

Series: *Advances in Social Science, Education and Humanities Research*

Proceedings of the 6th International Conference on Education & Social Sciences (ICESS 2021)

[HOME](#)

[PREFACE](#)

[ARTICLES](#)

[AUTHORS](#)

[ORGANIZERS](#)

[PUBLISHING INFORMATION](#)

The development of digital technology has brought big changes in the order of life and even gave birth to a new world civilization for mankind. Digital technology has been integrated into everyday social life. Now, the role of digital technology is increasingly dominant when the world faces the spread of the Covid-19 virus. A pandemic situation forces humans to limit the occurrence of direct social relationships and divert them into virtually mediated relationships through digital technology. This new world needs to be addressed scientifically, especially from the perspective of social sciences, humanities, and education to evaluate and develop science from the aspects of methods, studies, scientific theoretical substance, and good practice in order to find appropriate academic reasoning in facing ongoing changes. The 6th International Conference on Education and Social Sciences (ICESS) 2021 which held virtually on 9th - 10th April 2021, aims to bring together researchers, teachers, scientists, and scholars to exchange and share their experiences and research results on all aspects of social science, humanity, and education. The conference is expected to bring about strategy, best practices, and solutions contributing to the efforts to beat the covid-19 pandemic.

The proceeding is a compilation of the accepted papers and represent an interesting outcome of the conference. Topics include but are not limited to the themes: Digital Technology on Social Sciences, Humanities, and Education. As well as the sub themes: 1) Social studies learning in the digital era, 2) Social research and digital sources, 3) Oral tradition, 4) Digitalize Memory & Public History, 5) Community, democracy, and policy on the new normal era, 6) Digital Culture & Society, 7) Disaster Management, 8) Environmental Problems and Conservation, 9) The industrial revolution and social change, 10) Global pandemic on social aspects, and 11) Humanities learning in the digital era. All the papers have been through rigorous review and process to meet the requirements of international publication standard.

We would like to acknowledge the organizing committee and all of the editors for their valuable assistance and support. We also would like to express our gratitude to the distinguished invited speakers and authors/presenters for sharing idea in the conference. Special thanks to Atlantis Press.

We hope that the 6th ICESS 2021 could be a forum for excellent discussions that triggered new ideas and promoting collaborative research. We believe that the proceeding will be one of important research source of references and knowledge.

Our gratitude,
Committee of the 6th ICESS 2021

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Title

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Part of series

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Volume

578

ISSN

2352-5398

ISBN

978-94-6239-433-9

PREFACE

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56	Jamilah	STKIP PGRI Sumenep	Jawa Timur
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59	Mutiani	Sekolah Pascasarjana Universitas Pendidikan Indonesia	Kalimantan Selatan
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63	Andi Irwan Benardi	UNNES	Jawa Tengah

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76	Fadly Husain	Universitas Negeri Semarang	Jawa Tengah
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83	Hafiz Rafi Uddin, S.H., S.Pd.I., M.H.	Universitas Negeri Semarang	Jawa Tengah
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85	Hendri Irawan	Universitas Negeri Semarang	Jawa Tengah
86	Hendri Irawan	Universitas Negeri Semarang	Jawa Tengah
87	Khoirul Anwar	Universitas Negeri Semarang	Jawa Tengah
88	Dr. Juhadi, M.Si	Universitas Negeri Semarang	Jawa Tengah
89	Martien Herna Susanti	Universitas Negeri Semarang	Jawa Tengah
90	C. Santi Muji Utami	UNNES	Jawa Tengah
91	Muh Solehatul Mustofa	Universitas Negeri Semarang	Jawa Tengah
92	Nina Witasari	Universitas Negeri Semarang	Jawa Tengah
93	Nugraheni Arumsari	Universitas Negeri Semarang	Jawa Tengah
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96	Rimasari Pramesti Putri, S. Pd, M. Pd	Semarang State University	Jawa Tengah
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99	Suprayogi	Universitas Negeri Semarang	Jawa Tengah
100	Tijan	Universitas Negeri Semarang	Jawa Tengah
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102	Tutik Wijayanti	Universitas Negeri Semarang	Jawa Tengah
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Proceedings of the 6th International Conference on Education & Social Sciences (ICESS 2021)

258 authors

Adhikari, Shukra Raj

Rural Society of the Mountain Region: Road Access and Economy

Aini, Farida Nur

Analysis of Online Learning Evaluation of Social Science Education Study Program

Ainurofiq, Wahib

Langsajarat Learning Community as a Response to Local Education Needs in the Pandemic Era

Aji, Ananto

Assessment of Vulnerability and Community Preparedness Against Flood Disaster During Covid-19 Pandemic Period in Semarang City

Akhiroh, Ninuk Sholikhah

Women's Roles in Household Economy in Medono Village, Boja, Kendal District

Alamsyah, Andi Rahman

Islamic Politics and Local Electoral Support in an Urban Setting

Amelia, Luthfi Nur

Knowledge of Medicinal Plants as Popular Medicine in Bendan Duwur Community, Semarang City

Anandha

The Implementation of Child-Friendly School in SD Ummul Quro, Semarang Regency

Anandha

The Dynamics of Local Democracy on Simultaneous Election in Semarang District

Anandha

Blusukan Culture and Familism in Local Democracy

Anggraini, Mitha Fitria

Predicting the Condition of Agricultural Lands in Pati Regency to Make Sustainable Food Providing Against the Future

Anugrahanto, Yohanes Dwi

The Role of the Disaster Preparedness Group in Adapting Abrasion to Communities Affected by Abrasion on the North Coast of Rembang, Central Java

Anwar, Khoirul

Analysis of English-Speaking Performance for the Effective Language Learning in Digital Era

Anwar, Khoirul

Learning Communication Strategies of Rural Civitas Academica During Covid-19 Pandemic Period

Arditama, Erisandi

The Effectiveness of Snakes and Ladders Game for the Social-Emotional Development of Children in the Pandemic Time Covid 19

Arditama, Erisandi

Public Policy Formulation Based on Local Wisdom in Kenteng Village, Semarang Regency

Arsal, Thriwaty

Analysis of Conflict Management Strategy in Social-Disaster Prone Community

Arsi, Antari Ayuning

From Longan to Avocado: Economic Strategy of Farmers in Agricultural Business in Bandungan District Central Java

Arsi, Antari Ayuning

Perception of the Consumer Community on Traditional Herbal Drink of Ngadirgo Semarang

