



Universitas  
Sumatera Utara

SUSTAINABLE  
DEVELOPMENT **GOALS**

# SUSTAINABILITY REPORT 2021





UNIVERSITAS SUMATERA UTARA



# SUSTAINABLE DEVELOPMENT GOALS

## USU SUSTAINABILITY REPORT 2021

EDITORIAL BOARD

*Universitas Sumatera Utara wishes to thank its faculty, staff, students, and the many people who provided their assistance in preparing the USU Sustainability Report 2021.*

## CONTENTS

Message from Rector	
SDG 1: No Poverty	1
SDG 2: Zero Hunger	3
SDG 3: Good Health and Well-being	5
SDG 4: Quality Education	9
SDG 5: Gender Equality	12
SDG 6: Clean Water and Sanitation	16
SDG 7: Affordable and Clean Energy	19
SDG 8: Decent Work and Economic Growth	24
SDG 9: Industry, Innovation and Infrastructure	27
SDG 10: Reduced Inequalities	30
SDG 11: Sustainable Cities and Communities	32
SDG 12: Responsible Consumption and Production	37
SDG 13: Climate Action	42
SDG 14: Life Below Water	45
SDG 15: Life on Land	49
SDG 16: Peace, Justice and Strong Institutions	54
SDG 17: Partnerships for the Goals	56



# RECTOR

## MESSAGE



Since 1952, Universitas Sumatera Utara has made significant contributions to education and research in many sectors of life. In the broad terms, the activities include teaching, research, and community service. The activities highlight contributions to scientific research, technology advances, innovation, community empowerment, and national programs achievement. Numerous national, regional, and international partnerships have been established by Universitas Sumatera Utara in an effort to address global concerns with the Sustainable Development Goals (SDGs) as the point of focus.

As a higher education institution that promotes sustainable development, Universitas Sumatera Utara has programs that align with the excellence and roadmap of TALENTA (Tropical Science and Medicine; Agroindustry; Local Wisdom; Energy (sustainable); Natural Resources (biodiversity, forest, marine, mine, tourism); Technology (appropriate) and Arts (ethnic). Through TALENTA, the university has supported all units' SDG research and collaboration. This report summarizes and highlights some of activities including SDG-related teaching, research, collaboration, and innovation in Universitas Sumatera Utara.

Our university is eager to achieve a higher global ranking in each SDG and a good ranking in the Times Higher Education (THE) Impact Rankings for the coming year. This goal will be supported by active contributions from the faculty, unit, and students in education and research. We will continue to work hard to participate in and contribute to the community while also protecting the environment on the basis of the SDGs. Scientific discoveries, technological capabilities, and innovation will also support to achieve the goals.

Thank you to everyone at Universitas Sumatera Utara who has contributed in any way to the implementation of the SDGs. Thank you as well to the team that compiled this Sustainability Report as a showcase of USU's contributions and efforts in achieving the SDGs through our actions and work.

Dr. Muryanto Amin, S.Sos, M.Si



In 2021 the Universitas Sumatera Utara (USU) is actively carrying out activities aimed at realizing a world without poverty. The activities carried out can be divided into 3 parts of the Tridharma function, namely education, research, and service as well as cooperation activities carried out together with

regional, national and international agencies. Here are some of the activities that received funding from USU that are specifically directed at realizing a World Without Poverty.

### Assessment of mangrove rehabilitation productivity and its effect on community welfare



This research focuses on increasing the income of coastal communities by utilizing mangroves to attract tourism. This research was conducted by Dr. Onrizal (Lecturer at the USU Faculty of Forestry) in collaboration with several institutions at local and abroad.



### Women's economic empowerment in improving family welfare in the north coast women's community of Medan city



This service aims to empower women's economy in improving family welfare with digital marketing training and assistance methods to housewives who are members of the North Coast Women's Community in Medan City.

and socializing training. The participants of this service training are members of the North Coast Women's Community of Medan City which numbers 25 people.

The data used was obtained by forming a Focus Group Discussion (FGD), forming a Whats App group



Based on the results of the socialization which was attended by 25 housewives who are members of the North Coast Women's Community in Medan City, some of the participants were business actors based on processed seafood or salted fish. Although not all of them do digital marketing well, the enthusiasm of housewives in developing their business and deepening online business should be proud of.

With the conduct of training related to digital marketing, as well as monitoring, evaluation, and

assistance to partners through the Whats App group, it is known that almost all small business mothers have never done digital marketing and after attending training and mentoring, there are five entrepreneurs who can market their products digitally in Medan Belawan District and have obtained IBM permits.



This activity can be seen at the following link: <https://www.youtube.com/watch?v=HqRkRh1ahfc>

### Implementation of Health and Safety of Agricultural Sector Workers in Humbang Hasundutan Food Estate



The service activities were led by Sri Fajar Ayu (Faculty of Agriculture) and Education and Community Empowerment to make fruit syrup as an effort to prevent Covid 19 and improve welfare in North Binjai led by Prof. Azizah Nasution (Faculty of Pharmacy).



In total, USU has provided funds of IDR 193,830,000. This fund is a supporting fund prepared by USU and when in the field there is also a participatory community that cannot be counted. This amount of funding indicates a strong commitment from USU and is expected to provide a useful lighter to create a world without poverty.



The SDGs 2 program is committed to ending hunger (Zero Hunger). This second SDG agenda focuses on hunger and food insecurity, which continue to be major problems in some countries. Cases of hunger and malnutrition are serious problems that must be solved together. In order to end hunger, achieve food security, improve nutrition and support sustainable

agriculture, Universitas Sumatera Utara (USU) also plays an active role both in terms of research and community service. The activities carried out by USU are as follows:

 **Modification of Cellulose Nanofiber From Empty Bunches of Palm Oil as Planting Media**



Hydroponics of rockwool substitutes as well as tests of the effectiveness of plant growth and yield. This research applies the urban farming method in the form of a hydroponic plant cultivation method. The planting medium developed in this study is rockwool from cellulose nanofibers (Metas) from empty bunches of oil palm. The modification of this planting medium supports sustainable agriculture considering the decreasing green land in urban areas. This research was carried out by Dr. Saharman Gea (Lecturer of Chemistry Study PhD Program) which is included in the national

competitive research category. In addition, other research conducted by USU lecturers related to SDGs goal number 2 was 36 titles with topics around diversification, increasing productivity and effectiveness in agriculture, animal husbandry and improving family nutrition.

[https://fmipa.usu.ac.id/images/DataPenelitianDanPengabdian/Penelitian\\_DRPM-KEMENRISTEKDIKTI-BRIN2021.pdf](https://fmipa.usu.ac.id/images/DataPenelitianDanPengabdian/Penelitian_DRPM-KEMENRISTEKDIKTI-BRIN2021.pdf)

 **Integrated Pest Control of Horticultural Crops during the Pandemic Supports Ecotourism in Mandailing Natal Regency**



During 2021, as many as 25 community service titles were carried out by USU in order to help the government to reduce hunger, especially in the North Sumatra region. The form of community

service activities carried out starts from counseling, training, empowerment, utilization and application of science and technology. One of the titles of community service carried out related to



sustainable agriculture is this service against the background of the limitations of farmers in Hutanamale Village, Puncak Sorik Merapi, Madina in controlling horticultural plant pests and still not optimal land use and the use of chemical pesticides (not environmentally friendly). In order to answer these problems, the service team chaired by Ameilia Zuliyanti Siregar, M.Sc, Ph.D (Lecturer at the Faculty of Agriculture) designed integrated pest management appropriately and provided training on making environmentally friendly vegetable pesticides to farmers and designing ecotourism in Hutanasell Village, Sorik Merapi, Madina. The following is a photo of socialization activities, training and nursery locations for horticultural plants in the context of developing ecotourism.



Figure 2.1. Socialization activities and training on IPM of horticultural plants and horticultural plant nursery land for the development of ecotourism in Hutanamale Village

<https://simpel.usu.ac.id/files/upload/announces/81b32bcae8015617f971aed874ffd67e.pdf>



### Prevention of stunting and increasing nutritional value by utilizing local ingredients



There are 4 USU community service titles in 2021 related to increasing nutritional value including:

1. The use of local foodstuffs into multigizi biscuits as an effort to prevent stunting in Medan Tuntungan District, Medan. <https://www.sumut24.co/pemanfaatan-bahan-pangan-lokal-menjadi-biskuit-multigizi-upaya-pencegahan-stunting-di-medan-tuntungan/>
2. Standardization of Multi-Nutrient Instant Porridge from Local Food (sweet potatoes, corn, yam leaves, banana heart, and mujair fish) to improve the nutritional status of pregnant women and lactating mothers in Simanindo District, Samosir Regency. <https://analisdaily.com/berita/baca/2021/08/30/1021458/tim-lppm-usu-kembangkan-pangan-lokal-untuk-tingkatkan-gizi-ibu-di-samosir/>
3. Nutrition Counseling and Training on Making Tempeh for the Empowerment of Productive Elderly at the Posyandu for the Elderly, Puskesmas Medan Sunggal. <https://analisdaily.com/berita/baca/2021/09/26/1022412/osen-fk-usu-penyuluhan-nutrisi-dan-latih-lansia-produktif-bikin-tempe/>
4. Empowerment of Housewives Group in Fulfilling Family Nutrition through the Formation of Cupping Families (Quality, Creative and Independent) in Biru-biru District. <https://medan.tribunnews.com/2021/08/25/pe-ngabdian-masyarakat-dosen-keperawatan-usu-gelar-pemberdayaan-irt-dalam-pemenuhan-gizi-keluarga>



Figure 2.2. Multigizi biscuits from local foodstuffs (red sweet potatoes, temulawak, banana heart, and goat's milk) (Community Service Team Leader: dr. Devo Nuraini, M. Kes / Lecturer at the Faculty of Public Health)

The problem of stunting and malnutrition in Indonesia is influenced by family economic limitations, so it is very important to overcome this problem. In addition, to improve food security, it is necessary to socialize and educate the public regarding nutrition. Improving nutrition can be done by utilizing local foodstuffs by carrying out variations of food processing. The following pictures show community service activities related to improving nutrition in several regions in North Sumatra.



Figure 2.3. Ready-to-brew multigizi instant porridge made from local foodstuffs in Cinta Dame Village, Simanindo District, Samosir Regency (Head of the Community Service Team: Prof. Dr. Ir. Evawany Yunita Aritonang, M.Sc./ Lecturer at the Faculty of Public Health)



Figure 2.4. Health counseling and training on processing cheap food with high nutritional value in Biru, Biru District (Community Service Team Leader: Cholina Trisa Siregar, S.Kep, Ns, M.Kep, Sp.KMB / Lecturer at the Faculty of Nursing)

hunger as one of the sustainable development goals have spent IDR 2,121,000,000, - both for research and community service. USU's active involvement is expected to end hunger, achieve food security and good nutrition, and promote sustainable agriculture.


Research and community service activities carried out by USU in order to play an active role in stopping



All health issues in the SDGs are integrated into one goal which is goal number 3 which reads to ensure a healthy life and promote well-being for all people of all ages. USU as part of stakeholders plays an active role in achieving SDGs goal number 3 through teaching, research, community service and

cooperation with all relevant stakeholders.

USU's number of studies related to achieving a healthy life is the highest number of studies compared to other SDGs, namely 217 titles in 2021.

 **Empowering the Role of Cadres to Care about Growth and Development and Utilization of Smartphone-Based Growth and Development Applications for Monitoring and Early Detection of Toddler Growth and Development Disorders in Deli Serdang Regency**



One of the studies that has received a simple patent entitled Empowerment of the Role of Cadres Caring for Growth and Development and Utilization of Smartphone-Based Growth and Development Applications for Monitoring and Early Detection of Toddler Growth and Development Disorders in Deli Serdang Regency chaired by Dr. dr. Juliandi Harahap, MA, FISPH, FISCM, Sp.KKLP from the Faculty of Medicine. This research is motivated by the fact that there are still many toddlers in Indonesia who experience developmental disorders due to limited maternal knowledge. This research designed a growth and development application and

tested the feasibility. The application, which was created called SAPA (Stimulation and Observe Child Development) to be Smart, was developed based on the Pre-Developmental Screening Questionnaire (KPSP) which has been recommended by the Ministry of Health and the Indonesian Pediatric Association (IDAI). The results of this study show that the use of the SAPA application to be intelligent, can be used easily and can detect as early as possible the presence of developmental disorders in toddlers. The simple patent application number of this SAPA application is S00202204031.

<https://kedtropis.usu.ac.id/index.php/penelitian-pengabdian/penelitian>

 **Conservation of North Sumatra-Specific Medicinal Plants for Sustainable Utilization**



The form of community service activities related to goal no.3 of the SDGs is in the form of socialization, education, training, empowerment, improvement of

public health services and the use of science and technology for the community. One of the community service activities related to healthy living is the Conservation of Specific Medicinal



Plants of North Sumatra for Sustainable Use chaired by Prof. Rahmawaty, S.Hut, M.Si, Ph.D. In this community service, 97 types of medicinal plants were obtained where the community was also actively involved by bringing the seeds of medicinal plants they had to be collected in the medicinal plant collection hut. The following is a portrait of the implementation of community service activities in Sei Semayang Village, Sunggal District, Deli Serdang Regency.



Figure 3.1. Construction of medicinal plant huts, collection of medicinal plants and completion of cottages collection of medicinal plants in Sei Semayang Village, Sunggal District, Deli Serdang Regency.

