

**PENGESAHAN
PUBLIKASI ILMIAH PADA JURNAL INTERNASIONAL BEREPUTASI**

Examining the Forms and Variations of the Lampung Script in Ancient Manuscripts



**Dr. Nurlaksana Eko Rusminto, M.Pd.
NIP 196401061988031001**

**FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN
UNIVERSITAS LAMPUNG
2022**

HALAMAN PENGESAHAN
PUBLIKASI ILMIAH PADA JURNAL INTERNASIONAL BEREPUTASI

Judul Artikel : Examining the Forms and Variations of the Lampung Script in Ancient Manuscripts

I. IDENTITAS PENULIS

- a. Nama Lengkap : Dr. Nurlaksana Eko Rusminto, M.Pd.
- b. NIDN/NIP : 0001066404/196401061988031001
- c. Jabatan Fungsional : Lektor Kepala
- d. Jurusan/Program Studi : Pendidikan Bahasa dan Seni/Pendidikan Bahasa dan Sastra Indonesia
- e. Nomor HP : 082178129966
- f. Alamat surel (e-mail) : Nurlaksana.eko@fkip.unila.ac.id

II. IDENTITAS JURNAL (Tempat terbit artikel ilmiah)

- a. Nama Lengkap Jurnal : Wseas Transactions on Environment and Development
- b. Nama Singkatan Jurnal : Wseas Transactions on Environment and Development
- c. Nomor ISSN : 2224-3496
- d. Cakupan Bidang Ilmu : Education (General)
- e. Alamat Redaksi : University of Naples "Federico II" Via Claudio, 21-80125 Naples Italy
- f. Penerbit : WSEAS Press
- g. Volume/No terbit : 18/2022
- h. Tgl/Bln/Thn terbit : 15 Januari 2022
- i. Lembaga Pengindeks : Scopus (Q3, SJR=0,19)
- j. Alamat Website Jurnal : <https://wseas.com/journals/ead/2022/a445115-733.pdf>
- k. Alamat Repository Unila : <http://repository.lppm.unila.ac.id/id/eprint/41545>

Bandar Lampung, 22 Desember 2022



Penulis,

Dr. Nurlaksana Eko Rusminto, M.Pd.
NIP 196401061988031001

Menyetujui,
Ketua LPPM Universitas Lampung

Prof. Dr. Ir. Lusmeilia Afriani, D.E.A.
NIP 196505101993032008

| DOKUMENTASI LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT UNIVERSITAS LAMPUNG | |
|--|--------------------|
| TGL | 11/01/2023 |
| NO. INVEN | 22/S/B/1/FKIP/2023 |
| JENIS | jurnal |
| PARAF | J |

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T

ON ICY

JRNALS
SEAS

ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-



[Main](#) | [Submit](#) |

[Indexing](#) | [Archive](#) |

[Topics](#) | [Description](#) |

[Terms](#) | [Fees](#) |

[Preservation](#) | [Editors](#) |

[Certifications](#) |

[Responses](#) |

Search Articles

Search Articles here

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T

ON ICY

JRNALS

ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

WSEAS Transactions on Environment and Development

Print ISSN: 1790-5079, E-
ISSN: 2224-3496

Volume 18, 2022

Carlos Granados Ortiz,
Sweney Giraldo Aristizabal,
Ivan Padilla Escorcía, Yesika
Rojas-Sandoval, José
Gregorio Solórzano Movilla,
Salomón David Consuegra
Pacheco, Yolima Rocha
Fontalvo,

"Family Parents' Perspective
of Different Social-
Economical Statuses about
the Online and Offline
Classes during the COVID-19
Pandemic", WSEAS

Transactions on
Environment and

CTIONS FROM THE EDITORS-IN-

Development, vol. 18, pp.
1373-1383, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Hady Kazzni, Jihad Daba,
Nabil Semaan,
"A Novel Combination
Scheme of the Modified
TOPSIS and ITARA in Housing
Assistance and Building
Assessments", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
1360-1372, 2022

Tudorica M., Ghemis M. T.,
Bob C.,
"The Sustainability of a
Building Made by using of
Recycling Materials", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
1352-1359, 2022

Pauline Choo, Jayaraman
Krishnaswamy, Ree Chan
Ho, Mohd Faizal Bin Fauzan,
"Review on Determinants
Influencing Solar PV
Adoption in Malaysia: A
Conceptual Framework",

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

<https://wseas.com/journals/ead/2022.php>

WSEAS Transactions on
Environment and
Development, vol. 18, pp.
1340-1351, 2022

Ramírez-Lara E., Cerón-
Bretón J. G., Cerón-Bretón R.
M., López-Chuken U. J.,
Vichique-Morales A., Uc-Chi
M. P., Hernández-López G.,
Solis-Canul J. A., Lara-
Severino R. C., Rangel-
Marrón M., Robles-Heredia J.
C.,

"BTEX Atmospheric Levels
and Health Risk in an Urban
Site in Ciudad del Carmen,
Campeche", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
1332-1339, 2022

Mehdi Abid, Zouheyr
Gheraia, Hanane Abdelli,
Raja Hajji,

"How Does Informal
Economy Affect Ecological
Footprint? Empirical
Evidence from Saudi Arabia",

WSEAS Transactions on
Environment and
Development, vol. 18, pp.