Arumsari, Nugraheni

The Effectiveness of Snakes and Ladders Game for the Social-Emotional Development of Children in the Pandemic Time Covid 19

- Arumsari, Nugraheni**
Incumbent Communication Strategies VS Empty Boxes in Semarang Local Election 2020
- Astuti, Wulan Tri**
Bicultural Identity Negotiation in Beur Cinéma: The Case of film Samba
- Atikah, Elin**
Development of Encyclopedia Media Based on Indonesian Cultural Diversity
- Atmaja, Hamdan Tri**
Study Phenomenography (Phenomenographic Approach) Towards Trauma Healing Patterns on Community Conflict Victims in the Slope of Merapi Merbabu in Boyolali
- Atno**
Predicting the Condition of Agricultural Lands in Pati Regency to Make Sustainable Food Providing Against the Future
- Aziza, Ruli Seftiana**
Using E-Module Based on Historical Thinking Skill as a Distance Learning Solution
- Baharudin, Mohamad Tegar**
The Analysis of Household Food Security Level in Jelobo Village, Klaten Regency, Central Java
- Banowati, Eva**
Predicting the Condition of Agricultural Lands in Pati Regency to Make Sustainable Food Providing Against the Future
- Banowati, Eva**
Potentials of Student Entrepreneurship to Encourage the Growth of Entrepreneur Culture in New Normals in FIS UNNES Students
- Banowati, Eva**
Livelihood Analysis on Economic Conditions in Jelobo Village, Klaten Regency, Central Java
- Basuki, Makin**
Restoring Bottom-Up Management within Village's Cell: A Village Glory
- Ba'in**
Study Phenomenography (Phenomenographic Approach) Towards Trauma Healing Patterns on Community Conflict Victims in the Slope of Merapi Merbabu in Boyolali
- Benardi, Andi Irwan**
Assessment of Vulnerability and Community Preparedness Against Flood Disaster During Covid-19 Pandemic Period in Semarang City
- Benardi, Andi Irwan**
Simulation Learning Methods for Students' Understanding of Flood Disaster Preparedness Materials
- Benardi, Andi Irwan**
The Role of the Disaster Preparedness Group in Adapting Abrasion to Communities Affected by Abrasion on the North Coast of Rembang, Central Java
- Brata, Nugroho Trisnu**
The Jalur Tikus (Rat Path) Transportation as an Illegal Activity in the Villages of the North Kalimantan Border
- Chasanah, Nur Rahmatul**
Internalization of Cultural Preservation Values Through Traditional Arts in School-Age Children
- Daffa, Farhan Andaru**
Utilization of Jaki Application in Improving Public Services in DKI Jakarta
- Djafar, Fitri Annisa**
The Local Wisdom of the Takome Community in Facing the Gamalama Volcano Eruption Disaster
- Dwika, Wenny**
Modernization of Women in Politics in Semarang City
- Eka, Wenny**
Political Construction of Women in Kemiren Village

- Elistya, Nur Eka**
Knowledge of Medicinal Plants as Popular Medicine in Bendan Duwur Community, Semarang City
- Faruk**
Bicultural Identity Negotiation in Beur Cinéma: The Case of film Samba
- Fatimah, Nurul**
From Longan to Avocado: Economic Strategy of Farmers in Agricultural Business in Bandungan District Central Java
- Fatimah, Nurul**
Women's Roles in Household Economy in Medono Village, Boja, Kendal District
- Fauzi, Moh**
Challenges During the Pandemic: Using Learning Media in Learning at STKIP PGRI Sumenep
- Fauzia, Husna**
The New Face of the Semarang Old City in Millennial Generation's Perspective
- Fauziyah, Wahyu**
Assessment of Vulnerability and Community Preparedness Against Flood Disaster During Covid-19 Pandemic Period in Semarang City
- Fermansyah, Risnanda**
Analysis of Online Learning Evaluation of Social Science Education Study Program
- Fitriani, Tarisa**
Implementation of Zakat Savings Member of Sharia Financial Services Cooperative (Kjks) for Economic Empowerment of Small and Medium Enterprises in Semarang In 2021
- Fridasari, Fenny**
Employment Structure of the Population in area Industry Village, East Ungaran Sub-district, Semarang Regency, Central Java Province, Indonesia
- Ginanmar, Asep**
Analysis of Online Learning Evaluation of Social Science Education Study Program
- Ginanmar, Asep**
Development of Encyclopedia Media Based on Indonesian Cultural Diversity
- Gunawan**
Women's Roles in Household Economy in Medono Village, Boja, Kendal District
- Gunawan, Syahrul Hafidz**
Public Policy Formulation Based on Local Wisdom in Kenteng Village, Semarang Regency
- Gustaman, Fulia Aji**
Potentials of Student Entrepreneurship to Encourage the Growth of Entrepreneur Culture in New Normals in FIS UNNES Students
- Gustaman, Fulia Aji**
Women's Roles in Household Economy in Medono Village, Boja, Kendal District
- Gustaman, Fulia Aji**
Conquering Covid-19 Through the Local Activity of Village Communities in Central Java
- Habsari, Sri Kusumo**
Minangkabau in Film Integrative Learning Media for Alam Minangkabau
- Hadi, Johan**
Simulation Learning Methods for Students' Understanding of Flood Disaster Preparedness Materials
- Haingu, Rahel Maga**
Ethnographic Study of the Umma Kalada Values of the Indigenous People of Loura and Its Application in Elementary Social Studies Learning
- Hamid, Nur**
The Role of the Disaster Preparedness Group in Adapting Abrasion to Communities Affected by Abrasion on the North Coast of Rembang, Central Java
- Hanafi, Imam**
Implementation of Zakat Savings Member of Sharia Financial Services Cooperative (Kjks) for Economic Empowerment of Small and Medium Enterprises in Semarang In 2021
- Hanafiah, Mohd. Hafiz**
Ecological Problem Behind Marine Tourism in Karimunjawa: A Threat to Local Community?

