





# Programme Book

# DAAD Alumni Meeting and Workshop

Mangkunegaran and Sustainable Social Transformation

March 4-5, 2024

at Puro Mangkunegaran Palace, Surakarta, Central Java























## Programme Book

#### **DAAD Alumni Meeting and Workshop**

Mangkunegaran and Sustainable Social Transformation

March 4 – 5, 2024

Puro Mangkunegaran Palace, Surakarta, Central Java

Principal Organizers of the Indonesian-German Consortium

Assoc. Prof. K.R.M.H. Tatas H.P. Brotosudarmo, Ph.D Universitas Ciputra Surabaya

Prof. Dr. Arndt Graf Goethe University Frankfurt

Consortium Institutions as Organizer























## Remarks from the Director of DAAD Regional Office Jakarta



Dear alumni,

Dear participants of the DAAD Alumni Event "Mangkunegaran and Sustainable Social Transformation",

Dear distinguished speakers from Germany and Indonesia,

Dear Prof. Tatas Brotosudarmo,

It is my great pleasure to greet you on the occasion of the DAAD Alumni Meeting and Workshop on "Mangkunegaran and Sustainable Social Transformation" in the Puro Mangkunegaran Palace in Surakarta. The event brings together DAAD alumni with experts from Indonesia and Germany to discuss various aspects of Javanese socio-political culture and the role it plays and could play in the social transformations which are characteristic for the development of the Indonesian society in the last decades, and which will shape Indonesia in the future. The alumni event is supposed to be the start of further studies and research with regards to sustainable social transformation, as a respective German-Indonesian consortium is going to be launched.

The questions addressed here are of greatest relevance, not only concerning Indonesia and Javanese culture, but also in a wider context. The complex, intertwined, dialectic relations of tradition and modernity, of social-cultural aspects we want (and need) to preserve and the partly disruptive and sometimes seemingly erratic developments that characterize the present are issues that are negotiated in very different ways in many societies. It is very interesting to address these questions taking Javanese culture and contemporary Indonesia as a model.





I would like to thank the initiators of this conference and the organizers, Prof. Tatas Brotosudarmo and Prof. Dr. Arndt Graf, for preparing this event, which, thanks to H.R.H. Mangkoenagara X, can take place at a very distinguished location, the Puro Mangkunegaran Palace in Surakarta.

The DAAD is a non-profit organization funded by the German government. Our task is to foster academic relations between German universities and universities worldwide. In order to achieve this, the DAAD offers scholarships to individual students and researchers, provides funding for cooperation projects of universities in Germany and Indonesia and offers expertise and advice on various aspects of international collaborations, e. g. on opportunities for academic cooperation in Germany and Indonesia and on how to start international collaboration projects. The DAAD supports this DAAD alumni event with funds from the German federal Foreign Office.

Since 1990 the DAAD has a Regional Office in Jakarta which today caters for DAAD-activities not only in Indonesia, but also in Malaysia, Singapore, and Timor-Leste. If you are interested in cooperation with German universities or if e. g. you have students or young colleagues who might be interested in studying or doing a PhD in Germany than we are happy if you – or they - contact the DAAD Regional Office Jakarta for consultation.

Please also allow me to highlight our flagship scholarship program: The DAAD currently calls for applications for grants for a PhD in Germany (or a bi-nationally supervised PhD). If you know young talented researchers in Indonesia, please inform them about this offer. Details are available at <a href="https://www.daad.id">www.daad.id</a>.

Dear participants, dear speakers, thank you very much for taking part in and for contributing to this wonderful event. I wish you all a successful and fruitful conference. All the best for the coming days and *semoga sukses*!

Dr. Guido Schnieders
Director of DAAD Regional Office Jakarta





# Remarks from the Rector of Universitas Ciputra Surabaya



#### MANGKUNEGARAN AND ENTREPRENEURSHIP

Mangkunegaran is a unique phenomenon that represents a desire for independence, leadership, and sovereignty amidst various unfriendly external factors. As a ruler, Mangkunegara is accustomed to dealing with complicated situations that can only be resolved by taking risks and doing what is most possible, even though it may not be the ideal solution.

The history of the Mangkunegara family is a series of interesting episodes, from a traditional palace that heroically rejected colonialism, to adopting modernity to improve the welfare of its people during the colonial period, and finally becoming a cultural center in the 21st century. The history of Mangkunegaran is rich with a historical legacy of heroism, culture, and entrepreneurship, which includes operating industries and trading businesses, as well as supporting the newly declared republic.

This Mangkunegaran's historical and cultural wealth must of course be preserved. However, the preservation must include transformation to serve the needs of the times. An appropriate transformation, which brings valorization as a result of the public e acceptance. Most of the creative efforts fail at this stage. They are failed to maintain balance between the preservation of the old standards (pakem) and to identify what the modern public wants. As a result, this cultural wealth is considered irrelevant by the younger generation.





Entrepreneurship can assist this effort to innovate cultural wealth. Entrepreneurship starts from getting what people need and what problems they have that we can serve to offer the desired answer, fulfill, and solve. Entrepreneurship teaches us not to assume too many things without verification. We learn to be sensitive to the needs and problems of others, encouraging us to observe, dialogue to find values for others. Entrepreneurship offers tools such as design thinking and business model canvas, which are very applicable to the fields of culture and tourism.

We are really blessed to have His Royal Highness Mangkoenagoro X who is a Gen Z figure. His Royal Highness has great potential to recognize the needs of his generation. HRH has expressed his desire to reinstate the role of Praja Mangkunegaran, which in the past has contributed so much to the preindependent Indonesia, to be able to play an appropriate role again, providing identity, value and meaning to the present context.

Universitas Ciputra is delighted to provide support and contribution to these Mangkunegaran's efforts to be a source of pride for everyone, so that we can all be independent, happy, and prosperous.

HRH Mangkoenagoro X, we wish that your vision and good intention will turn into reality.

Surabaya, February 29, 2024 UNIVERSITAS CIPUTRA,

Ir. Yohannes Somawiharja, M.Sc. Rector





# Programme DAAD Alumni Workshop with Forum Group Discussion

# Mangkunegaran and Sustainable Social Transformation

March 4-5, 2024, on-site at Puro Mangkunegaran Palace, Surakarta, Central Java

Sunday, March 3, 2024

Arrival and Check-in (from 2:00 p.m.) at Hotel Solia Yosodipuro Surakarta

Free time

Monday, March 4, 2024

6:00 a.m. Breakfast at Hotel

7:00 a.m. Open Gate (Mangkunegaran Palace)

8:00 a.m. Workshop Opening

Moderator: K. R. M. H. Tatas Brotosudarmo, Ph.D

Greetings – His Royal Highness Mangkoenagoro X

Ir. Yohannes Somawiharja, M.Sc., Universitas Ciputra Surabaya

H.E. Ina Lepel,

German Ambassador for Indonesia

8:45 a.m. Photo Session

9:00 a.m. Panel Session – Communication Strategies

Moderator: K. R. M. H. Tatas Brotosudarmo, Ph.D

9.00 – 9.30 Prof. Dr. Arndt Graf,

Goethe University Frankfurt





9.30 – 10.00 Dr. Patrick Keilbart,

Goethe University Frankfurt

10:00 a.m. Coffee Break

10:15 a.m. Panel Session – Philosophy, Natural Science, and

**Education** 

Moderator: Dr. rer. nat. Anto Budiharjo, S.Si.,

M.Biotech.

10.15 – 10.45 K. R. M. H. Tatas H.P. Brotosudarmo, Ph.D.,

Universitas Ciputra Surabaya

10.45 – 11.15 Lucky Cahyana Subadi, S.Pd., M.M.,

Universitas Ciputra Surabaya

11.15 – 11.45 Insiwi Febriary Setiasih, S.S., M.A.,

Universitas Sebelas Maret

11:45 p.m. Lunch

1:00 p.m. Contributed Talks

Moderator: Dr. rer. nat. Fetriyuna, S.TP., M.Si.

Dr. Phil. Lucia D. Krisnawati.

Universitas Kristen Duta Wacana

Dr. rer. nat. Wahyu Supartono,

Universitas Gadjah Mada

Dr. rer. nat. Ir. Aulia M. T. Nasution, M.Sc., Institut Teknologi Sepuluh Nopember (ITS)

Dr. Samodra Wibawa, MSc., Universitas Gadjah Mada

2:00 p.m. Panel Session – Urban and Culture Study

Moderator: Leenawaty Limantara, Ph.D

2.00 – 2.30 Dr. Friederike Trotier, Ph.D,

University of Passau





2.30 – 3.00	Prof. Manneke Budiman, S.S., M.A., Ph.D, Universitas Indonesia
3.00 – 3.30	Melania Rahadiyanti, S.T., M.T., Universitas Ciputra Surabaya
3:30 p.m.	Coffee Break
3:45-4.30 p.m.	FGD Day 1 and Closing Statement (FGD Results)  Moderator: K. R. M. H. Tatas Brotosudarmo, Ph.D  and Prof. Dr. Arndt Graf
7:00 p.m.	Dinner at Pracima Tuin

#### Tuesday, March 5, 2024

8:00 a.m.	Panel Session – Arts and Visual Culture
	Moderator: Dr. Deny Tri Ardianto, S.Sn., Dipl. Art
8.00 – 8.30	Dr. Amanda Katherine Rath,
	Goethe University Frankfurt
8.30 – 9.00	Dr. Astrid Kusumowidagdo, S.T., M.M.,
	Universitas Ciputra Surabaya
9.00 – 9.30	Quina Reivaldi Limantara, S.E., M.A.,
	Universitas Ciputra Surabaya
9:30 a.m.	Coffee Break
9:45 a.m.	Panel Session – Literature
	Moderator: Dr. Phil. Lucia Dwi Krisnawati
9.45 – 10.15	Prof. Dr. Edwin P. Wieringa,
	University of Cologne
10.15 – 10.45	Dr. Nurenzia Yannuar, Dr. Dwi Sulistyorini, and
	Prof. Dr. M. Misbahul Amri,
	Universitas Negeri Malang





**10.45 a.m.** Introduction Research in Germany – DAAD Jakarta

Office

11:00 a.m. Contributed Talks

Moderator: Leenawaty Limantara, Ph.D

Prof. Dr. Nurhayati, Universitas Jambi

Dr. Deny Tri Ardianto, S.Sn., Dipl. Art,

Universitas Sebelas Maret

Dr. rer. nat. Fetriyuna, S.TP., M.Si., Universitas Padjadjaran Bandung Prof. Dr. Trina Ekawati Tallei.

Universitas Sam Ratulangi

**12:00 a.m.** Lunch

1:00 p.m. Panel Session – Economic, Finance, and

**Entrepreneurship** 

Moderator: Dinaroe, SE, MBA, Ak., CA, ASEAN

**CPA** 

1.00 – 1.30 Prof. Dr. Wirawan Endro Dwi Radianto,

Universitas Ciputra Surabaya

1.30 – 2.00 Damelina Basauli Tambunan, S.E., M.M., Ph.D., CLC.,

CPM (Asia),

Universitas Ciputra Surabaya

2:00 p.m. Contributed Talks

Moderator: Dr. Condro Wibowo

Esti Dwi Rinawiyanti, S.T., MBA, Ph.D,

Universitas Surabaya

Dr. rer. nat. Armi Susandi, M.T.,

Sekolah Tinggi Intelijen Negara (STIN)

Dr. Phil. Khoirun Niam,

**UIN Sunan Ampel Surabaya** 





3:00 p.m. Coffee Break

3:30 p.m. Closing Session with Signing Declaration of

Consortium

4:30 p.m. Final Remark and Farewell

**Optional Event** (*Please talk to the organizer to arrange your workshop*)

#### Wednesday, March 6, 2024

#### 8:00 - 12:00 Traditional Mangkunegaran Workshops

- Javanese Traditional Dance: IDR 150,000/pax per session or IDR 175,000/pax per session with sampur (patterned scarf for dancing)
- Karawitan Music (Gamelan): IDR 150,000/pax (max. 15 pax per session)
- Javanese Script: IDR 100,000/pax





### Forum Group Discussion Agenda

The DAAD Alumni Workshop is organized by the academic consortium Mangkunegaran and Sustainable Social Transformation that has common goals:

- 1. In nurturing and enhancing the role of scholars in the advancement of Mangkunegaran studies from a multidisciplinary perspective.
- 2. In the strengthening of mutual collaboration on the relevant research topics of Mangkunegaran.
- 3. In the acquisition of research fundings for ensuring sustainable collaboration and the dissemination of findings.
- 4. In bringing the dynamic Javanese cultures and traditions stored in Mangkunegaran to be preserved and recontextualized in the context of youth and contemporary cultures.
- 5. In engaging with community development based on local wisdom to come to terms with global challenges in building sustainable communities.

The aims of this forum group discussion are as follows:

- 1. Identifying scholars who are willing to join the consortium and contribute actively to the excellent research and the advancement of the consortium's common goals.
- 2. Mapping the area and topics of research and community development that are relevant to each scholar with respect to the Mangkunegaran from the perspective of sustainable social transformation.
- 3. To compile a list of activities or programs that can be carried out by the consortium in the next five years and an estimated schedule.





#### **Extended Abstracts**

O1 The Influence of Attitudes, Subjective Norms, and Behavioral Control on Farmers' Interest in Marketing Their Chilies-Production: A Case Study in the Guyup Rukun Pasar Lelang, Mirit District, Kebumen Regency, Central Java Province

Dr. rer. agr. Ir. Djeimy Kusnaman, M.Sc. Agr

02 Preparing the Future Generation for Sustainability

Esti Dwi Rinawiyanti, S.T., MBA, Ph.D.

O3 Smart Governance for Climate-Resilient Sustainable Social Transformation in the Indonesian Archipelago

Dr. rer. nat. Armi Susandi, M.T.

O4 The Kenduri Swarnabhumi Tradition in East Tanjung Jabung to Strengthen the Kinship Relation

M. Hariski, S.Pi., M.Si., Lisna, S.Pi., M.Si., Fauzan Ramadan, S.Pi., M.Si., & Prof. Dr. Ir. Nurhayati, M.Sc. Agr

O5 Creating Participatory and Inclusive District Government: A Research Proposal

Dr. Samodra Wibawa, MSc.

O6 Diffuse Reflectance Spectroscopy for Recognizing the Behavioral Growth of *Ganoderma boninense* 

Dr. rer. nat. Ir. Aulia M. T. Nasution, M.Sc.

