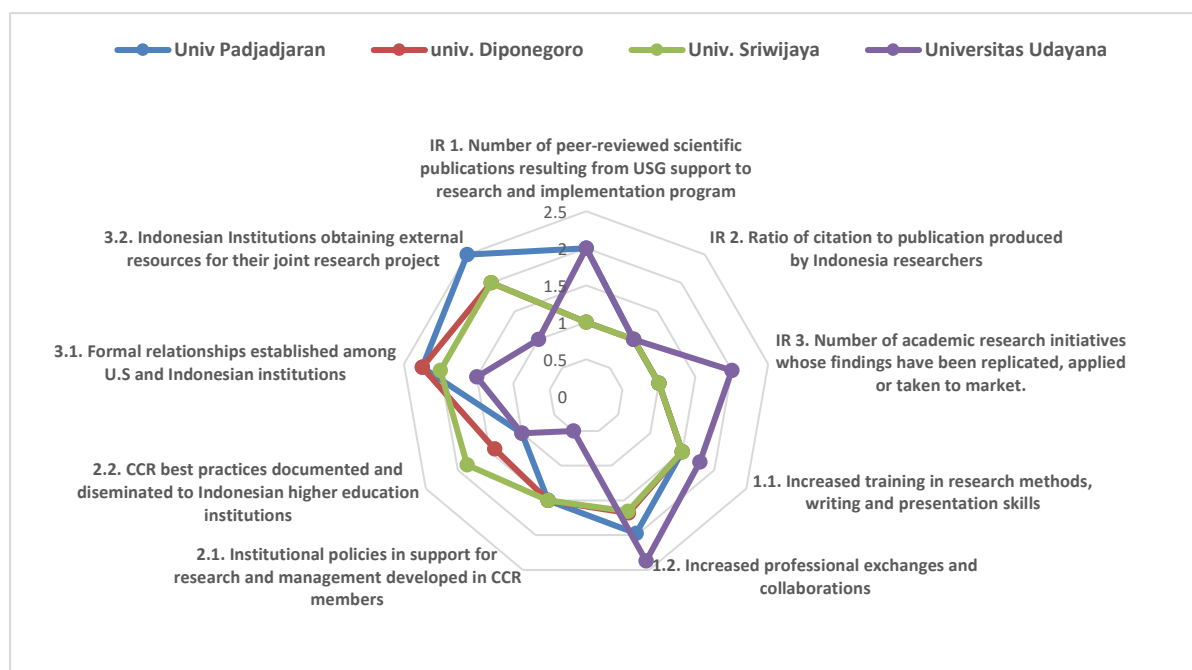
Women's Participation in Research

At 42%, UNPAD reported the highest percentage of women participating in research compared to the other affiliate institutions. UNSRI also had relatively high percentages of women participating in research, 30%. The lowest was UNDIP at approx. 9%.

Virtual Platform for Publication

Only UNPAD reported having an adequate virtual platform for publication. They also explained that they use an online system for research management, which is for internal use only (intranet).

Figure 14. SHERA's Results Framework and SMART CITY Affiliates



Existing Conditions related to SHERA's Results Framework

IR.1. Number of peer-reviewed scientific publications resulting from USG support for research and program implementation

UNPAD and UNUD were the two affiliate institutions that reported having peer-reviewed scientific publications because of USG support. For UNPAD, this included the USAID Partnerships for Enhanced Engagement in Research (PEER) project in 2016 and the USAID Research and Innovation Fellowship in 2015 and 2017.

IR.2. Ratio of citations to publications produced by Indonesian researchers

The findings are not sufficient to generate analysis, as the respondents did not or could not report on the number of citations to publications produced.

IR.3. Number of academic research initiatives whose findings have been replicated, applied or taken to market

UNUD was the only affiliate institution to report on this indicator, noting that they have research initiatives that have been replicated, applied or taken to the market, but providing no details on the research.