CTIONS FROM THE EDITORS-IN-

1320-1331, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

<https://wseas.com/journals/ead/2022.php>

Antonio Pratelli, Patrizia
 Cinelli, Maurizia Seggiani,
 Giovanna Strangis,
 Massimiliano Petri,
 "Agricultural Plastic Waste
 Management", WSEAS
 Transactions on
 Environment and
 Development, vol. 18, pp.
 1312-1319, 2022

Mustafa B. Al-Hadithi,
 Abdulhassan A. Karamalla,
 "Experimental Investigations
 of Heat-Flux and
 Temperature Predictions by
 New Inverse Technique",
 WSEAS Transactions on
 Environment and
 Development, vol. 18, pp.
 1304-1311, 2022

Guilherme S. Teixeira, Marco
 D. De Campos,
 "Wind Loads in Low-Rise
 Buildings with Parapet: A
 Systematic Review", WSEAS
 Transactions on
 Environment and
 Development, vol. 18, pp.

1296-1303, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Abdulla Iskandarov, Lola Gandjaeva, Dilshod Musaev, Gulnara Mirzayeva, Bakhtiyor Kholmatov, Hasan Jumanazarov, Aygul Jangabaeva, Kahramon Razzakov, Ulmasbek Abdullaev, Ikram Abdullaev, "Updated Checklist of the Pentatomidea (Heteroptera: Pentatomomorpha) of Uzbekistan", WSEAS Transactions on Environment and Development, vol. 18, pp. 1283-1295, 2022

Patrizia Cinelli, Nicoletta Barbani, Sara Filippi, Giovanna Strangis, Marco Sandroni, Antonio Pratelli, Maria J Lopez, Pablo Barranco, Tomas Cabello, Patricia Castillo, Marie Aline Pierrard, Maurizia Seggiani, "Innovative Biotic Symbiosis for Plastic Biodegradation to Solve their End-of-Life Challenges in the Agriculture and Food Industries", WSEAS Transactions on

CTIONS FROM THE EDITORS-IN-

Environment and
Development, vol. 18, pp.
1276-1282, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

Narong Pleerux, Narissara
Aimkuy, Attawut Nardkulpat,
"Water Consumption
Assessment of Mangosteen:
A Bottom-Up Approach",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
1267-1275, 2022

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T

Feni Rosalia, Yulianto, Tina
Kartika, Jeni Wulandari, Albet
Maydiantoro,
"A Network of Twitter User
on Stunting Issue in
Lampung, Indonesia",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
1259-1266, 2022



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

T. V. Yanich, M. A. Derkho, A.
A. Tegza,
"The Hemostatic System and
Its Variability during
Pregnancy of Holstein Breed
Animals", WSEAS
Transactions on

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

<https://wseas.com/journals/ead/2022.php>

Environment and
Development, vol. 18, pp.
1252-1258, 2022

Vien the Giang, Vo Thi My
Huong,
"Dealing with Weak
Commercial Banks in
Restructuring the System of
Credit Institutions in
Vietnam using Consolidation,
Merger, and Acquisition: The
Change from Administrative
Orders to Market
Mechanisms", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
1239-1251, 2022

Abdelkarim Elmoumen,
Naeimah Fahad S
Almawishir, Houcine
Benlaria, Taha Khairy Taha
Ibrahim,
"Measuring the Impact of
the General Budget Deficit
on the Trade Balance Deficit
in Algeria for the Period
1990-2020", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.

CTIONS FROM THE EDITORS-IN-

1226-1238, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

<https://wseas.com/journals/ead/2022.php>

Liliia Honchar, Alina

Poplavska, Valentina

Rusavska, Sergii Neilenko,

Iryna Holubets, Maryna

Bratitsel,

"Key Concepts of Designing

Business Processes in

Hospitality Enterprises:

Trend Analysis", WSEAS

Transactions on

Environment and

Development, vol. 18, pp.

1216-1225, 2022

Ikram Abdullaev, Lola

Gandjaeva, Zafar

Matyakubov, Manzura

Doschanova, Bakhtiyor

Kholmatov, Rasul Ruzmetov,

Abdulla Iskandarov, Odilbek

Otaev, Shodlik Ibragimov,

Shirin Atajanova,

"Survival of A. Ahngerianus

(Isoptera: Hodotermitidae)

Under the Influence of

External Factors (Relative

Humidity and Temperature)

and Use of Different Water

Sources", WSEAS

Transactions on

Environment and

CTIONS FROM THE EDITORS-IN-

Development, vol. 18, pp.
1208-1215, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Arian Behradfar, Rui
Alexandre Castanho,
Mojtaba Khanian, Soheil
Mohammadi, Hamidreza
Mohammadi, Ana Loures,
Luis Loures,
"Using A Study of the Social
Challenges of Urbanization
in the Next 30 Years based
on Age Transition and
Comprehensive Plans for
Iranian Cities: The Case of
Hamedan City", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
1198-1207, 2022

Nguyen Thi Phuong Hong,
"Factors Affecting Enforced
Tax Compliance of
Businesses in Vietnam",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
1174-1197, 2022

Bislim Lekiqi, Afrim Loku,
Emin Neziraj,

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

"The Talent Management and Strategic Perspectives of Their Preoccupation and Commitment in High Research Institutions", WSEAS Transactions on Environment and Development, vol. 18, pp. 1158-1173, 2022

Andrii Reznik, Svitlana Lavrynenko, Antonina Zeliska, Nataliia Mardus, Oksana Samborska, "The Experience of European Countries in Managing the Expenditures of Enterprises in the Agricultural Sector", WSEAS Transactions on Environment and Development, vol. 18, pp. 1143-1157, 2022

Sup Amornpinyo, "The Impact of the Covid-19 Pandemic on Consumer Spending in Flea Markets Evidence in Thailand", WSEAS Transactions on Environment and Development, vol. 18, pp.

