

Annual Report of Asia & ASEAN Center for Educational Research



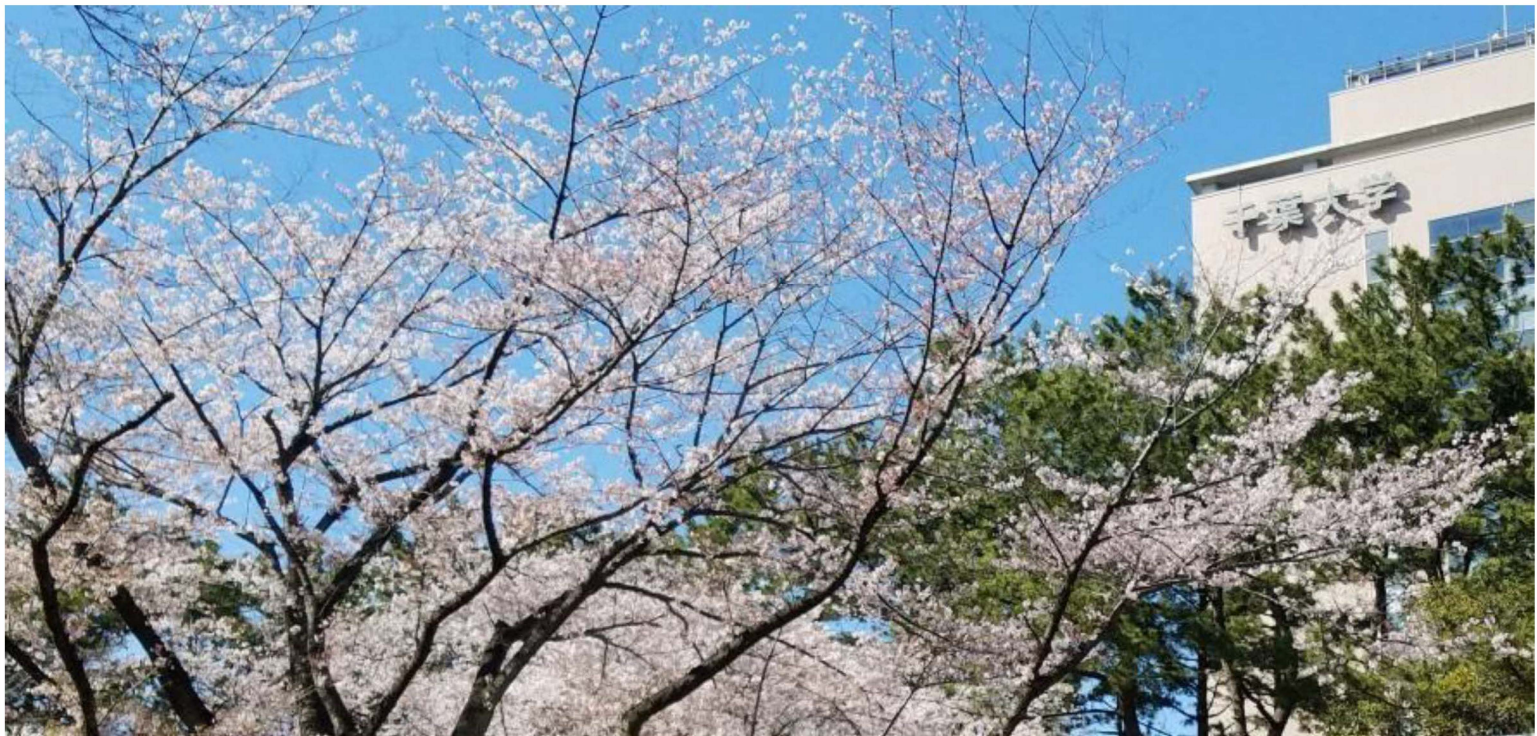
Summer 2022, Vol.2 No.2

Asia & ASEAN Center for Educational Research
Faculty of Education, Chiba University

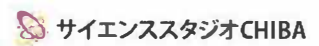


Summer Institute of Asia & ASEAN Center for Educational Research

- Global Collaborative Workshop for SDGs Based on Science and Technology -



Jul.17 - Aug.7, 2022



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Contents

Greeting from Organizer	1
Organizers	2
Schedule	3
International Research Meeting	4
Purpose of the Research Meeting	5
Timetable	6
Members	7
Proceedings	13
SDGs workshop	38
Purpose of the SDGs workshop	39
Timetable	40
Members and Poster	41

Greeting from Organizer



Dear Participants,

Welcome to The Annual Meeting of Asia & ASEAN Center for Educational Research with Summer Institute.

For the 2022 Summer Institute, we have chosen theme number 11 from the 17 themes of the SDGs. Theme 11 is "Sustainable cities and communities. The main topic was Disaster Risk Reduction. This is a problem faced by the participating countries and regions of ASEAN, Taiwan, and Japan. In recent years, in addition to increased volcanic activity and earthquake damage, flooding, believed to be caused by climate change, has frequently occurred in many areas. Therefore, we thought it would be significant to work together to find solutions to these problems.

In addition, we have added a new Program for company visits. Chiba University is surrounded by the Keiyo Industrial Zone, home to many companies developing advanced and creative technologies. We wanted to introduce these companies and have students experience the wonders of science and technology. This time, we introduced a unique company, Monobe Engineering's water purification system. I would be very grateful if this is an opportunity to broaden students' perspectives,

The 2022 summer institute was supported by the Japan Science and Technology Agency (JST) Sakura Online Program. We would like to thank JST for its support.

Jun Nomura, M.D., Ph.D.
Director, Asia & ASEAN Center for Educational Research
Vice Dean, International affairs and Research Promotion
Faculty of Education
Chiba University

Organizers

Chief organizer: Jun Nomura, M.D, Ph.D., Professor

Chiba University, Japan

Organizer: Agus buono, Professor

IPB University, Indonesia

Arisara Leksansern, Associate Professor Dr.

Mahidol University, Thailand

Doan Nguyet Linh, Professor

VNU University of Education, Vietnam

Dyah Rahmawati Hizbaron, Dr., Lecturer

Universitas Gadjah Mada, Indonesia

Ivonne Milichristi Radjawane, Ph.D, Lecturer

Bandung Institute of Technology (ITB), Indonesia

Koji Tsuji, Ph.D., Professor

Chiba University, Japan

Natthapol JAENGAKSORN, Ph.D., Assistant Professor

Chiang Mai University, Thailand

Peter Chukwurah, Assistant Professor

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Chiba University, Japan

Ton Quang Cuong, Professor

VNU University of Education, Vietnam

Udomluk Koolsriroj, Assistant Professor Dr.

Kasetser University, Thailand

Uraiwan HANWONG, Ph.D., Assistant Professor

Chiang Mai University, Thailand

Utia Suarma, Lecturer

Universitas Gadjah Mada, Indonesia

Wasithee Suchinsak

Kasetser University, Thailand

Waradet Kalyanamitra

Chulalongkorn University Demonstration School

Yi-Fen Yeh, Associate Professor

National Taiwan Normal University, Taiwan

Summer Institute 2022

The timetable is written in Japan time

	10:40	11:00	12:00	13:00	14:00	15:00	16:00	17:00
7/17(Sun)		Summer Institute Opening	SDGs Workshop 1 (Opening, Guidance, Ice-breaking)					
7/23(Sat)						Online Laboratory Tour & Company Visits		
7/24(Sun)		SDGs Workshop 2 (Exchange knowledge about SDGs)						
7/30(Sat)						SDGs Workshop 3 (main discussion, make a poster)		
7/31(Sun)	International Research Meeting							
	Opening	presentation			Wrap up			
8/7(Sun)	SDGs Workshop 4				Summer Institute Closing			
	Poster Presentation		Wrap up					

@Display in Japan Time: -1 hour in Indonesia(Bali), the Philippines, Taiwan; -2 hours in Indonesia(Jakarta, Yogyakarta), Thai, Vietnam

International Research Meeting

Purpose of the Research Presentation

To find crucial topics related to the development and sustainability of the world is an excellent ability of the leaders of the next era. Likewise, communicating those critical topics to other young people in the intellectual community will empower the young people. Therefore, this International Research meeting aims at providing a platform for fostering the next-generation of leaders in the fields of science and education. In this meeting, presenters will show their achievements in science and educational activities. Please find the advance of scientific findings, and exchange knowledge and friendship at the meeting site.

We hope every presenter find positive suggestions and solutions for the progress of their researches.

Timetable

The timetable is written in Japan time

Research Meeting (Jul.31 Sun)				
10:40~11:00	Opening			
11:00~12:00	Group A	Group B	Group C	Group D
12:00~13:00	Group E	Group F	Group G	Group H
13:00~14:00	Group I	Group J	Group K	Group L
14:00~15:30	Wrap up			

Members

Group A			
Chairperson	Utia Suarma		
Assistants	Amanda Irbah	Universitas Gadjah Mada	Indonesia
	Zahra Nur Afifah		
Presenter	Nur Azahra Hariani, Usamah Abdulkaafy Fawwaz	KORNITA SENIOR HIGH SCHOOL	Indonesia
	Biopore Infiltration Hole : Compost Bin and Groundwater Conservation Efforts		
	HO TZU CHIEN, CHOU YAO EN, HSU, CHIH WEI	Taipei JingMei Girls High School	Taiwan
	APPLICATION OF PULP COMPOSITES MOLDING FOR ECO-FRIENDLY POTTED PLANTS		
	Konrawi Padmasiri	Kasetsart University Laboratory School	Thailand
	The Study of the Sweet Basil Leaves Grown in Normal and High Dust Conditions		
	Ayaka Tsuchiya, Nanako Oba	Showa Gakuin Shuei Senior High School	Japan
Analysis of alert behaviors in feeding sparrows			

Group B			
Chairperson	Irma Rahma Suwarma, Ph.D.		
Assistants	Febby Ayu Fitriani	Universitas Pendidikan Indonesia	Indonesia
	Fitriah Khoirunnisa		
Presenter	Mami Ueta	Chiba Prefectural Higashi Katsushika High School	Japan
	Safety of Cooking with Air Fryer		
	Jaomai Tungsiripat, Korn Hemrungronj, Marjimar Suvichasopon	Chulalongkorn University Secondary Demonstration School	Thailand
	The Efficacy of ABLE Walker to enhance walking activities for the elderly		
	Phurdthapol Tacharattanamatakuln, Jidapa Watthanarujichai	Konpitacksuksa School	Thailand
THE CONCEPT AND INVENTION OF ESSENTIAL NUTRITIONS AND SUPPLEMENTARY TO IMPROVE GAMERS' VISUAL ABILITY			

Members

Group C			
Chairperson	IVONNE MILICHRISTI RADJAWANE		
Assistants	Lufti Rangga Saputra	Institut Teknologi Bandung	Indonesia
	Shellyn Prastisia Mberato		
Presenter	Kento Kajiwara	Tokyo Gakugei University International Secondary School	Japan
	Isolation of Streptococcus mutans from Plaques		
	Methavee Pattanangkul	Kasetsart University Laboratory School	Thailand
	The Developing Public Understanding about the Use of Green Chiretta in the Treatment of Covid-19		
	Nicolei Brianne G. Villahermosa, Kwami Kaide V. Macalos, John Paul F. Flores, Katherine B. Yap	USC - Senior High School	Philippine
"Comparative Study of Cirtrus sinensis (Sweet Orange) and Allium cepa (Onion) Against Aedes aegypti Mosquito Larvae"			

Group D			
Chairperson	Chatree Faikhamta		
Assistants	Supawit Kanitjinda	Kasetsart University	Thailand
	Mustakeem Awae		
Presenter	Tasya Mulia Hasan, Vitania Untari	SMA TARUNA BAKTI (1 team)	Indonesia
	The Effect of Themed Calendar Journal (TCJ) on Pandemic Fatigue in Adolescents		
	Phạm Mỹ Nguyễn, Trần Quỳnh Trang, Phùng Hà Thu, Nguyễn Thanh Ngân	High school of education sciences, Foreign Languages Specialised School	Vietnam
	Gender Equality SDG 5		
	Yadav Valdes Rajan	Tsukuba Shuei High School	Japan
How difficult is it for japanese high school students to speak English?			

Members

Group E			
Chairperson	Rita May P. Tagalog		
Assistants	Marielliegh Kristine C. Camarillo	University of San Carlos	Philippine
	Hyacinth M. Manliguez		
Presenter	Kinanti Fitria Dwiandini	UPI Laboratorium High School	Indonesia
	The Utilization of Eco-Enzyme in Urban-Farming in Bandung		
	Kanchanon Sirowate	Kasetsart University Laboratory School	Thailand
	COMPARATIVE STUDY REGARDING THE EFFECTS OF N.P.K. FOLIAR FERTILIZERS ON MELONS (CUCUMIS MELO)		
	Tanyapat Triwittayakorn, Than Melapudomchai	Chulalongkorn University Secondary Demonstration School	Thailand
Touchless Eco-Sink			

Group F			
Chairperson	Asstistant Professor Dr.Natthapol Jaengaksorn		
Assistants	Watinee Kwangyoo	Chiang Mai University	Thailand
	Surangkana Srisawat		
Presenter	TSAI,YI-HAN	Taipei JingMei Girls High School	Taiwan
	DISASTER PREVENTION APPLICATION OF TILTED BUILDINGS		
	Riska Delvia Sari	Lembang High School	Indonesia
	Analysis of Government Mitigation Efforts and Preparedness of Lembang Regency Residents in Overcoming the Lembang Fault with a Simple Earthquake Detection Alarm		
	Azalia Nurwafa, Muhammad Farhan Haidarazmi Pratama, Diplo Haryo Satriyo Ditho	SMAN 1 BANDUNG	Indonesia
Optimizing the Drainage Function in Dealing with Flooding in Urban Areas with Green Infrastructure			

Members

Group G			
Chairperson	Tôn Quang Cường		
Assistants	Bùi Thị Diệu Linh	VNU University of Education	Vietnam
	Đoàn Thị Hằng		
Presenter	LI CHIN-YU, CHEN TZU-TUNG	Taipei JingMei Girls High School	Taiwan
	PREPARATION OF CATHODE ELECTRODE OF ELECTRO-FENTON SYSTEM WITH ANODIC ALUMINUM OXIDE MICROSTRUCTURE		
	Najwa Fitria Sugiarto, Erdziva Syifa Ivanka	SMA Negeri 3 Yogyakarta	Indonesia
	The Potential of Microalgae (Chlorella Pyrenoidosa sp.) as Bioremediation Agent in Reducing Silver Liquid Waste pollution in Kotagede, Yogyakarta		
	Muhammad Zulfikar Avicenna, Andi Rizky Anugrah, Heero Ramadhana Sipayung, Tania Wening Nur Kinasih, Tita Alifia Handini Putri	SMA Pradita Dirgantara	Indonesia
Use of Thermoelectric Generator (TEG) and Water by Utilizing Heat from The Sun and Water from Rivers			