- Hardati, Puji**
The Role of the Disaster Preparedness Group in Adapting Abrasion to Communities Affected by Abrasion on the North Coast of Rembang, Central Java
- Hardati, Puji**
Employment Structure of the Population in area Industry Village, East Ungaran Sub-district, Semarang Regency, Central Java Province, Indonesia
- Hardati, Puji**
Analysis of Conflict Management Strategy in Social-Disaster Prone Community
- Hardi, Iwan**
Political Construction of Women in Kemiren Village
- Hayati, Rahma**
Assessment of Vulnerability and Community Preparedness Against Flood Disaster During Covid-19 Pandemic Period in Semarang City
- Heriyanti, Rina**
How Mothers Use Banyumas Dialect to Their Children and Their Friends in Purwokerto
- Hermanto**
Langsajarot Learning Community as a Response to Local Education Needs in the Pandemic Era
- Hermanto, Fredy**
Development of Encyclopedia Media Based on Indonesian Cultural Diversity
- Hermawan, Dwi**
Star Mobile Apps: An Android-Based Learning Media to Support Paperless Policy and the Merdeka Belajar Program Implementation
- Hermawan, Dwi**
Improvement of Teacher Competence in Making Android-Based Evaluation Instruments at the AT Tohari Foundation, Semarang Regency
- Hidayat, Herry Nur**
Minangkabau in Film Integrative Learning Media for Alam Minangkabau
- Hudaya, Khakim Asshidiqi Nur**
Star Mobile Apps: An Android-Based Learning Media to Support Paperless Policy and the Merdeka Belajar Program Implementation
- Husain, Fadly**
Perception of the Consumer Community on Traditional Herbal Drink of Ngadirgo Semarang
- Husain, Fadly**
Knowledge of Medicinal Plants as Popular Medicine in Bendan Duwur Community, Semarang City
- Husna, Vina Nurul**
Analysis of Mangrove Species Distribution Mapping and the Environmental Problem in Mangkang Kulon, Semarang City
- Indrayati, Ariyani**
Predicting the Condition of Agricultural Lands in Pati Regency to Make Sustainable Food Providing Against the Future
- Indrayati, Ariyani**
Potentials of Student Entrepreneurship to Encourage the Growth of Entrepreneur Culture in New Normals in FIS UNNES Students
- Indrayati, Ariyani**
The Analysis of Household Food Security Level in Jelobo Village, Klaten Regency, Central Java
- Indriana, Julia Dwi**
Employment Structure of the Population in area Industry Village, East Ungaran Sub-district, Semarang Regency, Central Java Province, Indonesia
- Indriyani, Aprilia**
Predicting the Condition of Agricultural Lands in Pati Regency to Make Sustainable Food Providing Against the Future
- Irawan, Hendri**
Improvement of Teacher Competence in Making Android-Based Evaluation Instruments at the AT Tohari Foundation, Semarang Regency

- Irawanto, Budi**
Bicultural Identity Negotiation in Beur Cinéma: The Case of film Samba
- Istadiyantha**
The Transformation of the Dhukutan Oral Tradition into a Dance Film
- Jamhur**
Simulation Learning Methods for Students' Understanding of Flood Disaster Preparedness Materials
- Jamilah**
Challenges During the Pandemic: Using Learning Media in Learning at STKIP PGRI Sumenep
- Juhadi**
The Utilization of Technology-Based Webgis as an Effort to Establish the Spatial Thinking Ability of Geographic Students In High School
- Juhadi**
Restoring Bottom-Up Management within Village's Cell: A Village Glory
- Juhadi**
The Analysis of Household Food Security Level in Jelobo Village, Klaten Regency, Central Java
- Juhadi**
Livelihood Analysis on Economic Conditions in Jelobo Village, Klaten Regency, Central Java
- Julianto, Dimas**
Model of Jogo Tonggo's Alert Village in Suppressing the Distribution of Covid-19 in the New Normal Era
- Khofifah, Siti Nur Hasna**
Simulation Learning Methods for Students' Understanding of Flood Disaster Preparedness Materials
- Khuzaimah, Siti**
Internalization of Cultural Preservation Values Through Traditional Arts in School-Age Children
- Kismini, Elly**
Internalization of Cultural Preservation Values Through Traditional Arts in School-Age Children
- Kristiono, Natal**
Internalization of Pancasila Value at SMP Islam Plus at Thohari Tuntang Semarang Regency Indonesia
- Kurniawan, Bagus**
The Transformation of the Dhukutan Oral Tradition into a Dance Film
- Kurniawan, Ganda Febri**
History Teacher Initiative Improves the Quality of Digital-Based Learning in the Covid-19 Pandemic
- Kurniawan, Ganda Febri**
The Minaret of Kudus: Social Text and Harmony Narrative in Rural Java
- Kurniawan, Hendra**
Cura Personalis in Creative Pedagogy
- Kusnoto, Yuver**
Growing a Creative Preneure Through the Living Museum at Vocational School of PPN Lembang
- Kusnoto, Yuver**
Personal Approach: Alternative of Art to Seek For The Meaning of Historical Learning For Environmental Awareness
- Laksono, Hemy Bayu**
Assessment of Vulnerability and Community Preparedness Against Flood Disaster During Covid-19 Pandemic Period in Semarang City
- Lestari, Eta Yuni**
Public Policy Formulation Based on Local Wisdom in Kenteng Village, Semarang Regency

- Lestari, Nurul Ulfah Puji**
Langsajarat Learning Community as a Response to Local Education Needs in the Pandemic Era
- Lestari, Puji**
Political Construction of Women in Kemiren Village
- Lestari, Puji**
Modernization of Women in Politics in Semarang City
- Luthfi, Asma**
From Longan to Avocado: Economic Strategy of Farmers in Agricultural Business in Bandungan District Central Java
- Luthfi, Asma**
Internalization of Cultural Preservation Values Through Traditional Arts in School-Age Children
- Luthfi, Asma**
Conquering Covid-19 Through the Local Activity of Village Communities in Central Java
- Mardialina, Mala**
Disaster Recovery in Social Aspect: Evidence from Lombok Earthquake 2018
- Marselina, Lili**
Conquering Covid-19 Through the Local Activity of Village Communities in Central Java
- Masruroh, Nanik**
The Utilization of Technology-Based Webgis as an Effort to Establish the Spatial Thinking Ability of Geographic Students In High School
- Ma'ruf, Amir**
How Mothers Use Banyumas Dialect to Their Children and Their Friends in Purwokerto
- Melati, Inaya Sari**
Ecological Problem Behind Marine Tourism in Karimunjawa: A Threat to Local Community?
- Melynda**
Star Mobile Apps: An Android-Based Learning Media to Support Paperless Policy and the Merdeka Belajar Program Implementation
- Mukti, Handika**
Local Education Practices of Sedulur Sikep Community: Resisting Formal Education and Developing the Value of Local Education
- Mukti, Handika**
Model of Jogo Tonggo's Alert Village in Suppressing the Distribution of Covid-19 in the New Normal Era
- Mulianingsih, Ferani**
Development of Higher Order Thinking Skill in Junior High School: Studies on Social Studies Teachers in Pekalongan City
- Mulianingsih, Ferani**
Learning Communication Strategies of Rural Civitas Academica During Covid-19 Pandemic Period
- Mulyadi**
Challenges During the Pandemic: Using Learning Media in Learning at STKIP PGRI Sumenep
- Mulyana, Agus**
Gamification in History Learning: A Literature Review
- Mulyaningsih, Ferani**
Political Construction of Women in Kemiren Village
- Munandar, Muh. Aris**
Modernization of Women in Politics in Semarang City
- Munir, Ahmad Mubarak**
Disaster Recovery in Social Aspect: Evidence from Lombok Earthquake 2018
- Murni, Ruaida**
The Village Integrated Social Services Through the Social Welfare Center in Indonesia
- Mustofa, Moh. Solehatul**
Entrepreneurship Education for Students in Higher Education