<https://waspada.id/headlines/usu-bina-kelompok-tani-lakukan-konservasi-tumbuhan-obat/>

In 2021, it is still in the condition of the COVID-19 pandemic case, so the theme of USU community service is still related to handling COVID-19, among the titles of community service are:

1. Empowering Students as Little Pharmacists and Socializing Good and Correct Handwashing to Prevent Covid-19 Transmission at Mis Annur Prima Medan
2. Application of Manut (Muscle Nutrition Management) in the Elderly in Improving Health Degrees During the Covid-19 Pandemic in the Medan Sunggal District Area
3. Utilization of Citronella (*Cymbopogon Nardus*) as Hand Soap and Organic Hand Sanitizer as an Effort to Prevent Covid-19
4. Education and Implementation of the Fluorine Gargle Program During the Covid-19 Pandemic to Improve Dental and Oral Health in Gotong Royong Junior High School Students at Afd li Perkebunan Bangun Serapuh Gunung Malela District, Simalungun Regency
5. Community Empowerment Helps Suppress the Spread of Corona Virus Through Education and Training on Making Herbal Liquid Soap in Pematang Ganjang Village, Sei Rampah District, Serdang Bedagai Regency
6. Empowering Cadres in Preventing Covid-19 with It-Based Snakes and Ladders Games in Medan Tuntungan District, Medan City
7. Training on Processing Guava Fruit into Velva Preparations as an Effort to Increase Body Immunity During the Covid-19 Pandemic

8. Training on Strategies for Handling the Corona Virus (Covid-19) Pandemic In Terms of Religious Aspects for ArRidho Recitation Mothers in Tanjung Morawa A Village, Tanjung Morawa District
9. Increased Adaptation to New Habits during the Pandemic to Facilitate the Prevention of Covid-19 Transmission in Health Workers at Dr. Rangkuti General Hospital, North Labuhan Batu
10. Diabetes Mellitus Education and Random Blood Glucose and Uric Acid Examination in the Community of Jati Karya Village, Binjai as an Effort to Prevent Covid-19 Comorbid Disease
11. Hypertension Education and Blood Pressure and Cholesterol Checks in the Community of Jati Karya Village, Binjai as an Effort to Prevent Covid-19 Comorbid Disease
12. Training on News Screening on Social Media About the Covid-19 Pandemic and Vaccination to the People of Rantau Panjang Village
13. Detection of Sars-Cov-2 in Post-Vaccine Health Workers (Nakes): Health Workers On Duty in the Isolation Room of Covid-19 Patients and Health Workers' Families as Close Contacts
14. Making Health Drink Products Increases Body Immunity as an Effort to Prevent Covid-19 in Klumpang Village, Hamparan Perak Deli Serdang District
15. Community Empowerment: Students and Teachers in Efforts to Prevent Covid-19 Transmission with Smart Dice Education Games During the Pandemic at Sd Muhammadiyah 01 Medan
16. Community Empowerment to Improve Behavior towards Covid-19 Vaccination Acceptance
17. Construction of Handwashing and Toothbrush Stations as an Effort to Habituate Clean and Healthy Living Behavior in Preventing Covid19 at Al-Husna Islamic Boarding School
18. Increasing the production of breast milk (asi) and postpartum mothers during the Covid-19 period through education and utilization of Moringa leaf herbal plants at Yandu Post and Maternity Clinic in Medan City
19. Minimizing the Psychological Impact of the Covid-19 Pandemic on Vulnerable Groups: The Elderly and Mental Disorders Through Family Psychoeducation in Sunggal Village



Utilization of Citronella (*Cymbopogon Nardus*) as Hand Soap



## and Organic Hand Sanitizer as An Effort to Prevent Covid-19

Some documentation of activities related to the theme of community service related to handling COVID-19 can be seen in Figures 3.2 and 3.3.



Figure 3.2. Utilization of Citronella (*Cymbopogon Nardus*) as Hand Soap and Organic Hand Sanitizer as an Effort to Prevent Covid-19 (Team Leader: Dr. Masitta Tanjung, S.Si, M.Si/Dosen Faculty of Mathematics and Natural Sciences)

Since the coronavirus pandemic, hand soap and hand sanitizer have become much-needed items due to massive purchases from the public. Even if there is a price, it will increase. For this reason, it is necessary to make hand soap and organic hand sanitizer in Namo Bintang village. This community service provides knowledge through counseling, training, direct practice and work evaluation. The special target is to produce hand soap products and organic hand sanitizers from citronella, and together with the service team will be distributed in mosques and every house where they are recitation. With this product, it trains the community, especially Annisa women group in making hand soap and organic hand sanitizers themselves. Products produced by the community can be used for their own needs or sold. The product results can be seen in Figure 3.2.

<https://lppm.usu.ac.id/index.php/program-kegiatan/penelitian-pengabdian/penelitian/283-pengabdian-masyarakat-dosen-usu-tahun-2021>



## Healthy drinks to increase the body's immunity during the COVID-19 pandemics



In addition to hand soap and hand sanitizers, USU community service activities also make health drink products to increase body immunity during the COVID-19 pandemic.

The purpose of this service is to train PKK mother groups in Klumpang Village, Hampan Perak District, Deli Serdang Regency, to make health drink products to increase body immunity as an effort to prevent Covid-19. The service activity consists of two stages, namely the first is a lecture and question and answer about the benefits of health drinks to increase body immunity, then demonstrations and direct practice on how to make these health drinks, the results of the products can be seen in Figure 3.3.



Figure 3.3. Making Healthy Drink Products Increases Body Immunity as an Effort to Prevent Covid-19 in Klumpang Village, Hampan Perak Deli Serdang District (Team Leader: dr. Rahayu Lubis, M.Kes, Ph.D/Lecturer at the Faculty of Public Health)

If it is related to goal no.3 of the SDGs, USU has represented the program set in the health sector, namely the Healthy Indonesia Program starting from a healthy paradigm that prioritizes promotive and preventive concepts in health services as well as improving access and quality of health services. In implementing these SDGs, USU prepared a fund of IDR 18,161,590,000 to finance research and community service activities.





## ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL



The goal of SDG 4 is to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Education needs to be freely accessed by the public. Education can not only be a protector in terms of formal education, but also education that can change the mindset of the nation's children and innovation that encourages the creation and innovation power of the nation's children means meaningful education. promoted by the state. The younger generation as innovators who can make a significant and important contribution to the implementation of the applicable concept of sustainable development. USU also formally supports equitable access to education through Rector's Policy No. 43 of 2017 concerning New Student Admissions. Its implementation can be seen

from the diversity of regional, ethnic, and religious origins of students studying at USU. This is in accordance with the principle of "fairness" of the Rector's Policy which does not discriminate against religion, ethnicity, race, gender, age, social position, region, physical condition, and level of economic ability of prospective students, while still studying. considering the potential of prospective students. as well as the academic and nonacademic achievements of prospective students and the specifics of each study program. USU plays an active role in achieving the targets of SDGS no.4 through several activities.

### Indonesia Teaching Program



One of the key elements for this is the availability of qualified teachers. USU's curriculum is not designed to produce teachers. However, USU is actively involved in the "Community Program" (Indonesia Mengajar). In 2021, 469 USU students have met the requirements and participated in the Teaching Campus program in 2021, which is a program that provides opportunities for students for 1 (one) semester to assist teachers and principals at the elementary and junior high school levels in carrying out learning activities affected by the pandemic. They come from various study programs at USU.

<https://suarausu.or.id/berbagi-kisah-inspiratif-program-kampus-mengajar-angkatan-kedua/>



Figure 4.1. Campus Teaching activities by introducing Canva as a learning medium to teachers, helping grade V elementary school students take the National Exam, assisting administrative activities, and socializing the use of the Zoom learning application) to teachers and conducting offline learning while still paying attention to health protocols

## General Lectures and Webinars



In addition, USU also provides free access to educational resources for those who are not studying at the university. Among them are public lectures and webinars via Youtube or zoom meetings with various interesting topics, which include issues that are being discussed or relevant to the world of work.



Figure 4.2. Some learning activities through public lectures, webinars that can be attended by all levels of society

## Research related to educational development



USU's research related to educational development can be seen from several relevant research titles such as the Deep Learning Approach to the Identification of Part of Speech Words in Indonesian chaired by Dr. Amalia (Lecturer at the Faculty of Computer Science and Information Technology). This research is motivated by POS tagger for Indonesian which is still limited both in terms of quantity and quality. The design of the Indonesian POS tagger using the probabilistic method produces high accuracy but has not accommodated all tag sets in the Indonesian system. Therefore, in this study, POS tagger will be built Indonesian with a combination of probabilistic and rules-based approaches. This research has been published in the international journal Q2, namely the International Journal of Semantic Computing.

Another research related to improving education is the impact of the COVID-19 pandemic on children entitled Development of a Resilience Model for School-Age Children in New Normal Life in Medan chaired by Dewi Elizadiani Suza (Lecturer at the Faculty of Nursing). The purpose of this study is to develop a model that will provide a framework to increase resilience in school-age children in the new normal life, especially in school-age children. The output of this research is textbooks and posters.

USU lecturers are also involved in programs of community empowerment and capacity building activities through field discussions, counseling, training, and coaching conducted both to local schools and community groups. ± 33 titles of

community service activities carried out by USU related to educational development, especially related to the implementation of information technology such as the following activities:



Figure 4.3. Implementation of Information Technology on Increasing Student Learning Interest and Teacher Creativity at SD Negeri 165732 Pabatu Tebing Tinggi (Team Leader: Muhammad Romi Syahputra, S.Si., M.Si/Dosen Faculty of Mathematics and Natural Sciences)



Figure 4.4. Development of Information Technology for Learning



Online at PTPN IV Private Junior High School (Team Leader: Prof. Dr. Tulus, Vor.Dipl.Math., M.Si., Ph.D./Lecturer at the Faculty of Mathematics and Natural Sciences)

Batara Putra Siringoringo, S.Si., M.Si/Dosen Faculty of Mathematics and Natural Sciences)



Figure 4.5. Application of Information Technology at SD Negeri 095196 Moho in Improving the Effectiveness of Online Learning (Team Leader: Yan

In addition to the application of information technology, community service activities carried out in schools are also about increasing literacy and interest in reading, improving English and public speaking skills for both school students and youth groups. USU's active role in helping to achieve the target of SDGs no. 4 is evidenced by the provision of funds for community service and research activities of IDR 1,970,778,500,-. USU's involvement is expected to contribute to improving public education, especially to improve Indonesia's human development index.

### Community empowerment and capacity building activities



USU lecturers are also involved in programs of community empowerment and capacity building activities through field discussions, counselling, training, and coaching carried to both local schools and community groups.



USU also formally supports the equality in accessing education through Rector Policy No 43/2017 about the New Student Admission. The implementation can be seen from the variety of regional, ethnic, and religious origins of students enrolled at USU. This is in accordance with the principle of "fairness" of the Rector Policy which is not discriminating against religion, ethnicity, race, gender, age, social position, region, physical condition, and level of economic ability of prospective students, while still taking into account the potential of prospective students. and academic and non-academic achievements of prospective students and the specifics of each study program.



The issue of gender equality is still quite prominent as women are still lagging behind men in economic activities. Similarly, the status of women in political institutions remains lower than that of men. In the domestic sphere, women still bear a double burden. Women had to do household chores and work to provide for their families. In addition, domestic violence against women and children still occurs. USU also plays an active role in helping the government to solve problems in goal 5 of the SDGs through education, research and community service.

USU has a policy regarding tracking the number of registrants through a registrant form that shows that the prospective student is female through [registrasi.usu.ac.id](https://registrasi.usu.ac.id). In addition to the registrant

form, other application forms also show that usu is very concerned about women as seen from several other applications such as scholarship applications, guidance applications and so on. With the identity in this form, it makes it easier for usu to tabulate the number of female students who are being mentored, the number of students who are applying for scholarships, etc.

The number of female USU graduates is also high, namely 5418. This can be seen from the data on the USU web These graduates include STEM graduates in total 2921 female STEM graduates as many as 1594 medical graduates all 2042 female graduates as many as 1493 arts and humanities graduates as many as 3806 female graduates as many as 2331 This can be seen from the data on the USU's website.

### Women's and children's law clinical courses



As an Educational Institution, USU is also concerned in overcoming the problem of discrimination against women. This can be seen from the existence of courses in the study of women such as those in the law faculty, namely women's and children's law clinical courses that actively educate on this matter both in webinars, seminars and others. <https://fh.usu.ac.id/id/berita/231-webinar-nasional-klinik-hukum-tindak-pidana-korupsi-dalam-prespektif-gender>



<https://suarausu.or.id/adakan-webinar-klinik-hukum-ppa-fh-usu-tekanan-pengimplementasian-dana-bantuan-korban-kekerasan-seksual-dengan-baik-dan-bermanfaat/>

## Webinar on adolescent reproductive health



[https://temumaya.id/webinar/detail/2021-08-25\\_093954\\_\\_kupas-tuntas-kesehatan-reproduksi-remaja](https://temumaya.id/webinar/detail/2021-08-25_093954__kupas-tuntas-kesehatan-reproduksi-remaja)

USU Public Health Study Program in a webinar thoroughly explores adolescent reproductive health



## WEBINARS ON WOMEN THEME



In addition to what is done by lecturers, students also actively participate in organizing webinars with women's themes such as

1. Ministry of Women's Empowerment PEMA USU Successfully Holds World Mental Health Day Webinar

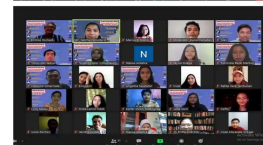
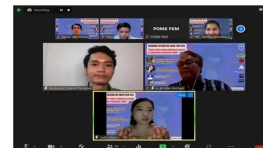
<https://suarausu.or.id/kementerian-pemberdayaan-perempuan-pema-usu-sukses-gelar-webinar-world-mental-health-day/>

2. DPP PEMA FP USU Discusses the Importance of Loving Yourself

<https://suarausu.or.id/sukses-adakan-webinar-dpp-pema-fp-usu-bahas-pentingnya-mencintai-diri-sendiri/>

3. GMKI commissariat FKM usu holds Webinar on sexual violence prevention on campus

<https://www.piramida.id/gmki-komisariat-fkm-usu-gelar-webinar-tentang-pencegahan-kekerasan-seksual-di-kampus/>



USU's employees and staff also have a high number of female staff, with 1031 staff out of 2146 overall staff. In terms of maternity policies for employees and students, USU also has policies, namely a policy of maternity leave through [https://ppid.usu.ac.id/images/2019/PPID/SOP\\_PT\\_USU/Pedomon\\_SOP\\_SDM.pdf](https://ppid.usu.ac.id/images/2019/PPID/SOP_PT_USU/Pedomon_SOP_SDM.pdf) and the existence of lactation rooms or breastfeeding rooms in several places in USU such as in the faculty of public health and USU integrated laboratories.