Group H			
Chairperson	Medria Kusuma Dewi Hardhienata		
Assistants	Iwan Kuncoro	IPB University	Indonesia
	Junita Br Tarigan		
Presenter	Paanchat Pattanaworapan	Kasetsart University Laboratory School	Thailand
	The Study of Effectiveness of Telemedicine System in Thailand		
	Vasarut Chungcharoenpanich	Walnut High School, USA	Thailand
	AR TILES		
	Kittapas Chinchod	Chiang Mai University Demonstration School	Thailand
GREEN CAFETERIA: EFFICIENT AND EFFECTIVE ENERGY MANAGEMENT IN CHIANG MAI			

Members

Group I			
Chairperson	Chen, Hsin-Heng	National Taiwan Normal University	Taiwan
Assistants	LIN,CHUN-HAO		
	SUN, HO-PING		
Presenter	Palida Sroysuwan	Chiang Mai University Demonstration School	Thailand
	DOES THE COVID 19 PANDEMIC CONTRIBUTE TO A DECREASE IN GLOBAL WARMING AND THE CARBON FOOTPRINT?		
	Chanachai Lohasaptawee	Chulalongkorn University Secondary Demonstration School	Thailand
	High Antioxidant Values in People with Flexibility Training		
	Kanta Laopanichkul	Chiang Mai University Demonstration School	Thailand
WASTE MANAGEMENT IN CHIANG MAI UNIVERSITY			

Group J			
Chairperson	Putu Ayu Asty Senja Pratiwi,SS,M.Hum, Ph.D	Udayana University	Indonesia
	Ns. Ni Komang Ari Sawitri, S.Kep., M.Sc.PhD		
Assistants	Hina Morishige	Chiba University	Japan
	Chiharu Kato		
Presenter	Phudit Suttitossatham	Chulalongkorn University Demonstration Secondary School	Thailand
	DANGER OF CHEMICALS		
	Pamila Namwongprom	Chiang Mai University Demonstration School	Thailand
	TOXIC CHEMICALS IN THAI COSMETIC PRODUCTS		
	YUAN CHEN SIANG, LEE CHEN HSUAN, KUO HSUEH EN	Taipei Municipal Yangming High School	Taiwan
	Livable × Sustainable × Taipei City		
Khanza Kineta Amany	UPI Laboratorium High School	Indonesia	
Biodiesel from waste vegetable oil			

Members

Group K			
Chairperson	Kitipong Assatarakul		
Assistants	Duantemdoung Dethsuphar	Chulalongkorn University	Thailand
	Sarawut Ramsri		
Presenter	Rizki Haikal Pradana, Prescyllia Maura Rezqi, Nurani Kharisma Mutiara Sari, Judha Hoka Wishika, Radya Nasywa Zahira	SMA Pradita Dirgantara	Indonesia
	Bateranaga Autolamp		
	Poon Poosuntipong, Peerasil Nittiyanon	Triam Udom Suksa School, Suankularb Wittayalai School	Thailand
	GENERATING BATTERY CELLS FROM RECYCLED STUFFS		
	Hasna Nabila Az Zahra, Ni Made Dhyana Stithaprajna Utami	SMAN 5 KOTA BOGOR	Indonesia
BISKITA; A SOLUTION TO OVERLOADED CITY TRANSPORT SYSTEM			

Group L			
Chairperson	Assoc.Prof. Dr.Poschanan Niramitchainont		
Assistants	Bei Zhao	Mahidol University	Thailand
	Hang Chen		
Presenter	Alfond Putra Maheast, Muhammad Devino Kevan Putra Santosa	SMA Negeri 3 Yogyakarta	Indonesia
	VIV - Enhanced Traffic System		
	Sabrina Oktavia Yusuf	Lembang High School	Indonesia
	Analysis of Lembang District Community Preparedness in Facing the Lembang Fault Earthquake Threat		
	Wanwarin Limpanart, Parach Mabut, Pongpith Ruksutakarn	Chulalongkorn University Secondary Demonstration School	Thailand
Nopanic Mask Nano Filter			

APPLICATION OF PULP COMPOSITES MOLDING FOR ECO-FRIENDLY POTTED PLANTS

Ho, Tzu-Chien , Chou, Yao-Ej and Hsu, Chih-Wei

Taipei Municipal Jingmei Girls High School

Purpose and Background

Our motivation is to reduce the use of single-use plastic flower pots. We hope to recycle the white cardboard used by major fast food restaurants, add cornstarch to make a pulp composite material, and then mold it into an environmentally friendly potted plant to reduce the cost of carbonemissions and achieve plastic reduction.

Materials and Methods

We shred the paper, heat DI water through a heater and soak the paper in it, using OM to select the group with the longest fiber. Next, we add cornstarch as an adhesive to the pulp. We have compression molds for flower pots and tensile test pieces respectively and hope to use the tensile test pieces to conduct tensile experiments to test the tensile strength of pulps. Finally, we dry the pulp. In addition, we use SEM to observe the microstructure of each group of pulp after adding cornstarch.

In the experimental part, a three-factor and two-level full factorial experimental design is used to discuss the parameters of the fiber length and tensile strength. We fix the parameters in the table. The weight of the paper is 30g, the stirring time is 90 seconds, and the mixing ratio of cornstarch as an adhesive is 50%. The variables are the amount of water, water temperature, soaking time.

In the selection of water volume is set 500 ml and 800 ml. Next is the selection of water temperature. We fix other parameters and make water temperature variables of 25°C, 40°C, and 70°C to choose. After testing we choose 40°C and 70°C as the two levels. In the selection of soaking time, we make soaking time variables of 0 minutes, 10 minutes, 20 minutes and 25 minutes to choose. After testing we choose 10 minutes and 25 minutes as the two levels because these two parameter values show better fiber efficiency.

Results and Discussion

In our experiments, we find that 500 ml of water, the temperature of 40°C and soaking for 25 minutes will produce the longest fiber length (see Table 1). Also through discussion on tensile strength, we have confirmed that the group with longer fibers has stronger tensile strength and makes better pots. In future experiments we hope to carry out testing of pulp degradation and soil integration.

Table 1 *L8 Orthogonal Array*

EXP	(A)	(B)	(C)	Result	
	Water	Temperature	Soaking time	Fiber length(μm)	Tensile strength(MPa)
EXP1	500ml(-)	40°C(-)	10min(-)	1.2816	5.331
EXP2	800ml(+)	40°C(-)	10min(-)	1.2322	4.730
EXP3	500ml(-)	70°C(+)	10min(-)	0.991	3.671
EXP4	800ml(+)	70°C(+)	10min(-)	1.2264	4.793
EXP5	500ml(-)	40°C(-)	25min(+)	1.3566	5.798
EXP6	800ml(+)	40°C(-)	25min(+)	1.0003	3.930
EXP7	500ml(-)	70°C(+)	25min(+)	1.1922	4.243
EXP8	800ml(+)	70°C(+)	25min(+)	1.1967	4.292

REFERENCE

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The Study of the Sweet Basil Leaves Grown in Normal and High Dust Conditions

Konrawi Padmasiri, Bussakorn Wongparn

1. Kasetsart University Laboratory School, Center for Educational Research and Development,
2. Kasetsart University

Purpose and Background

Air pollution problem, the harmful dust levels crisis - PM 2.5 mainly affect on green plants and animals. Dust particles have direct effects on plants and animals. The accumulation of dust particles on plant leaves may reduce the rate of photosynthesis. It may cause growth reduction in plants. Thailand is a country of herb and agriculture. “Sweet Basil” is the obvious herb sample for Thai industrial crop that used in exported food and in the processed food worldwide. The purpose of research mainly focus on the effect of dust particles on the growth (sizes) of sweet basil leaves on the growth quality of sweet basil leaves’ quality.

Materials and Methods

Firstly, this research set variables for the experiments with the factor of dependent variable and Independent Variable. As the amount of dust is Independent Variable. Dependent Variables is the growth and quality of sweet basil leaves and Control Variables are Moisture, temperature, light, fertilizer, and seeds type. Secondly, prepare all materials in the close environment that match with variables. Sweet basil seeds, Double OAT Fertilizer, USB Digital Microscope camera, transparent plastic boxes, Cardboard boxes, sponge and Joss stick are used as main materials. Seeds were being put in 2 plastic boxes inside of cardboard boxes. One of the cardboard box will receive joss stick smoke to create high dust condition. Thirdly, its daily measure the width and length of each single basil leaves in each plant box. And it also makes an average of the leaves in two boxes. This collecting data is as for 35 days and collects details on the last day; to use a USB Digital Microscope camera to compare leaves in details.

Result and Discussion


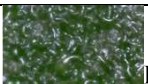






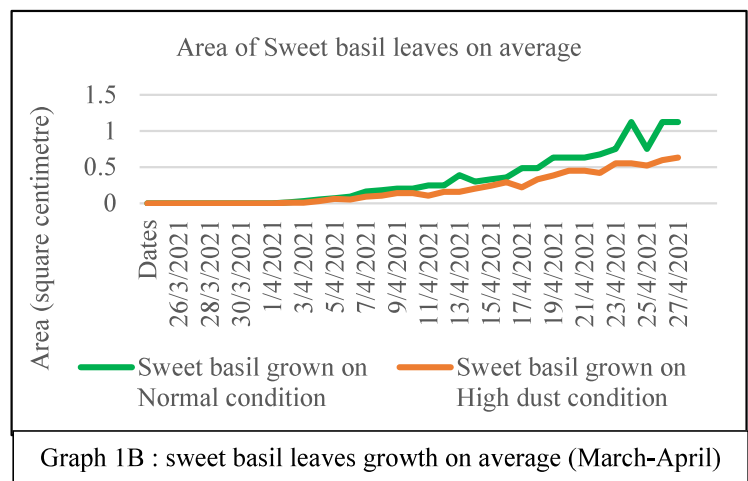
Basil leaves in different angle	Grown on normal condition	Grown on high dust condition
Cotyledon close up shot	 A	 B
Cotyledon	 C	 D
Leaf close up shot	 E	 F
Leaves	 G	 H

Table 1A : Sweet basil leaves quality in different angle



This table1A shows that using a USB Digital Microscope camera, the sweet basil leaves grown in high dust condition (F) has a darker shade from dust particles accumulation as seen in burned leaves. joss stick contains compounds that intoxicated livings, leaves (H) also have more numbers of leaves than sweet basil leaves grown in normal condition. Materials in the joss sticks contains Nitrogen, one of the substances of all plants. They may cause the leaves to grow more number of leaves. From the Graph 2B, Sweet basil leaves grown in high dust condition have smaller size, this shown as the assumption that dust particles blocks their stoma. It disrupts the process on the photosynthesis and growth.

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The Efficacy of ABLE Walker to enhance walking activities for the elderly

Jaomai Tungsiripat¹, Korn Hemrungronj¹, Marjimar Suvichasophon¹

1. Chulalongkorn University Demonstration Secondary School

Purpose and Background:

Active physical, brain and emotion are vital for being happy, healthy and independent. Basic activities of daily living (basic ADLs) involve cognitive and physical interaction activities such as bathing, eating, walking and stair climbing etc. However, aging, cognitive decline and physical disorders are major factors of inactivity since some elderly may experience difficulties in doing such tasks leading to more morbidity and mortality. Hence, walking promotion is the key for regaining all deterioration, and the devices promoting walk with good safety system become essential to help elderly complete daily tasks or routines independently. Nevertheless, these existing devices inadequately assists elderly to do such tasks efficiently owing to its lack of flexibility to support all mobility, particularly stair climbing. In light of this, we need to develop an innovative walker that helps promote walking, prevent falling and can be used everywhere including stair climbing.

Materials and Methods:

First, identified the drawbacks of conventional walkers by interviewing users, specified the problems and the solutions. Second, drew new design covering the gap of knowledge. Third, developed a prototype and assessed the efficacy of “ABLE Walker” compared to the conventional walker for climbing stair in the elderly. The assessment was done in a laboratory with a simulation test and with the user interface test. The following instruments were used: QUEST version 2.0 (Quebec User Evaluation of Satisfaction with Assistive Technology), Stair climbing test and Daily step counter.

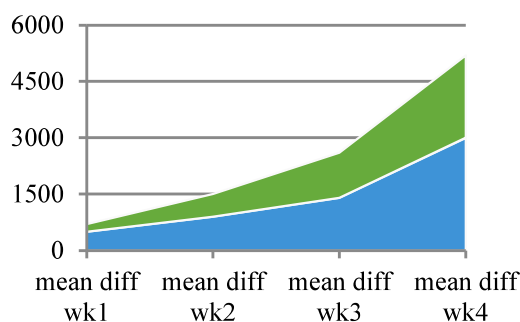
Results and Discussion

Our findings indicated that after a month of trials, participants reached more outcomes comparing the pre and post use of ABLE Walker, and the feedback in user interface test reports a significant impact on elderly mobility and quality of life. In conclusion, “ABLE walker” an innovative stair climbing walker proves to be an effective device enhancing the elderly’s abilities in performing basic activities of daily living and their safety in doing such tasks, particularly slope stair climbing in both inside and outside their homes. This in turn increases the elderly happiness and contentment as well as minimizing their stress. In essence, elderly expressed their high satisfaction towards ABLE Walker.

Table 1 : QUEST version 2.0 result

Item	Typical walker	ABLE Walker
Dimensions	3.55 (SD 0.77)	4.55 (SD 0.98)
Weight	4.23 (SD 0.98)	4.56 (SD 0.68)
Adjustments	4.18 (SD 0.99)	4.88 (SD 0.76)
Safety	3.73 (SD 0.77)	4.90 (SD 0.98)
Durability	4.23 (SD 0.47)	4.73 (SD 1.07)
Simplicity of Use	4.50 (SD 0.68)	4.80 (SD 0.58)
Comfort	3.81 (SD 0.56)	4.66 (SD 0.59)
Effectiveness	3.87 (SD 0.96)	4.89 (SD 0.49)

Graph 1 : Daily Step counter
2 users of “ABLE Walker”



Further study can be carried out in other conditions with wider populations, especially those suffering from

Alzheimer’s disease and Parkinson’s disease.