CTIONS FROM THE EDITORS-IN-

1136-1142, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Alake O. R, Adegbuyi O. A,
Babajide A. A,
"Values Creation and
Sustainable SMEs
Operational Resilience in the
new normal: Empirical
evidence from Nigeria",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
1129-1135, 2022

M. Lourenço, A. Silva-Afonso,
C. Pimentel-Rodrigues,
"Performance Indicators for
Water Supply in Buildings",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
1115-1128, 2022

Ferim Gashi, Ibrahim
Ramadani,
"The Compact City -
Measuring Urban Sprawl
Using GIS", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.

CTIONS FROM THE EDITORS-IN-

1106-1114, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Immas Nurhayati, Endri
Endri, Desmy Riani, Widhi
Ariyo Bimo,
"Community's Potential and
Preferences for Islamic
Banking : the Case of
Indonesia", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
1094-1105, 2022

Khystyna Pletsan, Volodymyr
Antonenko, Alla Havryliuk,
Andriy Motsa, Tibor Izhak,
"Creative Principles of
Cultural Tourism
Development in Ukraine",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
1085-1093, 2022

Tareq Mohammad
Almomani, Mohammed
Ibrahim Sultan Obeidat,
Mohammed Abdullah
Almomani, Nadeen
Mohammed Adnan M.Y
Darkal,

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

"Capital Structure and Firm Value Relationship: The Moderating Role of Profitability and Firm Size Evidence from Amman Stock Exchange", WSEAS Transactions on Environment and Development, vol. 18, pp. 1073-1084, 2022

Mengyan Sheng, Norazlyn Kamal Basha, "A Conceptual Framework to Study Effective Short-Video Platform Advertising on Chinese Generation Y Consumer Online Purchase Intention", WSEAS Transactions on Environment and Development, vol. 18, pp. 1055-1072, 2022

Elena Paunova-Hubenova, Dimitar Karastoyanov, Elisaveta Trichkova-Kashamova, "Contemporary Technical Solutions for Milking Stalls and Dairy Barns with AMS", WSEAS Transactions on Environment and

CTIONS FROM THE EDITORS-IN-

Development, vol. 18, pp.
1049-1054, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

Sakina Babashova,
"Predicting the Dynamics of
Covid-19 Propagation in
Azerbaijan based on Time
Series Models", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
1036-1048, 2022

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

Viktoriiia Kyfyak, Liudmyla
Verbivska, Liudmyla
Alioshkina, Nataliia Galunets,
Larysa Kucher, Svitlana
Skrypnyk,
"The Influence of the Social
and Economic Situation on
Agribusiness", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
1021-1035, 2022

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

Tala Sasa, Wafa A. Ahmad,
Nawal H. Bahtiti, Maha
Abujaber, Abeer Adeyleh,
Omniya Miri,
"Assessment Level of
Environmental Literacy

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

among Applied Science
Private University (ASU)
students", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
1012-1020, 2022

Adeniji A. Antonia, Matthew
A. Oluwatoyin, Olawande
Tomike, Ogueyungbo O.
Opeyemi, Ohunakin
Folakemi,

"Inclusive Leadership and
Organisational Commitment:
A Focus on the Role of
Women", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
1005-1011, 2022

Nevila Baci, Gjergji Mulla,
Denisa Millo, Klei Xhyheri,
"Foreign Direct Investment
and Its Drivers: an Empirical
Comparative Study on
Developed and Developing
Countries", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.

992-1004, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-
<https://wseas.com/journals/ead/2022.php>

Kalvis Ciekurs, Ivars Kravalis,
Anastasija Ropa, Inese
Mavlutova, Janis Hermanis,
"Changing Teaching Methods
under the COVID-19
Pandemic for Generation Z
Physical Activities: Gender
Differences", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
980-991, 2022

Kaoutar Abbahaddou,
Mohammed Salah Chiadmi,
"Comparative Analysis of the
Performance of Expert's
Systems and Machine
Learning Models in the
Context of Islamic Stock
Market", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
972-979, 2022

Shafa Guliyeva, Reyhan
Azizova,
"Methodology for Assessing
and Predicting the Rate of

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Development of Education in the Republic of Azerbaijan", WSEAS Transactions on Environment and Development, vol. 18, pp. 962-971, 2022

Yerima Hamman Wabi, Cross Ogohi Daniel, Hadiza Saidu Abubakar, "Impact of Corporate Social Responsibility on Internally Displaced Persons in North-East, Nigeria", WSEAS Transactions on Environment and Development, vol. 18, pp. 952-961, 2022

Sawssan Saadaoui, Mohamed Benmeriem, Hanane Abdelli, Zouheyr Gheraia, "How Did Covid 19 Affect Strategic Goods? A Study Using the Scenario Method", WSEAS Transactions on Environment and Development, vol. 18, pp. 944-951, 2022