1.1. Increased training in research methods, writing and presentation skills

Indonesian affiliate institutions have had researchers present at conferences. Of those, at least 40% were women researchers. The locations of the conferences were reported to be in Indonesia or abroad. They also reported having courses on research methods, although the responses provided were not specific on the specific topics.

1.2. Increased professional exchanges and collaborations

Among the affiliate partners who responded, UNPAD has the highest number of researchers and scholars who participate in professional exchanges and collaborations, approx. 500 scholars, with 40% of those being women. They also reported that these experiences increased the research capability of their researchers and enhanced outcomes, in terms of the quality of publications.

2.1. Institutional policies in support of research and management developed in CCR members

The findings from the responses show that none of the institutions have put a focus on this issue. In relation to gender equality, however, UNPAD mentioned that they have an equal opportunities policy for both men and women.

2.2. CCR best practices documented and disseminated to Indonesian higher education institutions

UNDIP and UNSRI both cited that they at least have administration and management policies and systems in place. For UNDIP, these policies were disseminated through direct communication in classes, such as seminars, and by sending the documents to each faculty and department at the institution. Both mentioned that these policies are reviewed and updated every five years.

3.1. Formal relationships established among U.S. and Indonesian institutions

Except for UNSRI, all Indonesian institutions reported having joint research with U.S. institutions, which involved researchers and lectures from each institution. The joint research covered topics within energy, health, agriculture, and social sciences. Regarding how their scholars accessed research resources, most the institutions subscribe to reputable international publications or individuals search for free service websites.

3.2. Indonesian institutions obtaining external resources for their joint research project



III.3. Findings per CCR Affiliate Members – U.S. Based Institutions

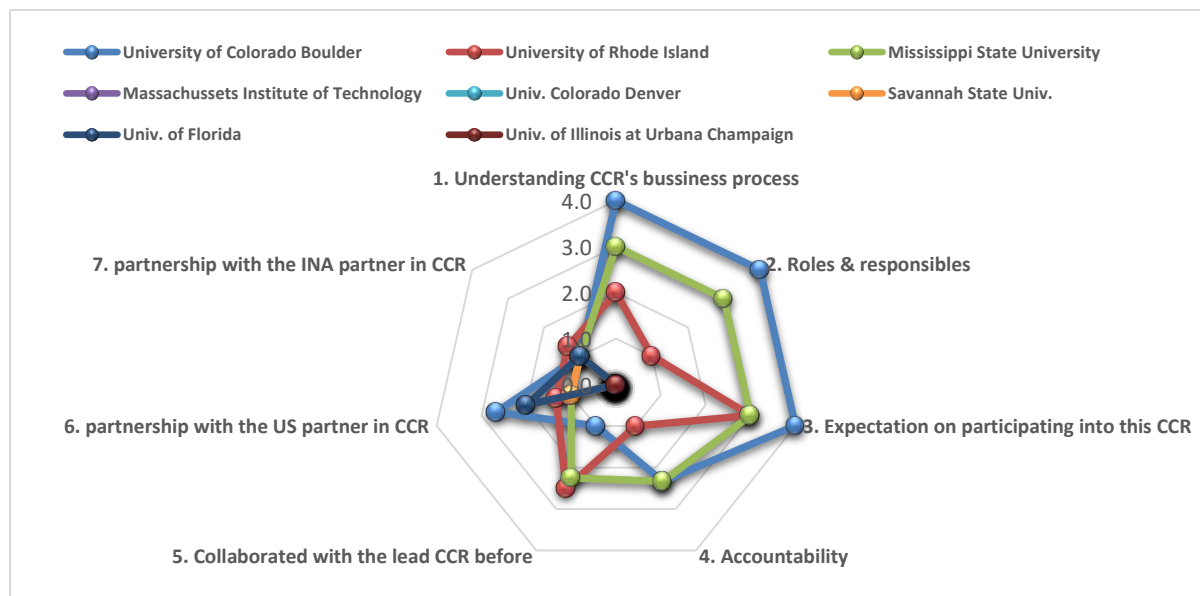
This section focuses on discussing the findings from the U.S. based institutions affiliates. This is due to several reasons, one is that condition between U.S. and Indonesian based institutions are different and they cannot be compared with each other. This is especially sound when analyzing the findings between U.S. based institutions with Indonesian institutions based outside Java island –for example. The second one is that not all U.S. based institutions provided a thorough and complete respond to the online questionnaire. Some provided a portion to the questionnaire, others declined to provide responses. This condition therefore potentially provides a bias and unclear analysis when the information provided by the two groups to be put together into one collective analysis.