- Mu'Aafat, Umi Dary**
Development of Encyclopedia Media Based on Indonesian Cultural Diversity
- Nana**
Local History for Creative History Learning During the COVID-19 Pandemic
- Nela, Euis**
Creative Learning Through Google Classroom in History Learning During the Covid-19 Pandemic
- Ningrum, Prisma Tia**
Simulation Learning Methods for Students' Understanding of Flood Disaster Preparedness Materials
- Nugraha, Satya Budi**
Utilization of Jaki Application in Improving Public Services in DKI Jakarta
- Nugraha, Satya Budi**
The New Face of the Semarang Old City in Millennial Generation's Perspective
- Nuhayah**
Local History for Creative History Learning During the COVID-19 Pandemic
- Nurhayati, Tati**
Conquering Covid-19 Through the Local Activity of Village Communities in Central Java
- Paramita, Yuni**
From Longan to Avocado: Economic Strategy of Farmers in Agricultural Business in Bandungan District Central Java
- Permana, Candra**
Cura Personalis in Creative Pedagogy
- Pingge, Heronimus Delu**
Ethnographic Study of the Umma Kalada Values of the Indigenous People of Loura and Its Application in Elementary Social Studies Learning
- Pramono, Didi**
Internalization of Cultural Preservation Values Through Traditional Arts in School-Age Children
- Pramono, Didi**
Women's Roles in Household Economy in Medono Village, Boja, Kendal District
- Pramono, Suwito Eko**
Ecological Problem Behind Marine Tourism in Karimunjawa: A Threat to Local Community?
- Pramono, Suwito Eko**
Study Phenomenography (Phenomenographic Approach) Towards Trauma Healing Patterns on Community Conflict Victims in the Slope of Merapi Merbabu in Boyolali
- Prasetya, Haldi**
Development of Encyclopedia Media Based on Indonesian Cultural Diversity
- Pratiwi, Elok Surya**
Restoring Bottom-Up Management within Village's Cell: A Village Glory
- Priyanto, Agustinus Sugeng**
The Effectiveness of Snakes and Ladders Game for the Social-Emotional Development of Children in the Pandemic Time Covid 19
- Purnawati, Putri Sonia**
Women's Roles in Household Economy in Medono Village, Boja, Kendal District
- Purnomo, Arif**
Development of Higher Order Thinking Skill in Junior High School: Studies on Social Studies Teachers in Pekalongan City
- Putri, Noviani Achmad**
Analysis of Online Learning Evaluation of Social Science Education Study Program
- Putri, Noviani Achmad**
Development of Encyclopedia Media Based on Indonesian Cultural Diversity
- Putri, Noviani Achmad**
Entrepreneurship Education for Students in Higher Education
- Putri, Rimasari Pramesti**
Tiktok as an Online Learning Media During a Pandemic

- Rachman, Maman**
The Implementation of Child-Friendly School in SD Ummul Quro, Semarang Regency
- Rachman, Maman**
Improvement of Teacher Competence in Making Android-Based Evaluation Instruments at the AT Tohari Foundation, Semarang Regency
- Radisty, Yudha**
Model of Jogo Tonggo's Alert Village in Suppressing the Distribution of Covid-19 in the New Normal Era
- Rahmah, Nisa Maulia**
Implementation of Zakat Savings Member of Sharia Financial Services Cooperative (Kjks) for Economic Empowerment of Small and Medium Enterprises in Semarang In 2021
- Rahmah, Nur Azida**
The Utilization of Technology-Based Webgis as an Effort to Establish the Spatial Thinking Ability of Geographic Students In High School
- Rahman, Aulia**
The Village Integrated Social Services Through the Social Welfare Center in Indonesia
- Ramadyantoro**
Conquering Covid-19 Through the Local Activity of Village Communities in Central Java
- Ramona, Nadia**
Historical Literacy as Strengthening Character Education
- Ria, Tiara Nove**
History Teacher Initiative Improves the Quality of Digital-Based Learning in the Covid-19 Pandemic
- Rini, Hartati Sulisty**
Knowledge of Medicinal Plants as Popular Medicine in Bendan Duwur Community, Semarang City
- Riyadli, Selamat**
Local Education Practices of Sedulur Sikep Community: Resisting Formal Education and Developing the Value of Local Education
- Rochayani**
Internalization of Cultural Preservation Values Through Traditional Arts in School-Age Children
- Rochayani**
Knowledge of Medicinal Plants as Popular Medicine in Bendan Duwur Community, Semarang City
- Ruhadi**
Star Mobile Apps: An Android-Based Learning Media to Support Paperless Policy and the Merdeka Belajar Program Implementation
- Saniya, Qurrota A'yuni**
Community Participation in the Activities of Improving Food Security Through the Climate Village Program in the Madukoro Village Kajoran District Magelang
- Sanjoto, Tjaturahono Budi**
Livelihood Analysis on Economic Conditions in Jelobo Village, Klaten Regency, Central Java
- Sanjoto, Tjaturahono Budi**
Analysis of Mangrove Species Distribution Mapping and the Environmental Problem in Mangkang Kulon, Semarang City
- Santoso, Apik Budi**
The Utilization of Technology-Based Webgis as an Effort to Establish the Spatial Thinking Ability of Geographic Students In High School
- Sapriya**
Ethnographic Study of the Umma Kalada Values of the Indigenous People of Loura and Its Application in Elementary Social Studies Learning
- Saputra, M Ulin Nuha**
Women's Roles in Household Economy in Medono Village, Boja, Kendal District