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Abdullah E. M. F. Alrashidi,
Waleed Fekry Faris, Ahmad
M. S. Arafat,
"Short Review on Organic
Food Supply Chain
Management in Malaysia",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
937-943, 2022

Agil Mammadov,
"Soft Power Phenomenon in
Azerbaijan Foreign Policy: A
Study on the Tourism
Sector", WSEAS Transactions
on Environment and
Development, vol. 18, pp.
930-936, 2022

Nadiia Andrusenko, Liliia
Martynova, Vitalii Sharko,
Kateryna Garbzhii, Serhii
Hyrych, Olga Vasylyshyna,
"Changes in the Organic
Products Market as a Result
of the 2022 Events in
Eastern Europe", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
918-929, 2022

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Joan Ekhomeh Ehilebo,
Hauwa Lamido-Abubakar,
Daniel Ogohi Cross,
"Effect of Workforce
Diversity on Employee
Performance in Domestic
Systemically Important
Banks (DSIBs) in Nigeria",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
908-917, 2022

Almuatasim Musabah Saif Al
Mutairi, Suzaida BTE. Bakar,
"Does Institutional
Ownership Enhance a Firm's
Financial Performance? A
Study From Emerging
Economies", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
899-907, 2022

Murat Kunelbayev, Taganova
Guldana, Abdildayeva Assel,
Zhadyra Zhumasheva, Tletay
Sholpan, Kurmanali
Meiramgul, Duissebayeva
Laura, Kurbanaliyeva Aiman,
"Experimental Testing and
Numerical Simulation of a

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Single-Circuit Solar Water
Heater with a
Thermosiphon", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
894-898, 2022

Radmyla Voitovych, Mariia
Masyk, Denys Darmostuk,
Nataliia Zlenko, Iryna Yatsyk,
Marina Shulga,
"Institutional Resilience of
Public Governance Under
Conditions of Sustainable
Development", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
884-893, 2022

Faiz Ur Rahim, Tahira Niaz,
Sania Shaheen, Madiha
Asma, Lal K. Almas,
"A Composite Impact of
Urbanization and
Liberalization on
Environmental Degradation
in Developed and
Developing Economies",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.

873-883, 2022

TIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

TIONS FROM THE EDITORS-IN-

Supriyadi, Ika Wulandari
Utaming Tias, Amina
Izzatika, Ryzal Perdana,
"Empowerment of Critical
and Creative Thinking (CCT)
Skills Through Student
Worksheets Based on
Inquiry Social Complexity
(ISC)", WSEAS Transactions
on Environment and
Development, vol. 18, pp.
865-872, 2022

Melba Rita Vásquez Tomás,
Judith Soledad Yangali
Vicente, Maruja Dionisia
Baldeón De La Cruz, Delsi
Mariela Huaita Acha,
"Environmental Literacy and
Its Impact on Sustainable
Pedagogical Behaviors of
Basic Education Teachers,
Lima-Peru", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
856-864, 2022

Gehan Nagy, Khalid Dewidar,
Mona Azouz, Marian Nessim,

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Dina Salem, Yasmine Sabry,
Fayrouz Ashraf,
"Local Management
Strategies for Preventive
Conservation of Historic
Buildings "Controlling
Deterioration Caused by Air
Pollution"" , WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
843-855, 2022

Arzu Abilova, Basti Aliyeva,
"Impact of Covid-19 on
Digital Transformation and
Resilience of Small and
Medium Enterprises: The
Case of Azerbaijan", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
836-842, 2022

Osama M. Al-Habahbeh,
Romil S. Al-Adwan, Mustafa
A. Al-Khawaldeh,
"Macro-engineering Design
for an Artificial Lake in
Southeastern Jordan",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.

825-835, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

Chu Thi Hong Nhung,
Nguyen Thi Nhung, Vu Thi
Huong Giang, Le Thi Luan,
"Applying Kolb D.A's
Experiential Learning Model
to Educate Kindness for 5-6
Year Old Children in
Vietnam", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
810-824, 2022

Nataliia Savytska, Olena
Zhehus, Hanna Chmil,
Nataliia Uchakova, Tetiana
Androsova, Olha Priadko,
"Applied Research of Digital
Readiness of Retails", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
798-809, 2022

Biljana Stojan Ilic, Safwan Al
Salaimeh, Slavica Andjelic,
"Effect of Human Resource
Management Functions on
the Balanced Scorecard –
Case Study Jordanian Public

CTIONS FROM THE EDITORS-IN-

[Joint-stock Companies",](#)
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
789-797, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

Ali Al Nasser, Juraifa Jais,
["The Effect of Organizational
Culture on Organizational
Performance of Saudi
Higher Education: The
Mediating Role of Human
Resource Development",](#)
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
777-788, 2022

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

[IES IN MEMORANDUM WITH](#)

Sembrika N. Ivanova, Bair O.
Gomboev, Vitaly E. Tsydypov,
Valentina G. Ayusheeva,
Alexander A. Ayurzhanayev,
Bator V. Sodnomov, Valentin
S. Batomunkuev, Chimita B.
Urbanova, Elena B.
Bolkhosoeva, Natalia R.
Zangeeva, Eduard A.
Batotsyrenov, Bainzhargal B.
Sharaldaev, Marina A.
Motoshkina, Aldar G.
Badmaev, Natalia B.
Lubsanova,
["Air Quality in a Large City in](#)

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

the Baikal Natural Territory:
the Social Dimension (a Case
Study of Ulan-Ude)", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
769-776, 2022

Devi Priya R., Anitha N.,
Devisurya V., Vidhyaa V. P.,
Shobiya K., Suguna C.,
"Insect and Pest Detection in
Stored Grains: Analysis of
Environmental Factors and
Comparison of Deep
Learning Methods", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
759-768, 2022

Pichitporn Pholgerddee,
Kannika Wantavee,
Rungnapa Kaewthongrach,
"Establishing Geospatial
Database for Assessing Food
Security Status in the
Communities of Eastern
Economic Corridor (EEC),
Thailand", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.