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THE CONCEPT AND INVENTION OF ESSENTIAL NUTRITIONS AND SUPPLEMENTARY TO IMPROVE GAMERS' VISUAL ABILITY

Phurdthapol Tacharattanamatakul¹, Jidapa Watthanarujichai²,

1. Kornpitacksuksa school, Thailand

2. Kornpitacksuksa school, Thailand

Purpose and Background

Nowadays, people suffer from eye problems such as vision or irritation in the eyes, most of them are caused by staring at a computer screen for a long time. Using the computer for a long time may result if not used properly. According to surveys, we should rest our eyes from staring at the computer every twenty seconds and should eat some fruits or vegetables that have eye-healthy properties. We gathered information and found that substances such as retinol carotenoid, ascorbic acid and antioxidants are very beneficial for maintenance of the eye. Retinol, which is given in moderation, that is, 80 micrograms per day. It is associated with clear vision. which is the retina which is used to receive light.

Materials and Methods

Researchers put the vitamin A-rich fruit cold-pressed juice to the test on fifteen people mixed with each age, including teenagers, working people and the elderly with eye problems such as blurry vision and people with no eye problems. Researchers experimented by giving them the same amount of cold-pressed juice for a month and let a group of people do a normal daily life experiment.

Results and Discussion

Research has shown that the eye drink contains carotenoids, antioxidants, and many more vitamins that improve eyesight in 50% of people who suffer from blurred vision after daily drinking. For a month, blurring and facial expressions were more vivid 40% of people with no vision problems found good skin and a fresh face.

The subjects assessed and found that adolescents as young adults had better outcomes in the study than other age groups. In addition to the fruits or vegetables that we generally know, there are many other types, such as kale, spinach, and acacia shoots, where the lack of vitamin A disease can be found. Night blindness (which can occur more easily) and xerophthalmia.

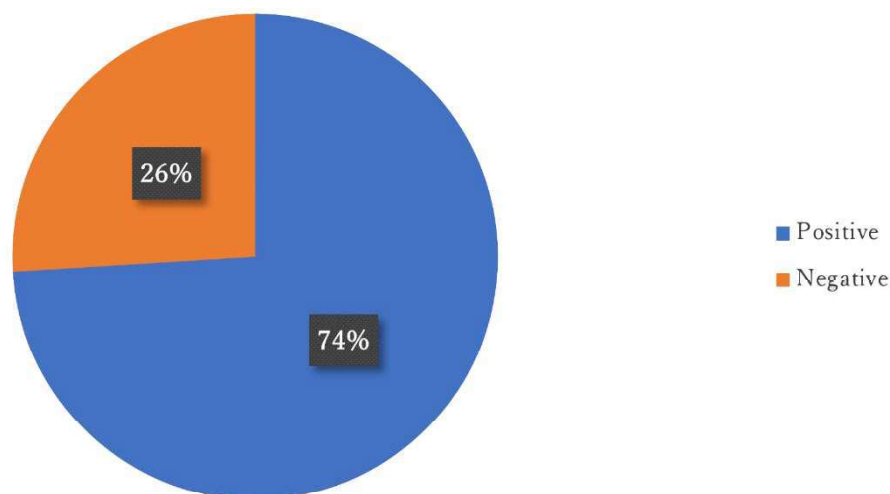


Figure 1 : The opinions of people who have been tasted to drink cold pressed juice.

References

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The Development of Public Understanding about the Use of Green Chiretta in the Treatment of Covid-19

Methavee Pattanangkul, Suchada Srisakuna

Kasetsart University Laboratory School, Center for Educational Research and Development

Purpose and Background

COVID-19 is a disease caused by a new coronavirus which emerged in December 2019. It spreads around the world and causes millions of deaths. During the COVID-19 crisis in Thailand, the Ministry of Public Health announced that Green Chiretta is one of the herbs that can be used to relieve COVID-19 symptoms. Due to andrographolide which is the main active ingredient found in Green Chinretta is effective in inhibiting viral replication, and it is anti-inflammation. By the way, the general public is not interested in studying the way to use it correctly and continues to use it in the wrong way that may lead to harm.

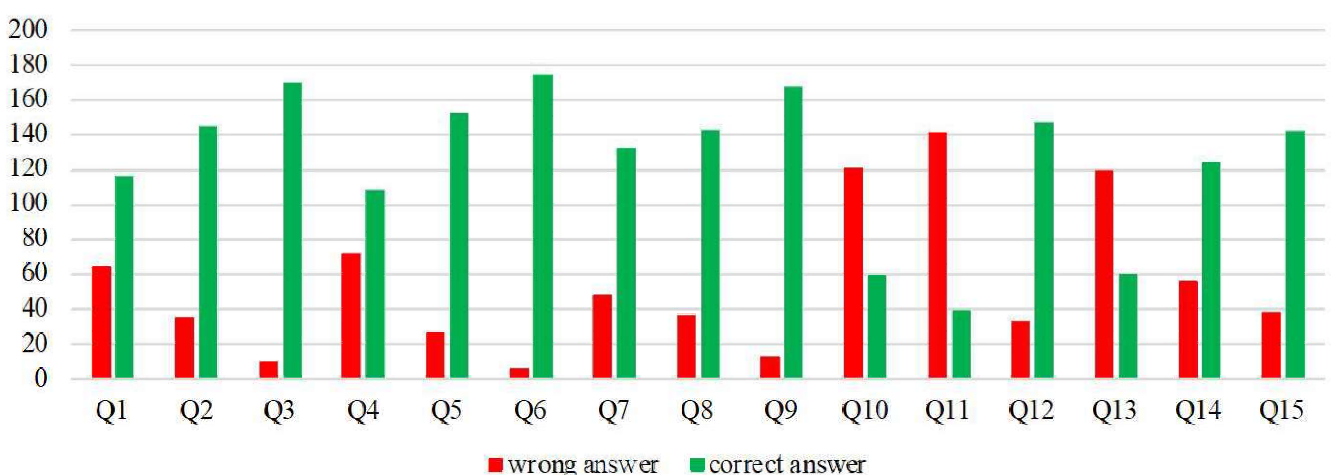
Therefore, the researcher decided to do this research with the purposes to study and develop the public understanding about the use of Green Chiretta in the treatment of COVID-19.

Materials and Methods

The materials used in this research were the questionnaire in the form of google forms, representative sample)60 Students, 60 Teenagers and 60 working ages(and Procreate application. The researcher studied how to use Green Chiretta correctly and created the questionnaire for the understanding about the use of it in the treatment of COVID-19. Then let the representative sample did the questionnaire and found out their misunderstanding. Finally, the researcher created the infographic about how to use Green Chiretta correctly and published the accurate information to the public.

Results and Discussion

Chart of the questionnaire results



Most people have a correct understanding that Green Chiretta cannot prevent COVID-19, but it can be used to relieve COVID-19 symptoms. The average percentage of misunderstandings is about 30.4 % and most of the misunderstandings are about how to use Green Chiretta effectively and safely, especially how to take Green Chiretta together with other medicine and herbs.

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PROCEEDING ARTICLE

THE EFFECT OF THEMED CALENDAR JOURNAL (TCJ) ON PANDEMIC FATIGUE IN ADOLESCENTS

(A Quasi-Experimental Study of High School Students with An Age Range of 13-17)

Tasya Mulia Hasan, Vitania Untari

SMA Taruna Bakti

CHAPTER 1: INTRODUCTION

1.1 Background

Depression increased by 25% in the first year of the pandemic and its a worst hit for the adolescents. The increase of those mental health issues is a reason that makes people experiencing pandemic fatigue.

1.2. Problem Statement

1.3. Purpose

CHAPTER 2: LITERATURE REVIEW

2.1 Pandemic

2.1.1 Pandemic Fatigue

2.2 Mental Health

2.2.1 Mental Healing Methods

2.3 Journaling

2.3.1 Themed Calendar Journal

CHAPTER 3: METHODOLOGY

3.1. Method

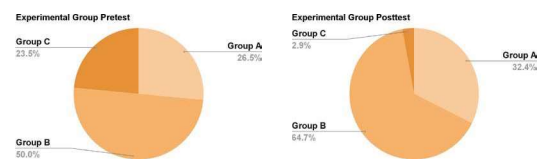
The data of this research is quantitative and qualitative data. Data processing and analysis technique that we used is paired T-test analysis technique and design of this research is Quasi Experiment control group pre-test post-test. This research used three data collecting techniques which are questionnaire, observation, and interview.

CHAPTER 4: RESULTS & DISCUSSION

4.1.1. Questionnaire Results

a. Experiment

The results of treatment, they found in the table:



b. Control

The results of treatment, they found those like the table below:



4.1.2. Observation Results

There are some factors that cause the effectiveness of TCJ.

4.1.3. Interview Results

The samples felt that TCJ made them easier for them to communicate with themselves and express their feelings.

4.2 Discussion

CHAPTER 5: CONCLUSION & SUGGESTIONS

5.1. Conclusion

5.2. Suggestion

COMPARATIVE STUDY REGARDING THE EFFECTS OF N.P.K. FOLIAR FERTILIZERS ON MELONS (CUCUMIS MELO)

Kanchanon Sirowate, Jakkaphong Piewnaun, Natthasit Norasit

Kasetsart University Laboratory School, Center for Educational Research and Development

Purpose and Background:

In Thailand, melons must be planted in grow bags due to incompatible soil temperature, resulting in the plant requiring additional nutrients such as N.P.K. foliar fertilizers. Furthermore, Thailand has potential of becoming a top melon exporter, but lacks empirical evidences that compare the effectiveness of various N.P.K. foliar fertilizer formula. Therefore, with convincing evidence about effective foliar fertilizers formula, agriculturists would be able to know which N.P.K. foliar fertilizer formula would affect the melon's growth the most and help produce as many melons as possible.

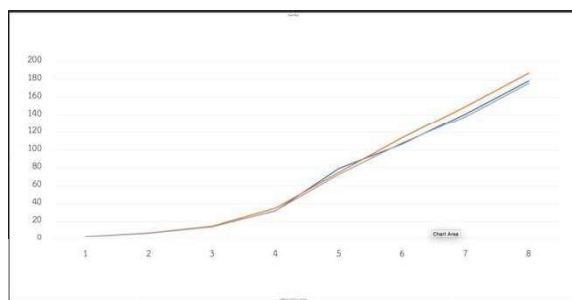
Materials and Methods:

In this study, 120 seeds of golden egg melon collected from the same fruit were used. After being planted in a planting tray for a week, 30 strongest seedlings were then selected and moved into grow bags. 30 plants were separated into 3 groups of 10 and were put in a greenhouse in a position where the sunlight were equally distributed among all 3 groups. All plants also received an equal amount of water during the period of the study. Each group of melon received 20-20-20 N.P.K. foliar fertilizer, 10-52-17 N.P.K. foliar fertilizer, or 15-0-0 N.P.K. foliar fertilizer respectively. The shoot's height, the number of leaves, and the leaf size were measured every week for 9 consecutive weeks. The results were later analyzed using descriptive statistic.

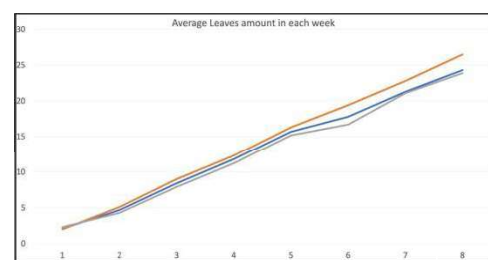
Results and Discussion

After using the collected information to plot a graph, it was evident that the 10-52-17 N.P.K. foliar fertilizer had the most effect on the shoot's height, leaf size, and number of leaves. Inferior to 10-52-17 were 20-20-20 N.P.K. foliar fertilizer and 15-0-0 N.P.K. foliar fertilizer respectively. However, the study only lasted 9 weeks due to the difficulty in controlling a closed environment, for example, fertilization that was caused by small pollinator such as ants could not be prevented and could lead to fruit formation that would affect the plant's growth and compromise the study. The study could have continued and improved under a more controlled environment.

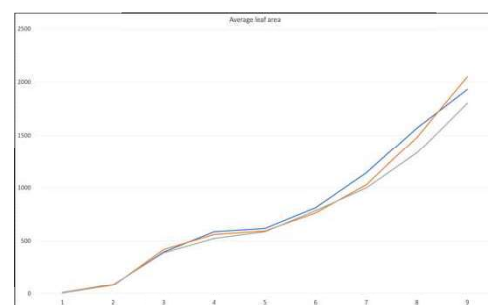
- Group 1: 20-20-20 N.P.K. foliar fertilizer
- Group 2: 10-52-17 N.P.K. foliar fertilizer
- Group 3: 15-0-0 N.P.K. foliar fertilizer



Average shoot height



Number of leaves



Average leaf size

REFERENCES

Thong Hai and Pjan Tua Thao. (2020). Effect of Plant Density and Foliar Fertilizer Spray on Growth and Yield of Netted Melon.

Touchless Eco-Sink

Tanyapat Triwitayakorn, Than Melapudomchai and Pattaraporn Jensuttiwetchakul

Chulalongkorn University Demonstration Secondary School

Abstract:

Currently, water supply shortage is one of the world's major problems due global drought and excessive use of water. While, common household consume a lot of water for drinking, washing, cleaning, cooking, and growing food, making it the most precious resource for survival. Therefore, water conservation, a practice of decreasing the total amount of water use, and water efficiency as well as application of innovative and smart technology to use less water should be concerned. The water shortage is not the only a global problem, but COVID-19 pandemic has also been defined as health crisis and become the greatest challenge that we have recently encountered worldwide. To overcome both of water and health crisis, "Touchless Eco-Sink" has been created. The "Touchless Eco-Sink" is an effective automatic sink that compiles systems to save water by taking gray water back for reusing and applying touchless technology to avoid any physical contact. It is adjustable and suitable for installing in any residential and public places. The concept of the "Touchless Eco-Sink" will be useful for water conservation, water efficiency, and hygiene purposes.

DISASTER PREVENTION APPLICATION OF TILTED BUILDINGS

Tsai, Yi-Han

Taipei Municipal Jingmei Girls High School

Purpose and Background

For this experiment, my motivation is to develop equipment to help reduce the damage caused by earthquakes. Earthquakes may cause buildings to tilt or collapse, so I plan to make a sensor installed on the wall or ceiling to measure the vibration and displacement, and it can alert people of the occurrence of an earthquake in time. My purpose is to make a sensor with simple electronic components. When the inclination reaches a certain range, it will emit LED lights or trigger buzzers, so as to achieve the application of disaster prevention management tools.