Saputri, Retno Wulan Ayu

From Longan to Avocado: Economic Strategy of Farmers in Agricultural Business in Bandungan District Central Java

Saraswati, Ufi

Rural Tourism: Community Empowerment in Sustainable Development

Sari, Yuria

Predicting the Condition of Agricultural Lands in Pati Regency to Make Sustainable Food Providing Against the Future

Sa'adah, Nuris

The Utilization of Technology-Based Webgis as an Effort to Establish the Spatial Thinking Ability of Geographic Students In High School

Setiajid

The Dynamics of Local Democracy on Simultaneous Election in Semarang District

Setiajid

Incumbent Communication Strategies VS Empty Boxes in Semarang Local Election 2020

Setiajid

Blusukan Culture and Familism in Local Democracy

Setiawan, Hari Harjanto

The Village Integrated Social Services Through the Social Welfare Center in Indonesia

Setiawan, Soni

The Utilization of Technology-Based Webgis as an Effort to Establish the Spatial Thinking Ability of Geographic Students In High School

Setiawan, Soni

Livelihood Analysis on Economic Conditions in Jelobo Village, Klaten Regency, Central Java

Setyawan, Heri

Analysis of Online Learning Evaluation of Social Science Education Study Program

Setyowati, Dewi Liesnoor

The Role of the Disaster Preparedness Group in Adapting Abrasion to Communities Affected by Abrasion on the North Coast of Rembang, Central Java

Setyowati, Dewi Liesnoor

The Local Wisdom of the Takome Community in Facing the Gamalama Volcano Eruption Disaster

Setyowati, Dewi Liesnoor

Employment Structure of the Population in area Industry Village, East Ungaran Sub-district, Semarang Regency, Central Java Province, Indonesia

Shakuro, Afif Abdan

Analysis of Online Learning Evaluation of Social Science Education Study Program

Shavab, Oka Agus Kurniawan

Gamification in History Learning: A Literature Review

Shintasiwi, Fitri Amalia

Analysis of English-Speaking Performance for the Effective Language Learning in Digital Era

Shintasiwi, Fitri Amalia

Learning Communication Strategies of Rural Civitas Academica During Covid-19 Pandemic Period

Sidiq, Wahid Akhsin Budi Nur

Analysis of Mangrove Species Distribution Mapping and the Environmental Problem in Mangkang Kulon, Semarang City

Silfa, Wike

Historical Awareness Through the Use of the WhatsApp Group Application as a Distance Learning Media

Sriyanto

Community Participation in the Activities of Improving Food Security Through the Climate Village Program in the Madukoro Village Kajoran District Magelang

- Sriyono**
Simulation Learning Methods for Students' Understanding of Flood Disaster Preparedness Materials
- Sudardi, Bani**
The Transformation of the Dhukutan Oral Tradition into a Dance Film
- Sudardi, Bani**
Minangkabau in Film Integrative Learning Media for Alam Minangkabau
- Suharini, Erni**
The Local Wisdom of the Takome Community in Facing the Gamalama Volcano Eruption Disaster
- Suharso, R.**
The Minaret of Kudus: Social Text and Harmony Narrative in Rural Java
- Sukitman, Tri**
Challenges During the Pandemic: Using Learning Media in Learning at STKIP PGRI Sumenep
- Sulistyowati**
How Mothers Use Banyumas Dialect to Their Children and Their Friends in Purwokerto
- Sumarno, Setyo**
The Village Integrated Social Services Through the Social Welfare Center in Indonesia
- Sunardjan, YYFR**
Employment Structure of the Population in area Industry Village, East Ungaran Sub-district, Semarang Regency, Central Java Province, Indonesia
- Suprayogi**
Internalization of Pancasila Value at SMP Islam Plus at Thohari Tuntang Semarang Regency Indonesia
- Suprayogi**
Public Policy Formulation Based on Local Wisdom in Kenteng Village, Semarang Regency
- Suprianta, Nana**
Personal Approach: Alternative of Art to Seek For The Meaning of Historical Learning For Environmental Awareness
- Supriatna**
Local History for Creative History Learning During the COVID-19 Pandemic
- Supriatna, Nana**
Growing a Creative Preneure Through the Living Museum at Vocational School of PPN Lembang
- Supriatna, Nana**
Creative Learning Through Google Classroom in History Learning During the Covid-19 Pandemic
- Supriatna, Nana**
Cura Personalis in Creative Pedagogy
- Supriatna, Nana**
Ethnographic Study of the Umma Kalada Values of the Indigenous People of Loura and Its Application in Elementary Social Studies Learning
- Supriatna, Nana**
Growing Imaginative Creativity of Students Through Video Making with The Brainstorming Method in History Learning
- Supriatna, Nana**
Historical Literacy as Strengthening Character Education
- Supriatna, Nana**
Gamification in History Learning: A Literature Review
- Supriatna, Nana**
Using E-Module Based on Historical Thinking Skill as a Distance Learning Solution
- Supriyanto, Singgih**
Restoring Bottom-Up Management within Village's Cell: A Village Glory
- Suroso**
Analysis of Conflict Management Strategy in Social-Disaster Prone Community