CTIONS FROM THE EDITORS-IN-

746-758, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T

ON ICY



JRNALS



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Ayodele M. Adetuyi,
Abayomi B. David, Adesola
Adebowale,

"Climate Change: Policy
Support for National
Adaptation Plans in Sub-
Saharan African", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
737-745, 2022

Naila Akhundova,
"The Impact of Tourism on
the Intersectoral
Development in Azerbaijan",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
725-736, 2022

Matthew Etinosa Egharevba,
Stephen Ikechukwu Ukenna,
Olawale Yinusa Olonade,
Ifeyanyi Prinuel Onyeonoru,
Ugbenu Oke, Kasa Adamu
Gayus,

"Social Entrepreneurship,
the State and National
Development: A Viable

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Nexus for Addressing Social Challenges in a Developing Country Context", WSEAS Transactions on Environment and Development, vol. 18, pp. 708-724, 2022

Elira Hoxha, Gjergji Mulla, Kreshnik Vukatana, "A Proposed Mobile Bill Payment Business Solution Based on the New Fiscalization Process in Albania", WSEAS Transactions on Environment and Development, vol. 18, pp. 702-707, 2022

Stavros Kalogiannidis, Stamatis Kontsas, George Konteos, Fotios Chatzitheodoridis, "A small City Rebranding: Another View of the Territorial Marketing", WSEAS Transactions on Environment and Development, vol. 18, pp. 686-701, 2022

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Viktoriiia Rudenko, Halyna Pohrishchuk, Olena Moskvichova, Mykhailo Bilyi, "Transformation of the Fiscal Mechanism of EU Member States and Ukraine During the Covid-19 Pandemic: from Consumption Supporting of to Investment Stimulation", WSEAS Transactions on Environment and Development, vol. 18, pp. 671-685, 2022

Ahmad Badawi Saluy, Sandhi Armansyah, Mashyudzulhak Djamil, Bambang Mulyana, Sri Marti Pramudena, Rachmatullaily Tinakartika Rinda, Endri Endri, "Motivation Moderating the Influence of Organizational Culture and Leadership on Employment Performance", WSEAS Transactions on Environment and Development, vol. 18, pp. 662-670, 2022

Antonios Tampakis, Papaioannou Evgenia,

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T

ON ICY



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Theocharis Chatzistathis,
Paraskevi Karanikola,
"Comparing Soil Substrates
of Low Cost for the
Production of Calabrian Pine
(Pinus brutia Ten) Seedlings
Resilient to Unfavorable
Conditions having in Mind
the Climatic Change
Phenomenon", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
653-661, 2022

Keshav Bajaj, Saikat
Gochhait, Sangeeta Pandit,
Tamanna Dalwai, Mercia
Selva Malar Justin,
"Risks and Regulation of
Cryptocurrency during
Pandemic: A Systematic
Literature Review", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
642-652, 2022

G. Chatzistelios, E. P.
Kechagias, S. P. Gayialis, G. A.
Papadopoulos, N. E.
Spyridonakos,
"Business Continuity During

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-
<https://wseas.com/journals/ead/2022.php>

the COVID-19 Pandemic Era: Surviving and Improving the Quality Process Management System", WSEAS Transactions on Environment and Development, vol. 18, pp. 617-641, 2022

Oluremi Oluwatosin John, May Ifeoma Nwoye, Paul Kanwai Yayok, "Impact of Entrepreneurial Orientation on Performance of Quoted Breweries in Nigeria", WSEAS Transactions on Environment and Development, vol. 18, pp. 604-616, 2022

Jorge Alberto Vargas-Merino, Judith Soledad Yangali Vicente, Marilé Lozano Lozano, Miguel Arturo Vásquez Dávalos, "Entrepreneurial Profile. A Confirmatory Factor Analysis of Entrepreneurial Attitude Orientation Scale (EAO) in Peruvian University Students", WSEAS Transactions on

CTIONS FROM THE EDITORS-IN-

Environment and
Development, vol. 18, pp.
595-603, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

Yanal M. Kilani,
"Smart Business
Characteristics as an
Approach to Develop
Business Performance",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
584-594, 2022

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

Thembelani Mlilo, Mark
Bussin, Maria Magdalena
Bounds,
"Perceptions of Intrinsic and
Extrinsic Rewards as a
Motivator amongst
Managers at a Furniture
Retail Organisation", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
575-583, 2022

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

Mishchuk Ievgeniia,
Bondarchuk Olga, Riabykina
Nataliia, Riabykina
Yekateryna, Matkovskyi
Petro, Tkachenko Sergii,

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Rozhenko Oleksandra,
Kornukh Oksana,
"Security of Energy Interests
of Enterprises: Innovative
Competencies of Personnel,
Public Administration and
Role of Exchange Trade ",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
565-574, 2022