The analysis for the U.S. based institutions is done somewhat differently than the analysis for Indonesian based institutions. Where for the Indonesian-based institutions analysis were done based on each CCR (to see where they stand on the three topics), the analysis for U.S. based institutions are done by directly grouping them into three main topics: partnership, collaborative research, and the results framework. Cautions are made where each institution will be explained in which CCR they are included as to give readers better information on each institution situation.

The list of which U.S. based institutions partnership with which CCR can be seen at Annex I.

III.3.1. Partnership Capacities

Figures 16. Partnership Capacities of U.S. Partners



Understanding CCR's business process

University of Colorado, Boulder's (UCB –CCR CDSR) understanding of the CCR's business process was clearer than other CCR partners, specifically stating that CDSR will provide the necessary technical support in building-integrated photovoltaics (BIPV) and net-zero energy building (NZEB) to assist with the development of a network and implement the proposed technical approaches, such as site visits, technology reviews, technical seminars, and design and simulation solutions. In comparison, other CCR members stated that the CCR is a consortium of several universities in Indonesia and the U.S. aimed at increasing capacity and addressing challenges related to environment, energy and maritime sciences in Indonesia. They also included that SHERA will bring together Indonesian and U.S. scholars to conduct world-class research in focus areas critical to the country's development. Mississippi State University and University of Rhode Island came second and third on this area, respectively –both from the CCR ANBIOCORE.

Roles and responsibilities

UCB and MSU hold the highest understanding on this area, where URI came on third. It seems that other U.S. based institutions did not provide responses.

Expectation on participating into this CCR

Only three institutions provided response to this area and all three seem to have clear expectations by participating into this CCR. Those institutions are UCB, MSU and URI.

Accountability

Unlike the first three area, all three institutions that provided response (UCB, MSU and URI) still trying to figure out the methods for reporting and accountability process and procedures from the partnership with the respective CCR.

Collaborated with the Lead CCR before

No institutions have cited that they have worked with the respective Lead CCR previously.

Partnership with the U.S. partners in CCR

No U.S. based institutions have worked with the Indonesian institutions previously.

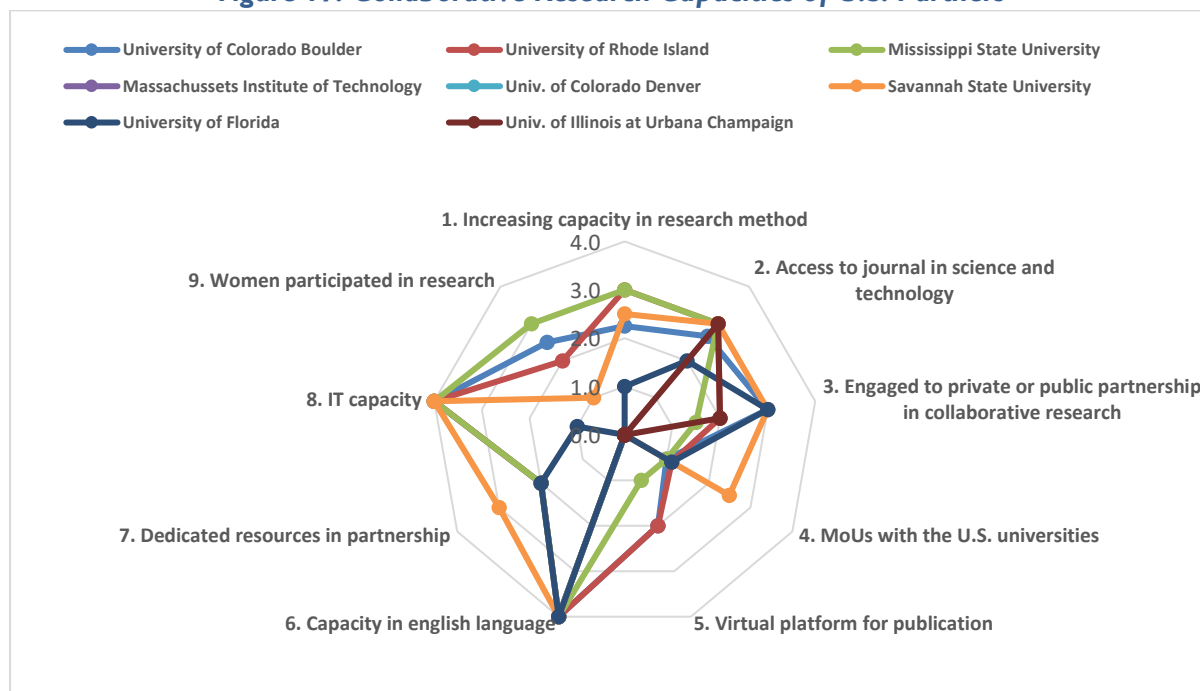
Partnership with the Indonesian partners in CCR