07 Dance Films as a Medium for Promoting Javanese Culture at the Global Level

Dr. Deny Tri Ardianto, S.Sn., Dipl. Art





O8 Cultural Insights from Mangkunegaran and the Path to Sustainable Change in North Sulawesi: An Opinion

#### Prof. Dr. Trina Ekawati Tallei

O9 Sustainability Reporting in Indonesian Local Governments (Achieving Sustainable Development Goals)

#### Dinaroe, SE, MBA, Ak., CA, ASEAN CPA

10 Crafting Narratives: The Transformative Efficacy of Storytelling in Branding

#### Quina Reivaldi Limantara, S.E., M.A.

11 The Role of Food Technology to Support on Pura Mangkunegaran Sustainable Social Transformation

#### Dr. rer. nat. Wahyu Supartono

12 Fostering Collaboration to Empower Cultural Heritage in Creative Cultural Industry

#### Dr. Astrid Kusumowidagdo, S.T., M.M.

13 Digitizing Javanese Manuscript: Serat Mangkunegaran IV as the Main Source of Gold Labeling

#### Dr. Phil. Lucia Dwi Krisnawati

14 Bridging the Past and Present: Unveiling the Redesigned Reksa Pustaka Puro Mangkunegaran

#### Melania Rahadiyanti, S.T., M.T.

15 Strengthening Sustainability through Geographical Indication
System

#### Anggoro Cahyo Sukartiko, S.T.P., M.P., Ph.D





16 The Mangkunegaran Crisis Communication in Deal with Digital Public

#### Dwi Fitri, M.A., C.DMP

17 Empowering the Small-Medium Enterprise (SMEs) to Contributing in Mitigation of Undernourishment, Achieving the Sustainable Development Goals, and Sustainable Social Transformation

#### Dr. rer. nat. Fetriyuna, S.TP., M.Si.

18 Javanese Literature in Manuscripts of the Mangkunegaran Palace Library: Taking Stock and Mapping the Issues

#### Prof. Dr. Edwin P. Wieringa

19 Java's Sugar Industry: Evolution, Resilience, and Scientific Progress

#### K. R. M. H. Tatas H. P. Brotosudarmo, Dipl.Chem., Ph.D., MRSC

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23 Mangkunegaran and the Media: Javanese Cultural Modernization in the Social Media Age

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#### Dr. Friederike Trotier, Ph.D





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31 Early Detection of Degenerative Diseases Stroke Using Metal Nanoparticles Based Photometric Sensor

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Dr. rer. nat. dr. Bernadette Josephine Istiti Kandarina





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35 Sustainable Practices of Gayo Arabica Coffee Production in Aceh

\*Cut Erika, S.TP., M.Sc., Ph.D\*\*

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- Palm Oil Biodiesel as a Renewable Energy Resource: Research
  Development in Ecological and Social Impacts Assessment of the
  Oil Palm Industry in Indonesia
  - Prof. Dr. Ir. Ferisman Tindaon, MSc., Ir. Yanto Raya Tampubolon, MP., Dr. Ir. Parlindungan Lumbanraja, M.Si, & Dr. Donald Siahaan





#### [01]

# THE INFLUENCE OF ATTITUDES, SUBJECTIVE NORMS, AND BEHAVIORAL CONTROL ON FARMERS' INTEREST IN MARKETING THEIR CHILIES-PRODUCTION: A CASE STUDY IN THE GUYUP RUKUN PASAR LELANG, MIRIT DISTRICT, KEBUMEN REGENCY, CENTRAL JAVA PROVINCE

Dr. rer. agr. Ir. Djeimy Kusnaman, M.Sc. Agr Faculty of Agriculture, Department Agribusiness, Universitas Jenderal Soedirman

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#### Abstract:

Chili (Capsicum annuum L), one of the leading horticultural products in Kebumen Regency, has a high economic value. However, it faces a crucial weakness due to extreme price fluctuations during the harvest and off-season periods. Since 2017, farmer groups in Kebumen have been selling their chili harvest through the Guyup Rukun Auction Market. This research aims to determine the influence of Attitude (X1), Subjective Norms (X2), and Behavioral Control (X3) on Farmers' Interest in Marketing Their Chilies at the Auction Market (Y). The study was conducted over two years (2022-2023) in Kebumen Regency, an area of chili surplus in Central Java but also a poor region. Primary and secondary data were obtained through interviews with farmers and farmer group managers. Secondary data were acquired from related institutions such as the Central Statistics Agency (BPS) and the Department of Agriculture and Food Security. Data was collected using a survey technique with a simple random sampling of 50 respondents. Data analysis employed the theory of planned behavior, where these three variables were tested using t-tests. The research results indicate an influence of farmers' attitudes and no influence of subjective norms or the perception of behavioral control on the farmers' interest in marketing chilies in the





auction market. The auction market should allow local farmers to obtain market-appropriate prices.

The research explores attitudes, subjective norms, and behavioral control within the specific context of chili farmers' marketing decisions. These psychological and social factors are crucial in shaping the decision-making processes of individuals, especially in the agricultural domain. By closely examining these elements, the study provides a detailed understanding of farmers' multifaceted challenges when marketing their produce. This investigation is fundamental in developing effective strategies that empower farmers to make well-informed and economically beneficial decisions regarding the marketing of their chilies.

**Contribution to Sustainable Development Goals (SDGs).** This research is closely aligned with key Sustainable Development Goals, notably those aimed at poverty alleviation (SDG 1), eradicating hunger (SDG 2), and promoting inclusive and sustainable economic growth (SDG 8). By focusing on enhancing the economic stability and food security of chili farmers, the study directly contributes to these global objectives. A comprehensive understanding and solution-oriented approach to farmers' marketing challenges is essential in cultivating sustainable agricultural practices. This, in turn, is crucial for building a resilient agricultural sector that can ensure long-term food security.

**Emphasis on Promoting Sustainable Agriculture.** This research underscores the importance of sustainable agriculture by providing insights into the specific challenges and influential factors in chili marketing. The findings of this study are instrumental in informing and shaping policies and practices that advocate for sustainability in agriculture. This focus aligns with the objectives of SDG 8, which emphasizes the need for sustainable economic growth and the provision of decent work conditions. These factors are vital for the overall well-being and prosperity of farmers.

**Localized Impact and Relevance.** The study's focus on the Guyup Rukun Auction Market in Mirit District, Kebumen Regency, Central Java Province, adds significant depth and relevance to its findings. By addressing the unique





challenges faced at a local level, this research makes a meaningful contribution to the broader objective of achieving sustainable social transformation. Recognizing and addressing the specific needs and dynamics of the Mirit District community is crucial for implementing targeted and effective interventions that can drive positive societal changes.

**Knowledge Exchange at DAAD Alumni Workshop.** The insights gleaned from this research are poised to contribute substantially to the DAAD Alumni Workshop. By sharing these findings, the workshop's discussions on sustainable social transformation will be enriched, providing a practical and relevant case study. This knowledge exchange facilitates collaborative discussions and learning, enabling fellow alums to apply these insights to their respective fields of expertise, thus broadening the impact of the research beyond its immediate context.





#### [02]

#### PREPARING THE FUTURE GENERATION FOR SUSTAINABILITY

Esti Dwi Rinawiyanti, S.T., MBA, Ph.D Industrial Engineering Department, Universitas Surabaya <u>estidwi@staff.ubaya.ac.id</u>

#### **Abstract:**

Higher education institutions (HEIs) perform functions and responsibilities to develop future generations with integrity and high moral standards who can adapt to change. In addition to Indonesia's dedication to achieving the Sustainable Development Goals (SDGs), HEIs in Indonesia are crucial to these endeavors. The purpose of this study is to explore the sustainability practices in HEIs. The University of Surabaya (UBAYA), one of the private universities in Indonesia, was chosen as a case study. This study employed the content analysis method through data and information connecting to sustainability activities undertaken by UBAYA from 2020 to 2022. To investigate the extent to which UBAYA has incorporated sustainability, gathered data was grouped in accordance with SDGs. This finding reveals that UBAYA has actively participated in a range of sustainable activities. 28 out of 50 activities were found to be related to sustainability based on the content analysis findings. Of these, 11 activities supported SDG 1 of reducing poverty, 9 activities linked to SDG 4 committed to creating high-quality education, and 8 activities related to SDG 3 of achieving good health and well-being. The finding also indicated that UBAYA promotes the SDGs' realization through a variety of sustainability programs, both on and off campus. To carry out these programs, UBAYA worked in collaboration with internal and external sectors, such as the commercial non-governmental organizations, sector, government. The findings confirmed that HEIs advance sustainability practices to achieve the SDGs. Thus, through SDG-related initiatives, HEIs can increase awareness of sustainability both on and off campus.





Higher education institutions (HEIs) have a significant role in accomplishing sustainable development goals (SDGs) through innovation, knowledge development, and the development of human resources. HEIs are directly or indirectly associated with all SDGs (Chankseliani, M., McCowan, 2020). As transformation agents, HEIs can transform society and educate the future generation of leaders who will make the SDGs a reality (Giesenbauer & Müller-Christ, 2020; Žalėnienė & Pereira, 2021). The goal of sustainability in HEIs is to equip students with the abilities and competencies to not only learn and produce knowledge but also to improvise, adapt, innovate, and create (Barth et al., 2007).

The reputation and prestige of a university are also greatly influenced by sustainability (Salvioni et al., 2017; Žalėnienė & Pereira, 2021). Universities with the highest ranking are universities that foster a culture of sustainability and have a long-term perspective on student growth (Salvioni et al., 2017). As a result, including sustainability concepts is essential to enhancing the reputation, image, and quality of HEIs' research. HEIs' sustainable development has an impact on the economy, social concerns, environment, policy, culture, and demography, among other areas, both directly and indirectly (Findler et al., 2019).

To explore how HEIs implement sustainability, this study uses UBAYA as a case study. The content analysis was conducted on data and information from online public sources between January 2020 to December 2022. The result indicated that articles have been published in local and national newspapers as well as on the UBAYA website. Only 50 articles, nevertheless, dealt with the SDGs. These 50 articles were then classified into 17 SDGs. The result found that the following SDGs are frequently mentioned in these articles:

- a. Goal 1: No Poverty. Eleven articles explained the initiatives associated with SDG 1. This finding supports the claim that HEIs contribute significantly to achieving SDG 1 (Žalėnienė & Pereira, 2021).
- b. Goal 4: Quality Education. Nine articles described the sustainability activities related to SDG 4. This finding is in line with the argument that HEIs support greatly to SDG 4 achievements by ensuring that





- everyone has access to inclusive and high-quality education (Owens, 2017). It is the best approach to achieve the SDGs and promote sustainable development (Žalėnienė & Pereira, 2021).
- c. Goal 3: Good Health and Well-being. Eight articles indicated activities related to Goal 3. This finding is consistent with the claim that HEI makes a substantial contribution to SDG 3 (Žalėnienė & Pereira, 2021).

According to the findings, the sustainability initiatives undertaken by UBAYA can increase awareness of sustainability, particularly among the people they benefit. Through funding from both internal and external sources, UBAYA was able to carry out these initiatives and foster collaboration with both internal and external stakeholders. The finding also identified that the SDGs can be implemented in a very broad geographic area. These initiatives show the need for sustainability adoption to permeate the entire organization and result in specific choices and actions (Niedlich et al., 2020). The findings revealed that HEIs have a major role in creating a mindset that makes the guiding principles of the SDGs easier to understand (Žalėnienė & Pereira, 2021).





#### [03]

# SMART GOVERNANCE FOR CLIMATE-RESILIENT SUSTAINABLE SOCIAL TRANSFORMATION IN THE INDONESIAN ARCHIPELAGO

Dr. rer. nat. Armi Susandi, M.T.
Intelligence Technology, Sekolah Tinggi Intelijen Negara (STIN)
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#### **Abstract:**

The Indonesian archipelago is a unique region, comprising over 17,000 islands, that faces numerous challenges related to climate change, extreme weather events. and hydrometeorological disasters. Further, interconnectivity between each island exacerbated the complicated governance management. These challenges require sustainable social transformation to enhance the region's climate resilience and ensure that it can cope with the impact of climate change. To explore the potential of smart governance in fostering climate-resilient sustainable social transformation in the Indonesian Archipelago, a study was conducted that employed qualitative research methods. The study involved an extensive literature review on sustainable social transformation, climate resilience, and smart information systems, and focused on desk-based research and data analysis. The findings of the study are significant and highlight the potential of smart governance and information systems in enhancing climate resilience and fostering sustainable social transformation in the Indonesian Archipelago. The study concludes that the critical need for integrated governance and smart information systems to achieve sustainable social transformation and climate resilience in the Indonesian Archipelago. The results of the study have important implications for policy formulation, community engagement, and the advancement of inclusive and sustainable societies in the archipelago and beyond. Overall, the study underscores the importance of addressing climate change challenges in the Indonesian Archipelago through sustainable social transformation, smart governance, and the use of innovative information





systems. It highlights the need for a collaborative approach to climate resilience that can foster inclusive, sustainable, and resilient societies in the region and contribute to global efforts to mitigate the impact of climate change.

The research on "Smart Governance for Climate-Resilient Sustainable Social Transformation in the Indonesian Archipelago" holds significant importance in addressing the pressing challenges related to climate change, extreme weather events, and hydrometeorological disasters in the region. Indonesia, as an archipelagic nation, is particularly vulnerable to the adverse impacts of climate change, including rising sea levels, extreme weather events, and natural disasters. Therefore, the study's focus on fostering climate-resilient sustainable social transformation is directly aligned with the global priority of addressing climate change and its impacts, as outlined in the Sustainable Development Goals (SDGs).

The research directly relates to SDG 13 (Climate Action), which calls for urgent action to combat climate change and its impacts. By exploring the potential of smart governance in enhancing climate resilience and fostering sustainable social transformation, the study contributes to the broader efforts of mitigating and adapting to climate change, which is crucial for the sustainable development of the Indonesian Archipelago. Additionally, the research aligns with SDG 11 (Sustainable Cities and Communities) and SDG 9 (Industry, Innovation, and Infrastructure) by emphasizing the importance of inclusive and sustainable societies, as well as the integration of innovative governance approaches to address climate-related challenges.

Furthermore, the research's relevance to the topic of the DAAD Alumni Workshop on Mangkunegaran and Sustainable Social Transformation is evident in its focus on inclusive and sustainable society building. The workshop aims to explore the role of the court in staying relevant amidst significant social transformation and to discuss various aspects of Javanese political socio-culture and its ties with other parts of the world. The research directly contributes to this objective by examining the potential of smart





governance in fostering sustainable social transformation, which is essential for addressing the broader global challenges and building inclusive societies.

The study's emphasis on the Indonesian Archipelago's unique challenges and the need for integrated governance and smart information systems resonates with the workshop's goal of launching an Indonesian-German Consortium on Mangkunegaran and Sustainable Social Transformation. By providing insights into the critical role of governance and information systems in achieving sustainable social transformation and climate resilience, the research aligns with the workshop's objective of strengthening the alumni network and disseminating information about research opportunities with German universities.

In conclusion, the research on smart governance for climate-resilient sustainable social transformation is of paramount importance in addressing the challenges posed by climate change and social transformation in the Indonesian Archipelago. Its direct alignment with the Sustainable Development Goals, particularly SDG 13, and its relevance to the workshop's objectives make it a valuable contribution to the ongoing discussions on Mangkunegaran and Sustainable Social Transformation.





#### [04]

# THE KENDURI SWARNABHUMI TRADITION IN EAST TANJUNG JABUNG TO STRENGTHEN THE KINSHIP RELATION

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#### Abstract:

The communities along the Batanghari River from Berbak to Kuala Jambi District, Tanjung Jabung Timur Regency have a local wisdom called Kenduri Swarnabhumi. The goal of this tradition is to protect the environment and care for the harmony of community and kinship. The tradition is carried out by gathering relatives along the Batanghari River in Tanjung Jabung Timur, focusing on deliberations of the Batanghari River's condition. The activities of Kenduri Swarnabhumi include Safar Bathing, Ratip Saman Bardah, and Alms Earth. The Safar bath ritual is carried out every last Wednesday of the Safar month every year on the edge of the Babusalam Coast of Air Hitam Laut Village, Sadu District to reject the danger of natural disasters, environmental damage, disease, and guarrels between the community. The Ratip Saman Bardah tradition has existed since the ancestors of the people of Nipah Panjang District to prevent disaster and build solidarity and harmony between communities. The activity become an annual agenda of the Government of East Tanjung Jabung Regency. Alms Earth is an activity carried out to be grateful for all the harvests obtained from agriculture and marine products. Alms Earth is held once a year based on the Javanese calendar, namely Monday Pahing between August and November. The alms earth activity fosters togetherness and harmony between communities in ethnic Malay, Java, Bugis, and Chinese regardless of differences in status, and social and ethnic strata.





One of the Sustainable Development Goals (SDG's) is poverty alleviation so that there is no more poverty in the community. To achieve this goal, the participation of the government, community, universities, and other stakeholders becomes very important and must work together. East Tanjung Jabung Regency, Jambi Province is one of the districts that continues to strive to alleviate poverty. Central Bureau of Statistics of East Tanjung Jabung Timur reported that the number of poor people in Tanjung Jabung Timur Regency continued to decline even at the time of the COVID-19 pandemic. In 2017 -2022 the number of poor people was 27220, 26990, 25350, 24230, 24420, and 23420 people with a percentage of poor population of 12.58%, 12.38%, 11.54%, 10.95%, 11.35% and 10.91%, respectively. One of the decreased poverty rates was carried out by activating the tradition of the Kenduri Swarnabhumi that is carried out by the community along the Batanghari River starting from Berbak District to Kuala Jambi District. The Kenduri Swarnabhumi tradition consists of 3 activities namely Safar Bathing, Ratip Saman Bardah, and Alms Earth. The Safar bath ritual is carried out every last Wednesday of the Safar month every year on the edge of the Babusalam Coast of Air Hitam Laut Village, Sadu District to reject the danger of natural disasters, environmental damage, disease, and guarrels between the community. The Ratip Saman Bardah tradition has existed since the ancestors of the people of Nipah Panjang District to prevent disaster and build solidarity and harmony between communities. The activity become an annual agenda of the Government of East Tanjung Jabung Regency. The Alms Earth is carried out to be grateful for all the harvests obtained both from agriculture and marine products, which are carried out once a year, namely on Monday Pahing between August and November by the Javanese calendar. The people involved are not only indigenous people, namely Malay tribes but also migrants such as Javanese, Bugis, and Chinese ethnicity regardless of differences in status, and social and ethnic strata. Harvesting both from agriculture and fisheries is issued in part as alms to be enjoyed together with other communities, especially those who are less able as the responsibility of protecting the Bumi Sepucuk Nipah, Serumpun Nibung. This tradition needs to be preserved and transmitted to the wider community but only to those in





Berbak District and Kuala Jambi District. For this, the role of universities becomes very significant in educating the community. Department of Fisheries, Faculty of Animal Science, University of Jambi conducted education to the community along the Batanghari River in East Tanjung Jabung Regency through the Research and Community Service Program. The activity is carried out in at least one village in one semester. Activities are focused on environmentally friendly fishing methods by the Code of Conduct for Responsible Fisheries (CCRF) and environmentally friendly fishing gear without lowering the catch so that it can contribute significantly to the Kenduri Swarnabhumi, prevent environmental damage and aquatic ecosystems, and increase productivity of fishing and community income.





