



## The Impact Ranking Questionnaire

University : Universitas Indonesia  
Country : Indonesia  
Web Address : www.ui.ac.id

### [7] SDG7: Affordable and Clean Energy

#### [7.4] Energy and the community

#### [7.4.5] Assistance to low-carbon innovation (akan direvisi)

#### Description :

Universitas Indonesia (UI) provides assistance for start-ups that foster and support a low-carbon economy/technology. UI is committed to actively produce different startup programs that are in line with the national and global efforts to create affordable and clean energy sources. The university provides internal funding as well as partners with external entities including governmental institutions, non-government organizations, and corporations to support studies on this issue. UI also has three research centers: Research Center for Climate Change (RCCC), Tropical Renewable Energy Center (TREC), and Center for Sustainable Infrastructure Development (CSID), and Scientific Modeling, Application, Research, and SMART CITY, where researchers have been conducting various research activities to provide assistance to various sectors in low-carbon technology. One of the local startup companies that UI has assisted, is a startup company called GeoFast that utilizes waste into cements.

For example, a study on smart energy system was carried out by researchers at SMART CITY. In this project, waste to energy (WtE) is an innovative solution using municipal solid waste (MSW) as a source for electricity. This research was conducted to design WtE Plant in Depok and to assess economic viability of different business models. The technologies applied in WtE are anaerobic digestion and gas engine to generate electricity. The simulation was conducted using SuperPro Designer and UniSim Design software to evaluate the technical performances of electricity production from organic solid waste. The feasibility of project implementation of various business models are evaluated through economic analysis. The result of this study shows that the organic fraction of municipal solid waste in Depok has potential to generate electricity up to 28 MW.

Additionally, UI's endeavors to produce affordable and clean energy is not only consistent with SDG 7 (Affordable and Clean Energy); they also intersect with SDG 9 (Industry, Innovation and Infrastructure), SDG 11 (Sustainable Cities and Communities), and SDG 13 (Climate Action).

Below are examples of projects addressing assistance to low-carbon innovation:

1. Optimization of Biomass Propagation of Indigenous Cyanobacteria Strains from Indonesia for Biodiesel Production
2. Development of Solar Thermal Energy for Industrial Heat Pump

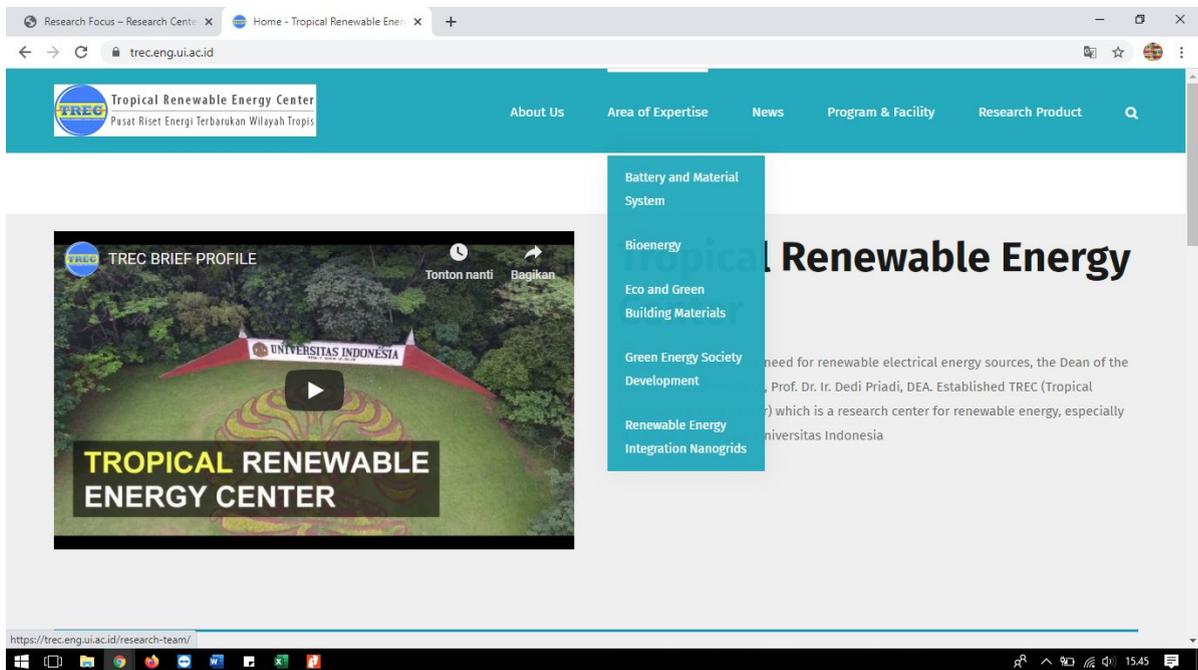
#### Evidence Link :