Materials and Methods

The most basic one is "Arduino UNO", which is like a small host computer. It can be programmed through input and output for building digital devices and interactive objects to sense and control objects in the physical and digital worlds. The next item is the most important "XYZ three-axis sensor" in my research. I use ADXL345, which is a three-axis accelerometer. ADXL345 is used to measure acceleration forces, including static gravity and dynamic movement. I will also observe the results through the Arduino's built-in program "Sequence Grapher".

The sequence plotter is a built-in program for detecting fluctuations in data. It can observe the degree of inclination through fluctuations in different colors. I insert the three-axis sensor into the breadboard, connect the resistor, connect it to the Arduino main board, and open the sequence plotter to observe the tilt of the three-axis, and the sequence plotter will indicate the three-axis in three colors. Once that's all done, I can shake the XYZ sensor and watch its graph change.

Before programming, I designed the flowchart (figure 1.). The purpose of the flow chart is to allow me to understand the steps of my program and its content more clearly, and the code (figure 2.) shows how I use three-axis sensing. Through the if/else relationship, the X-axis inclination is greater or less than 0 to determine the flow chart. The XYZ three-axis sensor has the direction marked XYZ.

Results and Discussion

The picture (figure 3.) shows the front and back. The front of the equipment shows the electronic components such as Arduino Nano, XYZ three-axis sensor, and so on. On the back are many silver wires soldered to help fix the wiring points. After the wiring is completed, the light will go on and off when the equipment is tilted. The pictures (figure 4.) show a demonstration of the alert system we've developed. The long side of the breadboard is taken as the X-axis. When it tilts to different directions, the two LED lights will go on alternately.

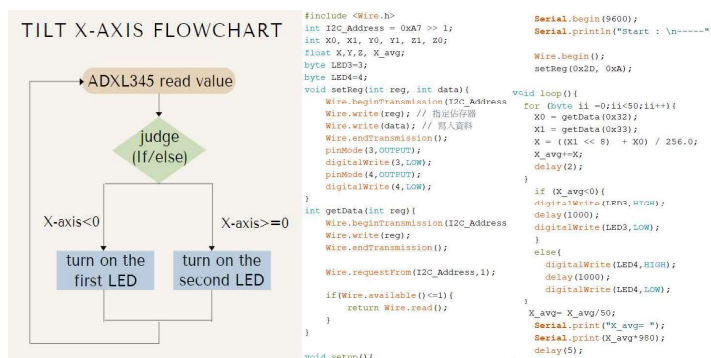


Figure 1. Flowchart.

Figure 2. Code.

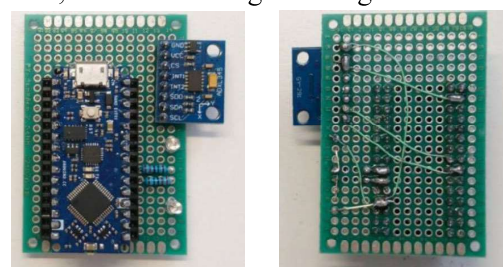


Figure 3. The front and back.

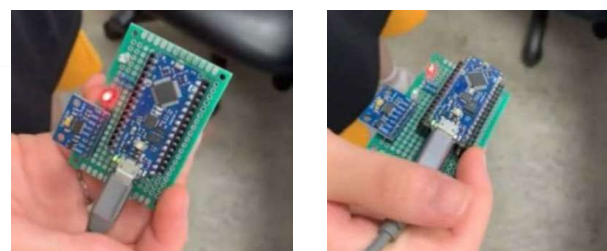


Figure 4. Finished product.

Reference

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Optimizing the Drainage Function in Dealing with Flooding in Urban Areas with Green Infrastructure

Azalia Nurwafa¹, Muhammad Farhan Haidarazmi Pratama¹, Dippo Haryo Satriyo Ditho¹

1. SMAN 1 Bandung, Indonesia

Purpose and Background

Floods are a phenomenon that has a serious impact on human life, especially in urban areas. A flood is an event in which an area is flooded or drained with a large amount of water. Flood disasters have caused significant losses, including loss of lives, damage to facilities and infrastructure, as well as disruptions to the economy and livelihoods of the entire city. For this reason, flood management must be carried out optimally. The city of Bandung, which is part of the Greater Bandung area, was one of the most numerous and moist cities at 290 mm in March 2022. This is not offset by the availability of a proper drainage system and flood treatment. According to Arif Budianto of INews, 30% of the drainage canals in Bandung are small and unable to cope with heavy rains. The gap between Bandung's drainage capacity and high rainfall causes excessive water capacity and flooding. These data show that narrow or low capacity drainage channels are a major factor behind the frequent floods and water overflow in Bandung. This is further complicated by the construction of drainage systems that are not environmentally friendly, thereby reducing the absorption of water into the soil. According to experts, the arrival of floods can be predicted by paying attention to precipitation and water flow. In addition, various approaches to developing environmentally friendly drainage systems, commonly known as green infrastructure, play an important role in solving urban flood problems. This study intends to examine whether an environmentally friendly drainage system or green infrastructure is not only part of a rainwater collection system that is used to drain excess water mass from areas such as housing, urban areas, and roads as well as to increase water absorption into the soil. Furthermore, this study aims to provide an efficient and sustainable alternative to flood problems in the city of Bandung, focusing on the use of methods that are appropriate to the city's conditions and the ability to apply appropriate technology so as to ensure its sustainability.

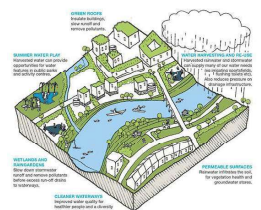
Materials and Methods

This research utilises literature reviews and secondary data elaboration to achieve the objective.

Results and Discussion

The results of this research show that:

1. Factors affecting floods in Bandung are high rainfall intensity, geographical factors and inadequate infrastructure provision
2. The drainage infrastructure system in Bandung hasn't been capable to cope run-off situation in the urban area
3. Green infrastructure is an alternative to flood management, which includes sustainable drainage systems, proper infrastructure development in flood-prone areas, and biopore creation. In addition, proper waste management also helps reduce the risk of flooding



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PREPARATION OF CATHODE ELECTRODE OF ELECTRO-FENTON SYSTEM WITH ANODIC ALUMINUM OXIDE MICROSTRUCTURE

Li, Chin-Yu and Chen, Tzu-Tung

Taipei Municipal Jingmei Girls High School

Purpose and Background

With the rapid development of industrial technology, accompanied by energy issues and industrial pollution, the environment has been severely damaged. In the continuous discussion of energy and quality of life of human beings, energy and contaminants treatment technologies have attracted much attention along with environmental issues. The traditional way of disposing of sewage can only isolate contaminants, they can't actually decompose. This research was designed to use the "Aluminum Anodizing Method" to produce AAO microstructure on the surface of the aluminum plate to improve the characteristics of the electrode plate by changing the surface morphology and structure. We also use the aluminum plate which contains AAO microstructure as the working electrode of the Electro-Fenton System, to see whether the hydroxyl radicals with strong oxidation produced by Electro-Fenton System can effectively decompose organic contaminants and achieve the purpose of purification.

Materials and Methods

First, we will do Aluminum Anodizing on three kinds of electrode plates : unprocessed, 30 volts and 60 volts, each of which will be processed for 30 minutes. Next, we will add ferrous sulfate, potassium nitrate, pigments and nitric acid to prepare the solution of the Electro-Fenton System. Then we put aerated stone, reference electrode, aluminum sheet and connect the wires of the electrochemical workstation. After that we open the software and set the voltage parameters -0.6V and the time to 60min. Finally, we take samples from the Electro-Fenton solution every five minutes, until it fills up a total of twelve tanks, which are later used for decolorization rate analysis.

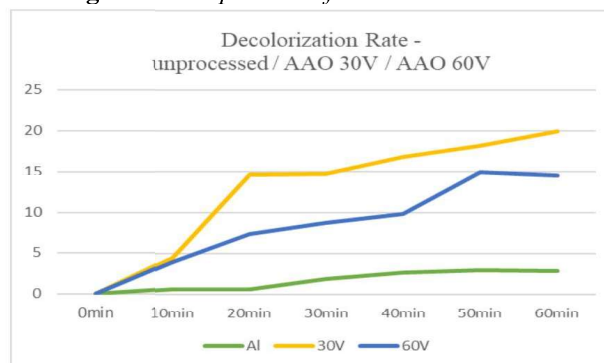
Results and Discussion

The conclusion of our research is as follows: the purpose of analyzing the decolorization rate is to understand the degradation effect of the solution using an aluminum plate containing AAO microstructures as the working electrode of the Electro-Fenton System. It depends on how much pigment is absorbed. It can be seen from figure 1 that the yellow line and the blue line have obvious upward changes. We can know from the above research that the aluminum plates of 30V and 60V have obtained good plate characteristics due to anodization, it can be seen from table 1 that the decolorization rate is better than that of the unprocessed aluminum plate, indicating that the AAO microstructure can effectively improve the decolorization rate performance..

Table 1 Absorbance and decolorization rate

	absorbance	Decolorization Rate (%)
unprocessed (pure Aluminum)	Little has changed	2.8 %
30V	Clear difference	19.9 %
60V	Clear difference	14.5 %

Figure 1 Comparison of decolorization rate



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Use of Thermoelectric Generator (TEG) and Water by Utilizing Heat from The Sun and Water from Rivers

Andi R. Anugrah; Heero R. Sipayung; Muhammad Z. Avicenna; Tania W. N. Kinasih; Tita A. H. Putri

SMA Negeri 1 Bandung

Purpose

Regarding the statement by Jim Watson, director of the UK Energy Research Centre, there are about 1.2 billion people or so who don't get access to modern energy services. And based on the <https://sdgs.un.org/goals/goal7> website, there are 789 million people who are lacking electricity facilities. We also knew that energy is one of the most crucial needs in our life. So, these problems become very serious issues that we need to take action on. Our project is dedicated to fixing the problems mentioned by trying to make a new alternative of renewable energy source that is affordable and clean. We also enhance the use of the sun heat because Indonesia's geographical location is provided with an abundance of solar radiation. Solar radiation can easily be used to provide energy. Also, the archipelagic shape of Indonesia also enriches it with a lot of oceans, rivers, and lakes. We want to make use of these great potentials as much as possible in our product.

Materials and tools

In order to realize our goals and aims, we worked together to make a product that can solve the problem explained before. Hereby are the materials and tools we used to make the product:

- | | |
|--------------------------|------------------|
| - TEG plate (TEC1-12706) | - Oven tray |
| - Heat sink | - Scissors |
| - Frying pan | - Soldering iron |
| - Thermal glue | - Plier |

Method

The fundamental method and principle we adopt in our product is by utilizing the difference in the heat created from the radiation of the sun and the flow of the river water to convert it into electrical energy through a phenomenon called the Seebeck Effect where Electrons on the hot side will move towards the cooler side. The Seebeck Effect is basically a phenomenon in which a temperature difference between two conductors or semiconductors produces a voltage difference between those two substances.

Result

It took quite some time to connect the multimeter wires, and when it was connected, the highest number recorded was 6.81 Volts (shown in the first picture). We believe if we were to connect it faster, it would have shown around 7 volts. While the highest current measured was 2.6 Amperes. With some simple multiplication, we can find out the wattage produced by our contraption, which is 18 watts. However, the electricity produced drops very quickly. The second picture is the measurement just after a couple of seconds. Which will be explained in the next slide.

Explanation

As explained before, TEG works by utilizing temperature difference. Electrons on the hot side will move towards the cooler side. The electrons are located in the prisms, which are electric conductors. The main problem is that materials that allow electrons to flow easily are also good heat conductors. So, the heat can travel easily to the cool side and ruin the temperature difference, which means the TEG will produce less and less electricity over time. Based on the result, it is quite apparent that this isn't a very dependable energy source right now. With the current technology available to us, we can not show the maximum potential of the project. However, we believe this project can be the solution to produce clean energy, it can produce energy with practically zero waste.

Use of Thermoelectric Generator (TEG) and Water by Utilizing Heat from The Sun and Water from Rivers

Muhammad Zulfikar Avicenna¹, Andi Rizky Anugrah¹, Heero Ramadhana Sipayung¹, Tania Wening Nur Kinasih¹ and Tita Alifia Handini Putri¹

1. Pradita Dirgantara High school, Indonesia

Purpose and Background

Jim Watson – director of the UK Energy Research Centre – on BBC (2017) said that there are about 1.2 billion people or so who don't get access to modern energy services. Energy, especially electrical energy, is one of the primary needs, which makes this problem become so serious that we need to take action. Our project is dedicated to fixing the problems mentioned by trying to make a new alternative of renewable energy source that is affordable and clean. We also enhance the use of the sun heat because Indonesia's geographical location is provided with an abundance of solar radiation which will be converted into electrical energy. Also, the archipelagic shape of Indonesia enriches it with a lot of oceans, rivers, and lakes. We want to make use of these great potentials as much as possible in our product.

Materials and Methods

The fundamental method and principle we adopt in our product is by utilizing the difference in the heat created from the radiation of the sun and the flow of the river water to convert it into electrical energy through a phenomenon called The Seebeck Effect. It is a phenomenon in which a temperature difference between two conductors or semiconductors produces a voltage difference between those two substances (Alfred, 2019). Here are the materials and tools to make our product:



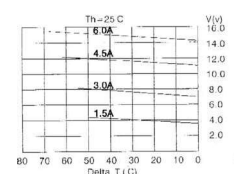
TEC1-12706 Heat Sink Oven Tray Thermal Glue Frying Pan Scissors Pliers Solder

Results and Discussion

During the experiment, it took quite some time to connect the multimeter wires, and when it was connected the highest number was 6.81 Volts. We believe if we were to connect it faster, it would have shown 7 volts. While the highest current measured was 2.6 Amperes, which matches with the graph from the manufacturer. With some simple multiplication, we can find out the wattage produced was around 18 watts. However, the measurement was dropping pretty quickly which is because TEG works by utilizing temperature difference. Electrons on the hot side will move towards the cooler side and located in prisms which are electric conductors. The main problem is that materials that allow electrons to conduct are also good heat conductors. Hence, the heat can travel easily to the cool side and ruin the temperature difference, which means the TEG will produce less and less electricity over time.



Picture 1. Experiment Result



Graph 1. Manufacture Standard Measurement

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The Study of the Effectiveness of Telemedicine System in Thailand

Paanchat Pattanaworapan and Kanchaya Ramun

Kasetsart University Laboratory School Centre for Educational Research and Development

Purpose and Background

Healthcare is a common need for humans. However, the ratio of a doctor to the population is very low in some parts of Thailand. Most people go to the hospital for every injury and illness despite many disadvantages. This is due to the lack of understanding about Telemedicine. Telemedicine was created to help with the disadvantages. The spread of Covid-19 has resulted in the increasing popularity and need for Telemedicine. Therefore, this study's purposes are to study the details of Telemedicine and to study the satisfactions of both patients and doctors towards the system of Telemedicine.