In addition, in tackling crimes against women on campus, USU also established a task force for the prevention and handling of sexual violence in the

USU environment through USU Rektot Regulation No. 2132 / UN5.1.R / SK / SDM / 2022 <https://www.usu.ac.id/id/pengumuman/penetapan-satuan-tugas-pencegahan-dan-penanganan-kekerasan-seksual-di-lingkungan-usu-periode-tahun-2022-2024> and established a consultation institution and legal assistance bureau in the Faculty of Law through the USU Rector's Regulation No. 1573/UN5.1.R/SK/SDM/2018 <http://lkbh-fh.usu.ac.id/>

## Personal Branding Model of Female DPRD (Regional House of Representatives) Members (Qualitative Study in North Sumatra)



One of the studies related to gender equality is the Personal Branding Model of Women DPRD Members (Qualitative Studies in North Sumatra) chaired by Dr. Nurbani, M.Si (Lecturer at the Faculty of Communication Sciences). This research is motivated by the emergence of rules on women's representation and personal branding model strategies in politics, which provide opportunities and opportunities for women to be selected in democratic competitions. The results of this study issued a draft book entitled Personal Branding of Women in Various Activities, this book consists of 4 chapters that explain the concept of personal branding; personal branding of women in various activities; women's barriers in shaping women's personal branding and personal branding and self-development.

Implementation Model of Gender Mainstreaming in Handling COVID-19 in North Sumatra

In addition, gender-related research was also conducted by Asima Yanti S Siahaan (Lecturer at the Faculty of Social and Political Sciences) entitled

Implementation Model of Gender Mainstreaming in Handling COVID-19 in North Sumatra. This research is based on gender bias in handling Covid-19, increasing women's vulnerability and threatening the failure to achieve the Sustainable Development Goals (SDGs) by 2030. In particular, this study aims to describe the factors of the implementation of gender mainstreaming in handling Covid-19 in North Sumatra and analyze the inhibiting factors in the implementation of gender mainstreaming in disaster management in the provinces of North Sumatra, Medan city and Siantar city. The results of the study obtained that some of the factors causing the low representation of women in handling the COVID-19 pandemic crisis were emergency factors in the crisis, limited knowledge and understanding of gender, neglect of the BNPB Perka on gender mainstreaming and inactivity of women and children empowerment agencies in socializing and accompanying gender involvement in disasters.

## Training, empowerment development and including legal protection of women



The issue of gender equality is also a theme raised in community service activities at USU. Community service activities mainly provide training, empowerment guidance and include legal protection for women. The service carried out by Prof. Dr. Sunarm, SH, M.Hum (Lecturer at the Faculty of Law) in Daluh X A Village provided training of trainers to women so that Tangguh

maintained family resilience. This process of regeneration will certainly give birth to cadres of housewives who are resilient to family resilience in terms of juvenile delinquency. The material in this study is about the importance of housewives in Daluh X A Village in order to avoid the impact caused by juvenile delinquency. This is done based on cases that occur in communities where the rise of children and adolescents who do things such as drugs, begal, bullying and others is caused by housewives who

are not Resilient, especially in terms of supervising and educating their children in legal matters due to their busy lives as workers and helping husbands in making a living in factories and businesses in Daluh X A Village. through experiential learning, where training participants experience as Trainers directly during the training, and get feedback from participants and evaluations from Trainer Facilitators.



Figure 5.1. ToT about resilient women family resilience in Daluh X A Village online due to the pandemic and this place of service is included in the PPKM level IV zone

### Legal protection for women in Tanjung Selamat Village, Medan Tuntungan District



USU's community service related to gender issues also raised the theme of legal protection for women as carried out by Prof. Dr. Rosnidar Sembiring, S.H., M.Hum (Lecturer at the Faculty of Law) in Tanjung Selamat Village, Medan Tuntungan District. The purpose of this activity is to educate the public regarding the function of legal protection that can be obtained from making marriage agreements for parties who are married. Making marriage agreements is still interpreted as something taboo and unethical among the people. This is none other than because the big theme stipulated in a marriage agreement is regarding property, both inherited property and property during the marriage, so that the making of a marriage agreement provides a materialistic, selfish, and distrustful atmosphere among couples who want to marry. This is quite regrettable because people's suspicions about marriage agreements indicate a low understanding of the community regarding what a marriage agreement is and its benefits. In fact, there are legal protection benefits that will be obtained from a marriage agreement, especially for women.



Figure 5.2. Socialization of legal protection of marriage agreements according to the Marriage Law (Team Leader: Prof. Dr. Rosnidar Sembiring, S.H., M.Hum (Lecturer at the Faculty of Law)

Gender equality strengthens a country's ability to reduce poverty and rule effectively. Therefore, promoting gender equality is an integral part of development strategies to lift communities of women and men out of poverty and improve their living standards. Research and community service activities carried out by USU in 2021 have spent IDR 531,660,000 in discussing themes related to gender equality issues.



Clean water and proper sanitation are basic human needs. One of the points of the environmental of Sustainable Development Goals (SDGs) is to ensure that communities have universal access to clean water and sanitation. In supporting the

implementation of goal 6 of the SDGs, USU takes an active role in the fields of education, research, community service and cooperation.

### Spatial Model of Vulnerability Index of Percut Watershed Landscape in North Sumatra Province



One of the factors supporting the sustainability of the availability of clean water supply is the existence of watersheds (watersheds). Watersheds continue to experience a variety of stresses both anthropogenic and natural disorders that act as causative agents of cumulative effects that worsen watershed health and result in watershed susceptibility. Watersheds in North Sumatra Province are mostly categorized as watersheds that must be restored with the meaning of having high land criticality. The research was chaired by Bejo Slamet (Lecturer at the Faculty of Forestry) with the title of research on the Spatial Model of the Vulnerability Index of the Percut River Basin, North Sumatra Province. This study aims to build the

Percut watershed susceptibility index by accommodating anthropogenic factors, environmental fragility and natural disturbances. The results of the analysis using Sentinel-2 imagery showed an increase in built-up area of 2,092.62 hectares, which means land use change; The increase in wetness of 308.58 hectares, mainly occurred in the lower reaches of the watershed located to the north. There was an increase in the area of non-vegetated areas reaching 288.96 hectares in the Percut watershed. This indication suggests that a change in vegetation cover leads to a decrease in its area.

<https://fhut.usu.ac.id/index.php/penelitian-pengabdian/penelitian>

### Water treatment and determination of water quality and wastewater treatment



Research related to clean water also takes several topics and titles related to water treatment and determination of water quality and wastewater treatment such as the following titles:

1. Increasing the Production Rate of Clean Water from Solar Desalination Distillation System (Team Leader: Prof. Himsar Ambarita/Lecturer at the Faculty of Engineering)
2. Design of Modular-Based Drinking Water Treatment Equipment (Team Leader:

3. Rahmi Utami, ST, MT: Lecturer at the Faculty of Engineering)
4. Water Distribution Network Optimization (Team Leader: Sutarman/FMIPA Lecturer)
5. Zeolite-Charcoal Activated Cocoa Skin Nanofilter as Water Adsorber in Bioethanol Purification (Team Leader: Susilawati / FMIPA Lecturer)
6. Analysis of River Water Quality Decline by Macro, Meso and Microplastics from Settlements Along the Deli Medan River Flow (Team Leader: Novrida Harpah Hasibuan, S.Si, MT / Lecturer at the Faculty of Engineering)
7. Analysis of Heavy Metal Distribution Patterns in Water and Sediment Bodies and Their Effect on Phytoplankton in the Belawan River (Mayang Sari Yeanny Team Leader / FMIPA Lecturer)
8. Hydrogeochemical Research on Lake Lau Tawar Water, After the Eruption of Mount Sinabung using the Storet and Index Pollutant (IP) method in Namo Teran District, Karo Regency, North Sumatra Province (Team Leader: Said Muzambiq / Lecturer at the Faculty of Engineering)
9. Heavy Metals Copper (Cu) And Lead (Pb) In Mangrove Rhizophora Stylosa And Rhizophora Apiculata And Their Effect On Water Quality In Belawan (Team Leader: Yunasfi/Lecturer at Faculty of Forestry)
10. Analysis of wastewater and solid residues of particleboard recycling for the production of liquid fertilizer for forestry plant seeds (Team Leader: Arif

- Nuryawan/Lecturer at the Faculty of Forestry)
10. Synthesis and Characterization of LaFeO<sub>3</sub> Nanoparticles for Waste Water Degradation (Team Leader: Tua Raja Simbolon/FMIPA Lecturer)

The provision of proper sanitation and full access to clean water is one of the objectives of the SDGs. In order to play an active role in solving this problem, USU contributes a lot in the implementation of community service activities. The form of community service is used for clean water and proper sanitation by providing assistance in repairing, developing, conserving water and providing clean water by building drilled wells. The results of these community service activities can be seen in the following photos of activities:



Figure 6.1. Manufacture and Installation of Groundwater Wells to Increase Rice Plant Productivity (Team Leader: Tasya Chairuna Pane, S.P., M.P./Lecturer at the Faculty of Agriculture)

## Sanitation improvement activities in schools



The problem faced by the school is the slow absorption of water around the school grounds, so often floods when it rains which causes disruption of the teaching and learning process. The service team conducts site surveys, providing socialization and motivation for students regarding the importance of a clean environment. The methods carried out are repairing damaged waterways and lifting waste, making bio-pore holes at a number of points in the school yard, dismantling and reinstalling paving blocks where there was a

previously closed soil pore condition, planting plants to accelerate water absorption, renovating water entry routes by raising the floor level which is often an access to water entry.



Figure 6.2. Water Conservation and Sanitation of HKBP Sidorame Private High School (Team Leader: Prof. Dr. Ir. Noverita Sprinse Vinolina, MP./Lecturer at the Faculty of Agriculture)

Sanitation improvement activities in schools are also carried out by Isra' Suryati, ST, M.Si (Lecturer at the Faculty of Engineering) at SD Swasta Pembangunan, Petumbak District, Deli Serdang Regency. SD Swasta Pembangunan is intended mainly for economically weak communities where most of the parents of students work as washing laborers, construction workers, motor rickshaw drivers and other odd jobs so that the tuition fee collected is only Rp. 10,000 / month. This tuition fee is certainly not sufficient for school operational costs so that environmental sanitation facilities and infrastructure such as the availability of clean water are still lacking, bathrooms are not feasible, waste handling is not optimal, there is no handwashing place, etc. The result of this community service can be renovating bathrooms, creating drilled wells, equipping disaggregated trash cans and hand washing stations.



Figure 6.3. Improving the Quality of Sanitation and Environmental Hygiene at Sd Swasta Pembangunan, Petumbak District, Deli Serdang Regency (Team Leader: Isra' Suryati, ST, M.Si/Dosen Faculty of Engineering)

### Community service related to increasing the availability of clean water



universal and equitable access to safe and affordable drinking water.

Community service related to increasing the availability of clean water was also carried out by several USU Sipil Engineering lecturers chaired by Ivan Indrawan, ST, M.Si. The manufacture of drilled wells was carried out in Jaring Halus Village, Secanggang District, Langkat Regency. Jaring Halus Village is located in Secanggang District, Langkat Regency, North Sumatra Province. This village is bordered by the ocean and mangrove forests, where transportation access to the village is difficult and limited. Jaring Halus Village has received clean water services from the PDAM government, but the discharge is very small. During this time, to cook and drink and wash dishes, residents had to buy water. This situation further complicates the economy of the citizens. Therefore, USU's community service team built drilled wells and provided clean water tanks.



Figure 6.4. Making Drilled Wells to Meet Clean Water Needs in Jaring Halus Village, Secanggang District, Langkat Regency (Team Leader: Ivan Indrawan, ST, MT / Lecturer at the Faculty of Engineering)

USU's active role in helping the government achieve the targets in goal no.6 of the SDGs can be seen from the availability of funds prepared by USU to support research and community service activities of IDR 721,472,000,-. USU's contribution in achieving goal 6 is expected to be sustainable so as to create



Inclusive economic development is the most effective way to reduce poverty and increase welfare yet most economic activities are impossible without the availability of modern energy that is sufficient, reliable, and has competitive prices [https://sdgs.bappenas.go.id/tujuan-7/]. Energy and how it is used should be efficient, sustainable, and renewable as much as possible; there are many efforts to reduce energy consumption and generate

renewable energy, one of them is that through a combination of several energy efficiency technologies, good building design, and new renewable roof technologies, zero net energy buildings can be built [https://sdgs.bappenas.go.id/tujuan-7/].

### Implementing energy efficiency and policy reforms



Universitas Sumatera Utara also takes into account this Sustainable Development Goal no 7 verily by implementing energy efficiency and policy reforms which can be seen in several planning documents established in USU. USU as a body has two documents related to planning that ensure all infrastructure development follows the standard of energy efficiency.

The first related document is Five years planning development (namely Renstra USU 2020-2024, seen in figure 1) and Rector Policy number 3 the Year 2019 about the Green Campus development of Universitas Sumatera Utara. It is also followed and implemented by all faculties within Universitas Sumatera Utara. As a body, there is a commitment from USU to upgrade existing buildings to higher energy efficiency, which is implemented in the Rector's policy number 3 in the Year 2019 about green campus.



### Research and Community Service



From the research area, USU continuously implement research which are leaning towards affordable and clean energy. It can be seen from the

7 research title which gained Grants from Directory of Research, Technology, Community Services, Indonesian Ministry of Education, Culture, Research and Technology in financing year of 2021 and 15

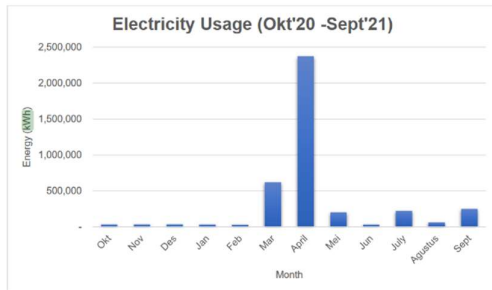


## Issue a policy to reduce overall energy consumption



As an effort to conduct a green movement on campus, USU has a policy on energy efficiency by issuing a policy to reduce overall energy consumption. The swift action following the policy has been carried out by installing solar street light panels and gradually building solar panels in each building such as the Main Administration Building, USU's Mechanical Engineering Laboratory, and Rooftop of Electrical Engineering Department from the Faculty of Engineering, and solar powered lights along Universitas Street. The data shows that there is 37,843 kWh of renewable energy production per year gained from these implementations.