1. <https://trec.eng.ui.ac.id/>
2. <https://csid.eng.ui.ac.id/>
3. <https://research.ui.ac.id/research/en/>
4. <https://rccc.ui.ac.id/>

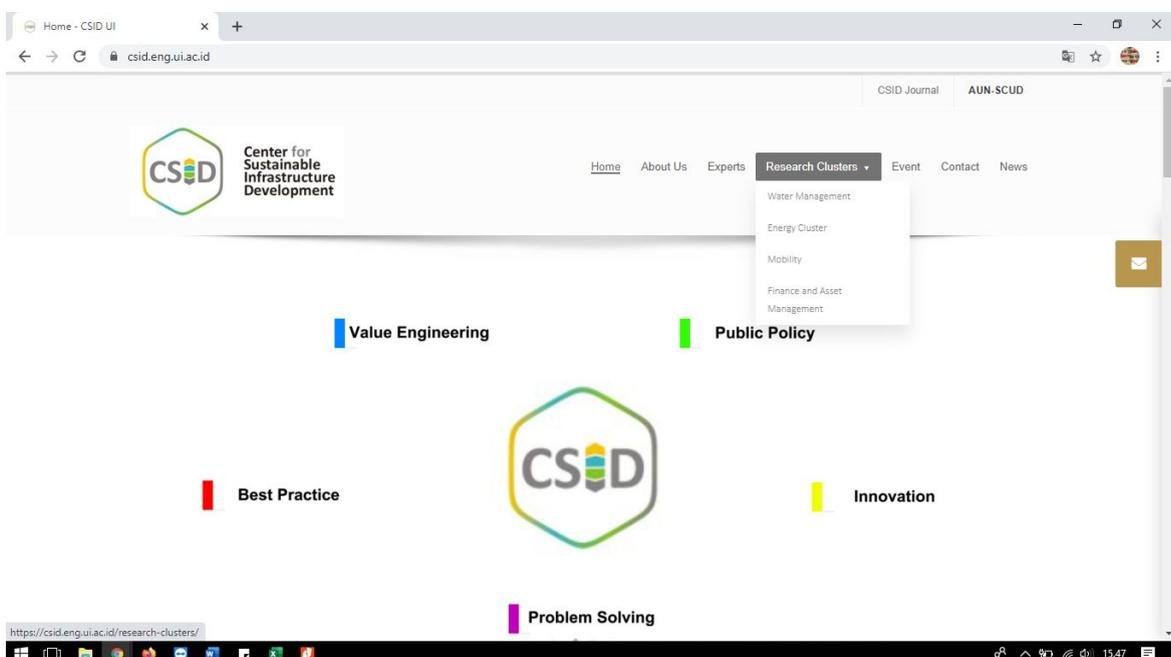


5. <https://research.ui.ac.id/research/wp-content/uploads/2020/11/SK-476-dikompresi1.pdf>
6. <https://research.ui.ac.id/research/wp-content/uploads/2020/11/List-of-UIs-research-projects-related-to-Sustainable-Development-Goals.pdf>
7. <http://geofast.id/>

Screenshot TREC's website



Screenshot CSID's website





## Screenshot RCCC's website

Applied Research – Research Center

rccci.ui.ac.id/applied-research/

**RCCC UI**  
sustainable solution

HOME ABOUT US PUBLICATION EVENT COLLABORATOR CONTACT

### Development of reduction emission scenario's strategy and health consequences of air pollution in Indonesia – Toyota Motor Corporation Japan and RCCC – UI

An environmental issue that continuously worsens living conditions in many of Indonesia's big cities is air pollution, especially that from vehicle emissions. Air pollution in major cities, especially in developing countries, has reached a crisis point. The bad air quality is responsible for death of 3 million people each year and presents a dilemma for millions worldwide that suffer asthma, acute respiratory diseases, cardiovascular diseases, and lung cancer (MOE and KPBB, 2006). Air pollution is proven as a major environmental hazard to residents in Jakarta, regardless of their socioeconomic status. Transportation comprises 27% of Indonesia's GHG emissions, and traffic congestion is a huge problem in Jakarta (Haryanto, 2008). Diseases stemming from vehicular emissions and air pollution include acute respiratory infection, bronchial asthma, bronchitis, and eye and skin irritations, and it has been recorded that the most common disease in northern Jakarta communities is acute upper respiratory tract infection – at 63% of total visits to health care centers (Haryanto, 2008). The estimation of negative health impacts of air pollution in Jakarta at approximately \$300 million per year in 1990, and this was projected to increase tenfold by 2010 unless serious control efforts were implemented (WB 1994). The overall goal of this research is to develop reduction emission scenarios of air pollutants and to study the causes and consequences of air pollution within the broad framework of the health consequences, with an empirical focus on the Greater Jakarta region and followed by other regions in Indonesia. The expected outputs are a module of emission inventory and reduction emission scenarios to air pollution and Green House Gases in Indonesia and a module of comparative study of exposure to pollution and health effects for members of

## Screenshot SMART CITY's website

smartcity.ui.ac.id/home.html

SMART CITY  
UNIVERSITAS INDONESIA

Home About Us What We Do Partners Resources Login

Scientific Modeling, Application, Research, and Training for City-centered Innovation and Technology

Application

Scientific Modelling

Research

Training for city centered Innovation and technology

SMART CITY UI

Energy and Environment Infrastructure ICT and Mobility Quality of Life

Screenshot of Rector's decree regarding the projects that have won the competitive internal funding in 2019.