Nadia Ramdani, Mokhtar
Bounazef,
"Environmental
management: Modelling
Plants Nutrients Values
During the Composting
Process", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
555-564, 2022

Iasonas Nikas-Nasioulis,
Maria Margarita Bertsiou,
Evangelos Baltas,
"Investigation of Energy,
Water, and Electromobility
Through the Development of
a Hybrid Renewable Energy
System on the Island of Kos",
WSEAS Transactions on

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Environment and
Development, vol. 18, pp.
543-554, 2022

Nguyen Thi Anh Quyen,
"Assess the Roles of Film
Development Policy in the
Field of Vietnamese
Cinema", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
534-542, 2022

Nurlaelah, M. Thahir Maloko,
Muhammad Ikram Nur
Fuady, Andi Mulyono,
Muhammad Yaasiin Raya,
"The Effect of the
Investigative Report
Learning Model on Student's
Perception of Anti-
Corruption Behavior
Development ", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
525-533, 2022

Ashfaq Ahmed, Atta
Muhammad, Muhammad

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Owais, Kifayat Ullah,
Muhammad Usman,
"Social, Political,
Psychological Impacts of
Covid-19 Digitalization of the
Currency and Emerging
World Order", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
515-524, 2022

Giovanni Luca Amicucci,
Fabio Pera, Ernesto Del
Prete,
"Safety-rated Monitored
Stop" Collaborative
Operation Function for
Industrial Robots: a Simple
Model for Functional
Analysis Purposes", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
504-514, 2022

Stavros Kalogiannidis, Fotios
Chatzitheodoridis,
"Effects of Agile Customer
Relation Management
System on Business
Performance and
Entrepreneurship", WSEAS

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Transactions on
Environment and
Development, vol. 18, pp.
496-503, 2022

Iryna Nadtochiy, Inna
Irtysheva, Volodymyr
Krylenko, Viktoriia Tkach,
Iryna Kramarenko, Kyrylo
Chumakov,
"Economic Diagnostics of
Territorial Development:
National Dimension and
Experience of EU Countries",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
486-495, 2022

Mario Lefebvre,
"Forecasting the Long-term
Monthly Variations of Major
Floods", WSEAS Transactions
on Environment and
Development, vol. 18, pp.
481-485, 2022

Laura Pamela Pérez, Rui
Alexandre Castanho, Sara
Calvo Martinez, Andres
Morales Pachón,
"Influence of Inappropriate

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Basic Sanitation and Lack of
Access to Drinking Water in
the Community

Development of Azama,
Otavalo Canton", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
461-480, 2022

Ghritartha Goswami, Sudip
Basack, Khairuz Zaman,
Nikos E. Mastorakis,

"Rainfall induced
Geohydraulic and
Evapotranspiration
Characteristics: An Indian
Case Study", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
452-460, 2022

Nguyen Thi Anh Quyen,
"Factors Affecting Arts

Marketing of Theaters in
Hanoi, Vietnam", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
442-451, 2022

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Sania Shaheen, Lal K. Almas,
Muhammad Usman,
"Wheat Consumption
Determinants and Food
Security Challenges:
Evidence from Pakistan",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
427-441, 2022

Farid Hamitouche, Nadia
Lardjane, Yves Grohens,
Hassiba Habchi Laribi, Naima
Belhaneche Bensemra,
"Natural Weathering of
Plasticized Polyvinyl Chloride
(PVC) Stabilized with
Epoxidized Sunflower Oil",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
417-426, 2022

Hanny F. Sangian, Meiga P.
Paendong, Joshua R.
Rombang, Jil A. Lametige,
Guntur Pasau, Maria
Bobanto, Ronny Purwadi,
Ramli Thahir, Bayu Achil
Sadjab, Vecky A. J.
Masinambow, Tun Sriana,

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Zami Furqon, Silvy Y.
Agnesty, Arief Widjaja,
"Study of Aqueous Ethanol-Diesel-Biodiesel Prepared by Near-Isochoric Sub Critical Trans-Esterification", WSEAS Transactions on Environment and Development, vol. 18, pp. 405-416, 2022

Catherine Baxevanou, Dimitrios Fidaros, Aris Tsangrassoulis,
"Explicit Model for Solar Air Heaters Performance Assessment for Winter and Summer Operation", WSEAS Transactions on Environment and Development, vol. 18, pp. 394-404, 2022

Mohammed Ibrahim Sultan Obeidat, Nadeen Mohammed Adnan Mohammed Yasin Darkal,
"Internal Liquidity Determinants Analysis of Commercial Banking Industry of Jordan", WSEAS Transactions on Environment and

CTIONS FROM THE EDITORS-IN-

Development, vol. 18, pp.
382-393, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Yaty Sulaiman, Nurul Ain
Binti Md Basri, Mohd Yusri
Shahril Ismail, Alysha Arif,
"The Effect of Caregivers,
Physical Facilities,
Environment and Food
Safety on Safety Assurance
Level in Child Care Centre",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
371-381, 2022

Rossana Andreia Santos, Rui
Alexandre Castanho, Jose
Manuel Naranjo Gomez,
"Slow Tourism: Crossing
Emigrants Perceptions with
Land-Uses in Portugal
Mainland", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
358-370, 2022

Khrystyna Pletsan, Alla
Havryliuk, Hanna
Kostromina, Iryna Muratova,
Svitlana Kholodynska,

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

"The Modern Practice of Creative Industries' Functioning under the Conditions of Sustainable Development", WSEAS Transactions on Environment and Development, vol. 18, pp. 349-357, 2022

Rasmi Zakiah Oktarlina, Laurensius Amedeo Sitindaon, Efriyan Imantika, Liana Sidharti, "Differences of Self-Medication-Related Behavior Among Medical Students Before and During The COVID-19 Pandemic", WSEAS Transactions on Environment and Development, vol. 18, pp. 340-348, 2022

Ioannis Vagelas, "Analysis of Over-Dispersed Count Data: Application to Obligate Parasite Pasteuria Penetrans", WSEAS Transactions on Environment and Development, vol. 18, pp.