Same as above.

Please note that such situation was still exist during the time of data collection –where situation could be a whole lot different during the writing of this report.

III.3.2. Collaborative Research Capacities

Figure 17. Collaborative Research Capacities of U.S. Partners



Note: All U.S. based institutions provided responses in the area, except for Massachusetts Institute of Technology (CCR NCSTT) and University of Colorado Denver (CCR ARI).

Increasing capacity in research method

URI reported having the necessary infrastructure and facilities for cutting-edge research, and more specifically, US affiliate partner Mississippi State University (MSU) reported having the necessary facilities and capacity to analyze samples through Institute for Genomics Biocomputing and Biotechnology (IGBB) in reduced time.

Access to journal in science and technology

These all seem that the institutions do not have an issue in having access to journal in science and technology.

Engaged to private or public partnership in collaborative research

Same as above, those that provided response cited that at some point they have engaged with private or public partnership during collaborative research.

MoUs with the U.S. universities

This area is more suitable for Indonesian based institutions, although some of the U.S. based institutions did provide responses.

Virtual platform for publication

It is interesting to note that all that provided response mentioned that they did not have specific virtual platform for publication –only using own website and depending on the Scopus site for storing the publication.

Capacity in English language

This area is more suitable for Indonesia based institutions.

Dedicated resources in partnership

It does not seem that the institutions have dedicated resources allocated to manage partnership, except for Savannah State University. Any form of partnership might be developed on activity basis rather than by a dedicated resource or unit in the institution.

IT capacity

All institutions that provided responses mentioned that they did not have issues with their respective IT capacity.