USU currently has 3 sources of renewable energy produced on campus, namely a Biogas power plant (10 kW); Electricity from solar panels (total of 21 kWp 3 Wp, 280 Wp, 2 Kwp capacity), and Electricity from speed bump (Combine Heat and Power 9 less than 100 kWh. Meanwhile, the total electricity usage in USU is currently at 3,928,405 kWh per year.



**Description:**  
The electricity consumption in the Universitas Sumatera Utara during the year 2020 and 2021 are shown in the figure. Total Electricity usage = 3,928,405 kWh per year.



(Source: Sustainability report USU 2021)

Still, most of USU's buildings use natural sunlight for interior lighting with several buildings designed with a cantilevered floor that deliver a shadow to the floor underneath to dismiss the solar thermal heat; in fact this greatly reduces the use of energy consumption (seen on the picture above).

There are several carbon emission sources in campus of Universitas Sumatera Utara. The main sources are electricity production and transportation sector and the SDG center of Universitas Sumatera Utara has actively promoted low carbon transportation and installing solar PV in effort to reduce fossil fuel from generating electricity. USU also uses IPCC method to estimate the use of carbon footprint in USU. Other than that, USU also recently conducts PUI (Center of Science and Technology excellence) that strives towards carbon management and have effort in reducing carbon dioxide emissions (<http://pui.karbon.usu.ac.id>)



Recently, USU also has reviewed the usage of energy consumption within its center of administration building which has the highest waste of energy consumption and has been published and attached on the USU Green Campus website (<https://greencampus.usu.ac.id/index.php/id/ui-greenmetric/green-metric>)

## Providing programs for the local community to learn about the importance of energy efficiency and clean energy and strive towards 100% renewable energy



As a body, USU also has provided programs for the local community to learn about the importance of energy efficiency and clean energy by delegating this via a body names Community Service Institute (LPPM). This Institute periodically and continuously provides funding and encourages the academic staff of USU to implement community services and some of the themes include energy efficiency and clean energy. LPPM also provides direct services to local industries aimed at improving energy efficiency and clean energy (energy efficiency assessments, workshops, and research renewable energy options) in cooperation with Pertamina.

### Pemkab Karo Tanda Tangan MoU Dengan Universitas Sumatera Utara

Berita Tanah Karo. Onnewsindonesia.Serini(30/07)

Pemerintah Kabupaten Karo dalam hal ini Bupati Karo Terkelin Brahma SH tandatangan nota kesepahaman (MoU) dengan Universitas Sumatera Utara (USU), dengan Rektor USU Prof. DR.Runtung Sitepu, SH, MHum di Ruang Rektor USU, Medan pada Senin tadi (30/07).

Penandatanganan MoU ini terkait peningkatan dan optimalisasi pembangunan wilayah Kabupaten Karo yang meliputi bidang pendidikan, bidang kesehatan, bidang hukum, bidang pemberdayaan aparatur, bidang lingkungan hidup dan energy sumber daya mineral, bidang pertanian, bidang perikanan, bidang penelitian dan pengembangan, bidang pengabdian masyarakat, bidang perencanaan wilayah, bidang pariwisata serta bidang petindustrian perdagangan.

"melalui kesepakatan ini kami berharap Universitas Sumatera Utara dapat membantu Pemkab Karo untuk meningkatkan dan mengoptimalkan pembangunan wilayah Kabupaten Karo yang akhirnya diharapkan dapat mewujudkan masyarakat Karo yang sejahtera,"Ungkap Bupati Karo.



Additionally, to promote a public pledge toward 100% renewable energy (petitions, meetings, discussions, events) beyond the university, USU conducts events and group discussions related to promoting renewable energy and is implementing a gradual pledge towards 100% renewable and clean energy. USU continuously provides the necessary information to the national government in the way in which we can meet the sustainable energy target (Energy Efficiency and Renewable Energy).

All in all, as a body, USU assists start-ups that foster and support a low-carbon economy/technology through its innovation and incubator center has conducted start-up funding in technology innovation for civitas academia of USU and especially the academia coming from the Mechanical and Electrical Engineering Department, Faculty of USU and the funding includes providing support to start-up low carbon economy or technology.

## Research leading to affordable and clean energy



USU continues to carry out research that leads to affordable and clean energy. This can be seen from 7 research titles that received Grants from the Directory of Research, Technology, Community Service, Ministry of Education, Culture, Research and Technology of the Republic of Indonesia in 2021 and 15 research titles that received grants from USU

Non-PNPB funds in 2021. Some of the titles include "Study on the Application of Microhydro and Solar-Based Alternative Energy to Improve Community Energy Security in Langkat Regency", "Fuel Savings on Four-Wheeled Vehicles Using an Organic Rankine Cycle System", "Thermal Technology for community-scale waste processing design", "Designing and Building a Wind Energy Conversion

System and Its Application in North Sumatra Based on Wind Turbines", "Rubber Seed Waste as a Renewable Energy Source: Direct Biodiesel Production Using Controlled Crushing Equipment" and "Characterization of biopellets from various lignocellulose materials as renewable alternative energy sources".

Not only that, USU also strives to pledge the community to implement clean energy, which can be seen from the 4 community service activities carried out in 2021. The titles of community service are below, such as "Application of Appropriate Technology and Solar Power in Community Business Activities in Sayur Matua Village, Aek Nabara Berumun District, Padang Lawas Regency", "Training on Making and Installing Household-Scale Biogas in Kota Datar Village, Hampan Perak District, Deli Serdang Regency", "Assembling an Electric Voltage Stabilizer for a Toaster Oven as an Effort to Increase Production of Bread MSMEs in Medan City" and "Technology Application Dryer to Improve WD Anugrah Product Quality and Improve Product Marketing Through Digital Marketing & Direct Selling Approach"



Source: <https://sumutpos.co/pemanfaatan-teknologi-tepat-bagi-usaha-pembuatan-roti-dosen-usu-beri-bantuan-alat-penstabil-tegangan-listrik/>



Source: <https://waspada.id/medan/dosen-teknik-industri-ft-usu-terapkan-teknologi-pengering-dan-strategi-pemasaran-bandrek-jahe-merah-di-binjai/>

In order to achieve the targets written in goal number 7 of the SDGs, it is necessary to expand and facilitate clean energy research and technology and ensure universal access to energy services. USU has carried out these steps through funding for research and community service activities with a total fund of IDR 2,325,290,000,-.



**8** DECENT WORK AND ECONOMIC GROWTH



**PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL**



USU continues to strive to contribute to the improvement of inclusive and sustainable economic growth, productive and comprehensive employment opportunities, and decent work for all. Documented contributions spread from various sides, both by developing cooperation with various partners, instilling the values of sustainable development in

various educational moments, research contributions, community service, regulatory support, to funding support. USU strives to always be present in every breath of development oriented towards achieving goal 8 of the SDGs.

### Research on Various Economical Sectors



As a university, USU continues to strive to contribute to science in order to achieve goal 8 of the SDGs. There are 33 studies in 2021 related to goal 8. The topic of study spread to various economic sectors, such as agriculture, forestry, fisheries, industrial sector, and service sector. Some studies focus on strengthening tourism to have an impact on the local community's economy, others examine in terms of the potential to increase the added value of the agricultural and plantation sectors such as pineapple, bamboo, and palm oil commodities for inclusive and responsible economic growth. The university also strives to

increase the level of MSMEs so that they can immediately move up in class, this can be seen from several topics that concentrate on MSME activities associated with the use of digital technology, management factors, to finance.

The university also strives to increase the level of MSMEs so that they can immediately move up in class, this can be seen from several topics that concentrate on MSME activities associated with the use of digital technology, management factors, to finance. The total funding issued by USU in 2021 to support research related to goal 8 is IDR 2,791,480,000.

### Development of Tilapia livestock with bioflog technology to increase the income of the people of Pasar Lembu Village, Asahan Regency



The USU Community Service Team developed tilapia livestock with bioflog technology to increase the income of the people of Pasar Lembu Village, Asahan Regency. This service activity will take place in 2021. Some of the advantages of bioflog

tarpaulin ponds include more water saving and more feed saving. This system allows the use of micro-organism lumps in the pond to treat existing waste and sewage. These wastes and impurities will

then be recycled into useful substances. This waste treatment or recycling process can then produce excellent protein for the fish in the pond. That way we don't need to change the pool water often. In addition, the processing of this dirt also helps reduce the presence of unpleasant odors. The bioflog system also allows microorganisms to produce proteins that can be re-eaten by fish. That way the fish can get food produced directly by microorganisms in this system. But that does not mean that fish are not fed but we can reduce the frequency of feeding. This of course will greatly reduce or ease the burden of farmers' expenses for farmed fish feed matters.

water attractions. With this new water attraction, it is hoped that it can improve the economy of the surrounding community. The attention of the community in Timbang Jaya Village has also increased to the need for the next assignment of the USU Abdimas Team which will provide solutions to problems in other sectors such as Economy, Agriculture and Child Psychology, as conveyed at the time of this service.



Figure 8.1. Spawning Ponds, Ready-to-Use Fish Broodstock, and USU PKM Team and Fisheries Community Groups

Another USU Community service team in 2021 used the village's irrigation canals to become



Figure 8.2. Initial illustration and progress of the construction of the Tourist Attraction

### Community empowerment of cattle farmers in Sei Kamah Baru Village



One of the other service activities carried out is to empower the cattle farming community in Sei Kamah Baru Village. This community service activity is carried out with the practice of sanitation of the livestock system, making ideal cages, mentoring and monitoring, as well as building institutional dynamics of farmer groups.

One of the other service activities carried out is to empower the cattle farming community in Sei Kamah Baru Village. This community service activity is carried out with the practice of sanitation of the livestock system, making ideal cages, mentoring and monitoring, as well as building institutional dynamics of farmer groups. To achieve this goal, several stages of activity are carried out. The first provides training on environmental health (sanitation) and occupational health Personal Protective Equipment (PPE). Furthermore, the training and mentoring activities carried out to partners are focused on increasing knowledge about the risks of hazards that can occur to cattle farmers and the design of making pens, environmental sanitation and the use of personal protective equipment. Finally, it is hoped that the creation of partners' ability to obtain new opportunities such as improving financial management, marketing, and understanding the use of internet technology.



Figure 8.3. Repair of livestock shed floor and handover of PPE by USU Service Team

## Green Economy Webinar "Creative Human Resources in the Era of Digitalization for Regional Economic Development"



The Entrepreneurship Study Program of graduate Program and the postgraduate of Management Science Study Program, Department Student Association (HMJ), Management Science, Faculty of Economics and Business, Universitas Sumatera Utara (FEB USU) collaborated in organizing the Green Economy Webinar. Carrying the theme "Creative Human Resources in the Era of Digitalization for Regional Economic Development", the holding of this webinar is also a form of support for Indonesia as the G20 Presidency which makes the green energy transition the focus. The independent learning paradigm encourages students to be able to develop excellence, creativity, innovation according to the talents and interests of these students. Therefore, students are encouraged to choose a campus according to their interests and are expected to be willing to develop their area. In relation to support related to the green economy, all must be able to explore resources without destroying how nature is so that the goods and services industry is required to be environmentally friendly.

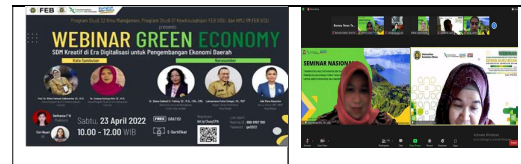


Figure 8. 5. Green Economy Webinar Flyer and National Seminar Implementation via Zoom.

Source : <https://www.usu.ac.id/id/berita/s-1-kewirausahaan-dan-s2-ilmu-manajemen-kolaborasi>, <https://www.borneoneews.co.id/berita/265130-universitas-sumatera-utara-gelar-webinar-pengelolaan-danau-toba>

In addition, USU also held a webinar entitled "Multi-Stakeholder Synergy in Realizing Green Economy-Based Management of Lake Toba to Welcome the Industrial Era 4.0". Through this webinar, USU also wants to realize the spirit of Transformation Towards Ultimate to improve the level of the USU campus in accordance with USU's vision and mission and strategic plan.

## USU MoU with NT Corporation for Green Economy Development, Blue Economy and Digitalization



The Universitas Sumatera Utara signed a Memorandum of Understanding (MoU) with NT Corporation and a Public Lecture entitled "The Role of Alumni in Supporting the Independent Learning Program of the Universitas Sumatera Utara", which was held in a hybrid manner.

This activity will take place on December 14, 2021. In addition to the implementation of Merdeka Belajar Kampus Merdeka in the form of internship and entrepreneurship programs, this collaboration will also be developed into 3 research focus programs from the Ministry of Education and Culture, namely green economy, blue economy and digitalization. The spirit in the development of these three aspects is also carried out by collaborating with the industrial world.

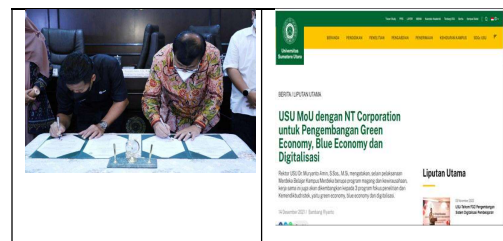


Figure 8.6. Signing of a Memorandum of Understanding (MoU) with NT Corporation.