333-339, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

C. Cosenza, R. Brancati, V. Niola, S. Savino,
"Experimental Investigation on the Kinematics of an Underactuated Mechanical Finger through Vision-Based Technology", WSEAS Transactions on Environment and Development, vol. 18, pp. 322-332, 2022

Ph. Dondon, C. A Bulucea,
"Thermal Modelling and Power Consumption Estimation of a Multi Floor Small Scale Building Using SPICE Simulator", WSEAS Transactions on Environment and Development, vol. 18, pp. 315-321, 2022

Mariusz-Jan Radło, Artur F. Tomeczek,
"Factors Influencing Labor Productivity in Modern Economies: a Review and Qualitative Text Analysis", WSEAS Transactions on

CTIONS FROM THE EDITORS-IN-

Environment and
Development, vol. 18, pp.
291-314, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Luís Loures, Ana Pereira, Rui
Alexandre Castanho,
"Using a Multimethod
Approach to Define an
Urban Farming Network to
Oporto Metropolitan Area",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
278-290, 2022

Intan Indiati, Sarwi, Ani
Rosilawati, Hartono,
"The Validity Analysis of
Learning Kit for
Ethnoscience-Oriented
Learning Program
Operationalization to
Improve Teacher
Candidates's Technological
Pedagogical Content
Knowledge (TPACK)", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
268-277, 2022

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Di Nardo Mario, Borowski
Piotr, Maryam Gallab,
Murino Teresa, Yu Haoxuan ,
"The New Safety Trends: The
Challenges through Industry
4.0", WSEAS Transactions on
Environment and
Development, vol. 18, pp.
255-267, 2022

M. Grimaldi, C. Giordano, G.
Graziuso, S. Barba, I.
Fasolino,
"A GIS-BIM Approach for the
Evaluation of Urban
Transformations. A
Methodological Proposal",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.
247-254, 2022

Olga Yu. Guseva, Inna O.
Kazarova, Ilona Y. Dumanska,
Mykhaylo A. Gorodetskyy,
Lina V. Melnichuk,
Volodymyr H. Saienko,
"Personal Data Protection
Policy Impact on the
Company Development",
WSEAS Transactions on
Environment and
Development, vol. 18, pp.

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-
<https://wseas.com/journals/ead/2022.php>

M. Locurcio, F. Tajani, P. Morano, F. Di Liddo, D. Anelli, "To Rebuild or to Refurbish? An Analysis of the Financial Convenience of Interventions on Urban Consolidated Contexts", WSEAS Transactions on Environment and Development, vol. 18, pp. 226-231, 2022

Risma Margaretha Sinaga, Sudjarwo, Albet Maydiantoro, "The Meaning of Name a Place in Perspective Java Migrant Custom in Lampung, Indonesia", WSEAS Transactions on Environment and Development, vol. 18, pp. 218-225, 2022

Farida Ariyani, Nurlaksana Eko Rusminto, Sumarti, AS. Rakhmad Idris, Lisa Misliani, "Examining the Forms and Variations of the Lampung Script in Ancient

CTIONS FROM THE EDITORS-IN-

[Manuscripts](#)", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
204-217, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

Nataliia H. Sharata, Tetiana V.
Berezovska, Tetiana P.
Kravchenko,

["Efficiency of the Method of
Student Thematic Online
Debates in the Development
of Professional
Competences in Future
Specialists"](#), WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
191-203, 2022

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T

Mykola M. Stadnyk, Serhii B.
Chekhovych, Hanna S.
Yermakova, Valeriy V.

["The Factors of
Constitutional Support for
the Rule of Law in the
System of Public
Authorities"](#), WSEAS

Transactions on
Environment and
Development, vol. 18, pp.

ON ICY

JRNALS

ience and Engineering"

[IES IN MEMORANDUM WITH](#)

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

182-190, 2022

TIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

TIONS FROM THE EDITORS-IN-
<https://wseas.com/journals/ead/2022.php>

Bayu Dwi Anggono, Rofi
Wahanisa,

"Corruption Prevention in
Legislative Drafting in
Indonesia", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
172-181, 2022

Mennatallah Hassan Youssef
Mohamed, Mostafa Rifat,
Khaled Dewidar,

"The Impact of Integrating
Phase Change Material Upon
Indoor Air Temperature in
Hot Climates", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.
160-171, 2022

Justyna Bętlewska,

"How the Universities of
Technology Cooperates with
SMes on the Example of
Polish Universities", WSEAS

Transactions on
Environment and
Development, vol. 18, pp.