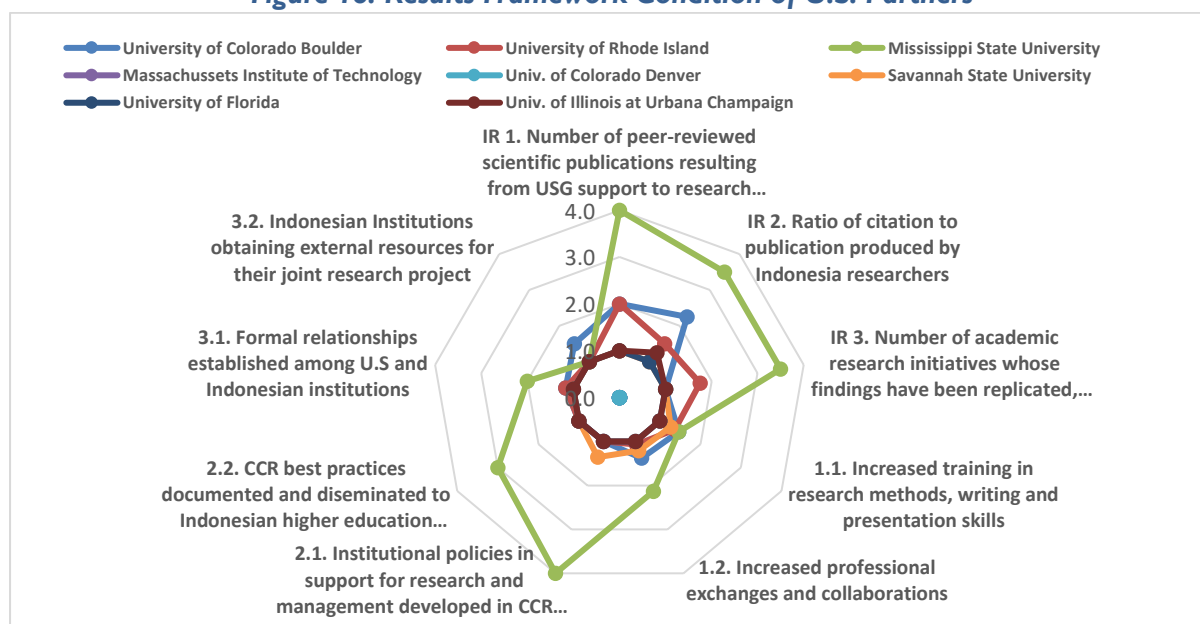
Participation among women researchers

MSU reported having strong data records related to the participation of women researchers, and over the last three years more than 300 women per institution participated in related research activities.

Please note that such situation was still exist during the time of data collection –where situation could be a whole lot different during the writing of this report.

III.3.3. Results Framework

Figure 18. Results Framework Condition of U.S. Partners



Note:

- All U.S. based institutions provided responses in the area, except for Massachusetts Institute of Technology (CCR NCSTT) and University of Colorado Denver (CCR ARI).
- Most of the information for the results framework are targeted for Indonesian institutions, therefore there will be some areas where analysis for U.S. based institutions are not provided.

IR1. Number of peer-reviewed scientific publications resulting from USG support to research and implementation program

Of all the U.S.-based institutions that provided responses, it seems that the Mississippi State University (CCR ANBIOCORE) has more positive finding than others. They scored the highest –compared to the other U.S. based institutions—on the number of peer-reviewed scientific publications.

IR2. Ratio of citation to publication produced by Indonesian researchers

This area is for Indonesian based institutions as the question set asking for Indonesian researchers' products.

IR3. Number of academic research initiatives whose findings have been replicated, applied, or taken to the market

Of all the U.S.-based institutions that provided responses, it seems that the Mississippi State University (CCR ANBIOCORE) has more positive finding than others. They scored the highest –compared to the other U.S. based institutions—on number of academic research initiatives whose findings have been replicated, applied, or taken to the market. Few examples of those that have applied by other companies including findings from “Sperm Superoxide Dismutase is Associated with Bull Fertility” and “Environmental Stressor Influencing Hormones and Systems Physiology in Cattle”. Others were either providing lack of responses or did not provide response at all.

I.1. Increased training in research methods, writing and presentation skills

There are very low respond to this area that the lack of information did not qualify for further analysis. However, this area was intended to gauge condition of Indonesian based institutions.

I.2 Increased professional exchange and collaborations

The MSU is the only institution that have a clear respond to this question, compared to other institutions. MSU reporting experience in both national and international collaborative research, however did not provide details on the exact number. Of those scholars participating from MSU, however, 60% was female. The primary research collaboration-related challenges reported by the institutions included the amount of funding provided for the activities and the additional work that comes with long-distance coordination. From their past research collaboration experience, institutions reported the benefits included increased opportunity for knowledge transfer among the scholars and joint publications in national and international journals

2.1. Institutional policies in support for research and management developed in CCR Member

MSU reported the most complete set of policies to support research and management, however there is still improvement needed in their policies to attract more women.