Source : <https://www.usu.ac.id/id/berita/usu-mou-dengan-nt-corporation-untuk-pengembangan-green-economy-blue-economy-dan-digitalisasi>



9

INDUSTRY, INNOVATION  
AND INFRASTRUCTURE





## BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

The goal of the 9th SDGs is to build resilient infrastructure, increase inclusive and sustainable industries and encourage innovation. There are several targets of goal 9 that are relevant to be carried out by USU in accordance with the tridharma of higher education, namely strengthening scientific

research and technological capabilities in the industrial sector and increasing access to information and communication technology. USU's active involvement can be seen from the research, service and of course the innovations resulting from these activities.

### Banana leaves Nanofiber Filter Mask Ready to Be Developed



Several students of the Universitas Sumatera Utara (USU) who are members of the Nanofiber Mask Team in 2021 have conducted research for mask filters using nanofibers from banana frond waste. The work of the Exact Research Student Creativity Program (PKM) entitled "Effectiveness of Cellulose Acetate Nanofibers from Banana leaves Waste (*Musa paradisiaca* L.) as an Antibacterial Filter on Masks" was presented at the 34th Pimnas event in October 2021. Their research was also exhibited in the form of posters on the PIMNAS.



<https://www.usu.ac.id/id/riset-unggulan/masker-filter-nanofiber-pelepah-pisang-siap-dikembangkan>

### Innovation Research on Agarwood tea



This special feature of agarwood plants attracted the interest of Dr. Ridwanti Batubara, SHut, MP, one of the lecturers at the Faculty of Forestry, Universitas Sumatera Utara, to research and find other benefits of agarwood. He started conducting a series of researches in 2012, which then in his current development was assisted by the Wikstea Instan Prestartup Team, consisting of Sri Megawati Lubis (CEO), Rizki Hambali Harahap, Adrian Anshori Hasibuan, Karina Aulia and Ilfa Nindita Harahap.



<https://www.usu.ac.id/id/riset-unggulan/perjuangan-riset-daun-teh-gaharu-si-tanaman-surga>

## Ecoprint, Plant Recycling Innovation



<https://www.usu.ac.id/id/riset-unggulan/ecoprint-inovasi-daur-ulang-berbahan-tumbuhan>

Dr. Iwan Risnasari, S.Hut, M.Si together with the Head of the USU Forest Product Technology Department, Arif Nuryawan, S.Hut, M Si, P.hD, and Dr. Bejo Slamet, S.Hut, M.Si, conducted a series of

Ecoprint community services, Plant Recycling Innovations. In addition, independently, Sari also established an Eco-print business unit called Nauli Eco-print. Together with his team, Nauli Eco-print has conducted a lot of Eco-print training to the community. Most recently, Nauli Eco-print provided training to refugees under the auspices of the International Organization for Migration (IOM), a wing of the United Nations (UN) organization. Refugees from Somalia, Sri Lanka, and Afghanistan are trained to be able to produce Eco-print products on June 21-25, 2021. This woman is determined to continue to conduct research in the field of forest product utilization.

## M3D Printer



USU Lecturer Emerson P. Sinulingga ST, M.Sc, Ph.D and Rizky Mialdza Dwi Budi P Develop M-3D printer. M-3D printer is a 3-dimensional printing machine product that can print as desired (customize). This printing machine can not only print products in 3-dimensional form in one color but more than one color can be combined as the output of this 3D printer





Income inequality is a global problem that requires global solutions. This includes improving regulation, monitoring markets and financial institutions, and encouraging development assistance and foreign direct investment in areas most in need. Facilitating the safe movement and movement of people is also

key to bridging evolving differences. USU also contributes to achieving the targets in goal 10 of these SDGs through research, service and cooperation activities.

### Research focusing on SDGs 10



In 2021, to support the achievement of *the Sustainable Development Goals* in terms of reducing inequality, USU has carried out research focusing on SDGs 10. These studies lead to the development of economic and social fields to increase economic income for women and rural communities. The research that supports SDGs 10 is:

1. *Social Entrepreneur in the Women's Business Community in Medan City and Deli Serdang Regency.*
2. *Changes in Marketing Strategy Patterns with Content Marketing Strategy to Maximize Product Sales of Women Business Actors MSME Center in North Sumatra.*
3. *Optimization of village potential to increase the economic strength of the village.*



USU also provides funds for community service activities that support SDGs 10 related to efforts to reduce gaps in the community. The purpose of these community service activities is to develop and improve the community's economy through empowerment programs initiated by teaching staff

at USU. Some of these community service programs include:

1. *Strengthening Organizational Capacity and Empowering Coastal Communities in Sentang Village, Serdang Bedagai Regency.*
2. *Utilization of UAVs for Pangambatan Village Mapping in the Context of Sustainable Tourism Development.*
3. *Capacity Building of Widuri Village-Owned Enterprises (BUMDes) Managers to Achieve Economic and Sustainable Independence in Dolok Merawan Village, Dolok Merawan District, Serdang Bedagai Regency, North Sumatra Province.*
4. *Efforts to Increase Village Income by Fostering Economic-Based Farmer Groups and Agricultural Mechanization in Sipira Village, Onan Runggu District, Samosir Regency.*
5. *Development of Liang Pematang Village, Sinembah Tanjung Muda Hulu District, Deli Serdang Regency to Realize Community Welfare during the Covid-19 Period*

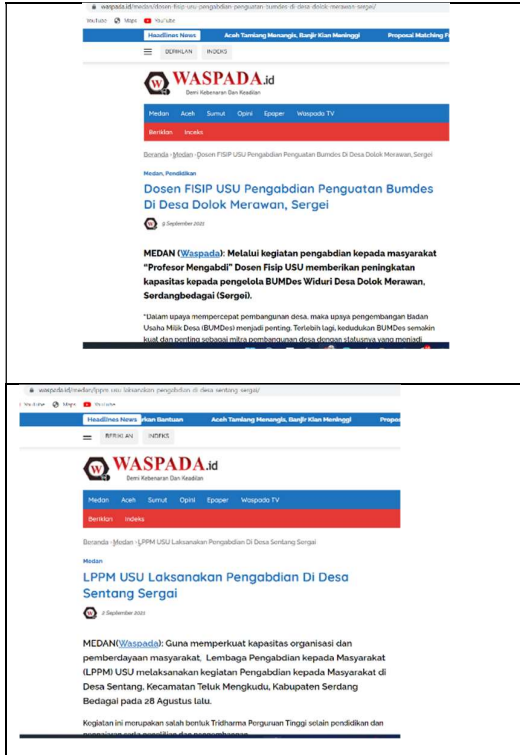


Figure 10.2. Some online news related to USU community service that supports goal 10 of the SDGs

Rising inequality requires comprehensive action in the implementation of appropriate policies to empower low-income communities and promote economic inclusion for all, regardless of gender, race or ethnicity. USU through research, community service and education activities allocated funds of IDR 852,000,000 to support SDGs goal 10.



Conceptually, a sustainable city refers to carrying out economic and social activities with minimal negative impact on the environment. So that the next generation can experience an environmentally friendly city with the same conditions. Nature itself is sustainable, so inspiration and innovation in building cities is to imitate the way nature works. The Universitas Sumatera Utara as a higher education institution that upholds sustainable development in an effort to create safe and inclusive settlements and preserve art and cultural dwellings has programs that are in accordance with the excellence and roadmap of TALENTA (*Tropical Science and Medicine; Agroindustry; Local Wisdom; Energy (sustainable); Natural Resources (biodiversity, forest, marine, mine, tourism); Technology (appropriate) and Arts (ethnic)*) set out in USU's Long-Term Plan 2015-2039. In an effort to realize goals that are in accordance with the

development of cities, safe and inclusive settlements and preserve art and cultural habitation, the Universitas Sumatera Utara provides easy access to the public in libraries, art and cultural performances, access to mass transportation, and green open spaces within the Universitas Sumatera Utara. In addition, research and community service of the academic community of the Universitas Sumatera Utara which is part of Tri Dharma's work by targeting sustainable community development is published and accessed openly and widely to the public in National and International Journals every year.

### Access on Digital Books and Collections in the Library



The Universitas Sumatera Utara through the Library of the Universitas Sumatera Utara provides services to the academic community and the public at large in accessing superior services owned by the library. USU's library services consist of a direct book ordering visit service and a digital service. Visiting services can be done every Monday-Friday at 08.00-15.00 WIB. The book ordering service consists of general book ordering and short loan collections. Digital services provided by the library are OPAC, E-Journals, E-Books, Resource Guides, USU Repository, Archive Repository, Loan Check, Information Literacy Class, and EBSCO Discovery

Service. The USU Library is integrated between services in the Central Library and the Faculty Branch Library and the USU Hospital Branch Library. Digital access services for library users are carried out through *OPAC*. *OPAC (Online Public Access Catalog)* USU is a library catalog system that is connected through a computer network both intranet and internet so that it can be accessed by users from all regions (*remote access*). During the Covid-19 pandemic, since 2020 until now, the Universitas Sumatera Utara Library has developed digital-based services in the USUlib Mobile application and WhatsApp Services to make it easier for the academic community of the Universitas Sumatera Utara to access the USU Library.

## Green Campus

The Universitas Sumatera Utara first participated in the international ranking for the Green Campus (Green Campus), namely UI GreenMetric in 2017. At that time, the signing of a joint commitment between the Universitas Sumatera Utara and other leaders of universities in Indonesia was carried out at the UIGreenMetric Workshop held at Diponegoro University, Semarang. USU was represented by rector IV of the Universitas Sumatera Utara. In 2017, the Universitas Sumatera Utara was ranked 11th out of 57 universities in Indonesia. USU's total score is 4,796.

In 2018, USU's second year in the UIGreenMetric World Green Campus rankings, USU earned a score of 5,300. USU is ranked 14th out of 66 universities in Indonesia.

In 2019, USU again followed the UIGreenMetric ranking and obtained a score of 5,800. USU is ranked 14th out of 72 universities in Indonesia.

In 2020, USU's IUGreenMetric Green Campus ranking obtained a score of 7,225 which is ranked 11th out of 88 universities in Indonesia.

## Mass Transportation and Vehicle Free Zones Linus Bus Service (Cross USU)

The Universitas Sumatera Utara provides bus transportation services for campus residents who operate regularly at regulated times and tracks around the USU Padang Bulan Campus area, namely the LINUS (Lintas USU) Bus. The program was launched on March 9, 2013. This service is provided free of charge to the USU academic community. LINUS Bus operating time from Monday-Friday starts from 08.00-17.00 WIB.



LINUS (Cross USU) Transit and Bus Route Image



## USU Bikes

USU bicycles can be used by the academic community for free every Monday-Friday with the condition that they can show a USU identity card.

Usu's Bike Program began in 2015. In 2021, the Universitas Sumatera Utara in collaboration with PT Adhikari will implement the eco-green concept and realize a green campus with a master plan for the use of USU Bicycles.



USU Bike Images

### Pedestrian Support

The Universitas Sumatera Utara built a pedestrian path that connects several adjacent faculties such as the Faculty of Law with the Faculty of Economics and Business, and the USU Library. The pedestrian walkway was built in an effort to create a vehicle-free environment in the footsteps towards a green campus.



Image of USU Padang Bulan Campus Pedestrian Path

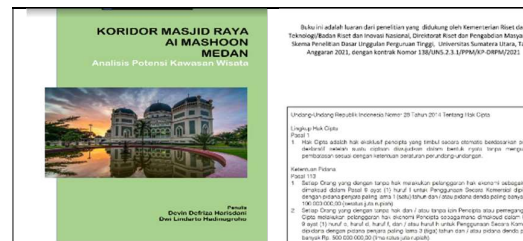
### Sustainable Building Construction and Planning

In planning sustainable development, the Universitas Sumatera Utara in 2019 involved an international certification body, namely the Green Building Council Indonesia (GBCI). The buildings certified from the Universitas Sumatera Utara are the Universitas Sumatera Utara Hospital (Existing Building) and the Faculty of Forestry, Universitas Sumatera Utara, USU Kwala Bekala Campus (New Building). In general, USU strives to realize Green Building as a real effort to meet sustainable green campus standards.

revitalization of the Al Mashoon mosque in Medan, by initiating the expansion of the focus area of tourism with the concept of Urban Corridor Linkage including the tourism potential of the socio-cultural corridor around the Mosque. The results of this study resulted in a book entitled Corridor of the Great Mosque of Al Mashoon Medan with authors Devin Defriza Harisdani and Dwi Lindarto Hadinugroho (Lecturer of Architects at the Faculty of Engineering USU)

Expansion of the focus area of tourism with the concept of Urban Corridor Linkage including the tourism potential of socio-cultural corridors around the Mosque

The tourism industry is one of the revivals of the urban economy which is the main target of the SDGs. One of the mainstays of Medan city tourism is the religious tourism of the Al Mashoon Grand Mosque in Medan. So far, activities at the legendary mosque have only been limited to daily worship activities, celebrations of religious holidays, Ramadan iftar events or tourists taking pictures for a while. This research compiles a model of tourism



Gambar 11.1. Buku hasil luaran penelitian yang berjudul Model Revitalisasi Kawasan Wisata Religi Masjid Raya Al Mashoon Medan (Ketua Tim: Devin Defriza Harisdani/Dosen Fakultas Teknik)

A total of ± 33 research titles relevant to the goals of the 11 SDGs conducted by USU lecturers during 2021. The research topic discusses the revitalization

of several buildings in Medan City, flood management and several policy implementations.

### Community Empowerment in Flood Disaster Mitigation and Early Warning System with Tanjung Selamat Village Internet of Things (IoT) Technology



Community service activities carried out by USU related to achieving targets for goal 11 of the SDGs take the topics of increasing knowledge, community empowerment, forming disaster response volunteers and developing ecotourism. One of the environmental problems in Medan City is flooding as a result of climate change so that the USU community service scheme provides a disaster mitigation scheme. The Community Service Program in the disaster mitigation scheme entitled "Community Empowerment in Flood Disaster Mitigation and Early Warning System with Technology Internet of Things (IoT) Tanjung Selamat Village seeks and can increase community knowledge and empowerment in disaster mitigation before, during, and after a flood disaster occurs. Internet of Things (IoT) assistance can help communities in dealing with flood disasters through early warning systems for alert and alert levels. This Community Service Program helps the formation and empowers the Disaster Preparedness (BSB) community.