#### [05]

# CREATING PARTICIPATORY AND INCLUSIVE DISTRICT GOVERNMENT: A RESEARCH PROPOSAL

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#### Abstract:

A participatory and inclusive government is a government that involves all elements of society in the process of policy making and implementation. All community groups have and are given the same opportunity to contribute to regional development on the one hand and get the benefits on the other hand. This research is planned to describe whether district government is participatory and inclusive enough. If not, what obstacles do they face and how can they overcome them? The districts that will be studied are Klaten (Central Java) and Sleman (DIY). The research method is FGD and in-depth interviews.

Meanwhile, it is suspected that the district government is not participative and inclusive enough. The obstacles that may be faced are as follows:

- a. Lack of public awareness of their political or civic rights and the importance of participation.
- b. Lack of capacity among the community and the government/bureaucratic to participate or to provide opportunities for participation.
- c. Budget limitations.
- d. Lack of coordination between various stakeholders.
- e. Politics and personal/group interests.
- f. Distrust of government.





- g. A culture of participation and inclusion has not yet developed, including discrimination for some community groups, such as women, people with disabilities and minority groups.
- h. Unconducive environments, such as conflict situations or unstable security.

Considering these alleged obstacles, to encourage the creation of a participatory and inclusive district government, it is possible to do the following things:

- a. Carrying out political/civic education.
- b. Increasing the capacity of society and the bureaucracy, including providing an adequate budget.
- c. Encourage good coordination between stakeholders.

The research theme that will be carried out is closely related to the SDGs. It can even be said that participation and inclusiveness - as well as good governance in general - are prerequisites for achieving all the goals of the SDGs.

In particular, the theme of my research coincides with goal 16 (peace, justice, and strong institutions), namely strengthening inclusive and peaceful societies for sustainable development, providing justice for all, and building effective, accountable, and inclusive institutional access at all levels. This is also related to the final goal (17th), namely partnerships to achieve the goals. Participation and inclusiveness will lead to cooperation, collaboration, or synergy between all stakeholders in overcoming problems or meeting people's needs.

So, my research will produce guidance on the appropriate institutional framework to encourage participation, inclusiveness, and synergy between all segments of society or political actors in the sustainable development process.





#### [06]

# DIFFUSE REFLECTANCE SPECTROSCOPY FOR RECOGNIZING THE BEHAVIORAL GROWTH OF GANODERMA BONINENSE

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#### **Abstract:**

Indonesia is the largest world's palm oil producer, contributed to 62.01% of global palm oil products (i.e., 73.83 million tons). Ganoderma boninense has been recognized to threaten the existence of palm oil trees in Indonesia and Malaysia, which attacks the base of the palm tree trunk, causing rot and ultimately the death of the trees. Hence, it is named as basal stem rot disease (BSR). Global climate change is realized to nourish the spread of this disease causing decrease of potential yield from 19 to 4 tons of CPO per hectare per year. A better insight into the behavior and growth of this pathogen is hence necessary in order to detect the infected plantlets in the earliest phase of their nursery period before they are transferred for plantations. Diffuse Reflectance Spectroscopy provides a potential tool for understanding the behavioral growth of this pathogen. The growth of 13 samples of inoculated G. boninense on agar media in a glass petri dish were measured in daily basis over a period of 8 days, and parallelly monitoring their diameter size growth from images acquired using a smartphone camera, and a dedicated algorithm was written on the Image to calculate the diameters in four different directions. Acquired reflectance spectra showed an excellent precision level, i.e., with values of the relative standard deviations below 1 %. Results show that there is a certain wavelength range which good correlates with the fungal growth, which can be further examined for palm oil plantlets in situ.

Palm oil industries and their sustainable supply chains have multi-faceted aspects, spreading in socio-cultural, economic, as well as environmental. Many studies have identified that they have contributed to the realization of





16 goals of the total 17 goals of the SDGs. So tackling problems faced by one aspect will provide beneficial contributions to other interrelated aspects of sustainability goals. Among the SDGs, the most related goal to the presented works is SGD 2.

The threat of pathogenic *Ganoderma boninense* needs to be recognized in their earlier phase, i.e., during their nursery phases - when possible, during the pre-nursery one - in order to better screen and identify the infected plantlets to prevent further spread of the disease. The works accomplished are dedicated to getting better insight into the progressional development of *Ganoderma boninense* and how the spectral signatures accompanying these progressions.

change. This information is regarded as important to be known, in order to develop sensitively accurate light-based screening tools for tackling the further uncontrollable spread of *Ganoderma boninense*. Light-based technology is regarded as one of the key enabling technologies that is hoped to tackle socio-economic-induced problems in order to provide sustainable economic excellence for society. We believe that if *Ganoderma boninense* infections are recognized earlier, the infected plantlets can be quarantined in order to prevent the further spreading. The big economic lost affected by the *Ganoderma boninense* is a real problem for Indonesia, and this will induce other multiple socio-cultural problems for the farmers and other workers in palm oil industries.





#### [07]

# DANCE FILMS AS A MEDIUM FOR PROMOTING JAVANESE CULTURE AT THE GLOBAL LEVEL

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#### **Abstract:**

Surakarta, or Solo, with the slogan The Spirit of Java is the center of Javanese cultural civilization. Armed with all its artistic and cultural potential, Surakarta has been recognized as a national culture-based creative city. However, Surakarta's application to become part of the UNESCO Creative Cities Network (UCCN), especially in the field of performing arts in 2017 and 2019, was rejected because the data or documentation was deemed insufficient. Therefore, new strategies are needed. One is by transforming the presentation of performing arts, especially dance. Dances usually presented in stage format are designed in digital audiovisual format as dance films. Hopefully, this will complete the documentation data on the contribution of performing arts from Surakarta at the world level. Films in digital format have a digital footprint that is easier for all internet users to track. Apart from being shown on cinema or television screens, digital format dance films are easier to access anytime and anywhere via online platforms. Using the Research & Development (R&D) method with the ADDIE model, which consists of five stages, namely Analysis, Design, Development, Implementation, and Evaluation, this research aims to develop dance film production in Surakarta as a form of strategy for promoting Javanese culture and strengthening the creative industry in global level.

Keywords: dance film, Javanese culture, creative industry





Indonesia has committed to implementing a sustainable development pattern, as evidenced by ratifying the Sustainable Development Goals (SDGs) in 2015. One of the 17 sustainable development goals related to the arts and culture sector is Industry, Innovation, and Infrastructure. Through a strategy to develop the creative industry sector, which produces innovative works, it is hoped that it can accelerate the achievement of sustainable development goals by 2030.

In Indonesia, Solo is one of the creative cities expected to play a role in achieving the SDGs. Solo's artistic and cultural potential is supported by the existence of the Kasunanan and Mangkunegaran Palaces as centers for the development of traditional Javanese arts and culture, as well as the existence of arts education institutions, strengthening Solo's positioning to be compared with other creative cities throughout the world.

One of the arts in the city of Solo that has excellent potential to go global is performing arts, especially dance. The art of dance has been presented in various forms and formats, but very few have tried to present dance in the dance film format. During the COVID-19 pandemic in 2020 - 2022, when performance stages stopped operating, Indonesian dance film production experienced an increase and succeeded in stealing attention on the world stage. Several dance films have even won awards at world dance film festivals.

In the post-pandemic era, when offline dance performances can be performed again, the echo of dance films has receded. In fact, with its digital format, dance films are more easily presented and accessed by the world community, either through screenings in cinema halls, small screens, or online streaming via free or paid film platforms.

This motivated the author to develop a dance film in Solo. Supported by several Vocational High Schools which have dance and multimedia majors, as well as art colleges, especially Sebelas Maret University and the Indonesian Institute of the Arts Surakarta, several dance films have been produced which are expected to strengthen the promotion of the city of Solo's arts and culture at the global level. Another expected impact is the existence of digital traces





that anyone can access as a form of cultural documentation. So, when Solo is again proposed to be part of the UNESCO Creative Cities Network (UCCN), the results of digital documentation can be found spread across the internet and more easily detected in international event directories.

Hopefully, this will be one solution to re-register the city of Solo in the UNESCO Creative Cities Network (UCCN). It was remembered that in 2017 and 2019, Solo applications were rejected due to the need to document dance performance events in Solo.

Through dance films, film production will also increase film productivity in Indonesia, apart from developing and preserving traditional arts and culture. The collaboration between dance and film will create innovations that will strengthen the creative industry in Indonesia. This will undoubtedly support the achievement of Indonesia's sustainable development.





#### [80]

## CULTURAL INSIGHTS FROM MANGKUNEGARAN AND THE PATH TO SUSTAINABLE CHANGE IN NORTH SULAWESI: AN OPINION

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#### **Abstract:**

**Introduction.** The rich cultural heritage of Mangkunegaran and the diverse landscape of North Sulawesi provide a backdrop for understanding the intricate interplay between tradition and modernity. This exploration seeks to uncover underlying cultural insights that can inform sustainable development initiatives.

**Methods.** This opinion is based on a review of available literature online. It examines pivotal cultural practices within Mangkunegaran and discerns correlations with socio-economic frameworks in North Sulawesi. Employing comparative analysis, it endeavors to identify patterns that could potentially inform strategies conducive to sustainable change in the region.

**Important Findings.** The opinion highlights the resilience of cultural traditions in Mangkunegaran amidst evolving global influences, highlighting the adaptive capacity of indigenous communities. Moreover, the report identifies community-driven initiatives in North Sulawesi that exemplify principles of sustainability, environmental stewardship, and collaborative endeavors. These initiatives offer potential avenues for the adoption of Mangkunegaran cultural traditions within communities.

**Conclusion.** By recognizing the intrinsic value of cultural heritage and community resilience, this opinion underscores the importance of incorporating local knowledge systems into development frameworks. It emphasizes the need for collaborative efforts that honor tradition while fostering innovation and equitable growth.





**Implications.** The insights gleaned from this opinion offer valuable perspectives for policymakers, development practitioners, and community leaders seeking to enact meaningful change in North Sulawesi and beyond. Embracing cultural diversity and local agency can serve as catalysts for sustainable development pathways rooted in inclusivity and respect for tradition.

The conducted opinion piece holds significant importance in addressing the complex challenge of sustainable development, particularly within the context of Mangkunegaran and North Sulawesi, and it aligns with key themes of the DAAD Alumni Workshop on Mangkunegaran and Sustainable Social Transformation. The exploration of the rich cultural heritage of Mangkunegaran and the diverse landscape of North Sulawesi serves as a critical foundation for understanding the intricate interplay between tradition and modernity. This understanding is crucial in navigating the complexities of sustainable development, as it provides insights into how cultural values and practices can be integrated into contemporary strategies.

The methods employed in this opinion, involving a thorough review of available online literature and an examination of cultural practices, contribute to the broader discourse on sustainable development. By discerning correlations between Mangkunegaran's cultural practices and socioeconomic frameworks in North Sulawesi, the study addresses a fundamental challenge faced by many regions undergoing rapid globalization and development. It bridges the gap between tradition and modernity, offering a nuanced perspective on how indigenous communities can adapt and thrive in the face of evolving global influences.

The important findings of the opinion piece highlight the resilience of cultural traditions in Mangkunegaran, emphasizing the adaptive capacity of indigenous communities. This resilience is particularly relevant to the Sustainable Development Goals (SDGs), with a direct connection to Goal 11: Sustainable Cities and Communities. The acknowledgment of community-driven initiatives in North Sulawesi, exemplified by activities such as "Mapalus", which uphold principles of sustainability and environmental





stewardship, resonates with Goal 17 of the Sustainable Development Goals: Partnerships for the Goals. By showcasing how these initiatives can potentially lead to the adoption of Mangkunegaran cultural traditions within communities, the opinion offers practical pathways for achieving sustainable development objectives.

To conclude, the importance of this opinion lies in its contribution to addressing the challenges and priorities outlined in the Sustainable Development Goals. It provides valuable insights for policymakers, development practitioners, and community leaders, offering a blueprint for sustainable development rooted in inclusivity, cultural diversity, and respect for tradition. Moreover, it directly relates to the focus of the DAAD Alumni Workshop on Mangkunegaran and Sustainable Social Transformation by providing a comprehensive understanding of how cultural insights can drive social change and contribute to sustainable development in the region and beyond. As alumni engage in discussions and workshops, this opinion piece becomes a pivotal resource, guiding efforts towards a more socially and culturally sustainable future.





#### [09]

# SUSTAINABILITY REPORTING IN INDONESIAN LOCAL GOVERNMENTS (ACHIEVING SUSTAINABLE DEVELOPMENT GOALS)

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#### **Abstract:**

The achievement of SDGs has been a top priority of global leaders of developed and emerging countries. This new framework replaces the Millennium Development Goals (MDGs) and becomes the United Nations 2030 goal. The primary aims are to diminish poverty, protect the planet, and ensure prosperity. To achieve the SDGs, local governments play a vital role. Local governments are the primary actors in the best position to identify and fulfil the local population's needs. In the Indonesian context, the central government has pushed the implementation of SDGs in local governments through policies and regulations. The central governments have provided guidelines and ordered local government to prepare *Rencana Aksi Daerah*/RAD (or Local government action plan) in SGDs achievement.

However, the SDGs has been attained slowly. According to the latest report, Indonesian SDGs achievement is still lower than its neighbouring countries. Experts and policy makers believe that the localization of SDGs is the main requirement of successful SDGs achievement. Localization is defined as a strategy to set, implement, and monitor the achievement of SDGs at the local government level. In addition, sustainability reporting (SR) has a central role in measuring social and environmental impact of local government actions. Traditional financial reporting does not provide features to analyze local government non-financial performance. Consequently, local governments need to prepare sustainability reports to assist stakeholders in measuring and





evaluating the strategies for achieving SDGs. Thus, this study aims to design a framework and quality indicators for local government sustainability reporting system. Four research questions addressed in this study is (1) how Indonesian local governments formulate and implement strategies of reaching SDGs, (2) How do local government prepare and report sustainability, (3) what the focusses of the sustainability reporting are, (4) How the sustainability report presented and used for decision making in local governments.

This research will be useful for evaluating existing sustainability reporting and proposing a better mechanism of SDGs reporting and measuring achievement of SDG in local governments in Indonesia.





#### [10]

## CRAFTING NARRATIVES: THE TRANSFORMATIVE EFFICACY OF STORYTELLING IN BRANDING

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#### **Abstract:**

This research explores the impact of storytelling on brands, focusing on Mangkunegaran Palace in Solo, Indonesia, with its unique blend of Javanese, European, and Chinese cultures. Using interviews and analysis, including examples like JW Marriott in Phu Quoc, Vietnam, and Taman Atsiri in Indonesia, the study reveals how storytelling shapes brand loyalty. Authentic and emotionally engaging stories are found crucial for building lasting connections with consumers. Successful brands adept at storytelling can establish strong relationships beyond transactions. In conclusion, this study contributes to our understanding of the pivotal role of storytelling in brand management, essential for building enduring connections in the evolving landscape of art and visual branding.

This study is about how storytelling can help preserve culture, especially at Mangkunegaran Palace. It's important because it deals with the challenge of keeping cultural traditions alive in a globalized world. The research connects with goals for creating good jobs and economic growth (Goal 8) and building sustainable cities and communities (Goal 11). The DAAD Alumni Workshop on Mangkunegaran and Sustainable Social Transformation is the perfect place to explore these ideas.

From interviews, it's clear that storytelling is crucial for saving local culture, which is at risk because of globalization. The research gives practical solutions from the people connected to Mangkunegaran's cultural heritage.





For Goal 8, the interviews revealed that telling stories about places like Mangkunegaran Palace attracts visitors, supports local businesses, and creates jobs. This helps the community grow economically, aligning with Goal 8's aim of creating good jobs and fostering diverse and sustainable businesses.

For Goal 11, in interviews, people shared the challenge of modernizing Mangkunegaran Palace while preserving its cultural essence. They want sustainable changes in the city while keeping their traditions alive. Storytelling acts as a bridge between old and new, emphasizing how cultural places like the palace are vital for community identity. This contributes to positive social changes and aligns with Goal 11, promoting sustainable and inclusive cities and communities.