Materials and Methods

There are 2 surveys used in this research: one for patients and one for doctors. Some of the questions are different between the two surveys; however, both are Google Forms. There was a total of 105 respondents: 67 patients and 38 doctors. Both forms consist of 3 parts; 1. general information, 2. satisfactions and opinions 3. factors for choosing Telemedicine. Respondents answer the questions in the form using the link sent online. All results are collected and analyzed using descriptive statistics. The information is presented using frequencies and percentages.

Results and Discussion

Order	Factors	Mean	Interpretation
1 st	Place	3.67	Strong Impact
2 nd	Product	3.65	Strong Impact
3 rd	Promotion	3.54	Strong Impact
4 th	Price	3.41	Strong Impact

Table 1 represents the result from patients.

Order	Factor	Mean	Interpretation
1 st	Place	4.29	Strongest Impact
2 nd	Disease	3.81	Strong Impact
3 rd	System Stability	3.68	Strong Impact
4 th	Age	3.49	Strong Impact
5 th	Gender	2.68	Moderate Impact

Table 2 represents the result from doctors.

The results show that doctors and patients choose Telemedicine for many advantages such as less time waiting and saving transportation cost. Telemedicine can be used as an alternative for patients with mild symptoms and patients whose residence is far from the hospital. This study concludes that place (distance from home to hospital) is the most important factor that has the strongest impact on choosing Telemedicine. However, patients suggested that there should be a function available to record the conversations. The strategy of the 4Ps is used to explain the patient's choice and can be used for further development to make Telemedicine more suitable for patient's needs.

AR TILES

Vasarut Chungcharoenpanich¹

1. Walnut High school, USA

This study granted by Wisdom Chain Solution (A Company in Thailand)

Purpose and Background

The main idea was to use AR technology to illustrate and portrays things. In this case, the Invention of Augmented reality is for tile installation. The AR Tiles is designed to save up the cost of the 3D sketching for customers' illustration of the completed work in full scale and reduce the amount of sample tile. In hypothesis, the application also tends to make the customer more satisfied because it made them see more options and the price at home. It takes out the need to come to see in person to select the tile which they might like or not.

Materials and Methodologies

This study conducted the survey with 250 targeted customers about the virtual view. Researcher collected data from customers online. Then researcher concluded the pain point which is the customer can not imagine what the tiles look likes in full scale. We also interview company about the cost that we can reduce by using the application. Gather data and materials from my professor who expert in UX/UI designs and application development. Materials using "Swift," "AR kit," and Low-level Virtual Machine.

Results and Discussion

Research showed that using AR technology can improve the business model and increase in company's revenue. Researcher resulted in an application launch in iOS. After the innovation has been launched, researcher expect to save up to 20,000 - 25,000 U.S dollars for one tile company. The value composition and business impact of this research show in figure 1

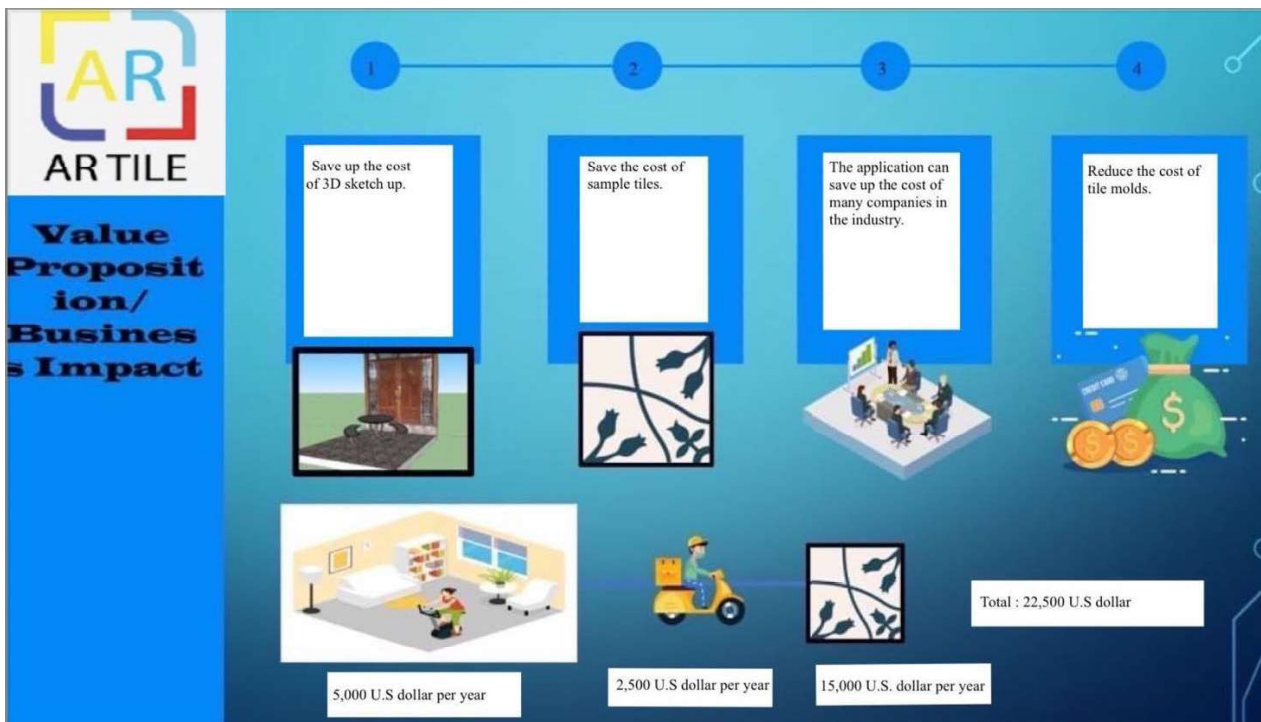


Figure 1 : Value composition and business impact from AR technology

References

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GREEN CAFETERIA: EFFICIENT AND EFFECTIVE ENERGY MANAGEMENT IN CHIANG MAI

Kittapas Chinched¹, Natthapol Jaengaksorn², Watinee Kwangyoo²
and Surangkana Srisawat

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2. University of Chiang Mai, Thailand

Purpose and Background

The main reason I choose to do this topic was because in the rainy season, Thai people often suffer from digestive diseases such as food poisoning, hepatitis and diarrhea. It made me see that university or school cafeterias would be a good place to solve the initial problem. Because there are many students come to use the service. , And at present, in the midst of the crisis of the COVID-19 pandemic A school or university cafeteria is the best example of a solution Making school or university cafeterias energy efficient are very necessary in this situation of the global energy crisis even cultivating the youth side to be aware of cleanliness in order to prevent various diseases Because in the current situation, germs have become more severe, whether it's covid-19 or an emerging disease like monkey pot. The problem with the cafeteria is not only the appearance such as cleanliness, but the quality process should start from the place. A clean and nutritious food production process, in addition to being able to maintain energy, is necessary to provide food that is nutritious for consumers, providing enough nutrients for one person per day.

Materials and Methods

A cashless catering system like Prompt Pay can help avoid that. Pre-ordering and end of day reporting give kitchen staff all the statistics, tools and evidence they need to make more informed decisions about the service they provide. With greater data analysis, kitchen efficiencies and stock management can be improved, cutting costs and reducing waste. With cashless catering, cafeteria can eradicate many of the problems canteens face. It can turn a canteen from a source of issues, to a positive influence on a school, helping to improve the healthy culture and level of focus in afternoon classes .Using artificial intelligence technology to help consumers know how to eat each meal according to their body shape or health.

RESULTS AND Discussion

The positive environment even in light of social distancing procedures, it's important to create a positive lunchroom environment students will enjoy sustainable energy management in both university and school cafeterias should come from the integration of both service users and service providers. Both in terms of food quality cashless payment reducing congestion in the area at present, the technology to manage such things has developed a lot. Therefore, we should adopt technology in our management so that we can reduce the number of people and use less resources. Bringing robots, machines or even the latest technology like Metaverse to work instead of humans. Although the price is high, but if we use what is built in the country, the price will be reduced because it supports the domestic industry especially Engineering faculties in Thailand

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DOES THE COVID 19 PANDEMIC CONTRIBUTE TO A DECREASE IN GLOBAL WARMING AND THE CARBON FOOTPRINT?

Palida Sroysuwan¹, Natthapol Jaengaksorn²,
Watinee Kwangyoo² and Surangkana Srisawat²

1. Chiang Mai University Demonstration School
2. Chiang Mai University

Purpose and Background

I can view mountains from my window every day because my home is close to some mountains. Prior to the Covid 19 pandemic, I was unable to see any mountains in November and December due to pollution. However, three years ago, during the Covid 19 outbreak, I was able to see the mountains well. Does that mean our carbon impact has decreased?

Materials and Methods

- using the website of the Ministry of Energy to research Thailand's carbon dioxide emissions.
- studying COVID-19's effects on climate change on the BBC website.

Results and Discussion

Thailand's carbon dioxide emissions from energy usage total 248.5 million tons in 2020, a 3.5 percent decrease from the previous year. Due to issues The Covid-19 outbreak, which has been ravaging numerous nations since late January 2020, has spread rapidly. Thailand's carbon dioxide emissions from energy usage in 2021 were 246.9 million tons, down 0.6 percent from the previous year, primarily as a result of drops in the transportation, electricity, and other economic sectors. Other carbon dioxide emissions from energy use rise with the industrial sector. It's obvious from the table that from 2019 to 2021 carbon dioxide emission and energy usage in Thailand decreased continually last year, there was a worldwide drop in carbon dioxide emissions, not only in Thailand. However, many other countries, particularly China, which has a huge number of people affected with the virus, frequently experience similar situations. Travel, whether by air or land, is cut off as a result of the world. The world's demand for electricity is decreased as a result of efforts to shut down the city. Given the demand for electricity throughout the entire year, the International Energy Agency anticipates a decline of about 20 percent in the figure. From projections in the following few years. Carbon dioxide emissions will rise again when things are back to normal. Based on important occasions such as World War II events. That the reduction in carbon dioxide emissions will only last a short while it will rise as usual over time. However, it is likely that we will be able to limit the rate of global temperature increase by 1.5 degrees Celsius within this century if we can maintain this level of carbon dioxide emissions every year.

	2017	2018	2019	2020	2021	differentiation while covid-19 epidemic (%)		
						2019	2020	2021
energy usage	130,453	131,531	133,056	121,820	121,089	1.2	-1.84	-0.6
carbon emission	258.5	263.4	257.4	248.5	246.9	-2.3	-3.5	-0.6

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High Antioxidant Values in People with Flexibility Training

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Background

Free radicals play roles in the aging and various pathological processes. Antioxidants may be helpful to prevent these conditions.

Objective

The purpose of this study was to compare the antioxidant (Carotenoid) values among the non-exercising and regularly exercising people within 6 months through the Resonance Raman Spectroscopy technology by using the BioPhotonic Scanner S3.

Methods

The 600 male and female volunteers, aged 20-60 years, living in Bangkok and perimeter areas were equally divided into 4 groups, 150 subjects per group : 1) Cardiorespiratory training, 2) Resistance training, 3) Flexibility training, and 4) Non regularly exercising. Results were analyzed using statistical variance (One-way ANOVA). The means of antioxidant (Carotenoids) were analyzed by the type of exercise, sex, age, and body mass index (BMI).

Results

The volunteer who practiced Flexibility training had the highest antioxidant values compared to the other groups with the means \pm standard deviation of 36,847 \pm 12,901 vs. 32,413 \pm 13,104 units, respectively, Females had higher antioxidant values than males (36,182 \pm 12,798 vs. 29,245 \pm 12,524 units) Obese people who had BMIs of 25 kg/m² or higher showed lower antioxidant values than the others (28,519 \pm 11,168 vs. 32,413 \pm 13,104 units) Finally, the advancing age was correlated with the antioxidant values ($r=0.257$, $p<0.001$). Furthermore, all four factors showed significant correlations with the antioxidant levels on a multivariate analysis.

Conclusions

High carotenoid levels were associated with older age, female sex, lower BMI and flexibility training. Future prospective studies on the effects of the exercise types and weight reduction in increasing antioxidant activities are warranted.

WASTE MANAGEMENT IN CHIANG MAI UNIVERSITY

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1. Chiang Mai University Demonstration School, Chiang Mai, Thailand

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Purpose and Background:

Waste (or wastes) are materials that are unwanted or unusable, and nowadays, humans produce a lot of waste. The majority of the time, waste management practices are not ecologically friendly enough. However, if waste management is handled appropriately, we may reduce the amount of material wasted. Chiang Mai University is a place where there are a lot of people, which results in a lot of waste. Hence, the university has an interesting waste management system.

The purpose of this research is to study the waste management system at Chiang Mai University, and if possible, adapt and improve our behaviors to cut down on producing wastes.

Materials:

1. Data collected and provided by the Energy Research and Development Institute-Nakornping (ERDI-CMU)
2. Data collected and provided by Chiang Mai University SDGs

Methods:

1. Study the waste management system from the Energy Research and Development Institute-Nakornping (ERDI-CMU) website and Chiang Mai University SDGs website
2. Collect the data of waste sorted and managed
3. Present the data and describe the waste management system

Results and Discussion

CMU's waste management begins with sorting waste into the following categories: recyclable, compostable, infectious, hazardous, and general. The first 4 kinds of waste are sent to each responsible sector. Then the general waste is separated into organic and inorganic waste. Organic waste such as food waste are processed into electricity and bio-methane gas, and fat waste is processed into bio-diesels. Inorganic waste such as plastic bags are processed into refuse-derived fuel and material in asphalt.

Overall, they can reduce 4,500 tons of waste and over 10,900 ton CO₂ of greenhouse gases per year by not burning and burying it. Instead, they can produce over 600 cubic meter of bio-gas per day, which is turned into a part of electricity and fuel used at Chiang Mai University.

In conclusion, sustainable waste management is possible, and Chiang Mai University's waste management system, which sorts waste into categories, deals with waste in each category properly, and turns waste into energy to make the most out of every material, is a good example. It does not only help reduce burning and burying waste, but also produces clean energy to be used, which is why I believe that if this system was spread and used in a larger area, it could help save our environment.

In addition, it would be great if people were aware of how excessive waste can harm our environment and that there were ways to help protect our planet. Small acts like sorting your waste can help big organizations work faster and more efficiently. Therefore, we should start to change our behavior.