Figure 11.2. Community Empowerment in Flood Disaster Mitigation and Early Warning System with Internet of Things Technology (IOTDesa Tanjung Selamat (Team Leader: Prof. Dra. Pujiati, M.Soc.Sc, Ph.D/Lecturer at the Faculty of Cultural Sciences)

### Involvement of teachers and school managers in capacity building of teachers about knowledge and skills to increase creativity in the provision of outdoor learning tools and treatment skills based on the Covid-19 protocol



In addition to being related to flood management, community service at USU that is relevant to the objectives of the 11 SDGs is the adaptation of the new normal after the COVID-19 pandemic for learning spaces, especially for kindergarten schools. Limited land, educational activities, limited funds are separate limitations that must be designed as well as possible. To achieve this, it is necessary to involve teachers and school managers in capacity building for teachers about knowledge and skills to increase creativity in providing outdoor learning tools and treatment skills based on covid-19 protocols. Provision of outdoor classrooms on the narrow grounds of urban schools. is an alternative to overcoming the limitations of learning space by making the yard / yard also as a Study Room.



Figure 11.2. Outdoor Classroom Documentation at Zahira Kindergarten (Team Leader: Dr. Ir. Dwi Lindarto Hadinugroho, MT / Lecturer at the Faculty of Engineering)

### Creation of Agriculture, Animal Husbandry and Fisheries Education Tourism Park in Batu Melenggang Village, Hinai District, Langkat Regency

Another community service activity carried out by USU lecturers with the team leader Prof. Dr. Ir. Elisa Julianti, MSi (Lecturer at the USU Faculty of Agriculture) who supports the goal of 11 SDGs is the Creation of an Agricultural, Livestock and Fisheries Education Tourism Park in Batu Melenggang Village, Hinai District, Langkat Regency. The output obtained is in the form of an agricultural and livestock education tourism park equipped with facilities for goats, cattle, vegetable cultivation, fish ponds, huts where to sit and rest, a mini factory processing concentrate animal feed.



Figure 11.3. A simple hut for visitors to tourist education parks, vertical planting of seeds and making animal feed (Team Leader: Prof. Dr. Ir. Elisa Julianti, MSi / Lecturer at the USU Faculty of Agriculture)

One of the targets of goal 11 of the SDGs is to promote inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable settlement planning and management in each country. USU contributes to the tridharma of higher education by allocating funds of IDR 2,311,450,000 to create sustainable cities and settlements.



12 RESPONSIBLE CONSUMPTION AND PRODUCTION





## ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

To achieve economic growth and sustainable development, we must realize the importance of reducing our environmental footprint by changing the way we produce and consume food and other resources. Efficient management of shared natural resources and methods of disposal of toxic waste and pollutants are the main objectives in achieving this goal. USU also takes an important role in

achieving goal 12 of these SDGs through research activities, community service and collaboration with various stakeholders.

### Compost Tank of Yard Waste Processing at Temporary Landfill USU



USU continues to be committed to reducing the amount of waste disposed of in landfills. USU will gradually provide segregated waste containers in each building. At the downstream part, waste is utilized into energy and other sources of raw materials.



### Improving in hazardous waste management



For improving hazardous waste management, USU has strengthened cooperation by making agreement with third party to improve hazardous waste management. Rector of USU, Dr. Muryanto Amin visited the hazardous waste treatment plant owned

by PT Sumatra Deli Lestari Indah in Percut Sei Tuan, Deliserdang Regency.

<https://www.kompas.com/properti/read/2021/06/06/060000321/implementasikan-green-campus->

[rektor-usu-kunjungi-pabrik-pengolahan?page=1](#)  
(in bahasa)



## The eco-enzyme



In order to reduce organic waste, an eco-enzyme was made, which was initiated by Dr. Ir. Nurzainah Ginting, M.Si from the Faculty of Agriculture. He is also the head of the national team for eco enzymes. Eco-enzymes have been applied to several activities, such as during the commemoration of World Environment Day by pouring it into water bodies to improve the quality of water bodies around the USU campus and the Deli River.



## Composting process using BSF larvae



Through the Campus Intellectual Business Development Program (PPUPIK) activity initiated by the USU LPPM with the chairman Dr rer medic dr M.Ichwan, M.Sc developing the utilization of USU TPS by making adult BSF fly cages made of wooden frames covered with nets (mosquito nets). ) size 2 x 2 x 1.75 meters. Bio pond is a 3-level shelf with a size of 3 x 1.5 x 2 meters, made of a mild steel frame with a cement base. Used for the composting process using BSF larvae. Then Tong for fermentation of organic waste before being given to BSF larvae. The fermentation process will reduce

the unpleasant odor that arises during the composting process. News related to this activity can be seen at the following link <https://waspada.id/education/ppupik-lppm-support-pengelolaan-limbah-organik-di-usu/>



### Smart Composter for community



The community service team at the University of Sumatera Utara (USU) led by Achmad Sadeli, S.Pt., M.Sc who is a lecturer at the Faculty of Agriculture with members from Dr. Tulus Ikhsan, S.Si., M.Sc, a lecturer at the Faculty of Mathematics and Natural Sciences, Wednesday (8/9/2021) carried out community service activities. The smart composter submitted is equipped with a temperature sensor, so that the optimal composting temperature can be maintained because when the temperature rises the composter machine will rotate to stir the compost in the composter until the optimal temperature is reached.



### World Clean Up Day 2021



In order to support the Green Campus at USU, the Faculty of Medicine asked all lecturers, education staff and FK-USU students to participate in the World Clean UP Day (WCD 2021) activities in the form of a program for selecting and collecting waste from home/office. The event was held on Tuesday, September 14, 2021, at the FK-USU Hall, the Declaration of World Clean Up Day 2021 at FK-USU will be held to create a green campus. We must be aware of our environment, starting from ourselves

and to our environment. May our environment become cleaner and healthier. This event appealed to the entire family of FK-USU to collect waste into containers that have been provided according to the material, the results of the sorting were sold to collectors and converted into tree seeds. <https://fk.usu.ac.id/en/berita/114-pencanangan-world-clean-up-day-2021> (in bahasa)

### Research and community service grant



In 2021 USU has contributed to achieve the sustainable development goals in the form of research related to SDG 12 - Responsible Consumption and Production, with a research value

of IDR 3,509,140,000.00. Meanwhile, in the form of community service, the amount is IDR 582,800,000.00.

## Detection of Maturity of Multi Sensor-Based Organic Compost Fertilizer Integrated IoT with Solar Power Source

Research conducted by USU lecturers related to goal number 12 of the SDGs as many as 81 titles during 2021. One of the studies that has received a simple patent with a Simple Patent Announcement Number 2021 / SID / 02556 dated October 18, 2021 entitled Detection of Maturity of Multi-Sensor-Based Organic Compost Fertilizer Integrated IoT with Solar Power Sources with the chief researcher is Dr. Irwana Nainggolan, M.Sc, ID. This invention is related to a multisensor-based organic compress fertilizer maturity detection tool. The sensors used consist of odor sensors, color sensors and weight sensors, all three of which are integrated into a microcontrol. The results of monitoring using this detection tool show that the pungent stench of high

concentrations of ammonia gas due to the decomposition process continues to decrease with the maturation of fertilizer raw materials. Meanwhile, the color of fertilizer raw materials shows a color that continues to change from a color that tends to be greenish to brownish black with increasing fertilizer maturity. Weight shrinkage also occurs as the fertilizer matures. Based on three parameters, namely smell, color and weight shrinkage, this organic compost maturity detection tool has high accuracy because if there is a reading error in one parameter, it can be covered with other parameters. In addition, research related to goal 12 is waste utilization and plastic waste management.

## Training, empowerment, processing, optimization and improvement of economic value as well as institutional strengthening in waste management

Community service activities carried out by USU related to goal 12 include training, empowerment, processing, optimization and increasing economic value as well as institutional strengthening in waste management. Dairi Regency is the largest producer of durian fruit in North Sumatra Province with a production of 23 thousand tons per year. One of the largest durian producing villages in Dairi Regency is Sungai Raya Village. The large amount of durian skin waste that accumulates on the side of the road, disungai and in farmers' gardens requires one effort to process durian skin waste into compost that can be used by farmers and can improve the welfare of farmers. The steps that will be taken are socialization in farmer groups as partners, then designing chopping machines according to needs, then providing training in the use of machines and making compost from the results of enumeration of durian skin.



Figure 12.1. Durian skin waste, durian skin chopping tools and shredded products to be used as compost (Team Leader: Prof. Dr. Dra. Erna Frida, M.Si/Dosen FMIPA)



## Optimization of Utilization of Feces for Native Chicken Livestock as a Source of Manure for Fruit Plants

In addition to organic waste treatment, in realizing goal 12 of the SDGs, community service activities also utilize livestock waste to be used as compost and liquid fertilizer. Community service activities entitled Optimization of the Use of Feces for Native Chicken Livestock as a Source of Manure for Fruit Plants on the Land of the Prosperous Blessing Group with the chairman Prof. Dr. Ir. Darma Bakti, MS (Lecturer of the Faculty of Agriculture) conducted training and assistance on making drum fertilizer; create training to increase the population of native chickens using hatching machines and help to improve fruit crop land.

Research and community service activities carried out by USU focus on several targets of SDGs no.12 including sustainable management and efficient use of natural resources; halve global per capita food waste at the retail and consumer levels and reduce food loss along the production and supply chains including post-harvest loss; substantially reduce waste production through prevention, reduction, recycling, and reuse; promote sustainable public procurement practices, in accordance with national policies and priorities and ensure that communities everywhere have relevant information and awareness of sustainable development and lifestyles that are in harmony with nature. To achieve these targets, USU has issued funds of IDR 6,687,940,000,-



Figure 12.2. Training on making kandang fertilizer and providing automatic hatching machines for chicken eggs (Team Leader: Prof. Dr. Ir. Darma Bakti, MS / Lecturer at the Faculty of Agriculture)



One of the targets of SDG 13 is to strengthen resilience and adaptation capacity to climate change through education, community development, policies and funding related to climate change mitigation activities. USU also plays an active role in contributing to the fight against climate change both on a local and national scale through education and socialization, community service, research, cooperation and innovation.

USU also plays an important role in developing research related to tackling climate change. The variety of sectors that cause climate change, the research topics conducted by the advisory staff at

USU also vary from inventory, GHG emissions in all sectors ranging from the forestry, agriculture, energy, transportation, waste etc. sectors. In addition to inventory, mitigation-related research such as mangrove restoration, flood mitigation and other hydrometeorological disasters due to the impacts of climate change. In 2021, ± 19 research titles related to handling climate change. Research topics related to mitigation and adaptation of iklim changes include mangrove and forest restoration, disaster mitigation and GHG emission inventory as well as the need for green open space.

### Research on Climate Change



Universitas Sumatera Utara also plays an important role in developing research related to tackling climate change. The variety of sectors that cause climate change, and the topics of research conducted by the guard staff at USU also vary from inventory to GHG emissions in all sectors ranging from forestry, agriculture, energy, transportation, waste, etc. In addition, research related to mitigation such as mangrove restoration, flood mitigation, and other hydrometeorological disasters due to the impact of climate change. In

2021, ± 24 research titles related to climate change are funded by the Directorate of Research and Community Service of the Ministry of Research, Technology and Higher Education and USU's Non-Tax State Revenue with a total fund of IDR 1,071,860,000. Research topics related to climate change mitigation and adaptation include mangrove and forest restoration, disaster mitigation and inventory of GHG emissions, and the need for green open spaces.

### Community Service



USU's community service schemes are very diverse, ranging from regular, multi-year services, to fostered villages and disaster mitigation. The community service carried out by USU is not only limited to socialization but also assistance to the

community, especially in adapting to hydrometeorological disasters because of climate change. In addition, USU's community service also increases the community's capacity to utilize waste into eco brick, eco enzyme, maggot, etc. as one of the real actions to reduce greenhouse gas emissions from the waste sector. In 2021, there will be ± 37 community service titles with a total fund of IDR 1,463,665,000. USU together with the

Coordinating Minister for Human Development and Culture planted trees at USU in a joint effort to raise awareness in the campus community about the importance of protecting the environment as well as one of the efforts to reduce the greenhouse effect so that the global climate returns to normal.



News links:  
<https://www.usu.ac.id/id/berita/menteri-koordinator-pmk-tanam-pohon-di-usu>

## Cooperation and Innovation



USU in combating climate change also collaborates with all stakeholders, including the government, private sector, state-owned enterprises, and NGOs as well as cooperation with foreign countries. The form of cooperation that exists covers the tri dharma of higher education which includes education, research, and community service. In 2021, USU will collaborate with the Ministry of Environment and Forestry regarding the restoration of the peat ecosystem in North Sumatra Province. USU is also collaborating with USAID to increase community capacity in the spring vulnerability assessment action plan. The sector that most dominantly contributes to GHG emissions in Indonesia is the forestry sector, so to contribute to climate change mitigation, USU established the Centre for Excellence in Mangrove Science and Technology (PUI Mangrove) where mangrove forests play an important role in carbon sequestration. USU's PUI Mangrove is chaired by Prof Mohammad Basyuni, S.Hut, M.Si, Ph.D who has received international grants such as Newton Fund/LPDP/DIP until December 2022, JSPS Core to Core until March 2023, e-ASIA until December 2024, National Geographic until April 2022 and APN-CRRP Project until September 2024.



News links:  
<https://www.usu.ac.id/id/berita/fisip-usu-gelar-seminar-tentang-mitigasi-perubahan-iklim>



Excellent Research

## PUI Mangrove Supports Carbon Capture and Storage in Lubuk Kertang Village

Mangroves are a type of mangrove plant that is generally located in transitional areas of land and sea ecosystems. Mangrove forests have a big role for marine life and also as a barrier to land behind it.