List of research projects related to affordable and clean energy

	Researchers	Project Title	SDG Focus
1	Dr. Djoni Hartono, S.Si., M.E.	Fiscal Incentives to Support Renewable Energy Investments in Indonesia: The Search for the Suitable Instruments	Affordable and Clean Energy
2	Asep Saefumillah	Studi Adsorpsi Fosfat Menggunakan Fly Ash Termodifikasi dari Limbah Pembakaran Batu Bara dan Arang Aktif dari Limbah Lindi Hitam untuk Mengatasi Fenomena Algae Bloom dalam Sistem Akuatik	Affordable and Clean Energy

3	Iman Abdullah	Sintesis dan Karakterisasi Material Jejaring Berpori untuk Aplikasi Energi dan Lingkungan	Affordable and Clean Energy
4	Taqyuddin	Pengembangan Energi Terbarukan untuk Stabilitas Suhu Pendukung Wilayah Wisata di Kepulauan dan Pantura Jawa Bagian Barat	Affordable and Clean Energy
5	Triarko Nurlambang	Kajian Pemanfaatan Energi Terbarukan, Local Value, dan Virtual Geography untuk Pembangunan Berkelanjutan	Affordable and Clean Energy
6	Yunus	Investigasi Keberadaan Sumber Panas yang Berasosiasi dengan Sistem Geotermal di Daerah Prospek Geotermal Tulehu (Maluku) Menggunakan Metode Remote Sensing, Geologi dan Gravitasi	Affordable and Clean Energy
7	Ivandini Tribidasari Anggraningrum	Pengembangan Material Berbasis Nikel untuk Pengaplikasian dalam Energi Terbarukan	Affordable and Clean Energy
8	Dr. Nining Betawati Prihantini, M.Sc.	Optimasi Perbanyak Biomassa Strain Culturable Cyanobacteria Indigenous dari Indonesia untuk Produksi Biodiesel	Affordable and Clean Energy
9	Paulus Wirutomo	Model Penerimaan Sosial terhadap Pengembangan Energi Panas Bumi (Studi Kasus dalam Pengembangan PLTP Baturraden di Kab. Banyumas)	Affordable and Clean Energy
10	Abdul Halim	Perancangan Optimal Smart Home Energy Management System(O-SHEMS) Untuk Mendukung Pengembangan Jaringan Cerdas Energi Terbarukan Berbasis Komunitas	Affordable and Clean Energy

11	Kalamullah Ramli	Pengembangan platform peer-to-peer energy network berbasis blockchain	Affordable and Clean Energy
12	Iwa Garniwa	Studi Penerapan Direct Load Control dan Energy Saving Performance Contract untuk Efisiensi Energi Listrik di Sektor Industri dan Komersial	Affordable and Clean Energy
13	Rinaldy	Clean Energy Management dengan Kendaraan Listrik di Pulau Bali, Analisis Energi Surya (PLTS) terhadap Konsep Smart Building dan Pembangkit Listrik Energi Terbarukan di Kepulauan Seribu	Affordable and Clean Energy
14	Heri Hermansyah	Optimal Design of Biorefinery to Produce Biochemical and Bioenergy Products	Affordable and Clean Energy
15	Heri Hermansyah	Energy Recovery From Larvae Biowaste Treatment By Anaerobic Digestion	Affordable and Clean Energy
16	Muhammad Idrus Alhamid	Pengembangan Solar Thermal Energy untuk Industrial Heat Pump	Affordable and Clean Energy
17	Muhammad Idrus Alhamid	Pengembangan Organic Rankine Cycle (ORC) sebagai Pembangkit Listrik dengan Solar Thermal Energy	Affordable and Clean Energy
18	Adi Surjosatyo	Waste to Energy: Peningkatan Insinerator Fixed-Bed Berbahan Bakar Sampah Padat Perkotaan Kapasitas 20 kW dengan Pendekatan Nilai Energi	Affordable and Clean Energy
19	Nandy Setiadi Djaya Putra	Karakterisasi Sifat Termal Palmwax/Graphene sebagai Phase Change Material (PCM) untuk Aplikasi Thermal Energy Storage (TES)	Affordable and Clean Energy