Considering the DAAD Alumni Workshop's theme, the research, enriched by interviews, gives a detailed view of the experiences and dreams of those connected to Mangkunegaran Palace. The global case studies in the research, influenced by these interviews, contribute to a worldwide conversation on using storytelling to preserve culture and boost economies.

In conclusion, this research is made more significant by the voices in the interviews. Their stories provide a detailed view of the challenges and opportunities Mangkunegaran Palace faces in branding and storytelling. The study, based on real-life experiences shared in interviews, gives practical and culturally sensitive ideas for saving cultural heritage, promoting economic growth, and creating positive social changes—a great contribution to the DAAD Alumni Workshop on Mangkunegaran and Sustainable Social Transformation.





#### [11]

## THE ROLE OF FOOD TECHNOLOGY TO SUPPORT ON PURA MANGKUNEGARAN SUSTAINABLE SOCIAL TRANSFORMATION

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#### Abstract:

Pura Mangkunegaran in the city of Surakarta is one of several palaces in the province of Central Java and the Special Region of Yogyakarta and preserves Javanese civilization and noble culture. Many facts show the role of Pura Mangkunegaran in the past in developing education, agriculture and forestry-based businesses and other activities. One of the things that developed at that time was the creation and development of food and beverages in the Pura Mangkunegaran environment and is maintained to this day as a classy banquet. Therefore, the development of food and beverage products that are in accordance with the times and based on noble culture needs to be developed.

Food technology is the right science to develop culinary products that already exist in Pura Mangkunegaran and will be developed in the future. Currently, some foods and beverages have been served as restaurant menus, and can still be developed according to the times, such as nutritional content, calories and how to consume them. The presentation at Taman Pracima restaurant is a form of caring for Mangkunegaran culture that will be enjoyed by a limited circle. More in-depth studies are needed for food and drinks that are the favorite of the ancestors and translated into food and drinks that can be enjoyed by all levels of society without reducing their noble value.

Pareanom drink, kunyit asem, brubus food, spice meat soup, pepes iwak kemangi, dendeng age have been widely known by the public and need





additional heritage value and nobleness displayed in these foods and drinks. This is very helpful for Pura Mangkunegaran in carrying out social transformation as a whole and dynamically, especially in maintaining cultural integrity and keeping up with current and future developments.

The activities planned above are an approach using the food technology view in seeing the nobility of Pura Mangkunegaran culture in terms of food and beverages. Current products should be given more value with a touch of nutrition, calories, ingredients, health functions or alignment with the development of society and a very dynamic world. With the information about the food and beverages and the ease to be obtained and consumed by the community, two SDGs points can be achieved, namely Zero Hunger and Good Health and Well-Being.

Facing Sustainable Social Transformation, Pura Mangkunegaran must conduct planning and activities based on Javanese culture but also pay attention to the dynamic development of society, science and technology. The assets owned by Pura Mangkunegaran, especially those related to the lives of the people, can be activated and managed properly, so that it will provide additional value to the surrounding community.

If Pura Mangkunegaran still has forests in the Central Java region, they can be managed properly and used as conservation, education, and production forests (SDGs Life on Land). Agricultural land can be cultivated with productive plants in order to meet the needs of the temple and the surrounding community who need it. This will strengthen food security in the temple and the community who work the land (SDGs Zero Hunger).





#### [12]

## FOSTERING COLLABORATION TO EMPOWER CULTURAL HERITAGE IN CREATIVE CULTURAL INDUSTRY

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#### Abstract:

As the dwelling and social life of a past monarchy, Puro Mangkunegaran has a strong existence as the country's cultural heritage. Multiple heritage identities, through visual culture production within the creative industry, works to activate and preserve the culture in a contemporary reproduction. This will strengthen Puro Mangkunegaran's cultural adaptation amidst the rapid developments of the modern era. In this context, initiating a multisectoral collaboration is the crucial step to take in accelerating the reproductive efforts within the various creative industry subsectors during this adaptation process. This study aims to explore the collaboration models with the primary objective of strengthening the cultural heritage in the creative industry area, with a specific focus on the physical and social facets of Puro Mangkunegaran. The study also aims to explore the development potential inherent in these collaborative efforts. The research was done qualitatively, drawing data from documentations, structured observations, and interviews. The end result comes in the form of collaboration models (supporters, obstacles, activities) and their development in various creative industry subsectors. These findings illustrate the importance of collaboration as a key element in preserving the cultural heritage of a past monarchy for sustainable development. Some of the reproduction steps include products inspired by the traditional culture of Puro Mangkunegaran, the creation of various creative products based on sustainable environment, creative storytelling, and the creation of experiences. In addition, this study also details the findings of other collaborative potentials, which will become inputs for the development





of cultural heritage, such as outlining the means of collaborative effort with various creative industry sectors, exploring a pentahelix collaboration and offering suggestions to transform Puro Mangkunegaran into a vibrant cultural hub. The implication of the integrated collaborative steps is a crucial strategy to address the social, economic, and environmental issues of sustainability. Several parties involved in this research, which might also serve as the catalyst of empowering the cultural heritage, include academics, communities, the government, industries, and the media. This empowerment process not only positively impacts Puro Mangkunegaran as the country's cultural identity, but also extends its influence to the broader context of the city of Solo and Indonesia as a whole.

The topic of Fostering Collaboration to Empower Cultural Heritage in Creative Cultural Industry holds great importance and is closely linked to both the goals of Sustainable Cities and Communities, and Decent Work and Economic Growth.

Firstly, in the context of Sustainable Cities and Communities, the preservation of Puro Mangkunegaran as a cultural heritage—encompassing both tangible and intangible elements—is greatly significant for the sustainable development of societies and cities, especially when the preservation effort for reproduction is done using strategic collaborative steps between academics, communities, the government, industries, and the media. By engaging in these collaborative steps, such as providing inspiration for products that is derived from the tradition and culture of Puro Mangkunegaran, producing various creative products that are based on sustainable environment, hosting creative storytelling events, and creating experiences, cultural reproduction can be improved to attract visitors and communities in general. Various subsectors can be explored, from the palace's culinary riches to handicrafts and fashion styles inspired by traditional motifs, as well as the architectural grandeur of the unique outdoor and indoor spaces in the palace compound that are decorated with distinctive ornaments. Additionally, there is also the traditional music, arts, product design, animated movies, and videos with the Mangkunegaran as their backdrop, along with





photographs, design communication visual, television and radio contents, art performances, dances and other applications that draw their inspiration from the uniqueness of the Mangkunegaran palace. This is evidence that there are numerous impacts that can result from the reproduction process, particularly if the palace transforms into a cultural hub. Communities and local residents stand to gain the benefits of this reproduction process. Moreover, the empowerment of local communities and SME (Small and Medium-sized Enterprises) becomes a social agenda that serves as one of the most important pillars of sustainability. The diverse production steps that focus on environmental awareness will not only improve the quality of the environment but also clearly contribute to the growth of the economic sector.

Secondly, for the Decent Work and Economic Growth, the collaboration seeks to enhance the economic growth through tourism. This second point is linked to the empowerment of creative industry that is based on creative cultural matters, which not only will attract an increased number of travellers visiting Puro Mangkunegaran and the city of Solo on a smaller scale, but also contribute to the broader landscape of Indonesian tourism. Tourism obviously plays an integral role in the physical and social development of a place that shapes a place's unique identity. The preservation of heritage assets, both physically and socially, is indispensable for maintaining the historical value and legacy of the architectural treasures of the past monarchy site, which will contribute to the sense of place and cultural identity. Additionally, preservation of the socio-cultural aspect in a heritage site, which includes oral tradition, music, and other cultural activities, plays a vital role in sustaining cultural diversity and promoting social harmony. These unique qualities offer experiences that visitors to Puro Mangkunegaran wish to encounter. The existence of creative industries plays an important role in supporting the tourism experience, contributing to the overall satisfaction of travellers. This relationship between tourism and creativity grows as tourism benefits from added symbolic value generated by creativity (usually in the form of crafts, souvenirs, food, atmospheres, and others). Simultaneously, the creative economy benefits from increased tourist activities in the area. The relationship





between the creative industry and tourism is reciprocal to ensure that both sectors have mutual support that can be beneficial for each other.

In order to achieve a sustainable growth in the creative industry rooted in the cultural riches of Puro Mangkunegaran, there is a need for some strategic, sustainable and impactful collaborative efforts that are also essential for the preservation of this Cultural Heritage in a way that is both meaningful and far-reaching.





#### [13]

## DIGITIZING JAVANESE MANUSCRIPT: SERAT MANGKUNEGARAN IV AS THE MAIN SOURCE OF GOLD LABELING

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#### **Abstract:**

The emergence of non-Latin scripts in the Unicode character set has opened possibilities to do Optical Character Recognition (OCR) for manuscripts written in non-alphabetic scripts. Javanese is one of the Southeast Asian languages which has vast collections of manuscripts which are prone to damage due to age and to lack of maintenance. TRAWACA project (www.trawaca.id) aims to preserve the content of historical manuscripts written in Javanese characters by applying OCR. The use case of our OCR system is that it receives an input in the form of a text image, preprocessing it, then tries to recognize each character of it and then converts it to the text format. The training data for the recognition process was acquired by scanning pages of Serat Mangkunegaran IV part I & II, Mulang Waca, and Kitab Rum which after segmentation and annotation process resulted in 23.127 Characters. Applying machine learning models such as Gaussian Naïve Bayes, k-Nearest Neighbors, Support Vector Machine, Linear Discriminant Analysis as well as Deep Learning Model - Convolutional Neural Network (CNN), the precision of the recognition rate never goes beyond 0.74. This precision rate is a result of our experimental setting, and some classifier models show the overfitting. In a real use case, the precision rates are in a range of 0.2 - 0.62. Scrutinizing the recognition in each class of characters, we found out that there are 6 characters that fail to be recognized by all classifier models and few of them having very low rate of recognition. Among those characters are those which represent two different characters if they are transliterated in Latin such as number 2 and lê in Javanese characters.





The transition of mechanical printing to electronic information dissemination has triggered a *digital renaissance*, an era which is marked by the reborn of the primary sources and historical documents in digital forms. The main motivation of digitizing such documents is to preserve their content as well as their existence. Besides, such documents could be passed on to the next generation as a source of references on culture development, traditions, and identity of a nation on a specific period of time. The process of digitizing historical documents and manuscripts will not stop when they have been scanned and saved in the image format (.jpg or .png). The disadvantages of saving document image lie in its size, which requires huge space of storage, and inflexible access. This problem could be solved by Optical Character recognition (OCR) which turns a character image into a searchable character text.

Motivated by the digital renaissance movement, the Trawaca Team supported by Wikimedia foundation in Indonesia started a project on digitizing Javanese manuscripts written in Javanese characters. The main long-term goal was to preserve the local wisdom, local knowledge, information conveyed in those manuscripts by applying the Optical Character Recognition technology. Besides, the project was also aimed at strengthening the position of Javanese language in the digital form as it is classified into a critical and underresourced language.

Serat Mangkunegaran IV part I and II were selected to be digitized and be the main source of the training data for this project due to its historical importance. However, the manuscripts from newer ages such as the book of Rome printed in 1904 and Mulang Waca printed in 1972 were chosen to represent classes of characters printed from different eras for the sake of training process. It was projected that the post-OCR process would be followed by the automatic transliteration process that would enable the automatic conversion of the OCR output in the Latin alphabet. The transliteration process is crucially needed since the young generation have low rate of literacy on Javanese characters.

Assuming that the project runs and develops well, the digitizing of Javanese historical manuscripts through an OCR technology will affect *Mangkunegaran* 





positively in creating a sustainable social transformation. Firstly, it will provide a digital collection of historical books that are openly accessible in a readable format and characters. Secondly, it provides visualization of where to find the historical manuscripts (<a href="https://trawaca.id/asankey.php">https://trawaca.id/asankey.php</a>). This matches the Sustainable Development Goal (SDG) as stated in Goal 16 to ensure public access to information which is essential in empowerment of individuals on their roots and culture.

It was our dream that the project will finish as it has been targeted in its timeline. However, the covid-19 outbreak and the shortcoming of the fund forced this project to stop for a while. The intelligence of our system still needs to improve a lot for a real use case and to achieve the aforementioned goals.





#### [14]

## BRIDGING THE PAST AND PRESENT: UNVEILING THE REDESIGNED REKSA PUSTAKA PURO MANGKUNEGARAN

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#### **Abstract:**

The Reksa Pustaka building in the Puro Mangkunegaran area requires conservation design as it serves as a collection center for Puro Mangkunegaran's historical archives. Its significance as the primary source of library information in the area necessitates its preservation for continued long-term functionality.

The Reksa Pustaka faces several potentials and challenges in maintaining and achieving sustainability. These include the type and number of collections, architecture and interior design, and the daily life and social interaction of its users. Thus, the design challenge of Reksa Pustaka presented an intriguing case study for our young designers, who are students of the Interior Architecture Program at Universitas Ciputra. They were able to learn more about the local culture, interpret the needs, vision, mission, and philosophy, and apply them to the interior architecture design of Reksa Pustaka. The design process consisted of several phases, including project data collection and research, design development, and final presentation.

Several design alternatives were developed from these processes, considering space layout and planning, conservation of collections, setting of public exhibition areas, and security systems. Efforts to conserve the Reksa Pustaka building should continue with a focus on design and managerial implications. This includes the need for ongoing evaluation and maintenance, public education programmes, community engagement, and digitalization of





archives and collections. It is also important to disseminate the positive impact of the conservation efforts to the public.

The vision for sustainability of Puro Mangkunegaran, presented by KGPAA Mangkunegara X at *Tingalan Jumenengan* (the first anniversary of his ascension to the throne), aims to learn about existing and past traditions and culture of Mangkunegaran and preserve them for future generations. This vision is also the foundation for the maintenance and development of Puro Mangkunegaran's masterplan.

The masterplan development concept during the era of KGPAA Mangkunegara X focuses on how the existing Mangkunegaran area can support a sustainable process. This process should involve not only the area and buildings but also various other aspects such as social life, tradition, and the economy.

One aspect of Mangkunegara's masterplan design is the preservation of archives and documentation of Mangkunegaran's history over the past nine periods. Therefore, as a space that collects, preserves, and cares for historical archives, preserving and restoring Reksa Pustaka is an urgent matter.

The conservation process should highlight the quality of the place and area, including its history, architecture, culture, and memory of the past, and its relevance to present and future conditions. The conservation process is crucial as it aligns with UNESCO's objectives of preserving tangible and intangible cultural heritage. This gives more significance to heritage objects as evidence of the past and a form of cultural heritage. Additionally, this effort is expected to increase the economic value and have a positive impact on the physical, social, and environmental context of the building and surrounding area. When new elements are added to the architectural context, it is important to integrate the intervention with the existing and surrounding conditions. This involves considering the typology, materials, aesthetics, function, and impact on the environment.

When considering the conservation design, Reksa Pustaka should not only focus on the physical building, but also take into account its current condition,





potential challenges, and opportunities. This includes the type and number of collections and archives, their storage conditions, building maintenance strategies, and the daily experiences of Reksa Pustaka users, including both staff and visitors.

To achieve Mangkunegaran's vision, Reksa Pustaka users expect improvements in the design, including a more defined and organized spatial layout, special handling and storage of older collections, diverse collections ranging from fine to fragile, even distribution of collections and furniture, maintenance of building elements, and increased accessibility for the public.

The redesign of Reksa Pustaka is anticipated to attract local and international visitors and communities to visit and engage in activities at the library. This redesign concept could also be applied to similar case studies for the preservation of heritage buildings, particularly library buildings that house historical collections or archives. Efforts to maintain the sustainability and development of Reksa Pustaka are also expected to become a living repository and educational tool for the community on the preservation of Javanese culture, particularly Mangkunegaran culture.





#### [15]

## STRENGTHENING SUSTAINABILITY THROUGH GEOGRAPHICAL INDICATION SYSTEM

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#### **Abstract:**

Geographical indication (GI), a collective intellectual property right for a product, including food, that has a solid connection to the region of origin, can strengthen sustainability when established and well-managed. Various literature has explained the ability of this system to catalyse sustainability in the long term, including its contribution to achieving various Sustainable Development Goals (SDGs), using examples of products from various developed countries. This paper addresses Indonesia's geographical possible contribution to indication system's achieving strengthening sustainability using the results of relevant literature. The initial section presents the contributions of geographical indication systems that already exist in the literature. Later, an exploration of the potential contribution of the GI system to the achievement of SDGs in Indonesia, using the example of geographically indicated products such as Salak Pondoh Sleman, is conducted. Furthermore, the perceptions of consumers on other food products that have the potential to become geographically indicated products in the future and are located in the Pura Mangkunegaran area are also discussed. In general, the GI system's potential contribution to achieving the SDGs was observed in Indonesia as well, corroborating the results of previous research, which stated that it could represent an important lever to strengthen local sustainability and sustainable food systems.