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DANGER OF CHEMICALS : FOCUSING ON DANGER OF METHANOL ALCOHOL

Phudit Suttitossatham¹

1. *Chulalongkorn University Demonstration Secondary School, Thailand*

Purpose and Background

Due to the fact that people used chemical items a lot in their daily life such as hand wash, lotion, shampoo, and the rest. The most important thing is around 90% of product that we used contain an alcohol. In fact, it seen to be usual but alcohol is not always safe. Alcohol is divided into three main types Methanol, Ethanol, and Isopropyl alcohol. According to the chemical hazards, Methanol was classified as a toxic chemical and it is banned using directly on our body. In general, Methanol and others alcohol rather be similar to each other even if the chemical structure is also quite identical. Researcher found that Methanol is an only kind of alcohol that was obviously nonreactive with a potassium permanganate vinegar solution unlike other alcohol that will react easily. Therefore we can classify Methanol, which is harmful to your body, out of the others.

Materials and Methods

From the above principle, researcher can reassure that alcohol is safe for a certain extent. However, due to the contamination of other substances in the product, the results were partially inaccurate. That is to say, other compounds in the product can react with potassium permanganate instead. Nonetheless, this methods still can be use in many chemical products in our daily life.



Figure 1 : Example of nonreactive process
(3ml of Methanol + 3ml of vinegar + 5g of KMnO₄)



Figure 2 : Example of reactive process
(3ml of Ethanol + 3ml of vinegar + 5g of KMnO₄)

Results and Discussion

In the nut shell, we still have to use a lot of chemicals and trend to be more. So I think we should started worry about how safety it was. I believe that using method from my experiment will helping a lot in assuring safety about chemical product especially alcohol and also developing to other level of research in the future.

References

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TOXIC CHEMICALS IN THAI COSMETIC PRODUCTS

Pamila Namwongprom¹, Natthapol Jaengaksorn²,
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2. Chiang Mai University, Chiang Mai, Thailand

Purpose and Background:

Each year there are more and more new cosmetic products and brands being manufactured and sold in Thailand. Therefore we don't know the quality of the products and the chemical substance that are in the products. I found it interesting and wondered how in the products contain chemicals and don't some chemicals contain toxins.

The purpose of this research project is to spread awareness in using cosmetics. There are many factors you should consider before purchasing a product.

Materials and Methods :

EWG (The Environmental Working Group) skin deep cosmetics database

Chemical Exposures: The ugly side of beauty products- NCBI

Potentially Toxic Chemicals Called PFAS Are Common in Cosmetics-www.everydayhealth.com

Researching previous research papers and journals in this topic and collecting data and information on the internet. And analyzing the data and summarizing.

Results and Discussion:

Mercury is found in cosmetics and facial cream. When used continually may go into the blood stream and cause nerve system to function improperly. Steroids are a chemical found in many facial products. Once stopped using acne will have a rapid growth or redness of the skin. And can cause the body's immune system to weaken. Lead found mostly in lipstick. If lead goes into the body's system it can cause the stomach to ache or melena. Paraben found in facial products and deodorant. Paraben is a preservative substance. It disturbs the functioning of hormones and can lead to disturbing the endocrine systems which produces hormones.

In conclusion, products this century can contain many toxic chemicals which we don't know about. In Thailand before buying or using a new or unfamiliar product check the food and drug administration for information. In addition, there are many products today that are chemical free or organic based products. Or another option is to use dermatologist tested products to insure the quality and the safeness of the product.

Reference:

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Livable and Sustainable Development in Taipei City

KUO HSUEH EN, LEE CHEN HSUAN, YUAN CHEN SIANG

Taipei Municipal Yangming High School, Taiwan

Purpose

We would like to use this activity to gain an in-depth understanding of the city we live in, Taipei, what measures and related policies have been taken in terms of sustainability. And take everyone to know more about the place we live in.

Background

Our generation has reached the twenty-first century. We start to think, what can we do to keep the land we live on intact? What have we done for the land on which we live?

MATERIALS AND METHODS

We start searching on the Internet, we find a lot of ideas and programs and even policies that have been carried out, we organize four points from it.

- Development Vision of "Sustainable Taipei Eco-City

The plan of the Nangang Pantry Team" guides local residents to reconsider the environment. Try to achieve housing justice and defend global warming.

- Education aspect

In terms of hardware, it includes two major projects, " Restoration and Maintenance Ecological Environment " and "Sustainable Architecture". From understanding the campus area, culture, history and ecology, to create a plentiful campus environment.

- Taipei City Net-Zero Emissions Management Autonomy Regulations

Taipei set a 40% carbon reduction in 2030, a 65% carbon reduction in 2040, investing in nature by "increasing sinks".

- "1 House for All" Green Building Design

Yangming Jiaotong University, and the "Taiwan Sustainable Green Building Team". Using zero-carbon building materials and no cement bonding or gluing.

Results and discussion

After sorting out, we learn more about the place we live in and the problem we are facing. Working together is the only way to solve the environmental problem. We hope that human beings will work together to do our best for the world we live in.

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Bateranaga Autolamp: The Utilization of Dragon Fruit and Banana Peels Into Bio-Battery For Autolamp

Rizki Haikal Pradana¹, Radya Nasywa Zahira¹, Nurani Kharisma Mutiara Sari²,
Judha Hoka Wishika² and Prescyllia Maura Rezqi²

1. Pradita Dirgantara High School, Indonesia

Purpose and Background:

Batteries are considered as toxic and hazardous waste. These wastes can cause many effects on because they are explosive, harmful, and can cause health symptoms (Buleleng Environmental Official, 2019). Bateranaga acts as the solution for this problem. By reusing old battery cages and adding Dragon Fruit and/or Banana Peels into it we can extend the lifespan of the batteries. Furthermore, we add the technology of autolamp that can turn on automatically with the presence of light and turn off in the absence of light. This autolamp is powered by the Bateranaga for way further energy-saving methods and maximizing the practice of SDG number 7 on a daily basis.

Materials and Methods:

Materials that are required are:

Dragon fruit	Banana peels	Used D-sized Battery	Cable	Resistor	LDR sensor	LED	Transistor	Project Board	Multimeter
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A concept of a galvanic cell is used here. The difference in potential in the battery poles makes the electron from the dissociation of dragon fruit and/or banana peels polar solution across the poles. This creates DC electricity. Shortly, the solution of dragon fruit and/or banana peels acts as a battery paste.

Results and Discussion

Both batteries that use banana peels can produce electricity by 1.5 volt and 0,11 A.



The autolamp can work properly with using the power of Bateranaga.

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GENERATING BATTERY CELLS FROM RECYCLED STUFFS

Peerasil Nittiyanon¹, Poon Poosuntipong²,

1. *Suankularb Wittayalai School, Thailand*

2. *Triamudom Suksa School, Thailand*

Purpose and Background

Batteries are essential to daily life as they are the power source of many appliances. which at the end will be disposed as hazardous waste because there are harmful chemicals that can harm the body And now, the amount of garbage in the world has increased significantly. Causing this study to suspect that researchers turn the trash into batteries, whether it will practical. Therefore, the purpose of this study is to test the efficiency of metals and electrolytes from waste; and put it into practical uses.

Materials and Methods

The materials that used in this study were an aluminium can, a copper wire, pencil lead, a multimeter Chlorine bleach and toilet cleaner 10 millilitres. The experiment started with 1) cutting the top an aluminium can; 2) putting bleach the can; 3) putting the copper into the can and don't let the wire touch the can; 4) testing with the multimeter; and observing the values and record the results; and 5) doing step 1-4 , but switch from copper into pencil lead.

Results and Discussion

From the use of different types of recycled waste in the experiment which consists of Aluminum tin, pencil lead and copper wire We have found that copper wire produces high performance. It can generate a voltage as high as 0.41 volts , but has a run time of just 294 seconds. On the other hand, the pencil lead has a lower efficiency than copper wire, which produces a potential difference of 0.23 volts, but with a run time longer than 1 day, the potential difference has been reduced to only 0.03 volts. which the potential difference at this level is enough to use some electrical appliances such as small light bulbs. However, we can apply the principles of this project to use in emergency situations. For example, situations where there is no power source, such as being lost in the forest or stuck in a cave, we can survive from those situations.

Table 1 : Experiment results

Time (second)	Voltage (Copper)	Voltage (Pencil lead)
0	0.41	0.23
30	0.37	0.23
60	0.35	0.22
120	0.24	0.22
180	0.16	0.21
240	0.08	0.21
300	0.00	0.20

References

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SDGs Workshop

Purpose of the SDGs workshop

SDGs (Sustainable Development Goals) are important actions to improve and set up a sustainable world. All the seventeen goals raised in the SDGs are critical and urgent issues. We should collaborate to find the direction to solve those issues. However, the causes of those issues are diverse even in the local area, and there is a necessity for collaboration. Therefore, mutual understanding of the causes of the SDGs matters is vital to reach a starting point for cooperation. This workshop is one way to establish comprehension of SDGs among people in Asia.

We hope you, the workshop attendants, will discuss with students from other countries, and make friendship each other. Human network is essential to solving global issues, and this is the opportunity to start building the network.

Timetable



The workshop topic :
SDGs No. 11 (Sustainable Cities and Communities)
Target No. 9 “Disaster Risk Reduction “

The timetable is written in Japan time

SDGs Workshop 1 (Jul.17 Sun)

12:00~12:15	Opening, Guidance
12:15~14:00	Ice breaking

Homework

a drawing (Hand Witten) :to explain the different local issue.
You join Workshop 2 with your drawing

SDGs Workshop 2 (Jul.24 Sun)

11:00~13:00	Exchange knowledge about SDGs by using a drawing that illustrate the local Issues. Students will share the local issues to the other students. And students would mutually understand/feel the diversity of the problems. Among the SDG topics, students will select only one topic for their further activities.
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Homework

Worksheet -Students will study the SDGs topic of their choice and find out the keywords that describe the local problem. List up the keyword and explain how related to the topic SDGs. Submit the worksheet by 28 JUL 2022(Thu)
to Twinkle Office : edu-twinkle@chiba.u.jp

SDGs Workshop 3 (Jul.30 Sat)

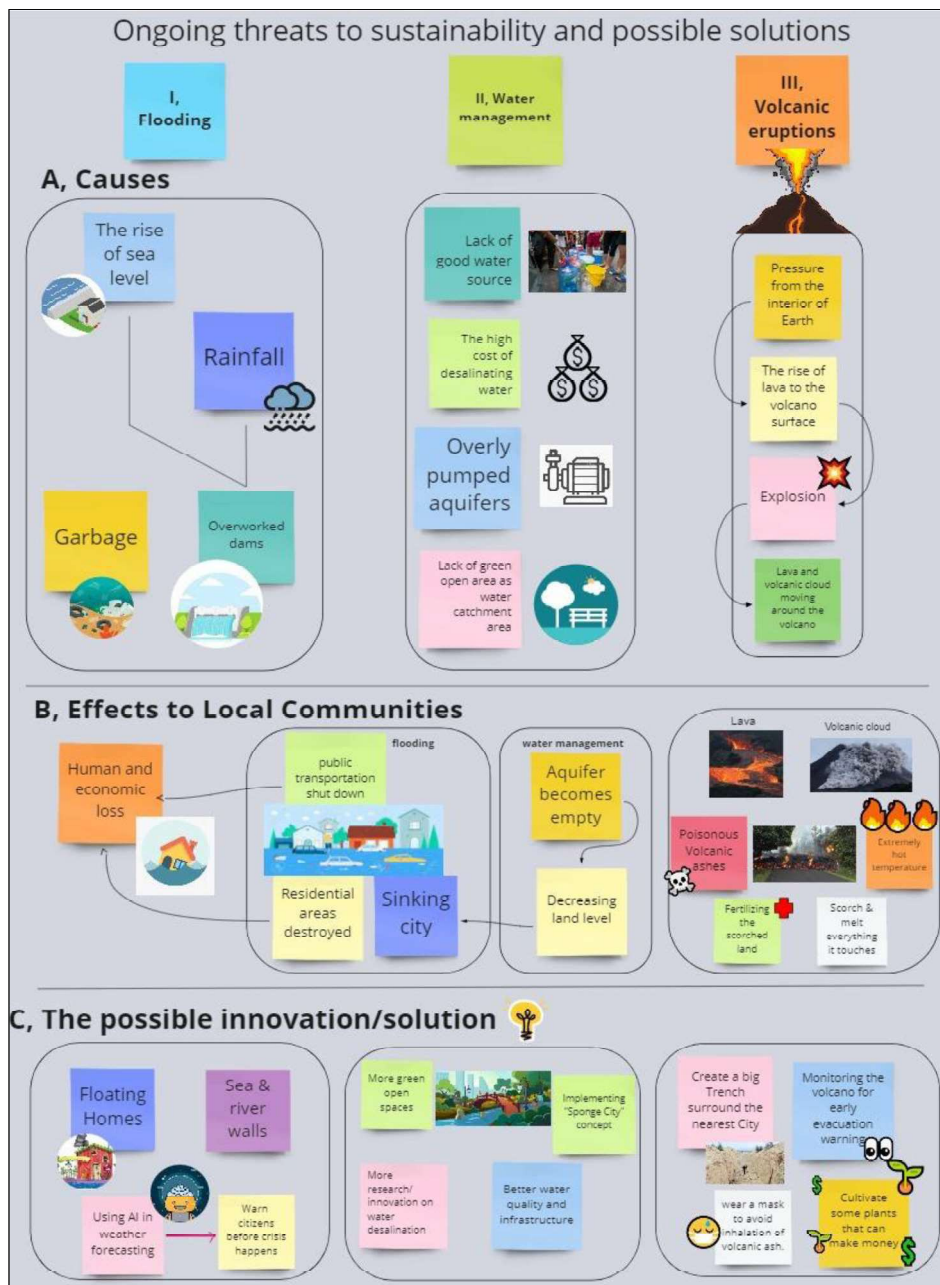
15:00~17:00	Main discussion to find the solution and preparation of Poster
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SDGs Workshop 4 (Aug.7 Sun)