2.2. CCR best practices documented and disseminated to Indonesian higher education institutions

MSU created a website separate from their university website to disseminate learnings and general information related to their research –specifically for ANBIOCORE.

3.1. Formal relationship established among US and Indonesian Institution

MSU reported that they've established formal international relationships with other non-Indonesian institutions on joint research –have a research network, an online scientific publication platform, scientific forum, and scientific organization to access resources nationally and internationally.

3.2. Indonesian Institution obtaining external resources for their joint research project

This area is intended for Indonesian based institutions, does not apply for U.S. based institutions.

ANNEX I: List of Participating Higher Education Institutions

Themes	Lead CCR	Affiliates
Energy, Environment and Maritime Science	Universitas Gadjah Mada	Universitas Indonesia Universitas Teknologi Bandung Institut Pertanian Bogor Universitas Bangka Belitung Universitas Negeri Gorontalo Universitas Muhammadiyah Gorontalo University of Colorado Boulder
Food Security and Self-Sufficiency	Institut Pertanian Bogor	Universitas Padjadjaran Universitas Mataram Universitas Nusa Cendana Universitas Papua Universitas Syiah Kuala Universitas Brawijaya Universitas Udayana University of Rhode Island University of Mississippi
Innovative Technologies	Institut Teknologi Bandung	Institut Teknologi Kalimantan Universitas Sebelas Maret Universitas Lambung Mangkurat Universitas Diponegoro Universitas Syam Ratulangi Universitas Sriwijaya
Public Health and Infectious Disease	Universitas Padjadjaran	Universitas Mataram Universitas Pattimura Universitas Syiah Kuala Universitas Lambung Mangkurat
Urban Planning and Development	Universitas Indonesia	Universitas Padjadjaran Universitas Diponegoro Universitas Sriwijaya Universitas Udayana University of Florida University of Illinois at Urbana-Champaign Savannah State University

ANNEX II: Recommendations for SHERA Target Setting

Indicator	Unit of Measure	Disaggregation	Baseline Year	Baseline Value	2017 Target	2018 Actual	2019 Target	2020 Target	2021 Target	End of Project Target
Goal: Sustainable Improvement in Quality and Quantity of Science and Technology Research in Indonesian Higher Education Institutions										
IR1. Number of peer-reviewed scientific publications resulting from USG support to research and implementation program	Number of publication by SHERA scholars	Number, CCR, Department/Field	2017	0	0	70	98	113	74	355
IR2. Ratio of citation to publications produced by Indonesian researchers	Number of times publications by SHERA scholars are cited divided by total number publications produced by SHERA researchers	CCR, sex, academic level, Department/Field	2017	0	0	9	15	13	16	50
IR3. Number of academic research initiatives whose findings have been replicated, applied or taken to the market	Number of publication by SHERA scholars that were replicated, applied or taken to the market	CCR, Department/Field, Country of Origin, Users Sector of Activity	2017	0	0	3	10	16	19	48
Outcome 1: Improved capacity of faculty, PhD students and postdoctoral researchers in target Indonesian universities										
I.1. % of scholars who present at conferences	Number of SHERA who presented at scientific conferences divided by total number of SHERA scholars	Sex, Age, CCR, Department/Field	2017	0	0	59%	54%	59%	47%	57%
I.2. % of scholars who participate in collaborative research	Number of SHERA scholars who with peers in different institutions divided by total number of SHERA scholars	Sex, Age, CCR, Department/Field	2017	0	0	75%	72%	61%	94%	73%
Output 1.1: Increased trainings in research methods, writing and presentations skills										
I.1.1. Number of short-term training courses held	Number of training activities completed	Type, Hours, CCR, Department/Field	2017	0	5	26	22	14	5	71
I.1.2. % of researchers participated in short-term training courses held	Number of SHERA scholars who participated to training sessions divided by total number of training participants	Sex, Age, Scholar Type, CCR, Department/Field	2017	0	54%	69%	64%	61%	45%	63%
I.1.3. Number of U.S. scholars visiting Indonesian institutions to train Indonesian partners	Number of U.S. Scholars completed providing training to Indonesian partners	Sex, Scholar Type, CCR, Department/Field	2017	0	3	10	14	13	5	46
Output 1.2: Increased professional exchanges and collaborations										