- Susanti, Martien Herna**
The Implementation of Child-Friendly School in SD Ummul Quro, Semarang Regency
- Susanti, Martien Herna**
The Dynamics of Local Democracy on Simultaneous Election in Semarang District
- Susanti, Martien Herna**
Incumbent Communication Strategies VS Empty Boxes in Semarang Local Election 2020
- Susanti, Martien Herna**
Blusukan Culture and Familism in Local Democracy
- Susilo, Dimas Rachmat**
Growing a Creative Preneure Through the Living Museum at Vocational School of PPN
Lembang
- Susilo, Dimas Rachmat**
Personal Approach: Alternative of Art to Seek For The Meaning of Historical Learning For
Environmental Awareness
- Suyahmo**
Study Phenomenography (Phenomenographic Approach) Towards Trauma Healing Patterns
on Community Conflict Victims in the Slope of Merapi Merbabu in Boyolali
- Tjahjono, Heri**
The Analysis of Household Food Security Level in Jelobo Village, Klaten Regency, Central
Java
- Tohari, Amin**
From Longan to Avocado: Economic Strategy of Farmers in Agricultural Business in
Bandungan District Central Java
- Trihatmoko, Edy**
Restoring Bottom-Up Management within Village's Cell: A Village Glory
- Uddin, Hafiz Rafi**
Implementation of Zakat Savings Member of Sharia Financial Services Cooperative (Kjks)
for Economic Empowerment of Small and Medium Enterprises in Semarang In 2021
- Uddin, Hafiz Rafi**
Incumbent Communication Strategies VS Empty Boxes in Semarang Local Election 2020
- Utami, Kharista Setyo Nur**
Growing Imaginative Creativity of Students Through Video Making with The Brainstorming
Method in History Learning
- Utomo, Cahyo Budi**
History Teacher Initiative Improves the Quality of Digital-Based Learning in the Covid-19
Pandemic
- Wahap, Abdul Azis**
Ethnographic Study of the Umma Kalada Values of the Indigenous People of Loura and Its
Application in Elementary Social Studies Learning
- Wahidah, Baiq Farhatul**
Knowledge of Medicinal Plants as Popular Medicine in Bendan Duwur Community,
Semarang City
- Wardhani, Novia Wahyu**
The Effectiveness of Snakes and Ladders Game for the Social-Emotional Development of
Children in the Pandemic Time Covid 19
- Wardhani, Novia Wahyu**
Public Policy Formulation Based on Local Wisdom in Kenteng Village, Semarang Regency
- Wasino, Wasino**
Rural Society of the Mountain Region: Road Access and Economy
- Wicaksono, Harto**
Perception of the Consumer Community on Traditional Herbal Drink of Ngadirgo Semarang
- Wicaksono, Harto**
Local Education Practices of Sedulur Sikep Community: Resisting Formal Education and
Developing the Value of Local Education
- Widiyanto, Yudha Pratama**
Public Policy Formulation Based on Local Wisdom in Kenteng Village, Semarang Regency

- Widodo, Sahid Teguh**
Minangkabau in Film Integrative Learning Media for Alam Minangkabau
- Widyatmoko, Bambang Eko**
Assessment of Vulnerability and Community Preparedness Against Flood Disaster During Covid-19 Pandemic Period in Semarang City
- Wijaya, Atika**
Ecological Problem Behind Marine Tourism in Karimunjawa: A Threat to Local Community?
- Wijayanti, Tutik**
Entrepreneurship Education for Students in Higher Education
- Wijayanti, Tutik**
Star Mobile Apps: An Android-Based Learning Media to Support Paperless Policy and the Merdeka Belajar Program Implementation
- Wijayanti, Tutik**
Improvement of Teacher Competence in Making Android-Based Evaluation Instruments at the AT Tohari Foundation, Semarang Regency
- Wijayanto, Pradika Adi**
The Utilization of Technology-Based Webgis as an Effort to Establish the Spatial Thinking Ability of Geographic Students In High School
- Winda, N L**
The Effectiveness of Snakes and Ladders Game for the Social-Emotional Development of Children in the Pandemic Time Covid 19
- Wirajaya, Asep Yudha**
The Transformation of the Dhukutan Oral Tradition into a Dance Film
- Wiratomo, Giri Harto**
Internalization of Pancasila Value at SMP Islam Plus at Thohari Tuntang Semarang Regency Indonesia
- Wulandari, Nurma**
Potentials of Student Entrepreneurship to Encourage the Growth of Entrepreneur Culture in New Normals in FIS UNNES Students
- Yulifar, Leli**
Growing Imaginative Creativity of Students Through Video Making with The Brainstorming Method in History Learning
- Yulifar, Leli**
Gamification in History Learning: A Literature Review
- Yuliono, Agus**
Local Education Practices of Sedulur Sikep Community: Resisting Formal Education and Developing the Value of Local Education
- Yuniati, Eka**
Perception of the Consumer Community on Traditional Herbal Drink of Ngadirgo Semarang
- Yusuf, Husmiati**
The Village Integrated Social Services Through the Social Welfare Center in Indonesia
- Zakiyah, Neza**
Assessment of Vulnerability and Community Preparedness Against Flood Disaster During Covid-19 Pandemic Period in Semarang City
- Zamzuri, Norol Hamiza**
Ecological Problem Behind Marine Tourism in Karimunjawa: A Threat to Local Community?
- kurniasari, Alit**
The Village Integrated Social Services Through the Social Welfare Center in Indonesia

The Role of the Disaster Preparedness Group in Adapting Abrasion to Communities Affected by Abrasion on the North Coast of Rembang, Central Java

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ABSTRACT

Disaster mitigation efforts through increased vigilance and preparedness must be sustained. The Disaster Preparedness Group (KSB) is a partner of the BPBD of Rembang City in disaster risk reduction. People who are members of KSB in areas prone to abrasion disasters are still pretty much clueless about abrasion disaster mitigation efforts. Public ignorance of disasters can result in losses that will befall residents. KSB has a vital role in providing information and assistance for the surrounding community. The research objectives were 1) to determine the incidence of abrasion in Kragan Village, 2) to analyze the role of KSB in handling and adapting the community to abrasion disasters. A qualitative approach is used in this research. The research focused on the activities and roles of KSB in handling coastal abrasion. Research informants include family heads who live in abrasion-prone areas, village heads, and community leaders. The results showed that the KSB, during a disaster and pre-disaster, had a role in providing socialization and education to the community. However, this activity still encountered obstacles, so that it was not yet effective. The obstacles include the absence of operational funds for activities owned by the Disaster Preparedness Group, no supporting facilities and infrastructure for activities, the existence of conditions where some members do not care, and the condition of the people in the area. The role of the community in self-supporting coastal management in reclamation has various challenges, particularly in the aspects of funding, mindset, infrastructure, and community participation, that need solutions.

Keywords: *Disaster Mitigation, Disaster Preparedness, Disaster Education, Abrasion.*

1. INTRODUCTION

Rembang Regency is one of the districts in Central Java that has a high vulnerability to disasters. Various disasters such as floods, landslides, earthquakes, and abrasion have occurred in Rembang Regency [1]. Especially in abrasion, the area most prone to being affected is in five districts, namely Kaliore District, Rembang District, Lasem District, Sluke District, Sarang District, and Kragan District [2]. Kragan Subdistrict is a sub-district that has experienced the

most severe impact compared to the other four sub-districts, where there were at least nine times abrasions in the last nine years from 2012 to 2020 or it means that the average abrasion disaster occurs every year as shown in Table 1. Based on the results of processing data obtained by the Regional Agency for Disaster Management (BPBD), it was noted that the abrasion disaster caused material losses of at least IDR 889 million along with indirect impacts, such as obstructed social activities of communities and unfulfilled community food needs.