11:00~12:30	Poster Presentation of the solution to SDGs
12:30~14:00	Wrap up

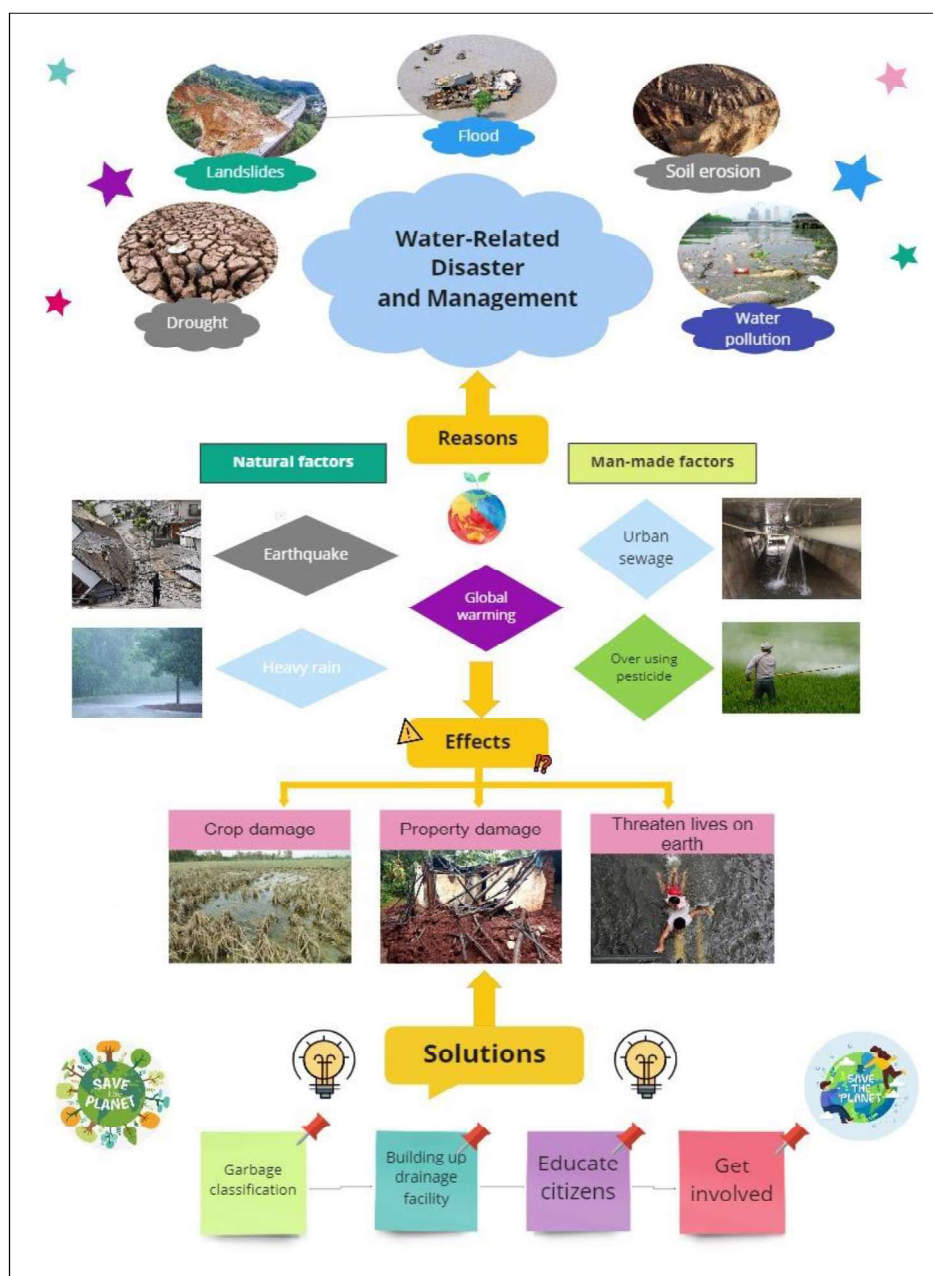
Members

ROOM1			
Supervisor	Dr.Pimpathu Sutanun		
Facilitator	Miss Watinee Kwangyoo	Chiang Mai University	Thailand
	Miss Surangkana Srisawat		
Learner	Alfond Putra Maheast	SMA Negeri 3 Yogyakarta	Indonesia
	Faza Hadaina	SMAN 1 BANDUNG	Indonesia
	Sunatcha Kulaputana	Chulalongkorn University Secondary Denomstration School	Thailand
	Nguyễn Minh Dũng	Foreign Languages Specialised School	Vietnam
	Nudcha Chaiyasate	Kasetsart University Laboratory School	Thailand



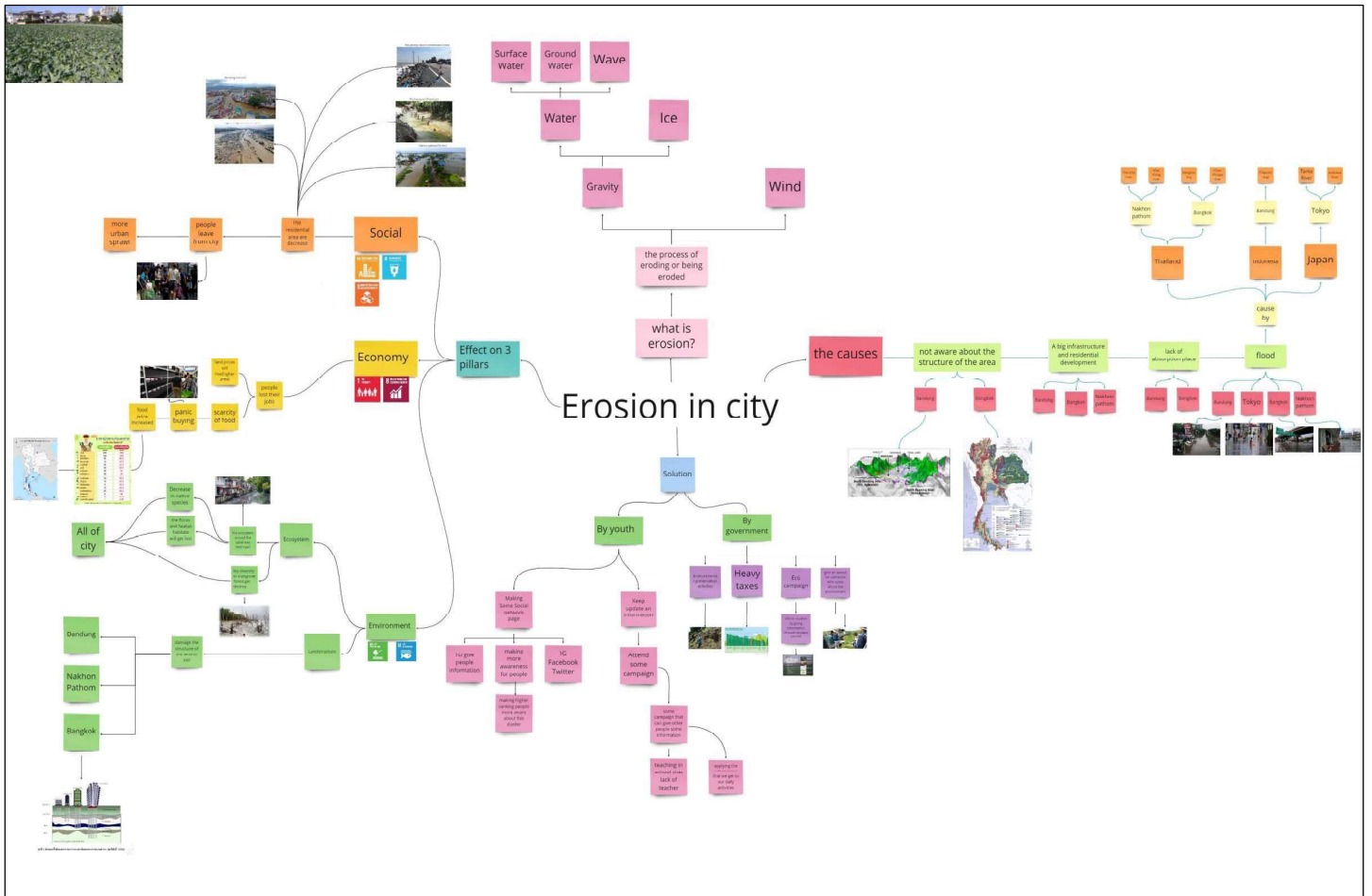
Members

ROOM2			
Supervisor	Lect.Dr. Dr Panchit Longpradit	Mahidol University	Thailand
Facilitator	Danping Chen		
	Linjin Li		
Learner	IZUMI Kaho	Chiba University	Japan
	Ni Luh Putu Yurikayani	Udayana University	Indonesia
	Nattavadee Kiatopas	Chulalongkorn University Secondary Denomstration School	Thailand
	Klinka Feyruz Chalisa	SMA TARUNA BAKTI	Indonesia
	Pornchanok Elstner	Chiang Mai University Demonstration School	Thailand



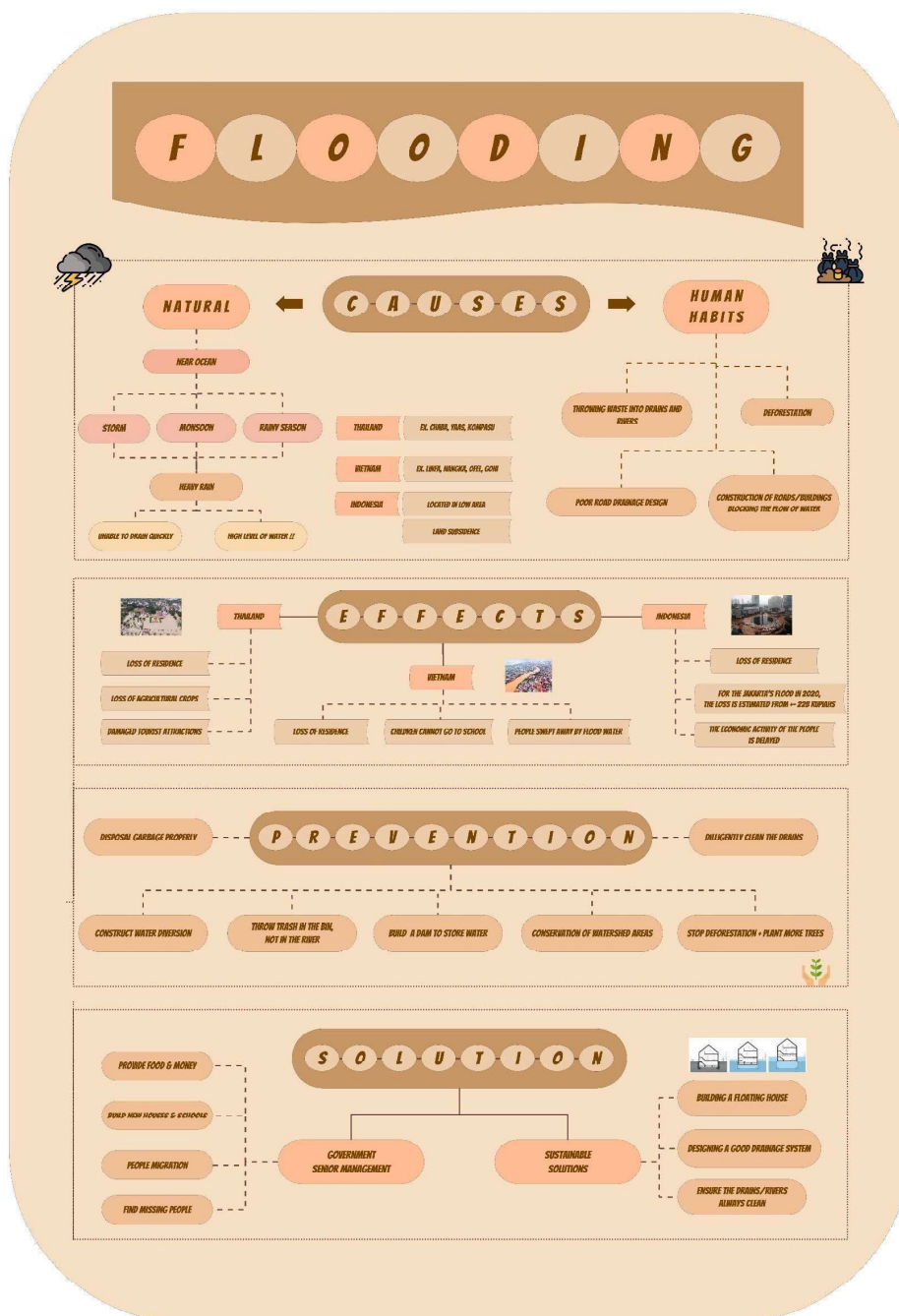
Members

ROOM3			
Supervisor	Dr. Ida Kaniawati, M.Si.		
Facilitator	Geterudis Kerans	Universitas Pendidikan Indonesia	Indonesia
	Suci Siti Lathifah		
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	Panisara Aroonparkmongkol	The demonstration school of Silpakorn university	Thailand
	Armelyza Alder Rustam	SMA TARUNA BAKTI	Indonesia
	Janota Vibhatavanij	Kasetsart University Laboratory School	Thailand