**Relevance to DAAD Alumni Workshop.** Sustainability means meeting our own needs without compromising the ability of future generations to meet their own needs. Sustainability combines three dimensions: economic,





environmental, and social. Many processes and pathways to achieve it are called sustainable development. Social transformation is needed to achieve the goal of sustainable development, using structural, systemic, and enabling approaches. Structural approaches focus on fundamental changes in the model of production and consumption, while systemic approaches focus on intentional changes in relationships among institutions, technologies, and stakeholders. Enabling approaches focus on building individual and community capacity to manage uncertainty, collaborate, and pursue positive pathways. All of these approaches are closely related to the Geographical Indication System. Tiered involvement and rules for meeting certain quality standards are examples of a structural approach, while the involvement of various smallholders, from farmers to processors, shows the systemic approach.

Geographical indication, abbreviated as GI, is a sign indicating the name of a product, which, due to environmental factors, including natural factors, human factors, or a combination of both, gives certain characteristics, quality, and reputation to the resulting product. GI provides collective intellectual property rights for producers, including farmers and processors involved in production. GI catalyses long-term sustainability by ensuring the continued use of traditional production, processing, marketing practices, and know-how.

While not all literature agrees with the positive contribution of GI systems to the sustainability dimension, some literature provides evidence of their potential contribution to achieving the SDGs, using the example of food products in developed countries. Most of the SDGs, among others: #1 No Poverty; #3 Good health and well-being; #4 Quality education; #5 Gender equality; #7 Affordable and clean energy; #8 Decent work and economic growth; #12 Responsible consumption and production; #15 Biodiversity; and #17 Partnerships, obtain contributions from the application of GI systems at the production, transformation, and commercialization stages.

A sustainability study with a socio-economic perspective with the case of Salak Pondoh Sleman, one of the geographically indicated products in Indonesia, showed fairly sustainable conditions. The current farming system





was economically profitable and socially acceptable to the community. Although the number of SDGs is not as many as the case study in developed countries and still has a variety of challenges for its development, there are at least some SDGs that get the contributions in Indonesia, for example, #1 No Poverty, shown as local employment; #8 Decent work and economic growth shown as the existing of local agro-tourism, and #15 Biodiversity, shown as the motivation of farmers to preserve local specialties. Furthermore, a study of consumer perceptions of Wonogiri cashew nuts, which have the potential to become geographically indicated products in the future, showed a higher willingness to pay if the product later received geographical indication status in one of the consumer clusters studied.

In general, the GI system's potential contribution to achieving the SDGs was observed in Indonesia as well, corroborating the results of previous research, which stated that it could represent an important lever to strengthen local sustainability and sustainable food systems. Farmers and processors, who are the Javanese community in both product examples, have played a role in this achievement.





#### [16]

## THE MANGKUNEGARAN CRISIS COMMUNICATION IN DEAL WITH DIGITAL PUBLIC

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#### **Abstract:**

The positive image is urgent. Crisis should be in consideration seriously to manage image of institution. The Mangkunegaran's official is come to a point, namely crisis communication. With qualitative descriptive research, with data sources from scientific journals, articles from experts and intellectuals related to Mangkunegaran Pura, mass media news, and other relevant information. Analysis using triangulation techniques. This paper aims to reveal the communication side of the Mangkunegaran officials' crisis and see public reality in responding to information conveyed by Mangkunegaran. As a result, the communication crisis that occurred was preceded by weak Mangkunegaran officials' coordination in dealing with the rumors. Then the result is confirmation that is not correctly aligned and integrated. The officials' various information to the public is also different and changing, confusing the community. On the other hand, people through social media convey a lot of information that has not been verified. So that it adds to the complexity of the problem of handling wrong issues. In conclusion, informing and providing guidance for the community to deal with the existence of Mangkunegaran Pura is the key to successful communication during a crisis.

Keywords: Mangkunegaran, crisis communication, issues, social transforms





#### [17]

# EMPOWERING THE SMALL-MEDIUM ENTERPRISE (SMES) TO CONTRIBUTING IN MITIGATION OF UNDERNOURISHMENT, ACHIEVING THE SUSTAINABLE DEVELOPMENT GOALS, AND SUSTAINABLE SOCIAL TRANSFORMATION

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#### **Abstract:**

Indonesia faces a serious problem of undernutrition especially stunting and underweight caused by protein and micronutrient deficiencies. These undernourished children have an increased risk of mortality, illness and infections, delayed development, cognitive deficits, poorer school performance, and fewer years in school. The government of Indonesia has set the target to reduce the stunting rate into only 14% in 2024. Based on the Indonesian Nutrition Status Survey (SSGI), the national prevalence of stunting in 2022 is 21.6 percent. To achieve the target of 14 percent, the government targets to reduce the prevalence of stunting by 3.8 percent per year until 2024. Based on Presidential Decree 72 of 2021 concerning the Acceleration of Reducing Stunting, specific nutrition interventions, namely interventions related to improving nutrition and health. Meanwhile, sensitive nutrition interventions are supporting interventions to reduce stunting rates, such as providing clean water and sanitation. Prevention and rehabilitation of stunting can be done by improving people's consumption patterns. Snacking is a common practice in Indonesia. Indonesia's population is the second largest in Asia Pacific for snacking activities, where almost 50% of the female population in Indonesia snack once or more every day. The types of snacks consumed vary from unhealthy and healthier foods. Snacks are generally supplied by small and medium enterprise (SMEs), serious efforts are needed to ensure a supply that is nutritious and safe for consumption. The assistance provided to





ensure that SMEs in Indonesia provide nutritious food is expected to be able to improve the nutritional status of the community, especially to overcome stunting, targeting people of productive age.

Undernutrition is a major issue in Indonesia, particularly stunting and underweight brought on by a lack of certain proteins and micronutrients. These malnourished kids have a higher chance of getting sick and infected, dying young, developing slowly, having cognitive impairments, performing poorly in school, and attending school for fewer years. By 2024, the Indonesian government hopes to have cut the stunting rate to just 14%. According to the Indonesian Nutrition Status Survey (SSGI), 21.6% of the country will have stunting in 2022. The government wants to lower the prevalence of stunting by 3.8 percent annually until 2024. Stunting Reduction Acceleration Team (TPPS) optimization, training for health human resources, anthropometry, and ultrasound standardization at each Community Health Center and Posyandu in the regions and strengthening and expanding the role of the Family Assistance Team (TPK) in preventing incidents of stunting cases are some of the measures taken to combat stunting. Additionally, for targeted interventions, there is still a need to improve the availability of supplemental food (PMT) made from locally grown food, as young women's use of blood supplement tablets (TTD) is still low. Additionally, there is still a deficiency in the amount of education regarding the significance of immunization and exclusive breastfeeding. Meanwhile, there are still sensitive indicators that require attention, such as the insufficient availability of sufficient drinking water services and access to adequate sanitation in almost all regions.

Undernutrition can impede the achievement of the Sustainable Development Goals and damages human capital and economic productivity. Undernutrition must be addressed via Sustainable Social Transformation, which addresses every facet of the following:

a. The necessity of a fundamental change of the structure and management of production and consumption.





- b. The potential for technological advancements and progressive legislation to expedite social, technical, and ecological transitions.
- c. The significance of grassroots initiatives and networks of civic movements for bringing about change from below.

However, there is a strong snacking culture in Indonesia. With nearly 50% of its female population snacking once or more a day, Indonesia has the second-largest population in Asia Pacific when it comes to snacking. Snack bars, chocolate, chips, bread, and fried foods are among the unhealthy snack options; fruit and salad are among the healthier options. Occasionally, people choose to snack on more street food that is sold by foot vendors.

Given the significant potential for snacking and the fact that Small Medium Enterprises (SMEs) typically provide the supply, significant efforts are required to guarantee a supply that is both safe and nutrient-rich. Targeting individuals of productive age, the support given to SMEs in Indonesia to guarantee that they supply wholesome food is anticipated to be able to enhance the community's nutritional status, particularly in overcoming stunting.

The purpose of this activity is to determine whether efforts to combat stunting in Indonesia are correlated with the availability of nutrient-dense snacks. To support the accomplishment of national goals, a transformational approach involving academics, the community, and decision makers needs to be backed by behavioral changes in the community.

**Statement**. My research interest is about the utilization of local food resources to overcome the problem of Undernourishment in Indonesia. The development of plant–based food as well the neglected animal sources to combat the stunting and wasting problems. I am also active in community empowerment, especially a small-medium-enterprise in improving their capacity of production as well the awareness of healthy and safe food production.





#### [18]

## JAVANESE LITERATURE IN MANUSCRIPTS OF THE MANGKUNEGARAN PALACE LIBRARY: TAKING STOCK AND MAPPING THE ISSUES

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#### **Abstract:**

The Reksa Pustaka or library of the Mangkunegaran palace has many Javanese manuscripts, covering a wide range of materials, which encompass traditional Javanese literature in almost every conceivable genre, from historiography to music and dance. Over recent years, different projects involving the cataloguing, digitization, and transliteration of the collection have been completed, which potentially open up its richness. An ongoing transliteration program at the library has seen to it that many manuscripts in Javanese script have become available in Romanized form which is the default medium in postcolonial Indonesia as well as the international world. Furthermore, there is the phenomenon of so-called grey literature, that is, studies using manuscripts from the Reksa Pustaka in the form of BA and MA theses written by students at such Indonesian academic institutions as the Universitas Sebelas Maret (UNS) in Surakarta, but unfortunately unknown to the wider academic world.

This presentation discusses the aims to take stock and mapping the issues concerning Javanese literature in manuscripts of the Mangkunegaran palace. Building upon the work done in cataloguing, digitization, and transliteration, the moment has come to explore the Reksa Pustaka collection in its entirety, focusing on the place of this special court library within the wider field of Javanese literature. Together with local stakeholders, especially the library staff and Indonesian academics in Surakarta, it should be possible to arrive at an overview of what is potentially available for research in the form of grey literature consisting of unpublished transliterations and students' theses containing transliterations.





#### [19]

## JAVA'S SUGAR INDUSTRY: EVOLUTION, RESILIENCE, AND SCIENTIFIC PROGRESS

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#### **Abstract:**

I am interested in the development of scientific knowledge and technology that is happening during the first 19th century in Java, especially what was happening in the Mangkunegaran. The first industrial revolution propelled by sugar's influence on metallurgy, technology, and science shaped Java's sugar industry. By 1885, amid an international crisis, Java's advanced sugar factories, established between 1850s-1880s, displayed adaptability through a flexible proto-industrial matrix. Colomadu's pioneering 'Triple Effect' machine in 1861 exemplified resilience in the face of economic challenges, with subsequent adoption by other factories reflecting industry-wide determination. Scientific influence in Java is evident through Dutch experimental stations, aligned with biologist Hugo de Vries' emphasis on scientific progress, fostering sugar cane improvement and showcasing the correlation between scientific research and agricultural resilience. Examining Mangkunegara IV's philosophy highlights the crucial role of knowledge in overcoming life's challenges, resonating with the Javanese worldview of "numinous unity." His emphasis on knowledge mirrors the broader theme of technology adoption for resilience in Java's sugar industry, underscoring the intertwined nature of scientific progress and societal resilience.





#### [20]

## THE IMPACT OF URBANIZATION IN SUSTAINABLE CITIES AND COMMUNITIES TOWARD CULTURAL HERITAGE

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#### **Abstract:**

Urbanization in Indonesia proceeds rapidly during the past decades. In line with Asian urbanization trends, Indonesia has witnessed a significant economic growth accompanied by a rapid population shift from rural to urban areas. By 2035, it is predicted that the urban population will be twice as much as the population living in rural areas. New towns have been developed on green-field sites, especially in the suburban area but also in the other large urban agglomerations in Indonesia. They aim at middle-upper income groups and are characterized by a comparatively high-quality design of houses surroundings with hotels, shopping malls and leisure facilities like sport fields and parks. City development and the presence of new, increasingly diverse communities have a direct and indirect impact on sustainability of cities, especially on existing local culture. The city of Solo with the Mangkunegaran Palace is no exception to the impact of urbanization, but at the same time, it can give color to the city. Everything depends on structured efforts from the city mayor, the Mangkunegaran palace management, and many other actors who determine the sustainability of the city and local culture, especially its people.

Ineffective urban management by government institutions, and the weak commitment to planning principles and plans, including low concern for cultural heritage, have adverse economic, environmental, cultural, and spatial effects are multiple, including large-scale displacement of farmers, loss of farmland, the demolition of urban villages, and socio-economic segregation which of course has an impact on the country's cultural heritage.





Against this background, and under the influence of the Sustainable Development Goals and the New Urban Agenda, sustainable cities, and communities (SDG number 11) are receiving increasing attention among policymakers, urban managers, developers, and civil society organizations. The great challenge of the time to come is to find ways how to make the model for preserving cultural heritage as the main symbol of the city which has become a city icon, foreign exchange earner, and sustainable cultural glue. Multi- and trans-disciplinary studies involving many parties are needed. The existence of many best practices in several countries in maintaining, developing, and promoting cultural heritage wisely, which is equipped with digital scientific data, is very important for the Mangkunegaran Palace to carry out.

Multi and trans-disciplinary research that combines studies of urban planning development, urbanization, and its impacts, sustainable social transformation, traditions of being modern, and cultural preservation, especially in the Mangkunegaran palace in the city of Solo, is very important. Cooperation for Sustainable Urbanization (CFSU) was initiated in 2018 through Research Linkage Program funding from the Alexander von Humboldt Foundation Germany which was obtained by Leenawaty Limantara and Prof. Bernhard Mueller from Technische Universität Dresden (TUD) Germany produced studies from the perspective of urban development, urban growth, and urban society. This research needs to be complemented by urban culture studies by taking the case study of the city of Solo and its Mangkunegaran Palace. This research is expected to strengthen an inclusive and sustainable society and have a direct impact on sustainable cities and communities.

Studies related to Mangkunegaran and sustainable social transformation in the city of Solo need to pay attention to several important things as follows: (1) involvement of parties who have a direct or indirect influence on the existence of the Mangkunegaran palace such as government institutions, policymakers, urban managers, developers, academics from various related scientific backgrounds, and civil society organizations in finding a model for preserving Mangkunegaran culture that has an impact on Mangkunegaran and its social transformation. A model of preserving cultural heritage amid





urbanization and modernization which has become a city icon in the digital era; (2) grassroots-based action plans and implementation in building the Mangkunggaran cultural preservation movement, for example through structured study excursion activities with interesting programs for students at various levels of education (kindergarten, elementary school, middle school, high school to university); compiling Mangkunegaran history modules and books which are packaged attractively and digitized; involving the younger generation in preserving Mangkunegaran culture and even being open to various parties within and outside the country in efforts to preserve its culture; (3) the active role of consortium members in developing and strengthening the existence of the Mangkunegaran palace; (4) The enculturation and acculturation of the Mangkunegaran palace is in accordance with the context of the era which introduces important values such as etiquette, dance, wayang, batik, keris, and so on so that it becomes a means of sustainable promotion and branding and (5) The preservation and sustainability of culture is largely determined by commitment, consistency and follow-up of various ideas, action plans and the role of all actors and observers of the Mangkunegaran palace who must be structured in a spirit driven by joint work, so that through the Mangkunegaran palace as a model there will be efforts to maintain sustainability cultural heritage in cities that continue to experience modernization and urbanization, throughout Indonesia.





#### [21]

## COMMUNICATION STRATEGIES OF ROYAL HOUSES OF JAVA: A CASE STUDY OF MANGKUNEGARAN

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#### **Abstract:**

The royal house of Mangkunegaran in Surakarta, Java, is often perceived as one of the Trusted Brands of Indonesia. As such, it can serve as an important orientation mark for the people of Indonesia, including in times of social crisis, and can therefore contribute to an improved sustainability of social transformation. This paper departs from the concept of the Royal Branding Mix, as it was developed to analyze the corporate brand of the British crown ("the Firm") by Balmer (2007/8). Its main dimensions are Royal, Regal, Relevant, Responsive, and Respected. It is demonstrated that all of these dimensions can be found on the official website of the Pura Mangkunegaran, and hence constitute an important part of the communication strategy of that court. Further analyses of the website reveal that the Puro Mangkunegaran is also engaged in innovating the curating of the physical visit, e.g. via tourist packages and a new culinary experience in the new Pracima Tuin restaurant. A comparison with curatorial innovation in the United Kingdom demonstrates that there the so-called "Downton boom" has led to a re-designing of the presentation of historic houses, opening up previously restricted guarters for tourists. The question is whether the Mangkunegaran is also already showing signs of developing its branding strategy into that direction. In addition, a comparison with the British example of the Highgrove Foundation of King Charles allows the question whether the marketing of Mangkunegaran merchandise on sites such as Topokedia might experience further intensification in the future.