Indicator	Unit of Measure	Disaggregation	Baseline Year	Baseline Value	2017 Target	2018 Actual	2019 Target	2020 Target	2021 Target	End of Project Target
1.2.1. Number of Indonesian scholars who participate in in-person faculty exchanges held in the U.S.	Number of SHERA scholars who participated to exchange activities divided by total number of SHERA scholars	Sex, Age, CCR, Department/Field	2017	0	0	32	51	35	11	130
1.2.2. Number of Indonesian scholars who receive ongoing mentoring from U.S. university partners	Number of SHERA scholars who participated in mentoring activities divided by total number of SHERA scholars	Sex, Age, CCR, Department/Field	2017	0	0	56	71	81	39	247
1.2.3. Number of scholars who participate in virtual knowledge exchange	Number of SHERA scholars who participated to virtual activities divided by total number of SHERA scholars	Sex, Age, CCR, Department/Field	2017	0	0	306	361	406	231	1305
Outcome 2: Strengthened, inclusive institutional environment for research and management in target Indonesian universities										
2.1. % of Indonesian institutions with improved research policies and systems in place	Number of institutions which adopted new research policies and systems divided by total number of institutions	CCR, Department/Field, Sex	2017	0	0	38%	52%	71%	100%	85%
2.2. % of CCR members with improved administrative and management systems in place	Number of CCR institutions which adopted new research policies and systems divided by total number of CCR institutions	CCR, Department/Field, Sex	2017	0	0	58%	59%	88%	100%	100%
<i>Output 2.1: Institutional policies in support for research and management developed in CCR members</i>										
2.1.1. Number of institutions with improved research and management policies developed	Number of institutions which adopted new research policies and systems divided by total number of institutions	CCR, Department/Field	2017	0	0	2	6	24	28	33
<i>Output 2.2: CCR best practices documented and disseminated to Indonesian higher education institutions</i>										
2.2.1. Number of CCR websites that are operational and being used regularly	Number of CCR institutions which have operational and updated websites divided by total number of CCR institutions	CCR	2017	0	0	5	0	0	0	5
2.2.2. Number of CCR knowledge products created	Number of CCR documents or materials produced	CCR, Department/Field, Sex	2017	0	0	57	96	121	70	344
2.2.3. Number of program-wide SHERA knowledge sharing events on best-practices & lessons-learned held	Number of events held	CCR, Department/Field	2017	0	0	14	14	16	3	47

Indicator	Unit of Measure	Disaggregation	Baseline Year	Baseline Value	2017 Target	2018 Actual	2019 Target	2020 Target	2021 Target	End of Project Target
Outcome 3: Enhanced collaboration in CCR/Consortium for collaborative research										
3.1. % of institutions engaged in joint research projects	Number of CCR institutions that have engaged in joint research activities divided by total number of CCR institutions	CCR, Department/Field	2017	0	0	100%	100%	100%	100%	100%
3.2. % of Indonesian institutions obtaining external resources for their research projects	Number of CCR institutions that received external resources divided by total number of CCR institutions	CCR, Department/Field	2017	0	0	27%	33%	64%	88%	88%
Output 3.1: Formal relationships established among U.S. and Indonesian institutions										
3.1.1. Number of selected affiliate institutions included in research consortium	Number of total institutions partners	CCR, Department/Field, Country-based	2017	0	5	37	37	37	37	37
3.1.2. Number of scholars at CCR institutions with increased access to external research resources and academic research engines	Number of total SHERA scholars regularly access the external resources and research engines	Sex, Age, CCR, Department/Field, Level of Study/Seniority	2017	0	0	78	131	180	70	458

ANNEX III: Complete Set of Survey Responses

The complete set of responses provided by the CCR partner higher education institutions can be accessed through the following link: 