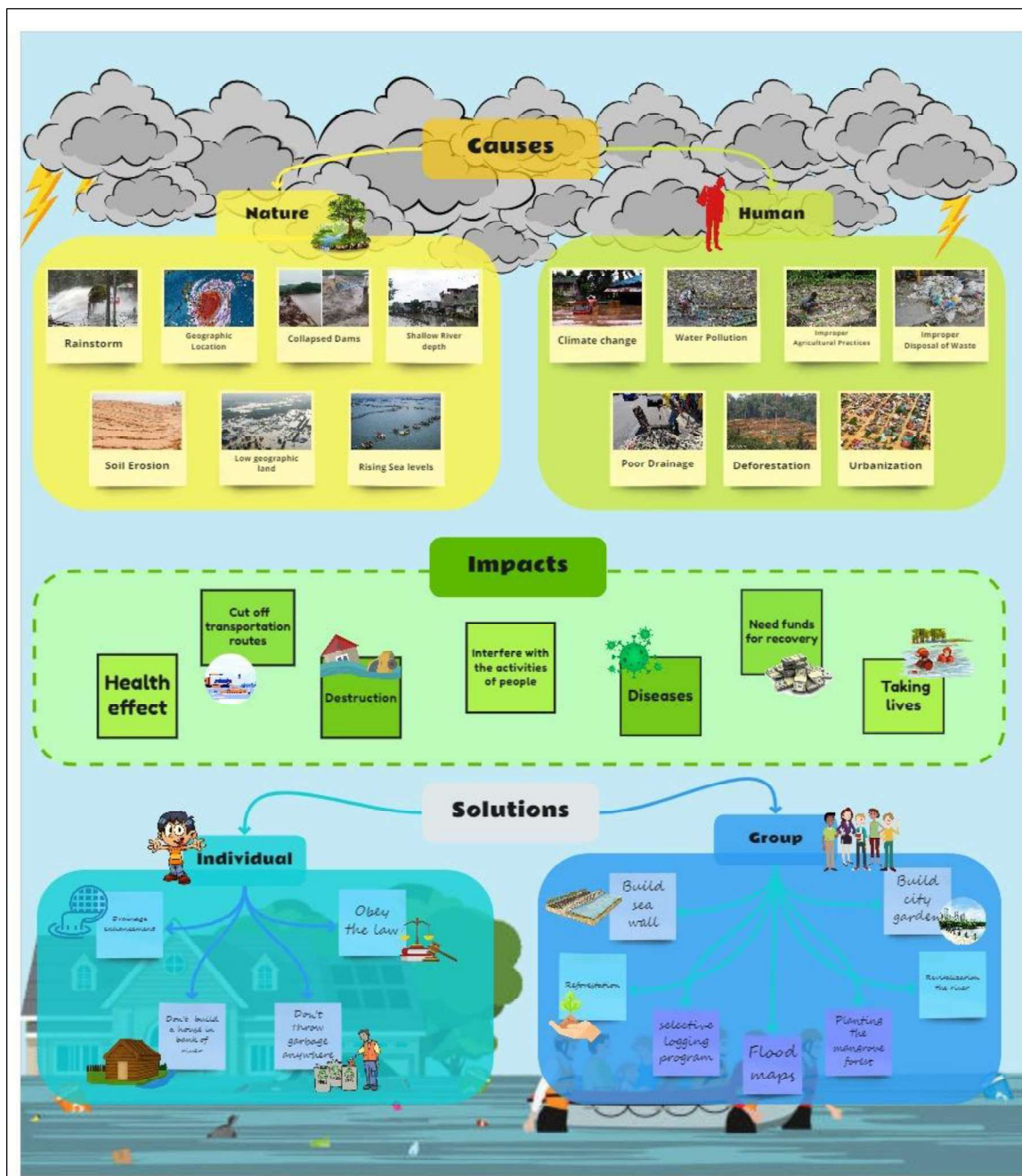
Members

ROOM4			
Supervisor	Chatree Faikhamta		
Facilitator	Supawit Kanitjinda	Kasetsart University	Thailand
	Mustakeem Awae		
Learner	Dianda Aura Dealova	Lembang High School	Indonesia
	Vũ Lâm Khanh	High school of education sciences	Vietnam
	Muhammad Devino Kevan Putra Santosa	SMA Negeri 3 Yogyakarta	Indonesia
	Apirak Rakkamnerd	Chulalongkorn University	Thailand



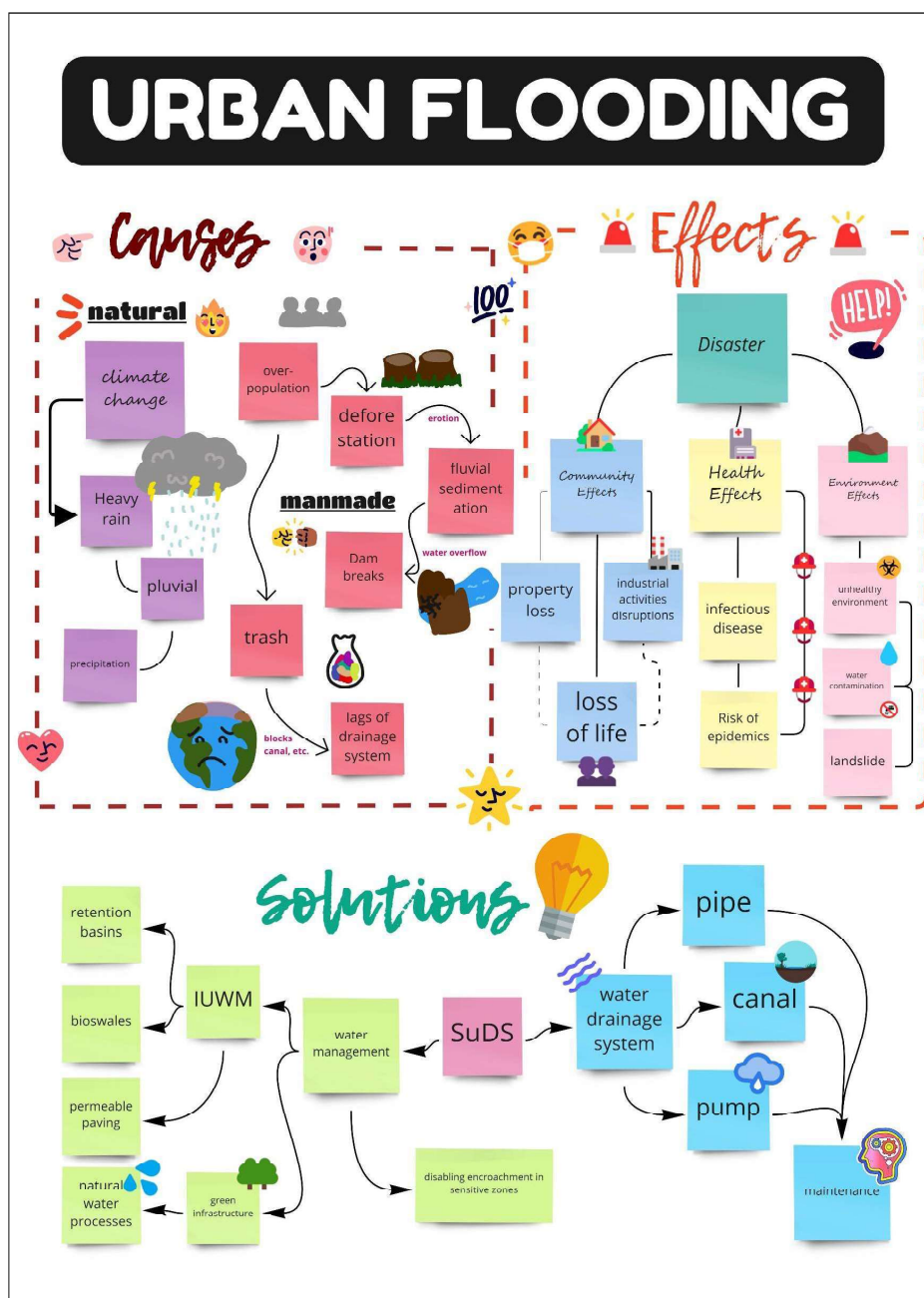
Members

ROOM5			
Supervisor	Đoàn Nguyệt Linh	VNU University of Education	Vietnam
Facilitator	Phạm Công Minh Triệu Hoài Dung		
Learner	Plaifar Siritrai	The demonstration school of Silpakorn university	Thailand
	Gaodie Abimanyu Jumain	SMA Pradita Dirgantara	Indonesia
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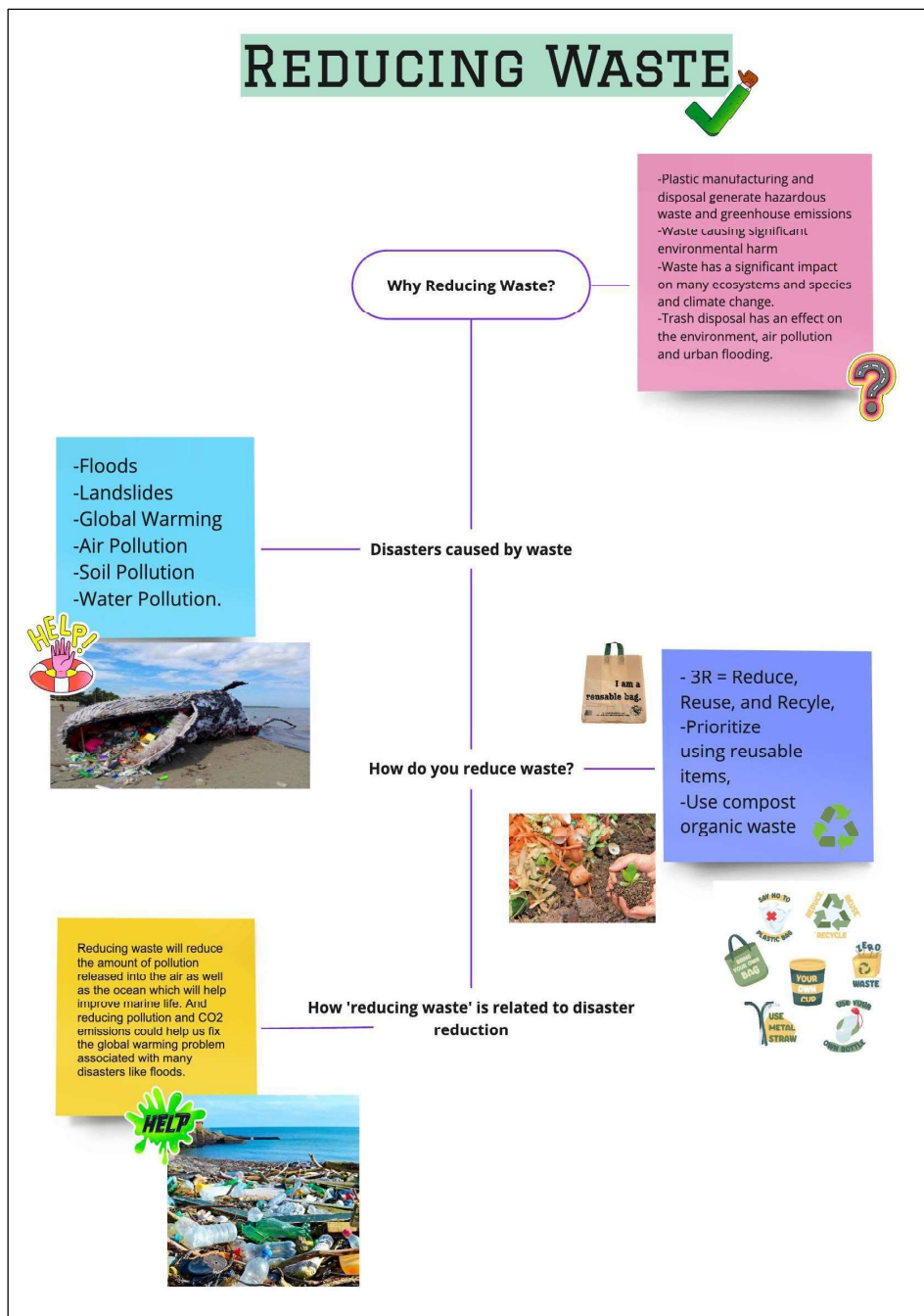
Members

ROOM6			
Supervisor	Jamil A. Calima	University of San Carlos	Philippine
Facilitator	Mikayla R. Antolijao		
	Renel L. Jugarap		
Learner	Wulan Garnasih	UPI Laboratorium High School	Indonesia
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	Rizqi Amanah Dwi Sulistyowati	SMA Pradita Dirgantara	Indonesia
	Aditat Larpmahapaisarn	Kasetsart University Laboratory School	Thailand



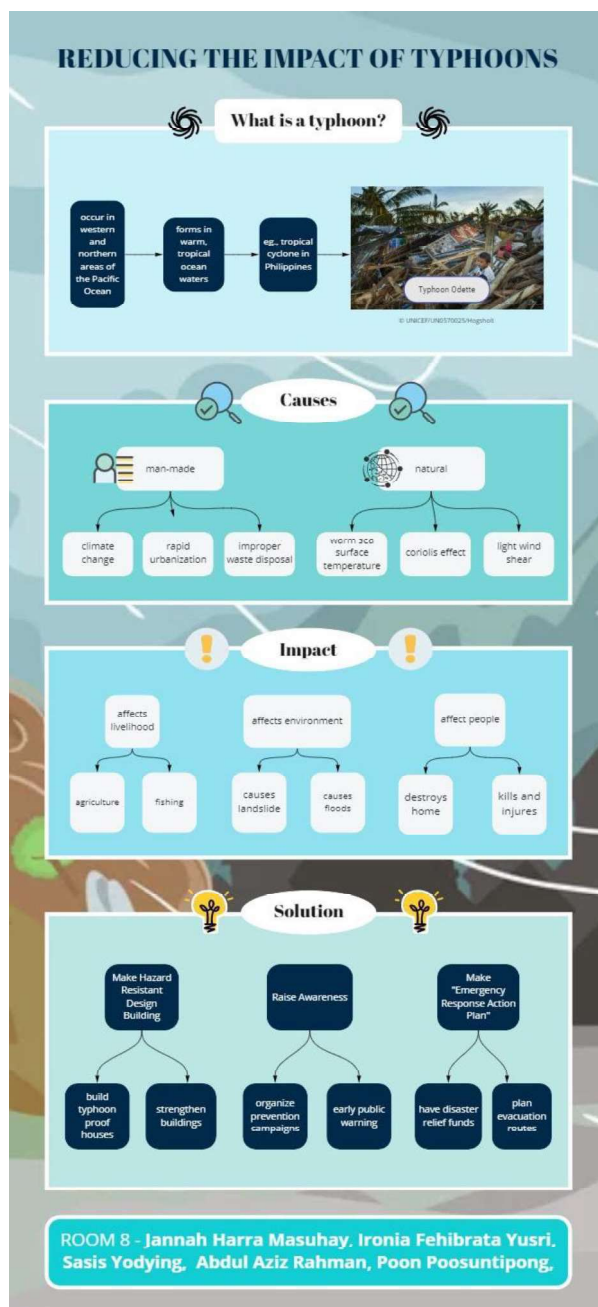
Members

ROOM7			
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Room 9

Typhoons : Face It or Run Away!



Typhoon Gay, 1989



Typhoon Haiyan, 2013



Typhoon Seroja, 2021



Policies

1. Structural and Non Structural Mitigation
2. Disaster Risk Reduction and Management Act of 2010 or Republic Act 10121
3. Provide survival equipment or countermeasures to the people.

Recommendations

To the government:



Always first.



Listen.



Alternatives.

To the people:



Be aware.



Unity.



Plan.

<https://aseanflow.com/topic/1070056-fear-of-a-repeat-what-happened-the-last-time-a-tropical-storm-hit-thailand/>

<https://www.scrip.com/topics/typhoon-haiyan>

<https://www.rhinoradaily.com/article/100666>

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	Zahra Nur Afiihah		
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	Ns. Ni Komang Ari Sawitri, S.Kep., M.Sc. PhD		
Facilitator	Morishige Hina	Chiba University	Japan
	Kato Chiharu		
Learner	Teeraya Jitprasert	The demonstration school of Silpakorn university	Thailand
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