Table 1. Abrasion Disaster in Kragan District, 2012-2020

No.	Year	Village	Loss
1.	2012	Kragan	Rp. 89.000.000
2.	2013	Kragan	-
3.	2013	Sumurtawang	-
4.	2014	Tanjungan	-
5.	2016	Karangharjo	Damage up to 235 meter long
6.	2017	Tegalmulyo	Damage up to 250 meter long
7.	2018	Karangharjo	Damage up to 250 meter long
8.	2019	Kragan	Rp. 200.000.000
9.	2019	Pandangan	Rp. 600.000.000

Source: BPBD of Rembang Regency, 202

The high vulnerability of abrasion in Kragan Subdistrict has not been followed by adequate knowledge, attitudes, and community skills in dealing with this disaster. Based on the observations conducted, it is known that the community is still carrying out various activities that can trigger disasters, such as mining sand and rocks, cutting down mangroves, and reluctance to take mitigation and adaptation efforts to prevent disasters from occurring. People even still use a conventional point of view, where they position themselves as "objects" who are victims of abrasion, not as "subjects" who seek to prevent abrasion by first increasing their knowledge and capacity in dealing with abrasion disasters [3].

Therefore, there need to be efforts to raise awareness and increase knowledge and capacity of disasters to the community through disaster education [4]. Disaster education can be provided both before and after a disaster occurs. Before a disaster occurs, disaster education will be very effective in building community awareness and preparedness [5], [6]. After and before a disaster, providing disaster education will increase the community's capacity in dealing with disasters that will occur again [7], [8]. Disaster education provided after a disaster, such as in Kragan Village, Kragan District, enables people to learn about disasters based on contextual experiences [9]. Disaster education given contextually based on directly experienced problems will be easier to understand and apply in everyday life [10], [11].

One of the parties that play an essential role in providing disaster education to the community is higher education as a formal education institution [4]. One of these efforts can be made through the Disaster Preparedness Group (KSB) program. The implementation of the KSB is expected to increase the knowledge, attitudes, and skills of the Kragan Village community in dealing with abrasion disasters. The implementation of KSB certainly requires quite a long time and with the assistance of experts because building

the mindset of the community to have mastery over disasters must be done in a structured, massive, and systematic manner [12]. The continuity of the KSB work program that is sustainable from generation to generation will produce Kragan Village that is alert in the face of abrasion disasters. The research objectives were 1) identifying the incidence of abrasion in Kragan Village and 2) analyzing the role of KSB in handling and adapting the community to abrasion disasters.

2. METHODS

A qualitative approach was used in this research. The research subjects were people affected by the abrasion disaster. The research locations include 13 villages along the Kragan coast affected by coastal hazards, divided into fishing villages and non-fishing villages. A purposive sampling system was used to extract information that can meet the research objectives. The research focused on the activities and roles of KSB in handling coastal abrasion and losses due to abrasion. The primary informants of the study include heads of families who live in areas prone to abrasion, while the key informants are village heads and community leaders.

Data collection was carried out through observation, questionnaires, and interviews. Observations were conducted by observing the abrasion location, including the range of abrasion, physical and non-physical impacts, handling efforts, and community behavior in the coastal area. Secondary data includes data on the incidence of abrasion and tidal waves, data on damage, data on disaster management, and data on water characteristics and coastal social and physical characteristics. Data from interviews and observations were analyzed using descriptive qualitative.

3. RESULTS AND DISCUSSION

3.1. Abrasion Disaster in Kragan Village

The types of hazards that occur in coastal areas are abrasion, accretion, and tidal waves. Damage is divided into damage to land, settlements, and public facilities. Kragan Subdistrict, Rembang Regency is also prone to them. Disaster risk is influenced by hazard, vulnerability, and community capacity—the dynamic processes influence coastal hazards. The Kragan coastal community consists of fishers, farmers, and fish

Village in Kragan Subdistrict cannot sleep soundly every time the eastern climate arrives. The waves usually occur from day to night time. At night, seawater rises to the ground, crashing and scavenging the field and waterways. Not only the house but several graves in the public cemetery area of Karangharjo Village, Kragan Subdistrict, Rembang City, were damaged by being hit by big waves so that the condition of the graves were getting worse, some were even missing due to the onslaught of the waves, resulting in abrasion. Figure 1 showed the damage to houses and graves due



farmers. Residents along the coastal area of View to abrasion.

Figure 1. Damage to houses, eroded beaches, and damage to graves

The onslaught of every strong wave, which causes the coast to be eroded, is known as coastal erosion or abrasion (Figure 2). The results of the beach's scouring are carried to the sea, and the sea waves will continue to erode according to the strength of the wind, wind direction, and the strength of the wind movement that carries the movement on the sea surface. The impact of the crashing waves will always get worse when it enters the eastern wind season.

Various attempts were made to resist the waves of seawater. A temporary effort was made by piling sandbags on the beach along a residential area. Moreover, the government is seeking funds for long-term management to save the residential environment of residents. Local fishers are worried that if embankments are made, they cannot moor their boat. Therefore, it is necessary to make a suitable coastal embankment to moor their boats.



Figure. 2. The condition of eroded beach is called beach erosion or abrasion

An abrasion is an event with a high level of risk, so it requires serious handling that does not erode coastal areas near residential areas. The Rembang Regency Government has made efforts to build a wave barrier in Kragan Village in an 80-meter long concrete riprap. One way that can be done to minimize the risk of abrasion is mitigation, namely structural mitigation, and non-structural mitigation. Structural mitigation is an effort to reduce disaster risk through physical development by making concrete riprap, gabions, embankments, and the like. On the other hand, non-structural mitigation is carried out by increasing the capacity of the community, for example, conducting socialization, simulations, and others. Structural mitigation efforts by making physical buildings are

primarily carried out for abrasion handling in several regions in Indonesia [13].