15 Februari 2022 / Renny Julia Harahap

Copy link



News links:

<https://www.usu.ac.id/en/pengabdian-masyarakat/pui-mangrove-supports-carbon-capture-and-storage-in-lubuk-kertang-village>



The SDGs create a sustainable framework to regulate and protect marine and coastal ecosystems from pollution of land origin, as well as to make aware of the impacts of ocean acidification. Strengthening the protection and sustainable use of marine resources through international law will also help address the challenges facing our oceans. To support the aquatic ecosystem through the action of creating the Central Team for the Study of the Malacca Strait of Sumatra, it was done considering that the Malacca Strait is one of the most important assets in the world and a strategic asset of the nation so it needs to be properly supervised and to support these activities USU also provides funding facilities for strengthening these institutions. Through research and service, USU lecturers also play an active role in achieving target in goal 14 of the SDGs.

The University also offers education on fisheries processing, aquaculture and sustainable tourism which is poured into a curriculum that contains courses in Ikhtology, Marine Biology, Brackish and Marine Aquaculture Management which teaches about fisheries processing and dairy milking.

For to Supporting Aquatic Ecosystem Trough Action, The University has created a Team of the Center for the Study of the Strait of Malacca Sumatra, this is done considering that the Malacca Strait is one of the most important assets in the world and a strategic asset of the nation so it needs to be well supervised and to support these activities the University also provides funding facilities for institutional strengthening of the Center of Excellence for Science, Technology and Science (IPTEKS) Higher Education (PUI-PT) to support the strategic plan.

The actions taken by the University are also outlined in the University-funded TALENTA Research and Community Service as support for lecturers who collaborate with cooperation partners that have been established with the University in order to

maintain existing ecosystems and biodiversity, both plants and animals, especially threatened ecosystems and appropriate technology to minimize or prevent damage to aquatic ecosystems.

For the Water Sensitive Waste Disposal, The University has established cooperation with PT. Sumatra Deli Lestari Indah in terms of waste treatment in the campus environment so that wastewater quality does not interfere with aquatic ecosystems and environmental health and as a form of support to reduce plastic waste in the campus environment, the University also collaborates with PT partners. Indonesia is Waste Free so that it can synergize in terms of reducing plastic waste in the campus environment. This collaboration is carried out in 2021.

For Maintaining a Local Ecosystem, The University supports activities to organize, care for and minimize physical and biological changes in aquatic ecosystems and supports activities to monitor the health of aquatic ecosystems by conducting marine conservation, creating a Mangrove Science and Technology center, Universitas Sumatera Utara.

As well as conducting collaborative programs with the community in an effort to maintain aquatic ecosystems together by implementing watershed treatment strategies based on aquatic species diversity. In 2021.

The University continues to be committed to supporting activities in terms of preserving the aquatic environment. The form of support provided in the academic community such as conducting research activities and TALENT Community Service, collaborating with partners related to the preservation and protection of aquatic ecosystems, both plant and animal, and supporting science and technology programs.

## Model Strategy for Mangrove Ecosystem Protection through Social Capital Development of Tapan Nauli Bay Coast Community



The research entitled Model of Mangrove Ecosystem Protection Strategy through Social Capital Development of Tapan Nauli Bay Coast Community (Study in Sibolga City and Central Tapanuli Regency) chaired by Henry Sitorus (FISIP Lecturer) is one of the research titles related to the protection of marine ecosystems. Environmental management and protection strategies with the aim of sustainability (sustainable) including coastal ecosystems require systematic and integrative approaches and models. The purpose of this study is to get an overview of the potential capacity of social capital in the format of values and norms, new social institutions, and the network of existing communities to be developed in the concept of a coastal ecosystem protection (conservation) strategy model based on social capital development in the coastal area of Tapan Nauli Bay (Sibolga City and Central Tapanuli Regency). The social capital capacity of the community that is the source of this

research data can be considered adequate including the level of acceptance of the existence of others, the level of trust in neighborly relationships and figures, and the values of social relations that foster interaction between respondents and their social environment. The motivation of the community is quite high in the conservation of coastal ecosystems and is willing to be actively involved in institutions formed to carry out various programs and activities for the protection of coastal ecosystems of Central Tapanuli Regency and Sibolga City, in addition to mangrove-related, research topics relevant to marine ecosystems are the diversity and abundance of aquatic biota both in Lake Toba and in the ocean.

Some of the targets contained in SDGs no.14 are implemented by USU through community service activities. The scope of community service carried out by USU lecturers includes the dissemination of science and technology, mangrove conservation, increasing fishermen's catches and the application of sensors to maintain water quality.

## Nipah Cultivation Science and Technology (*Nypa Fruticans* Wurmb) in Pulau Sembilan Village, Pangkalan Susu District, Langkat Regency, North Sumatra Province



Community service carried out by the team with the head Dr. Ir. T. Irmansyah, MP (Lecturer at the Faculty of Agriculture) took the title of Nipah Cultivation Science and Technology (*Nypa Fruticans* Wurmb) in Pulau Sembilan Village, Pangkalan Susu District, Langkat Regency, North Sumatra Province. The main contribution given to partners is the transfer of knowledge and technology, such as practice / training on how to provide good and correct nipah seeds and practice / training for direct planting in the field and its maintenance after the service program. One of the objectives of this service in addition to the transfer of science and technology nursery and Nipah cultivation, is the preservation of environmental sustainability (the balance of nature is not disturbed), as well as being able to support the welfare of the social and economic life of the community.



Figure 14.1. Mangrove conservation activities in Pulau Sembilan Village (Team Leader: Dr. Ir. T. Irmansyah, MP / Lecturer at the Faculty of Agriculture)



Mangrove conservation is also carried out in Sisarahili Teluk Siabang Village by Dr. T. Alief Aththorick, S.Si, M.Si (FMIPA Lecturer). Along the outskirts of Sisarahili Village, Siabang Bay is directly adjacent to the location of the mangrove ecosystem so that the potential for mangrove utilization is very large, but due to the large earthquake that hit Nias Island in 2005 to 9.4 SR caused the condition of the mangroves to be damaged. Service activities begin with increasing community knowledge related to mangrove ecosystems, mangrove nursery training and mangrove maintenance. Mangrove conservation based on local wisdom towards sustainable tourism villages in the village Sisarahili Teluk Siabang has started with the hope that it can become one of the indicators In improving the breeding, planting and maintenance of mangroves so that the economic level of the surrounding community can increase both in terms of tourism and natural beauty as well as the use of mangroves as a local tourist product.



Figure 14.2. Damaged mangrove conditions, mangrove nursery and maintenance training and online news related to the implementation of community service activities in Sisarahili Teluk Siabang Village, South Nias (Team Leader: Dr. T. Alief Aththorick, S.Si, M.Si/Dosen FMIPA)

### Increased fishermen's fishing yields and marine life conservation

Increasing fishermen's fishing yields and preserving marine life is also a topic of community service carried out by Drs Zulkifli, MA (FISIP Lecturer) in Bagan Kuala Village, Tanjung Beringan District, Serdang Bedagai Regency. Tuasan or commonly referred to as Rumpon is a local wisdom in the fishing process, until now it is still used by some traditional fishermen in Bagan Kuala Village. The basic material of the lever is coconut leaf sheaths as a place for fish to play and breed, bamboo as a marker, stone / sand as ballast and rope. Not all can tie this lever, only some traditional fishermen of Bagan Deli Village can do it. The result achieved from this activity is that levers as local wisdom are used as guidelines, attitudes and behaviors in interacting with the marine environment. In addition, it

increases the number of fishermen who use levers, while preventing damage to marine

life. In turn, it can increase the catch of traditional fishermen in Bagan Kuala Village.



Figure 14.3. Tuasan as Local Wisdom of Traditional Fishermen to Increase Catch in Bagan Kuala Village (Team Leader: Drs. Zulkifli, MA / FISIP Lecturer)



One of the sub-objectives of goal 14 is to conserve at least 10 percent of the coastal area of the sea, consistent with national and international law and based on the best available scientific information. Therefore, USU as an educational institution is very important to play an active role in supporting the achievement of goal 14 through the development of research and the implementation of community service. USU has allocated funds of IDR 799,020,000 to support the achievement of goal 14 of the SDGs.

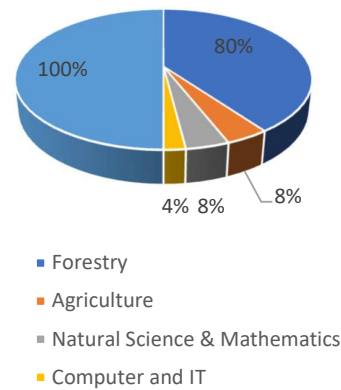




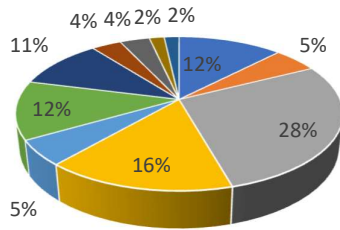
Life on Land, is part of the 17 goals of the SDGs which aim to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. Through the implementation of SDGs, every individual has the same role and responsibility to contribute in preserving the terrestrial environment.

The University of Sumatera Utara as one of the higher education institutions is also involved in contributing efforts to support the achievement of SDG point 15. Through the activities of the Tri Dharma of Higher Education, namely Education and Teaching, Research and Community Service, the University of Sumatera Utara has carried out many activities that are expected to improve the understanding of all stakeholders including the community, as well as improve the application of sustainable principles in environmental utilization.

In 2021, USU have conducted 25 research activities with a total fund of IDR 1,714,460,000. This research activity is dominated by the Faculty of Forestry and followed by the Faculty of Agriculture and the Faculty of Natural Sciences & Mathematics.

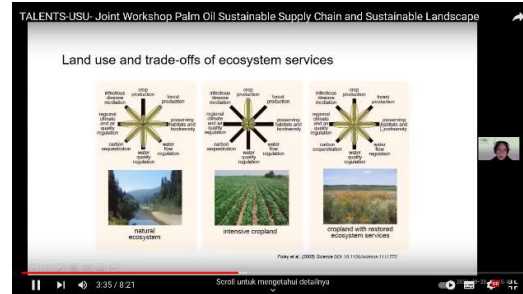


In addition, in 2021, USU will also conduct a number of community outreach activities on sustainable land management for agriculture and tourism with a total fund of IDR 1,979,950,000. The implementers of this community service activity are dominated by the Faculty of Agriculture, followed by the Faculty of Forestry and the Faculty of Engineering.

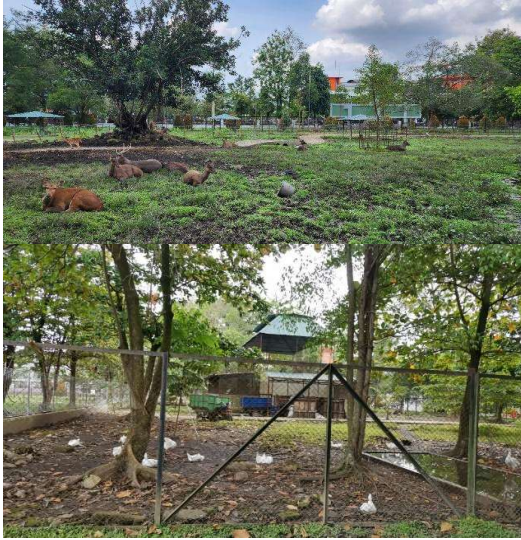


- Engineering
- Agriculture
- Culture
- Natural Science & Mathematics
- Medicine
- Public Health
- Economy & Business
- Forestry
- Social Science & Political Science
- Pharmacy
- Law

USU also consistently carries out activities to promote conservation and sustainable use of land, including forests and wild land in many way, such as (a) Conferences, (b) General Lectures, (c) Focus Group Discussions (FGD), (d) Community Services, and (e) Competition at local, national, and international levels. Together with CIRAD in the TALENT Program, University of Sumatera Utara also conducted a joint online workshop with students from 18 universities from 7 participating countries. The topics discussed were deforestation and certification in the sustainable palm oil supply chain.



USU is also directly involved in efforts to maintain and expand existing ecosystems and their biodiversity, both plants and animals, especially threatened ecosystems. This is evidenced by the activities involving lecturers, students and the general public. Lecturer research activities are also published as a form of dissemination. University of Sumatera Utara also has an ex-situ in the front yard of the USU Rector's Bureau Building where there are Sambars Deer (*Cervus unicolor*) and various types of birds and geese. USU also has an arboretum with a diverse collection of flora.



USU also offers educational programs on ecosystems (observation on wild flora and fauna) targetted for local or national communities. Formal education can be obtained through the Faculty of Forestry, Faculty of Agriculture and the Environmental Resource Management Study Program. In addition, USU also carries out community service activities to provide direct education to the community.

USU also carries out a series of initiatives to reduce the impact of plastic use, hazardous waste handling and disposal programs, and water quality treatment and improvement programs. The implementation of all these programs is based on the issuance of Rector's Regulation No. 3 of 2019 concerning Green Campus and the establishment of USU's SDGs Center in 2020. To support the Green Campus movement, USU also carried out a clean action which was held on September 17, 2021, and the Faculty of Medicine, Universitas Sumatera Utara (FK-USU) which consisted of all lecturers, education staff and students of FK-USU to participate in World activities. Clean UP Day (WCD 2021) in the form of a program for selecting and collecting waste from home/office. Tuesday, September 14, 2021, at the FK-USU Hall, the Declaration of World Clean Up Day 2021 at FK-USU will be held to create a green campus.

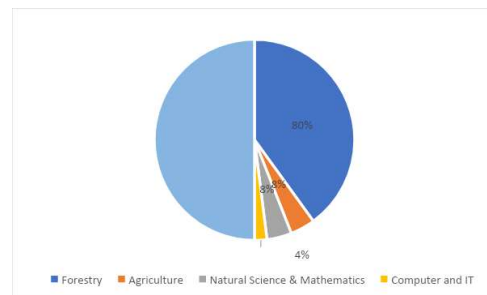


Figure 15.1. Distribution of research topics per faculty

## Dynamics and Causes of Land Cover Change Before and After Forest and Land Fires in Conservation Forest Areas in North Sumatra Province



One of the studies related to protecting, restoring and improving the sustainable use of land ecosystems, managing forests sustainably, stopping desertification, restoring land degradation, and stopping biodiversity loss entitled Dynamics and Causes of Land Cover Change Before and After Forest and Land Fires in Conservation Forest Areas in North Sumatra Province was chaired by Achmad Siddik Thoha (Lecturer at the Faculty of Forestry). Forest and land fires occur almost every year with major impacts and losses to the environment and various sectors including conservation areas.