#### [22]

#### MANGKUNEGARA VII AND CLAIRE HOLT

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#### **Abstract:**

This paper discusses the relationship between Mangkunegara VII (1885-1944) and the American journalist and art historian Claire Holt (1901-1970). When Claire Holt arrived in Bali in 1930 on an intended journey around the world, she met the Dutch archaeologist Dr. Willem F. Stutterheim (1892-1942) and became his assistant and partner. From 1930 on, Claire studied Javanese dance and culture from Mangkunegara VII in Surakarta and in Yogyakarta. As her interest grew, she started to write about the Central Javanese court dances in the media, and eventually also for an academic audience, from 1934 onward. Mangkunegara VII supported her efforts strongly. This eventually led to the great exhibition "Theater and Dance in the Dutch East Indies" at the museum of the International Archives of Danse (Archives Internationales de la Danse) in Paris, which Claire Holt organized and for which she wrote the catalog. The legacy of Mangkunegara VII is also quite present in Claire Holt's book on Art in Indonesia (1967), which became one of the main sources of information for generations of Indonesianist scholars.





#### [23]

## MANGKUNEGARAN AND THE MEDIA: JAVANESE CULTURAL MODERNIZATION IN THE SOCIAL MEDIA AGE

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#### Abstract:

In our contemporary "Social Media Age", in which social media are the dominant communication technologies of our time, traditional communication practices and value systems are increasingly being called into question. While the democratic potential and participatory culture of social media remain largely an unfulfilled promise, it is unquestionable that social media technologies affect both content and symbolic form, nature and structure of communication.

In more than 250 years since its official establishment, the *Kadipaten Mangkunegaran* has undergone significant change, gradually shifting from a political and economic power towards a cultural authority. From the early 20th century onwards, its ruler Mangkunegara VII promoted Javanese cultural revivalism as a response to the radicalisation of Islamic discourse in Indonesia. Today's preservation and continuation of Mangkunegaran's cultural tradition is closely intertwined with the court's communication practices. The commitment to traditions, rituals, norms and values, and speech codes of Javanese language constitute specific forms of cultural identity, which are partly transferred to social media. This has enabled Mangkunegaran to resolve the apparent contradiction between cultural modernization and preservation of cultural tradition, without falling back on policies of nostalgia.

Competing with religious (Islamic) and state authorities, as well as influential forms of popular culture, the high or elite culture established by the court of Mangkunegaran faces the challenge of remaining a cultural authority and





even retaining its relevance. Thus, Mangkunegaran and its specific modernization and communication practices represent a promising research field of mediatized discourses in Indonesia and cultural modernization in the social media age.

Keywords: Mangkunegaran, modernization, mediatization, social media





#### [24]

## REVITALIZATION PROJECTS AND URBAN DIPLOMACY IN SOLO (SURAKARTA)

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#### **Abstract:**

Following the fall of President Suharto, Indonesia underwent a significant decentralization process, becoming one of the most decentralized countries in the world and breaking with its Jakarta-centric past. As result, popular discourses on urbanity in Indonesia spread rapidly; the process granted cities, in form of their local agents, decision-making power and fostered an increase in inter-city competitions and urban referencing practices. Solo (Surakarta), in particular, gained recognition as a role model in urban policy mobility. Analyzing different examples of Solo's urban revitalization processes and urban diplomacy strategies help us to understand recent urban and social transformations in Java. The revitalization and diplomacy projects of interest include the government initiative KOTAKU, Kota Tanpa Kumuh – City without Slum and policy mobility to Jakarta and Thailand.

So far, the Pura Mangkunegaran has not yet been adequately featured in relation to the city's urban dynamics. This paper addresses first research questions about the Pura Mangkunegaran's role in shaping its urban surrounding and in becoming an international actor in cultural exchange and urban diplomacy, both independently and in the context of Solo. The focus here is on the newly opened restaurant and its alignment with the Indonesian gastro-diplomacy program "Indonesia Spice Up the World" and on the revitalization of the garden of Pura Mangkunegaran in the context of broader socio-ecological restoration concepts in Indonesia.





#### [25]

## RELATIONSHIP BETWEEN CUSTOMERS AND JAMU GENDONG IN CENTRAL JAVA, INDONESIA: FOCUSING ON THE USE OF HERBAL BEVERAGES IN DAILY LIFE

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#### **Abstract:**

Jamu is widely accepted as the Indonesian traditional medicine, while it was originally derived from Javanese culture. "Jamu" beverages sold by local peddlers called "jamu gendong" are commonly used by local people in their daily lives. This study aims to explore the relationship between local Javanese people and "jamu gendong" in a village in Central Java, focusing on how customers use locally made "jamu" in their daily lives, based on participatory observation and interviews.

Women constituted the majority of customers of female "jamu gendong" and used to select different types of "jamu" beverages according to their life stages. Regular interaction with the female peddlers reduces insecurity and anxiety among female customers to order Jamu for women-specific problems. The "jamu" peddlers involved in the study gained knowledge and skills from her mother, learning through her own experiences and public training programs. As customers' family members and neighbors have been consuming "jamu" and interacting with the "jamu gendong" for many years, customers have independent opinions and tend to make their own choices.





In summary, while recently, modern types of "jamu" are readily accessible, "jamu gendong" adapts to social changes and continues to maintain its popularity. Modern science has provided evidence of the beneficial effects. However, the reasons for this popularity are that "jamu gendong" and "jamu" beverages are closely related to the daily lives of women in the community to maintain women's health. Customers choose jamu proactively, and jamu gendong and jamu beverages accordingly continue to transform with daily interactions with customers. The spiral of interactions has maintained jamu drinking as a health routine and culture in Javanese society to date.

Keywords: jamu, jamu gendong, customer, relationship, women's health, herbal beverage, traditional medicine, Indonesia, alternative medicine





#### [26]

#### JAVANIZING (POST)COLONIAL MODERNITY

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#### Abstract:

The establishment of the first sugar factory, Colomadu, owned by an indigenous entrepreneur, in 1861 is a historical landmark in colonial Indonesia, or the Dutch East Indies, not so much because it was owned by a Javanese, but because he was Mangkunegara IV, the ruler of the Mangkunegaran realm in Surakarta area. The sugar factory, which housed the most advanced European technology and machines at that time, was run by a modern management team consisting of Dutch and Chinese professionals instead of Mangkunegaran family members, although the factory workers were mostly drawn from amongst Mangkunegaran subjects. In this respect, the aristocratic entrepreneur introduced a radical new method of ruling not only to his palace but also to the traditional Javanese society: a combination of European modernity and Javanese feudalism that enabled him to take advantage of both progress and tradition, and in turn to consolidate his power vis-à-vis the Dutch colonial authority. It is an unprecedented social, economic, and political phenomenon with a long-term impact, and in this sense a whole new foundation for the future was laid. There were three other sugar factories opened following Colomadu and, despite some ups and downs in its journey, the business was a success, and the Mangkunegaran became a global player in the sugar industry.

The hostile take-over of the factories by the government of the newly independent republic in the name of 'nationalization' during the reign of Mangkunegara VIII resulted in the loss of ownership. Colomadu sugar factory stopped its operation in 1997 because of the continuous fall in production.





Thus, in the hand of the ministry of state-owned enterprises, the factory's fate was sealed. The government then decided to convert the factory into a commercial center in 2017, despite a strong objection from the Mangkunegaran with regard to the disputed ownership status. In 2018, the new designated tourist attraction called De Tjolomadoe was opened, its interior setup still preserving some of the sugar refinery machines of the past. The commercial center, however, is yet to prove its success in generating revenues for the state as it is currently in a dire situation due to failure in attracting visitors and developing its business further. The last big official event taking place on this venue is the welcoming dinner for the G20 Summit delegates in March 2022 before it began to slowly die.

Meanwhile, the Mangkunegaran continued to relive its modernity vision. Having lost the Colomadu, it embarked on another project that brought together elements of Western modernity and Javanese traditions, which required the palace to open itself up to the public outside the walls. The project involved the renovation and regrooming of the palace garden, the Pracima Tuin. The garden used to be a private family garden of Mangkunegara VII, which he built because he was inspired by a Dutch garden that he saw during his study in the Netherlands. This beautiful garden used to have a swimming pool, and then a tennis court, before it was converted to an 'urban park' that can be accessed by the general public by Mangkunegara X. Built next to it is a royal restaurant that was erected upon European architectural design but serves Javanese aristocratic cuisines to public. As the Colomadu sugar factory brought significant changes to Java in the past, the Pracima Tuin of Pura Mangkunegara has also brought about modern urban transformation to the ancient city of Surakarta today.





#### [27]

#### SOME PHYSICS IN PURA MANGKUNEGARAN

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#### **Abstract:**

Discovering physics concepts or just the implementation in our culture is very challenging since a community cannot survive for hundred years without the concepts. Whether it is implemented by design or by accident is another question. Approach through literature study is conducted to gather initial information. Interesting facts are obtained, which are described as follow.

Pura Mangkunegaran is the main palace of Mangkunegaran, which is a palace complex located in the city of Surakarta, Central Java, Indonesia. The Pura Mangkunegaran exhibits features of typical Javanese kratons, such as courtyard (Pemédan), hall (Pendapa), vestibule (Pringgitan), main house (Dalem), and private apartment (Keputrén). There are, at least, three natural physical aspects that you will experience while exploring Pura Mangkunegaran, but you might not aware of. They are natural sound reverberation, natural lighting, and natural ventilation. The last two are essential aspects of architectural design that can improve the health, comfort, and energy efficiency of buildings, while the first normally requires electronic equipments. At the time the complex was built in 1757 by Mangkunegaran I, the first Duke of Mangkunegaran, there was not any such technology available.

The Grand Hall has vast open space that affects its acoustic properties. Sound waves bounce of the walls, pillars, and ceiling, creating unique reverberation during ceremony and events. It might be that in the past architects and builders have intuitively considered sound propagation in such way to





produce reverberation, even if not in explicitly framed in physics terms. I would like to refer that as local wisdom of physics.

So, whether the implementations of physics concepts in Pura Mangkunegaran are by accident of by design is an interesting and important questions. When it is by design, we must explore further the local wisdoms related to physics. There might be another wisdom that must be preserved and can still be used for today, since the Javanese has been survived for centuries. It means that they know the nature and are applying natural sciences concepts, including physics.

Even though we always think about modern science and technology when addressing sustainable development, we must remember that survived civilization as the Javanese that can still preserve their culture indicating that there are wisdoms, aside from abstract ones governing our behaviors, but also related to natural sciences where physics is part of them. Why there was not any information, as far I know, about lack of food at that time or stunting? How did they overcome the problems at that time? We should not learn history as history just for memorize our ancestor, but also learn how they can survive and how they deal with new and invasive, might be also intrusive, cultures and create harmony and make it as new assimilated culture, where the dominant culture is not with dominant number of people but also the trend of modern culture.





#### [28]

## RECOGNITION OF FEMALE SUCCESSORS' WORK IDENTITY IN FAMILY BUSINESS: ADAPTATION STRATEGIES TO CULTURAL PRESSURE AND GENDER NORMS

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#### Abstract:

Family businesses in Indonesia play a significant role in the nation's economic resilience. Succession is key to business sustainability, where female successors have great potential. However, patriarchal culture and gender norms present challenges in recognizing their identity. This study analyzes the adaptation strategies of female successors in building recognition of work identity. A qualitative approach with Interpretative Phenomenological Analysis was applied to 10 female informants from Ciputra University Surabaya. The results show three strategies: a) gender norm adaptation: adjusting expectations and roles of women in family business; b) improving communication with parents: building relationships and open dialogue to gain support and recognition; c) imitating parents' attitudes and behaviors: adopting their values and leadership strategies. These strategies are expected to help female successors build recognition of work identity and increase their chances of continuing the family business.

Keywords: family business succession, female successors, gender norms, adaptation, recognition of work identity





#### [29]

## CHARACTERISTICS OF BIODEGRADABLE FILMS PRODUCED FROM THE LOCAL TUBERS WITH VARIOUS CONCENTRATION OF PLASTICIZERS

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#### Abstract:

The biodegradable film is developed as an alternative to plastic packaging. The biodegradable film can be produced from natural resources e.g. starch from local tubers. However, the polysaccharide-based biodegradable film has a weakness; it produces a brittle biodegradable film. Therefore, it needs plasticizer to increase the flexibility of the film. The aim of the research is 1). To study the effect of material type on the characteristics of the biodegradable films. 2). To study the effect of plasticizer type on the characteristics of the biodegradable films. The research used Completely Randomized Design Factorial, with the factors were: main material (arrowroot starch; sweet potato starch, and hydroxypropyl methylcellulose), and plasticizers (glycerol and sorbitol, with concentration of 4%, 6%, and 8%). The observation of biodegradable film consists of a chemical variable (moisture content and ash content), physical variable (thickness and solubility), and sensory variable (clarity; color; aroma, texture; and preference). Data were analyzed using the ANOVA test. If the effect is noticeable, the test will be continued using Duncan Multiple Range Test at the 5% level of significance. The result shows that films produced from sweet potato starch indicates a higher value of solubility and thickness than those from arrowroot starch. The use of sorbitol as a plasticizer produces a lower value of moisture content than films using glycerol. All of films produced in this study are not appropriate yet as a packaging, therefore, further research is required to improve the characteristic of the films.





Indonesia presents a unique opportunity for developing sustainable alternatives to plastic due to its abundance of local tubers like cassava, sago, arrowroot, sweet potato etc. These starchy crops offer several scientific advantages for producing biodegradable films:

- 1. Biodegradability: Starch, the main component of tubers, is a biodegradable material that can be degraded by microorganisms present in the environment. This decomposition process is significantly faster than the degradation of conventional plastic films, which can take hundreds of years.
- 2. Renewability: Unlike petroleum-based plastics, tubers are a renewable resource. They can be replanted and harvested within a single growing season, ensuring a sustainable supply chain, and reducing dependence on finite fossil fuels.
- Abundance and Cost-Effectiveness: Indonesia is a leading producer of several starchy tubers, making them readily available and cost-effective compared to imported materials. This translates to lower production costs for biodegradable films, potentially making them more accessible to consumers.
- 4. Film-forming properties: Through various processing techniques, starches can be extracted from tubers and converted into biodegradable polymers with film-forming properties. These polymers can be tailored to possess desired characteristics like strength, flexibility, and water resistance, making them suitable for various applications.
- 5. Reduced environmental impact: Replacing traditional plastic films with those derived from tubers can significantly reduce environmental pollution. Biodegradable films decompose into organic matter, eliminating the risks associated with plastic waste accumulation in landfills and oceans. Additionally, their production often requires less energy compared to conventional plastics, leading to a lower carbon footprint.

In conclusion, the utilization of local tubers in Indonesia for producing biodegradable films holds significant scientific promise. Their





biodegradability, renewability, abundance, cost-effectiveness, and film-forming properties make them a viable alternative to traditional plastics, contributing to a more sustainable future for Indonesia and the world.

Therefore, this work is addressing to a priority of the Sustainable Development Goals number 15 "Life on Land" because it is expected to invent biodegradable films, that will contribute to reduce the use of plastic as packaging. This initiative decreases the waste of plastic that cause environmental pollution and impact on better condition of living. This study is related to the topic of the DAAD Alumni Workshop because environment aspect must be considered during the Sustainable Social Transformation.





#### [30]

## RE-ACTUALIZATION OF MANGKUNEGARAN TRADITIONAL EDUCATION AS THE LAST FRONTIER OF JAVANESE CULTURE

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#### Abstract:

As an entity of the Indonesian nation, Mangkunegaran has developed the concept of character education since the Mangkunegara I era. The affirmation of the character of Mangkunegaran citizens who love their homeland, love their nation, obey the rules and respect fellow humans can be seen from the various traditional sources used.

This research is constructed based on the historical research method which has four operational steps: (1) Heuristics, (2) Source criticism (3) Interpretation (data analysis), and Historiography.