Rembang Regency, as one of the areas with a high risk of abrasion, has implemented several forms of structural mitigation. According to [13], structural abrasion barrier mitigation can be done through mechanical and vegetative means. Structural mitigation efforts are being executed by arranging limestone rocks on the coast of Rembang. Another form of abrasion barrier found in Rembang Regency is a concrete pipe. The structural method by mechanical means of this concrete pipe model is rarely used in other areas in Indonesia because, in general, concrete pipes function as culverts in residential areas. Installation of concrete pipes is done by digging a little (> 50 cm) of soil in the coastal area and planting concrete pipes in the excavated hole. The hollow concrete pipe is filled with soil which functions as a load so that the waves do not easily knock it over. Concrete pipes are usually installed in areas that have a typology of muddy beaches. The description of concrete pipes in Rembang Regency can be seen in Figure 3.



Figure 3. An abrasion resistant barrier in the form of a concrete pipe [13]

3.2. The Role of KSB in Handling and Adaptation of Abrasion Disaster in Kragan Village

According to Head Regulation No. 1 BNPB on General Guidelines for Disaster Resilient Villages and Sub-Districts (2012), Disaster Preparedness Group / Disaster Risk Reduction Groups or Disaster Management Volunteer Teams are the village level groups that play a vital role as the pioneers or drivers of disaster risk reduction activities. The Disaster Preparedness Group (KSB) was formed by BPBD, which is expected to be the extended hand of the government in implementing disaster management. The Disaster Preparedness Group is an organization whose members come from the community. The government (BPBD) recommended that the community partake in implementing policies or in dealing with public problems.

The role of KSB during the pre-disaster period was to provide socialization and education to the community. The activities of KSB in assisting the community provide much understanding regarding the risk of abrasion disasters, the impacts caused by abrasion, and the precaution to minimize the risk of abrasion disasters. However, this activity still encountered obstacles, so that it has yet to be effective. The obstacles include the absence of operational funds for activities owned by the Disaster Preparedness Group, lack of supporting facilities and infrastructure for activities, the behavior of some members who do not care, and the living condition of the people in the area. The community also plays a role in coastal management through self-help in reclamation and handling of coastal damage by planting various plants that inhibit the rate of abrasions, such as pandanus, coastal cottonwood (waru), and purple coral tree (canging) [14].

KSB programs that exist, among others, are dissemination of disaster response, picket guard posts, predicting disaster threats, training, providing information and disseminating information on disaster threats, and holding meetings with local communities regarding disaster management [14]. The formation of KSB has the main objective of forming a disaster response community, meaning that the community is more prepared and resilient in facing all kinds of disaster threats. The Disaster Preparedness Group has several task forces or working groups, including the Early Warning Task Force, the First Aid Task Force, the Evacuation and Rescue Task Force, the Logistics Task Force, and the Security Task Force.

The role of KSB is evident in three aspects, namely the communication aspect, the evacuation aspect, and the shared kitchen. However, the role of the Disaster Preparedness Group in the knowledge and attitude of flood disaster preparedness has yet to be appropriately implemented. The unsuccessful implementation follows an interview with the KSB, who admitted that they had not conducted training and outreach to residents directly. This statement was supported by the results of interviews with residents who claimed not to know about the KSB activities and did not know about any training or outreach to residents and the results of the knowledge tests that were only in the 'good enough' category. Community knowledge and attitudes were gained from personal experience during a disaster and learning experiences from education, television, or social media. The Disaster Preparedness Group has obstacles and constraints that prevent their role from being carried out properly, namely the lack of funds, facilities, human resources, and low awareness of residents about disasters.

In detail, these obstacles consist of the absence of operational funds for the Disaster Preparedness Group's activities, the absence of supporting facilities and infrastructure for activities, the existence of conditions where some members do not care, and the condition of

the people in the area. The Disaster Preparedness Group is a partner of BPBD in disaster risk reduction. The following is an explanation of forming KSB based on several stages (Figure 4).

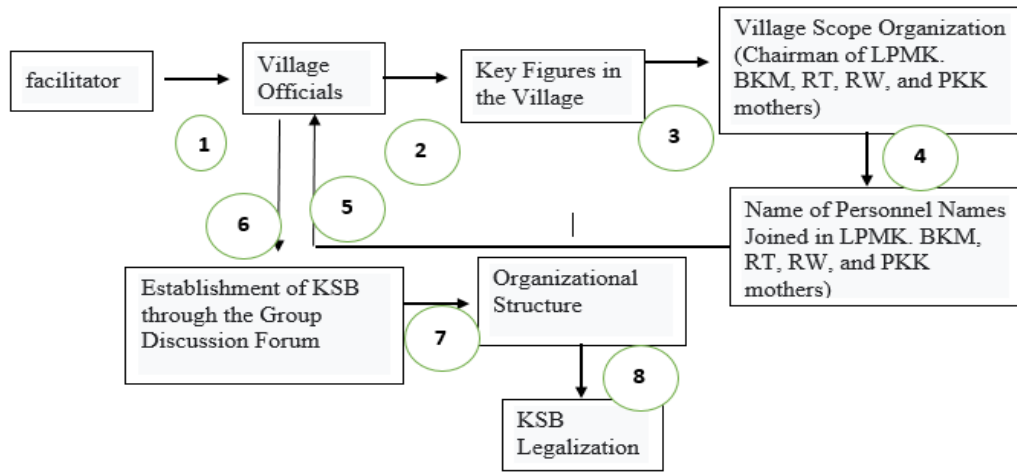


Figure 4. The process of establishing KSB [12]

Information:

1. The facilitator conducts interviews to find critical figures
2. Sub-district officials provide information on critical figures, as sources
3. The critical figures come from sub-district organizations (Head of LPMK, BKM, RW, RT, PKK women)
4. The critical figures provide information on the names to be invited in a focus group discussion to establish KSB
5. The facilitator verifies the sub-district officials
6. Focus group discussion on the establishment of KSB
7. Arranging KSB organizational structure
8. Legalized KSB with District and Sub-District Decree.

4. CONCLUSION

The abrasion disaster in Kragan Village needs special attention. Moral and material assistance must continue to be carried out by the community in various ways. Adaptation is a reasonable effort for the community in the area. The existence of KSB as a companion to abrasion-prone communities plays a vital role in realizing community preparedness for abrasion disasters. KSB becomes a bridge between the government and the community. They are expected to disseminate information and provide preparedness training from the government to the surrounding community. However, they also face various obstacles, especially funding, infrastructure, and community participation.

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