Deforestation and forest degradation provide abundant and flammable fuels in the dry season. This shows how land cover change has a strong relationship with forest fires and land, including conservation forest areas. The purpose of this study was to spatially and temporally explore land cover before and after forest fires. This study obtained a temporal pattern from year to year of hot spots in conservation areas in North Sumatra. Conservation area management and various parties need to prevent widespread forest clearing due to the strategic role of GNLP as a world heritage that is currently under threat.

## Optimization of Innovation Product Development from the Forest Product Technology Laboratory



Optimization of Innovation Product Development from the Forest Product Technology Laboratory is one of the community services related to the goals of 15 SDGs. Community service is a multi-year activity with the chairman Arif Nuryawan, S.Hut., M.Si., Ph.D (Lecturer at the Faculty of Forestry). Through this community service team, the Forest Product Technology Laboratory has developed, starting from the KAN (National Accreditation Committee) certification on UTM (Universal Testing Machine) tools to now it has received income generated from various tests it has received based on the USU Rector's Decree No.1863 / UN5.1.R / SK / PSS / 2019 dated June 20, 2019 concerning The Cost of Use and Research in the Forest Product Technology Laboratory, USU Faculty of Forestry. In 2020, Rumah Nauli Apik has been established as the forerunner of a start-up that will develop a campus intellectual product business in the form of mainly ecoprinting products and other innovative products from the USU Forest Product Technology Laboratory. This year (2021) the establishment of a start-up was carried out to develop campus intellectual product businesses through the third year of PPM-PPUPIK activities. This activity has produced a simple patent with the title of invention of the Technique of

Mixing Plastic Waste and Sawdust as a Craft Material (Souvenir) Using a Microwave Oven.



Figure 15.2. Community service outputs Optimization of Innovation Product Development from the Forest Product Technology Laboratory in the form of ecoprinting crafts, Rumah Nauli as a start-up for processing forest product technology products and simple patents (Team Leader: Arif Nuryawan, S.Hut., M.Si., Ph.D / Lecturer at the Faculty of Forestry)



## Tree planting is carried out with an agroforestry pattern



Other community service activities were carried out by the Faculty of Forestry with team leader Ridahati Rambey, S.Hut, M.Si, by providing 200 avocado and suren seedlings. Avocado is a type of fruit plant suitable for highland areas and is a type of Multipurpose Tree Species (MPTS) tree. MPTS is a type of tree that has many functions such as, avocado that produces wood and fruit, avocado leaves are also used as medicinal plants. Tree planting is carried out with an agroforestry pattern. Agroforestry is a land use system that combines woody plants (trees, shrubs, rattan, etc.) with non-woody plants or can also be with grass (pasture), sometimes there are components of livestock and other animals (bees, fish) so

that ecological and economic interactions are formed between woody plants and other components. Full news related to this activity can be seen at the link <https://waspada.id/medan/pkm-fakultas-kehutanan-usu-ajarkan-kelola-lahan-berbasis-agroforestry/>.

USU's contribution in supporting the achievement of goal 15 of the SDGs is by allocating funds of IDR 1,765,460,000, - in the hope of mitigating its impact and dependence on land and ecosystems.



Goal 16 is the primary requirement for achieving all the Sustainable Development Goals. Goal 16 seeks to strengthen inclusive and peaceful societies, achieve justice through access to justice for all and building strong institutions. USU takes a role in

achieving the target of goal 16 of the SDGs through the tridharma of higher education ranging from education, research and community service.

### Implications of Diversion Determination for Children in Conflict with the Law Related to the Repetition of Criminal Acts (Recidivist) Children (Study at the Medan Police)



One of the targets of goal 16 is to carry out the role of the government in the fulfillment of civil rights for citizens, especially women and children. The research conducted by USU researchers with the head of the MARLINA team (Lecturer at the Faculty of Law) with the title Implications of Diversion Determination for Children in Conflict with the Law Related to the Repetition of Criminal Acts (Recidivist) of Children (Study at the Medan Police) is relevant to the objectives of 16 SDGs. Higher Education has an interest in uplifting and empowering the local wisdom values of the community in North Sumatra in accordance with the USU Restra. The existence of the obligation to apply diversion at all levels of juvenile criminal justice provides for the obligation of diversion to be carried out from the beginning of criminal justice. Based on

the discretionary rights owned and supported by laws and regulations, the issue of criminal acts involving children can be agreed upon peace with the consent of both parties (perpetrator and victim) so that the police can make a letter of determination of the case with a peace agreement to be taken to the party to the prosecutor's office so that the court determines the diversion determination of the case. In addition to the fulfillment of children's rights, justice and peace, USU lecturers' research is relevant to the objectives of the 16 SDGs such as the Protection Model for Indonesian Migrant Workers (PMI) During Pre-Employment, Employment, and Public Service-Based Retirement, Studies in Six Provinces: North Sumatra, Central Java, East Java, Bali, NTB, and NTT (Team leader: Agusmidah / Lecturer at the Faculty of Law) and several research topics related to local wisdom both cultural and linguistic in North Sumatra.

### Socialization and Legal Counseling on Criminal Acts in the Electronic Information and Transaction Law (Hoax, Hate Speech, Pornography and Defamation) for the Community of Social Media Users (Netizens) in Cempedak Lobang Village, Serdang Bedagai Regency



The forms of community service activities that support the achievement of goal 16 of the SDGs are socialization and counseling; Training;

Empowerment; institutional strengthening and community literacy improvement. One of the titles related to the purpose of the 16 SDGs is Socialization and Legal Counseling on Criminal Acts in the Electronic Information and Transaction Law (Hoax, Hate Speech, Pornography and Defamation) for the Social Media User Community (Netizens) in Cempedak Lobang Village, Serdang Bedagai Regency with team leader Muhammad Din Al Fajar SH., MH (Lecturer at the Faculty of Law). The massive use of the internet in Cempedak Lobang Village is not accompanied by an adequate understanding of the law in using it. As a result, internet users are vulnerable to violating the Law on Information and Electronic Transactions. Through this legal counseling activity, the public more or less knows about the rule of law and ethics of good social media, especially in actions related to the material in the first session, namely the spread of fake news (hoaxes) and pornography as well as the spread of hate speech and defamation.



Gambar 16.1. Pelaksanaan sosialisasi dan penyuluhan hukum terkait undang-undang ITE (Ketua Tim: Muhammad Din Al Fajar SH., MH/Dosen Fakultas Hukum)

### Implementation of justice restorative in handling domestic violence (KDRT) legal cases



Another service topic that is still relevant to the objectives of the 16 SDGs is the implementation of justice restorative in handling domestic violence (KDRT) legal cases carried out by the USU community service team with the head Prof. Dr. Alvi Syahrin, SH, MS (Lecturer at the Faculty of Law). The purpose of this service is to know the application of restorative justice (restorative justice) by law enforcement officials at the West Medan Police Station in prosecuting suspects and victims of domestic violence crimes. The method used in this service is by means of legal education related to Justice Restorative and Domestic Violence and assistance by providing legal socialization, especially the justice restorative legal system to some law enforcement officials.

In order to achieve the goals of these 16 SDGs, USU contributed with the allocation of funds for research and community service of Rp 5,023,685,000,-. USU's active role in assisting the government to achieve the targets in goal 16 can reduce all forms of violence against women and children.



Figure 16.2. Implementation of socialization and legal counseling related to restorative justice law (Team Leader: Prof. Dr. Alvi Syahrin, SH, MS / Lecturer at the Faculty of Law)



At its core, Goal 17 is a means of implementation, activating global partnerships to achieve all the Sustainable Development Goals. The SDGs within the University focus on exploring the different ways universities can support the SDGs through collaboration with other countries, promoting best practices, and publishing data. The SDGs cannot be achieved without all partners working together. USU takes an active role through research, service and cooperation with several related stakeholders.

**Factors influencing the COVID-19 pandemic situation in Indonesia, Malaysia, and Taiwan throughout 2021: a cross-sectional study**



Collaborative research between USU lecturers and foreign lecturers resulted in publications in international journals such as the publication entitled Factors influencing the COVID-19 pandemic situation in Indonesia, Malaysia, and Taiwan throughout 2021: a cross-sectional study with lead author Rahayu Lubis, M.Kes; Ph.D (Lecturer at the Faculty of Public Health) and writing member from Malaysia and Taiwan. The study found three factors that consistently influence the number of deaths and cases in the three countries: positivity rate, number

of tests per thousand and number of tests per case. The situation of the COVID-19 pandemic in Indonesia, Malaysia, and Taiwan throughout 2021 is different, this is significantly influenced by the quality and quantity of COVID-19 testing/screening, as well as the vaccination programs and restriction policies implemented in each country. The study was published in the journal Elsevier Public Health Emergency Collection (journal link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9436786/#>).

of tests per thousand and number of tests per case. The situation of the COVID-19 pandemic in Indonesia, Malaysia, and Taiwan throughout 2021 is different, this is significantly influenced by the quality and quantity of COVID-19 testing/screening, as well as the vaccination programs and restriction policies implemented in each country. The study was published in the journal Elsevier Public Health Emergency Collection (journal link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9436786/#>).

### Self Disclosure of Indonesian and Malaysian Society Related to Covid-19: A Multicultural Study



Still related to COVID-19, another publication entitled Self Disclosure of Indonesian and Malaysian Society Related to Covid-19: A Multicultural Study which is a research collaboration of Iskandar Zulkarnain (USU Lecturer) with researchers from the Malaysian University of Science, Malaysian Counseling and Psychology Association and Universiti Malaysia Terengganu. The collaboration between USU lecturers is mostly carried out with

researchers from neighboring countries, namely Malaysia.

The community service activities of USU lecturers who support cooperation with various parties can be seen from the partners invited to cooperate. One of USU's community service cooperation partners is BUMDes (Village-Owned Enterprises), BUMDes was born as a new approach in an effort to improve a village based on the needs and potential of the village with the way BUMDes works is by accommodating community economic activities in

the form of an institution or business entity that is managed professionally, but still relies on the original potential of the village. The output of this community service is to improve the quality of assets and potential in Liang Muda Village by innovating BUMDes and the products produced as well as increasing the ability of village communities to promote using information technology.

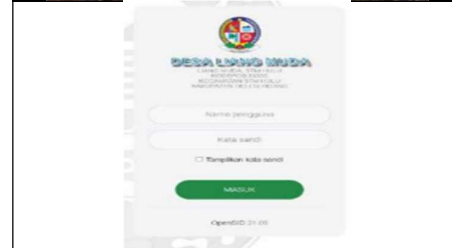


Figure 17.1. Utilization of Information Technology as Agricultural Marketing Product Tools at BUMDes Liang Muda STM Hulu Deli Serdang (Team Leader: Dr. Syahril Efendi, S.Si.,MIT/Dosen Fasilkom dan TI)

### Android-based e-warta application as an information medium for the GBKP Runggun Sememei Batu community group in supporting work programs in the new normal era (covid-19)



The android-based e-warta application as an information medium for the GBKP Runggun Sememei Batu community group in supporting work programs in the new normal era (covid-19) is a community service title related to the goals of 17 SDGs. This service is chaired by Dewi Sartika Br Ginting, S.Kom., M.Kom (Lecturer of Faculty of Communication and IT) with the aim of service is to help the management of the GBKP Runggun Sememei Batu community group in realizing one of the work programs in the new normal era, namely providing weekly information to members that can be accessed through their respective smart phones, so that it will reduce direct interaction if used with leaflets, and this is very useful, especially during the new normal period. In this service, an andorid-based e-warta application will be created as a weekly information medium that can be accessed by all members of the GBKP Runggun Sememei Batu community group easily, anytime and anywhere.

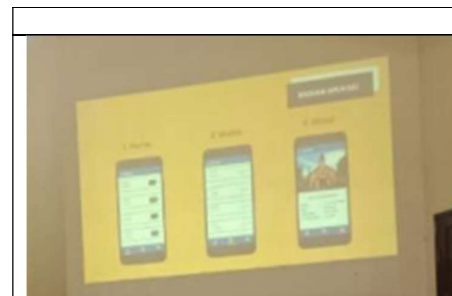


Figure 17.2. The android-based e-warta application as an information medium for the GBKP Runggun Sememei Batu community group in supporting work programs in the new normal era (covid-19) (Team leader: Dewi Sartika Br Ginting, S.Kom., M.Kom / Lecturer of Faculty of Communication and IT)

## Counseling and Training on Digital Marketing Applications for Traditional Capture Fishermen of Joint Business Groups



Other community service titles relevant to the goals of the 17 SDGs are Counseling And Digital Marketing Application Training for Traditional Capture Fishermen Joint Business Group of Ark Fishermen in Percut Village, Deli Serdang Regency with the team leader is Andri Nasution, ST, MT (Lecturer at the Faculty of Engineering). The object (Target Audience) of this service is the Joint Business Group of Bahtera Fishermen, Percut Village, Deli Serdang Regency. This group of fishermen will be given counseling to have awareness to change lifestyles and be trained to be able to market their own catches so that there is no need to use agents as intermediaries. After they get the caught fish, they can immediately market it online so as to create an increase in income in the fishing group. The method that will be carried out in this service is to provide training and then conduct direct trials so that these fishermen can understand the mechanism of using the online marketing system using this digital marketing application.



Figure 17.2. Counseling and Training on Digital Marketing Applications for Traditional Capture Fishermen Joint Business Group of Ark Fishermen in Percut Village, Deli Serdang Regency (Team leader: Andri Nasution, ST, MT / Lecturer at the Faculty of Engineering)

One of the targets of goal 17 of the SDGs is to strengthen the participation of local citizens and institutions, this is done by USU through community service activities that directly partner with community groups. USU allocated funds for the achievement of the goal of 17 SDGs amounting to IDR 63,000,000,-.



SUSTAINABLE  
DEVELOPMENT  
GOALS

USU SUSTAINABILITY REPORT 2021