In Mangkunegara IV era (1881-1853) Serat Wedhatama, Tripama, Wirawiyata, and Warayagnya were used as supplies for prospective convicts, soldiers, and sons and daughters of the palace. Mangkunegara IV even composed a fiber entitled Serat Babad Nyanjata Dhateng Wanagiri containing advice for the next Prangwedana candidate and presented it to the crown prince candidate while accompanying Mangkunegara IV's visit to Wanagiri. These works were made in the form of macapat and presented on various routine and incidental occasions. In the Mangkunegara V period (1853-1896), performing arts became the dominant aspect that was developed during this reign. Wayang purwa, dance, gamelan and ballet performances are taught to families and courtiers. Mangkunegara VI imitated various piwulang teachings to be integrated into education policy. As Mangkunegara VII viewed in terms of art and culture, he asserted the importance of exploration of Javanese language





and perpetuation of 'wayang' tradition. Mangkunegara VII prioritized both of the aspects as a basic foundation to achieve the progress of a nation by holding tightly the Javanese cultural custom. Mangkunegara VII was a king of Javanese people and respectable leader in colonial administration who tried to conserve Javanese traditional culture in the changing era.

This theme is important in the era of sustainable development, especially in building national character that is imbued with great traditional values. The educational aspect does not only refer to increasing the quantity of students who access educational facilities. However, it also needs to be synchronized with the quality of the students that will be produced. In 2020 the Ministry of Education and Culture initiated the P5 Program (Project for Strengthening the Profile of Pancasila Students. This program is aimed at producing students with character according to the values of Pancasila. In the wealth of Mangkunegaran texts, these Pancasila values have actually been deeply instilled. For example, the feeling of love for one's country This has become the soul of Mangkunegaran with the motto Tri Dharma Mangkunegaran. Teaching materials such as various fibers used from Mangkunegara III to V can be used as a source of P5 teaching so as to strengthen the character of students while preserving one of the world's heritages.





#### [31]

### EARLY DETECTION OF DEGENERATIVE DISEASES STROKE USING METAL NANOPARTICLES BASED PHOTOMETRIC SENSOR

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#### Abstract:

Stroke still ranks highest as a degenerative disease that causes death. Early detection of risk factor biomarkers for stroke is urgently needed to reduce the prevalence of stroke. The development of an analytical method in the form of a colorimetric sensor based on metal nanoparticles AuNp-AHMT, AgNp-AHMT, and CuNp-AHMT to detect cortisol as a risk biomarker factor for stroke has been successfully carried out. The purpose of this study was to determine the ability of AuNp-AHMT, AgNp-AHMT, and CuNp-AHMT metal nanoparticles as colorimetric sensors for cortisol detection qualitatively and quantitatively. The AHMT modified AuNp, AgNp, and CuNp was characterized using a UV-Visible spectrophotometer, Fourier transform infrared spectroscopy (FTIR), and a transmission electron microscope (TEM). This colorimetric sensor was successfully developed based on the colour change of AuNp-AHMT, AgNp-AHMT, and CuNp-AHMT metal nanoparticles after binding to cortisol. Analytical performance and parameters of validation methods are successfully determined and give the best results on the colorimetric sensor based on AgNp-AHMT. The AgNp-AHMT has a response time of 3 minutes and a linear range at concentrations of 1-50 nM with a linearity of 0,9974, a sensitivity of 0,0016 AU/nM, a detection limit of 3,43 nM, an accuracy of 91,25–101,39%, a precision (CV) of 0,79–4,94%, and a recovery of 91,67–103,85%. The selectivity test results showed that these three types of metal nanoparticles can be applied to determined cortisol selectivity, even with the presence of a matrix in the sample.

Keywords: colorimetric sensor, metal nanoparticles, cortisol, saliva, stroke





#### [32]

#### SUSTAINABLE SOCIAL TRANSFORMATION IN NUTRITION

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#### Abstract:

Nutrition is a critical part of health and development. Better nutrition is related to improved infant, child and maternal health, stronger immune systems, safer pregnancy and childbirth, lower risk of non-communicable diseases (such as diabetes and cardiovascular disease), and longevity. Healthy children learn better. People with adequate nutrition are more productive and can create opportunities to gradually break the cycles of poverty and hunger. Malnutrition, in every form, presents significant threats to human health. Today the world faces a double burden of malnutrition that includes both undernutrition and overweight, especially in low- and middle-income countries.

Sustainable social transformation in nutrition involves long-term changes in social structures, policies, and practices to improve nutrition outcomes for individuals and communities. This transformation aims to address issues such as food insecurity, malnutrition, and inequities in access to nutritious food. the priority of the Sustainable Development Goals SDG Target 2.2 End all forms of malnutrition Key strategies for sustainable social transformation in nutrition include: Policy Advocacy, Community Engagement, Education, and Awareness, Partnerships, Research and Evaluation. By implementing these strategies, sustainable social transformation in nutrition can lead to improved health outcomes, reduced disparities, and a more resilient food system for future generations.





Sustainable policy advocacy for nutrition focuses on promoting policies that enhance access to nutritious foods, support sustainable agricultural practices, and address social determinants of health. Specifically, this strategy includes advocating for equitable distribution of resources, promoting sustainable farming methods, addressing trade barriers, supporting fair trade agreements, and removing tariffs that hinder the availability of affordable, high-quality food products, improving food safety standards, strengthening regulations and monitoring systems to protect consumers from unsafe or contaminated foods, supporting local food systems, increasing public investment. These efforts aim to create a supportive policy framework that promotes healthy eating habits, reduces food insecurity, and addresses underlying causes of malnutrition at both individual and societal levels.

Sustainable policy advocacy for nutrition focuses on promoting policies that enhance access to nutritious foods, support sustainable agricultural practices, and address social determinants of health. These efforts aim to create a supportive policy framework that promotes healthy eating habits, reduces food insecurity, and addresses underlying causes of malnutrition at both individual and societal levels.

Effective integration of community engagement into nutrition programs involves several key strategies to ensure the involvement and empowerment of community members. Based on general knowledge and best practices. By implementing these strategies, nutrition programs can effectively engage with communities, promote sustainable behavior change, and improve overall health outcomes among individuals and populations.

Sustainable social transformation in nutrition is associated with the Javanese culture in Indonesia, through the practice of traditional Javanese cuisine, which is known for its nutritious and healthy ingredients. The Javanese diet is based on rice, vegetables, and fruits, which are all nutritious and healthy. The Javanese people also consume a lot of fruit and vegetables, which are rich in vitamins and minerals. The Javanese diet is also known for its use of spices, which are rich in antioxidants and other nutrients. The Javanese diet is also known for its use of herbs, which are rich in antioxidants and other





nutrients. The Javanese diet is also known for its use of nuts, legumes which are rich in protein and other nutrients. The Javanese diet is also known for its use of fish, meat, eggs which is rich in omega-3 fatty acids and other nutrients. The Javanese diet is also known for its use of dairy products, which are rich in calcium and other nutrients The Javanese diet is also known for its use of fish, which is rich in omega-3 fatty acids and other nutrients. The Javanese diet is also known for its use of dairy products, which are rich in calcium and other nutrients.

Supporting Local Artisans: Promoting traditional Javanese crafts and products through fair trade practices can empower artisans economically and preserve cultural heritage, entrepreneurship programs: providing resources and training for aspiring entrepreneurs from marginalized communities in Java can create economic opportunities and reduce inequality.

By harnessing the values, traditions, and creativity embedded in Java culture, initiatives that promote social justice can resonate deeply with the community, inspire action, and contribute to a more equitable society.





#### [33]

## BIO-COSMETICS: PERSPECTIVES AND CHALLENGES IN CONTEXT OF THE USING BENGKOANG AS COSMETICS MATERIAL

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#### Abstract:

Most conventional skin care cosmetic formulations use petroleum-derived or mineral oil ingredients, which are harmful and non-biodegradable. Therefore, many cosmetic companies have shifted their attention from fossil-based ingredients to bio-based ingredients or called by biocosmetic. Biocosmetics are cosmetic products made from natural ingredients derived from plants, animals, microbes, enzymes, insects, and organic crops and used for topical skin, hair, face, and oral care. Selling natural ingredients in cosmetics is also a secret marketing strategy for industries to enhance their brand value and improve customer loyalty.

Bio-based personal care products offer waste reduction, recycling, low-energy consumption, safety, well-being and also fewer allergic reactions. They are safer and cheaper to produce, source, and ship compared to their chemical alternatives. An example is butylene glycol, a widely used emollient and humectant in cosmetics, produced by fermentation of plant-based sugars making it a more natural and sustainable alternative than catalytic dehydrogenation of carcinogenic acetaldehyde.

Cosmetic ingredients are categorized into active ingredients, excipients, or additives. The marine industry opened up many possibilities for the isolation of active ingredients, and nearly 25,000 new bioactive compounds have been identified. In cosmetics, the active ingredient is a marketing terminology and refers to substances claimed in skincare products to target skin concerns. Active ingredients are often supported with scientific studies to show the





efficacy of the target and categorized into antioxidants, astringents, exfoliant, humectant, skin conditioner, and surfactant. Examples are, alpha/beta hydroxy acids (AHA/BHA), ceramides, hyaluronic acid (HA), niacinamide, peptides, retinol, vitamin C, E, etc. AHA/BHA works by exfoliating the dead skin by dissolving the bonds between skin cells. Ceramides are fat molecules that protect our skin from pollution and other environmental stressors and keep the skin hydrated and moisturized. HA, a moisture-binding ingredient, keep the skin soft and radiant and is mostly used in anti-aging skincare products. Niacinamide has anti-inflammatory properties and boosts the level of fatty acid in our skin.

In the European cosmetic market, the top six natural ingredients are shea butter, coconut oil, mango butter, frankincense essential oil, patchouli essential oil, and licorice extract. Since 1992, Greentech group, a France-based biocosmetic firm and one of the importers in the list has been using plants, algae, micro-algae, and microbes to extract/develop active ingredients. In Indonesia, Bengkoang roots (*Phacyrhizus erosus*) have been used as cosmetics materials, primarily as sun screening and skin whitening materials, because the bengkoang root possesses many compounds which have UV absorption, antioxidative and tyrosinase inhibitory activities, bengkoang root can be used as sun screening and skin whitening materials for cosmetics preparations, because the bengkoang root possesses many compounds which have UV absorption, antioxidative and tyrosinase inhibitory activities. daidzein-7-O-ß-glucopyranose; are daidzein; compounds daidzein-7-O-ß-glucopyranose and (8,9)-Furanylpterocarpan-3-ol. Bengkoang can be used to replace existing chemical sunscreen and whitening ingredients. There are many other ingredients that can be developed as cosmetic ingredients to move towards biocosmetics that are safe and in accordance with SDGs Good health and well-being (3); Affordable and clean energy (5); Biodiversity (15).





#### [34]

## EVALUATING THE SAGO FLOUR QUALITY DRIED WITH DIFFERENT DRYING METHODS

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#### **Abstract:**

Sago flour is one of carbohydrate sources. It is extracted from stem of sago tree. After extracting, it is dried. The quality of sago flour is an important issue after drying. The objective of this research is to analyse the quality of sago starch after drying by using three different methods, sun drying, conventional cabinet oven drying, and hybrid drying system machine. It is dried about 10 kg extracted flour sago for 6 hours at a temperature of 60°C. Parameters include water content, ash content, and flour color. The research results water content from sun drying, conventional cabinet, and hybrid system method are 14%, 13.26%, and 12.24%; respectively. In terms of ash content, the hybrid system resulted in lower ash content than the other methods. Sago flour from hybrid drying system performs the best colour quality of the flour. It produces the whitest flour. It resulted a white degree brightness level of 94.17%.

Keywords: sago, flour, drying-method, quality





#### [35]

### SUSTAINABLE PRACTICES OF GAYO ARABICA COFFEE PRODUCTION IN ACEH

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#### Abstract:

Gayo coffee, a prominent commodity grown in the Gayo Highland of Aceh Tengah Regency, Indonesia, is the country's leading producer of Arabica coffee, contributing 25% to the national production. For decades, Arabica coffee has been developed by Gayo community using a continuous cultivation system which in turn may cause a decrease in land fertility. Traditional farming practices usually adopted by the farmers in Gayo highland by growing coffee under shade trees useful to create an ambient microclimate, minimize soil erosion, and provide nutrient for healthy and sustainable growth of plants. The study aims to investigate the impact of shade trees on soil properties and microclimate in relation to plant growth, as well as to evaluate sustainable post-harvest processing practices of the green bean Arabica coffee production. Four shade systems with small lamtoro (Leucaena leuco cephala ssp. Leucocephala), large lamtoro (Leucaena leucocephala subsp. glabrata), banana (Musa paradisiaca L.) and avocado (Persea americana Mill) trees with four replicates was studied. Interview using a semi-structured questionnaire was conducted with farmers and cooperatives to gather data on farming practices and post-harvest processing methods. Plant shading provides ideal microclimate for growth and production, of which amongst the various shades, avocado tree shows better response for plant growth. The plant with large lamtoro shade yielded the highest, while fully washed processing method was superior in terms of green bean quality. The study highlighted the commitment of cooperatives and farmers to sustainable practices,





including the use of shade trees and organic fertilizers to improve soil fertility and coffee production.

The rising global demand for high-quality coffee has encouraged coffeeproducing countries to enhance both the quality and quantity of their coffee production. Gayo coffee, also known as specialty coffee, holds worldwide recognition with certifications like fair trade, organic, and an IG (Geographical Indication) certificate. Many efforts have been directed towards investigating genetic and environmental factors, as well as agronomic and other coffee management practices, to meet market demands and improve coffee quality. The promotion of shade trees in coffee farms worldwide aims to bolster ecological sustainability and climate change adaptation. However, Arabica coffee (Coffea arabica) farmers are encountering conflicting information on the effects of shade trees in coffee agroforestry systems. Through the study of shade tree impacts in Arabica coffee production and the assessment of sustainable post-harvest practices, this study contributes to sustainable agricultural practices and environmental conservation. This research aligns with Sustainable Development Goals (SDGs) especially the SDG (Responsible Consumption and Production) and SDG 15 (Life on Land) by advocating for sustainable farming methods, biodiversity preservation through shade tree cultivation, and reduced environmental impact through organic farming practices. The commitment of Arabica coffee cooperatives and farmers to sustainable practices not only benefits the environment by preserving biodiversity and reducing chemical inputs but also enhances the well-being of local communities. By adopting sustainable farming techniques such as cultivating coffee under shade trees, utilizing organic fertilizers, and employing eco-friendly post-harvest processing methods, this study promotes environmental sustainability and social responsibility within Gayo community. Consequently, farmers and coffee industries can contribute to a more sustainable and equitable society where economic progress is harmonized with environmental preservation and social welfare. In essence, this study highlights how sustainable agricultural practices can drive positive social change by fostering a more resilient and environmentally conscious coffee industry in the Gayo Highland region.





#### [36]

## POSITIONING MANGKUNEGARAN WITHIN SOCIAL-RELIGIOUSLY TRANSFORMED SOCIETY IN SOLO

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#### **Abstract:**

Islamic religious life was blossoming especially in the last twenty years. The Islamic resurgence was featured by the increasing of religious sermons in urban areas, the establishment of some Islamic institutions, the more intensive usage of Muslims' formal dress, and finally the uprising phenomenon of the formalization of shari'ah Islam. Eventually, the ongoing process of "santrinization" marked the beginning of Indonesian Muslim society era. The dramatic changes of the politics to the Reformation Era have escalated the Islamic resurgence in general. On the other hand, the political tension was followed by some ethnic conflicts in some regions, especially religious conflicts. The social and political climate support the steadily religious resurgence since the New Order. The rise of some radical Islamic groups is as consequence. In the context of dynamic interaction between religious resurgence with local social culture of Solo, religious group plays a significant role in the dissemination of the ideals of Islamic resurgence. The Solonese especially Muslims have a distinctive characteristic culture which is shaped by many factors such as ethnicity, economics, politics, and religion. Positioning Mangkunegaran within the context of social-religiously transformed society will the focus of this presentation.





#### [37]

## COMMUNICATING INNOVATION AMONG DIFFERENT GENERATION A STUDY IN FAMILY BUSINESS

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#### Abstract:

This research aims to find effective ways of intergenerational communication in family companies, especially in communicating innovation. Intergenerational communication is essential in family businesses, since family businesses are distinct due to their multi-generational nature, where effective communication of innovative ideas among different generations can enhance sustainability and success. This research uses a qualitative approach, involving 5 pairs of family company members who have practiced innovation in managing their family companies. Focus group discussions were used as an approach in collecting data. Managing qualitative data involves systematic for collecting, organizing, and analysing non-numerical information. The results of this research show that family companies that have practiced innovation have positive relationships between family members, participate in both informal and informal self-development programs, and have a written company development plan. These studies collectively underscore the importance of effective communication strategies in fostering innovation within family businesses, emphasizing the need for inclusive participation and strategic approaches to drive innovation and ensure longterm success.

Keywords: sustainability, family business, innovation, communication





#### [38]

## ELING LAN WASPADA: USING SERAT PAMULAR TO EXPLORE SELF-VALUES IN JAVANESE CULTURE

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#### **Abstract:**

Serat Pamular is a didactic text written in Javanese script by R. Pujaharja in 1924. The text was formerly stored in the Reksa Pustaka library at the Mangkunegaran Palace. It is written in the Krama Madya speech level using a Javanese script style called *ngetumbar*. The letters are circular and straight, distinctive from other styles, such as the italicized butasarimbag style. Serat Pamular is printed on thin, 0.3 cm-thick brown paper and is 18 pages in total, including the cover and note pages. The digitized version of the text is available at Universitas Indonesia's library, but no comprehensive study has been conducted on its contents. This present study is a textology and focuses on exploring the self-control values represented in the text. We first transliterated the text from Javanese script into Latin, before translating it into Indonesian. We then coded the text thematically and found that Javanese selfcontrol values, eling lan waspada, are dominant in the text. Eling lan waspada is a Javanese teaching that emphasizes the importance of being vigilant and mindful in life, especially in relation to virtue. The initial results of the study found three forms and purposes of *eling lan waspada* in Serat Pamular: 1) eling lan waspada in religious practices; 2) eling lan waspada in remembering God, and 3) eling lan waspada in preserving the consistency in life. We may then conclude that Serat Pamular provides guidance on how Javanese people can lead a harmonious life in an increasingly demanding and stressful modern world.





In our project, Serat Pamular is used as the main text. We start by transliterating the text into Latin. The transliteration will then be translated into Indonesian and English, enabling a broader audience to engage with its content. Further, we will do a stylistic analysis to explore the language used in order to capture the themes of the text. We focus on how self-control values can be represented as part of Javanese culture.

Our study makes use of the text as corpus data and aims to connect Javanese values and recent contextual issues such as sexual violence and social media literacy. In this way, sexual violence is seen as a result of failure to practice self-control. In the area of social media literacy, fake news and hoaxes can be seen as the result of a lack of self-regulation and inability to verify the credibility of sources before disseminating information.

Our investigation may uncover layers of tradition, spirituality, and cultural standards within a work written in an antiquated script. It promotes sustainable human transformation by connecting individuals with tradition and culture. It also contributes to achieving the fourth Sustainable Development Goal, which is quality education.





#### [39]

## THE POTENTIAL OF PROPOLIS FROM KELULUT BEES AS A COMPLEMENT TO ROYAL PRINCESS BEAUTY CARE

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#### **Abstract:**

The beauty aura of a Javanese royal princess has its own appeal and charm that has never faded since ancient times. One of the keys to princess skin care comes from various traditional potions made from natural ingredients. Honey and kelulut bee propolis can complement the royal's signature cosmetic ingredients, products for the health and beauty care of royal princesses. The benefits of propolis can provide a moisturizing and calming effect on the skin. Kelulut bees are stingless bees that have several advantages over other bees, including producing propolis. Propolis comes from resin/plant sap that bees collect to make nests, protecting bee pollen from bacteria or external invaders. Specieses of kelulut bees include Tetragonula testaceitarsis, Heterotrigona itama, and Homotrigona fimbriata. Testing of the antimicrobial activity of kelulut bee propolis was carried out by screening against the microbes of Propionibacterium acnes, Streptococcus sobrinus, Eschericia coli, Staphylococcus aureus, and Candida albicans. The research used the propolis types from kelulut bees include *T. testacetarsis*, *H. itama*, and *H. fimbriata* have a brown or black color with a sharp bitter taste and sweet aroma. Propolis contains flavonoids which act as anti-inflammatory, antibacterial, antifungal, and antiviral and many other beneficial biological activities. From this research, propolis from bees contains at least two chemical compounds, such as flavonoids, tannins, and some of them also contain alkaloids. Propolis from the bee species Tetragonula testacetarsis, is the propolis with the strongest





relative inhibitory response to the five tested microbes. Therefore, in order for it to be complement to the cosmetics and health for for royal princesses.

Keywords: Propolis, Kelulut bees, cosmetics, royal princess

Non-Timber Forest Products, hereinafter abbreviated as NTFP, are biological forest products, both vegetable and animal, along with derivative and cultivated products except wood originating from the forest. The non-timber biological forest product that is still often sought after by the public is honey, one of which is Kelulut honey which comes from Kelulut Bees (Meliponini). Stingless bees (Meliponini), known as kelulut, have advantages over other bees, including not stinging, easy to cultivate, maintenance is not complicated, do not require special equipment, colonies are easy to develop, higher propolis productivity, more resistant to pest attacks and disease, and has a fairly high saving value.

Propolis is one of the important products of beekeeping businesses, including kelulut bees. Propolis shows that there are more than 241 compounds in propolis that were identified for the first time and these compounds belong to diverse chemical classes such as flavonoids, phenylpropanoids, terpenes, stilbenes, lignins, coumarins and prenylated derivatives. The chemical characteristics of propolis are influenced by the diversity of geographical locations, plant sources and bee species.

The results of research inform the benefits of propolis in the health sector, such as antibacterial, anti-inflammatory, anti-tumor, anti-cancer, antioxidant, as well as providing protective effects on the liver, kidneys and heart. The benefits that can be obtained from developing the Kelulut bee cultivation business include increasing the income of business actors from the results of bee cultivation in the form of honey, pollen, propolis and bee colonies. Kelulut beekeeping also supports the nutritional needs of the community through its products. And on the other hand, bees support efforts to regenerate natural resources through the process of plant pollination.

Even though the production of kelulut honey is not as much as that produced by stinging bees (Apis sp.), the production of propolis (propolis material) is





quite large which provides opportunities for additional economic value from beekeeping businesses. Bee products support the nutritional needs of residents and support efforts to conserve natural resources which play an important role in helping the process of plant pollination.

The Faculty of Forestry has a location for cultivating Kelulut bees and one of them is the *Tetragonula testaceitarsis* species. Although this type is not as popular as *Heterotrigona itama* bees, this type of bee also has the potential to produce propolis, honey and other bee products.

Research regarding the results of the chemical profile and bioactivity of the bee *Tetragonula testaceitarcis* is relatively limited and not yet as extensive as *Heterotrigona itama*. Therefore, research that examines the potential bioactivity and chemical profile of *Tetragonula testaceitarcis* propolis is important to carry out and is expected to provide scientific information related to bee products produced from the cultivation trial location at the Faculty of Forestry, Mulawarman University, Samarinda.





#### [40]

## CARBON VALUE POTENTION WITH CARBON STOCK ESTIMATION IN MANGROVE ECOSYSTEM AT INDUSTRY AREA LADI ISLAND, BATAM

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#### **Abstract:**

Mangroves are wetland ecosystems found in the Indo-Pacific coastal region. Mangroves play ecological roles such as absorbing heavy metal pollution in water and have climate change potential. The increase in population and infrastructure development in the city has led to an increase in carbon dioxide (CO2). Efforts to reduce the soaring increase can be done by calculating the potential carbon stock to determine a carbon tax or Pigouvian tax on environmental polluters to bear the costs of their pollution. The purpose of this research is to determine the carbon storage in mangrove stands, determine the economic value of carbon storage and the importance value index contained in the mangrove ecosystem of Ladi Island, Batam. The method used in the research is to use the method of Important Value Index (IVI) Mangrove Ecosystem and Carbon Stock Calculation Analysis to be able to calculate the price of carbon using the Economic Value of Carbon. Based on the results of the study of relative density, relative frequency and relative dominance of mangrove ecosystems in the industrial area of Pulau Ladi Batam, the IVI value in all plots is 300 with the highest value of R. apiculata which is 84.6, in plot 1, the highest value of X. granatum 224.8 in the second plot, and the highest R. apiculata in plots 3 and 4 with a value of 118.39 and 300 respectively. The average carbon stock is 118.60 tons/ha which produces a value of Rp 9,962,633 in the voluntary market and Rp 23,163,121.73 in the Clean Development Mechanism. The author found that the importance of





carbon stock knowledge as an effort to reduce the impact of global warming or climate change caused by environmental pollution in industrial or development areas.

Keywords: mangrove; carbon stock; carbon value; Important Value Index; Ladi Island, Batam





#### [41]

## SUSTAINABILITY BALANCED SCORECARD IN MEASURING MANGKUNEGARAN TOURISM PERFORMANCE

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#### Abstract:

Mangkunegaran is a Javanese cultural center located in Central Java which has a long history. Therefore, Mangkunegaran can be identified with the cultural business or tourism business. As a cultural and tourism business actor, Mangkunegaran cannot be separated from the issue of sustainable tourism. One important aspect of sustainability is sustainability performance measurement which allows companies to measure the effectiveness of environmental management strategies and helps them to develop more effective strategies. The purpose of this article is to provide conceptual thinking regarding the important role of the sustainability balanced scorecard (SBSC) as a measure of sustainable performance in improving financial sustainability to ensure the sustainability of the Mangkunegaran tourism business. The data was collected from secondary data sources, such as journals related to sustainability, balanced scorecard, and the tourism industry, and of course, various information related to Mangkunegaran tourism. Next, the data analysis was carried out using a data analysis procedure manual. This article tries to provide a concept of how SBSC can encourage tourism business growth and survival ability and manage risk management in the Mangkunegaran tourism business. The final result of this article provides a proposed SBSC model for the Mangkunegaran tourism business.

Keywords: sustainability, sustainability balanced scorecard, tourism, sustainability performance





#### [42]

# BIOFORMULATION OF A MIXED CULTURE OF BACILLUS FLEXUS AND BACILLUS AERIUS FROM STICHOPUS MONOTUBERCULATUS AS POTENTIAL PROBIOTICS FOR SUSTAINABLE MILKFISH AQUACULTURE

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#### **Abstract:**

Probiotics in aquaculture have a role in producing extracellular enzymes, increasing growth, and feed efficacy. This research aims to establish the enzymatic potential and test the bioformulation of the mixed culture *B. flexus* and *B. aerius* symbiont sea cucumber on the growth of milkfish. The research method consisted of enzymatic tests, antagonist tests, viability tests, and in vivo tests. Enzymatic tests include protease, cellulase, and chitinase by measuring the index of each enzyme. Antagonistic test of *B. flexus* and *B. aerius* with overlay method to determine their ability as mixed culture. In vivo test on milkfish with observed parameters including absolute body weight, specific growth rate, and feed conversion ratio. The results obtained show that





*B. flexus* and *B. aerius* can produce extracellular enzymes such as protease, cellulase, and chitinase. The results of the antagonist test showed that B. flexus and B. aerius could potentially be used as mixed cultures. In vivo test results showed the addition of mixed cultures of B. flexus and B. aerius to feed had a significantly different (Sig, 2-tailed <0,05) on absolute body weight (20,4  $\pm$  0,7 g), specific growth rate (1,36  $\pm$  0,04%), and the feed conversion ratio for milkfish (2,21  $\pm$  0,01). The conclusion obtained is that *B. flexus* can produce protease, cellulase, and chitinase enzymes, and *B. aerius* can produce protease and cellulase enzymes. Bioformulation of mixed cultures of *B. flexus* and *B. aerius* in feed can increase growth in milkfish.

Keywords: probiotic, *Bacillus flexus, Bacillus aerius,* mixed culture, milkfish growth





#### [43]

# PALM OIL BIODIESEL AS A RENEWABLE ENERGY RESOURCE: RESEARCH DEVELOPMENT IN ECOLOGICAL AND SOCIAL IMPACTS ASSESSMENT OF THE OIL PALM INDUSTRY IN INDONESIA

Prof. Dr. Ir. Ferisman Tindaon, MSc., Ir. Yanto Raya Tampubolon, MP., Dr. Ir.
Parlindungan Lumbanraja, M.Si, & Dr. Donald Siahaan
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#### **Abstract:**

The Government of Indonesia issued a mandatory program of palm oil biodiesel 30 percent (B30) in 2020, making Indonesia the highest implementer of biodiesel in the world. The B30 program provides 17 million job opportunities that will help improve the public welfare. To meet the B100 demand, an additional 15 million hectares of oil palm planted would be needed, more than double the current area of oil palm planted. To achieve the social equitability of palm oil biodiesel, which is an important pillar of sustainability, efforts must be put to address these social hotspots through actions at various policy levels. A descriptive analysis of supporting literature is used to assess environmental, social, and economic aspects of palm oil-based biodiesel sustainability in Indonesia. The use of biodiesel in the country is expected to be sustainable in line with the stipulation of the mandatory biodiesel of 30 percent (B30) in 2020 by the Government as a substitute for fuel mixture. Palm oil-based biodiesel can be produced sustainably.

Keywords: biodiesel, social and ecological impacts, land use, sustainability

**Purpose.** This study aims to investigate ecological and social economy impacts assessment or to comprehensively review the current situation and challenges of biodiesel implementation in Indonesia





**Methods.** The case study will be conducted in North Sumatra Province of Indonesia and involve several stakeholders, such as value chain actors, employees, local community members, government, and nongovernmental organization representatives related to the palm oil industry. The social impacts assessment was carried out using standard social impacts assessment criteria, supplemented by an expert survey, and supported by a literature review.

**Statement.** Replacing fossil fuels with biofuels has the potential to reduce some of the undesirable environmental impacts of fossil fuel production and use, including emissions of conventional pollutants and greenhouse gases (GHGs), resource depletion, and dependence on unstable foreign suppliers. Demand for biofuels can also increase agricultural income. The production and use of biofuels also have disadvantages, including the need for land and water resources, as well as air and groundwater pollution. Climate change and energy security, both play an important role in advancing the UN's Sustainable Development Goals (SDGs). The method used is a qualitative analysis. The use of biofuels in achieving the UN Sustainable Development Goals (SDGs) will be discussed in the review article. Depending on the raw materials and production process, biofuels can emit more GHGs than fossil fuels when compared to fossil fuels. SDGs, such as ensuring food security, improving land use, and reducing greenhouse gas emissions, can all be achieved using bioenergy as a significant and constructive means of achieving these goals while helping to fulfill the Paris Climate Change Agreement. Because biofuels are considered beneficial to the environment, there is a lot of interest in studying biofuels in the world today. This fuel is seen as an alternative to fossil fuels The challenge, based on the facts, is not to prevent the expansion of the oil palm sector but to encourage forms of development that seek to minimize negative impacts on biodiversity and to manage land use and land cover changes related to ecosystem and environmental services the welfare of local communities.





# **Event Location**

## Puro Mangkunegaran Palace (Candi Ratna Building)

Ronggowarsito St., Keprabon, Banjarsari, Surakarta, Central Java, Indonesia 57131





(Candi Ratna Building)





(Pracima Tuin)





### **Solia Hotel Yosodipuro Solo**

Yosodipuro St. No.31-33, Timuran, Banjarsari, Surakarta, Central Java, Indonesia 57131





(600m, 10 min walk to Puro Mangkunegaran Palace)

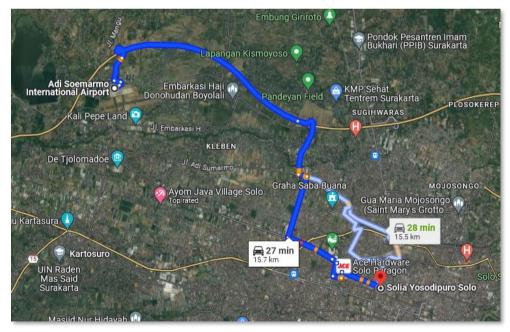




#### **Adi Soemarmo International Airport**

Bandara Adi Sumarmo St., Ngemplak, Boyolali Regency, Central Java, Indonesia 57108





(15.4km, 27 min by car to Solia Hotel Yosodipuro Solo)

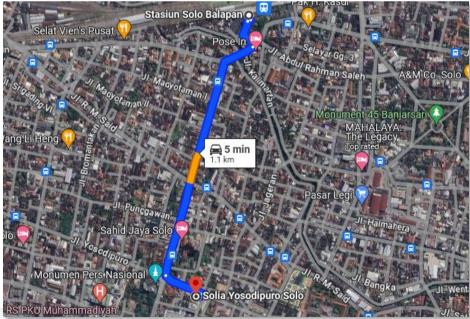




#### **Solo Balapan Station**

Wolter Monginsidi St. No.112, Kestalan, Banjarsari, Surakarta, Central Java, Indonesia 57131





(1.1km, 5 min by car to Solia Hotel Yosodipuro Solo)





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