152-159, 2022

TIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T

ON ICY



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

TIONS FROM THE EDITORS-IN-

Tetiana Kulinich, Nataliia Dobizha, Oksana Demchenko, Olena Bodnar, Viltoriia Myronchuk, Andrii Zelenskyi, "Microfinance: Methods, Models and its Impact on Economic Development", WSEAS Transactions on Environment and Development, vol. 18, pp. 144-151, 2022

Hermanita, Suci Hayati, "Non-Muslim Customer Switching Behavior In Islamic Bank In Indonesia", WSEAS Transactions on Environment and Development, vol. 18, pp. 136-143, 2022

Osman Metalla, Marsida Klemo, Azem Hysa, Elvis Cela, Abdulla Diku, Migena Nako, "An Estimation of Oxygen Release from Green Surfaces in Durres City", WSEAS Transactions on

CTIONS FROM THE EDITORS-IN-

Environment and
Development, vol. 18, pp.
130-135, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

<https://wseas.com/journals/ead/2022.php>

Nataliia Bezrukova, Larysa
Huk, Hanna Chmil, Liudmyla
Verbivska, Olena
Komchatnykh, Yevhen
Kozlovskyi,
"Digitalization as a Trend of
Modern Development of the
World Economy", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
120-129, 2022

Ramadhan Tosepu, Fitra
Saleh, Nasaruddin, Misran
Safar, Deniyatno,
"Impact of Land-use Change
on Dengue Hemorrhagic
Fever in Kolaka District,
Southeast Sulawesi Province,
Indonesia", WSEAS
Transactions on
Environment and
Development, vol. 18, pp.
114-119, 2022

Marianne Nabil Guirguis,
Rania Rushdy Moussa,

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Khaled M. Dewidar, Naglaa

Mohamed Yossif,

"The Effect of Landscape Features Implemented in Egyptian Parks on Satisfying the Human Needs and Well-being", WSEAS Transactions on Environment and Development, vol. 18, pp. 100-113, 2022

Lusmeilia Afriani,

Nursyirwan, Ryzal Perdana,

Rina Febrina, Yan Juansyah,

"Mapping the Physical Properties of Soils and the California Bearing Ratio (CBR) Value for Different Soil Types: A Case Study in the Bukit Kemuning and Pugung Tampak Areas", WSEAS Transactions on Environment and Development, vol. 18, pp. 90-99, 2022

Muhammad Basri,

Suparman Arif, Heryandi,

Risma Margaretha Sinaga,

"Prospective Teachers, Generic Skills, and Student Community Service Program: A Case Study in the

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES

IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

"Indonesian Context", WSEAS Transactions on Environment and Development, vol. 18, pp. 80-89, 2022

Sukisno Selamat Riadi, Ariesta Heksarini, Dirga Lestari, Siti Maria, Saida Zainurossalamia, Rizky Yudaruddin,

"The Benefits of e-Commerce before and during the Covid-19 Pandemic for Small Enterprises in Indonesia",

WSEAS Transactions on Environment and Development, vol. 18, pp. 69-79, 2022

Siti Hamidah Husain, Afifuddin Husairi Hussain, Adi Irfan Che Ani, Haryanti Mohd Affandi, Hasnizan Aksah,

"Application of Rasch Measurement Model in Establishing Roles Hierarchy for Malaysian Building Surveying Graduates",

WSEAS Transactions on Environment and

CTIONS FROM THE EDITORS-IN-

Development, vol. 18, pp. 54-68, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE
T



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

Nyoman Wijana, I Made Oka Riawan, I Wayan Sukrawarpala, "Identifying the Composition of Plant Species and Useful Plants in the Forests of Taman Gumi Banten in Indonesia", WSEAS Transactions on Environment and Development, vol. 18, pp. 42-53, 2022

M. Ali Musri S, Siti Fatimah, Saiful Anwar Matondang, "Simulation Model to Reduce the Traffic Jams with a Stochastic Program", WSEAS Transactions on Environment and Development, vol. 18, pp. 37-41, 2022

Sowiyah, Ryzal Perdana, "Inclusive Education in Indonesia: Teachers' Perceptions", WSEAS Transactions on Environment and

CTIONS FROM THE EDITORS-IN-

Development, vol. 18, pp. 27-36, 2022

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

Dragun Łukasz,
"Information Activity of a Large European Project in Social Media", WSEAS

VIEWERS

Transactions on Environment and Development, vol. 18, pp. 20-26, 2022

SPOND TO REVIEWERS'

3

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

John Ehj. Foeh, Adler Haymans Manurung, Florentina Kurniasari, Tipri Rose Kartika, Sandra Yunita,

WSEAS JOURNALS

"Factors that Influence Purchase on Cinema Online Tickets Using Tix-Id Application, through Buying Interest", WSEAS

ON ETHICS AND MALPRACTICE T

Transactions on Environment and Development, vol. 18, pp. 10-19, 2022



ience and Engineering"

IES IN MEMORANDUM WITH

LIST

SUES
IS

Marianna O. Nerozna, Ievgen P. Gula, Mykhailo F. Rudenko, Oksana V. Maznichenko, Oleksandra P. Basanec, Volodymyr F. Prusak,

ONTROL

MISSION TERMS

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE EDITORS-IN-

CTIONS FROM THE AUTHORS

EW AND REJECTION RATES

VIEWERS

SPOND TO REVIEWERS'

S

REVIEWER

ESTIMONIALS

RELATED TO WSEAS

WSEAS JOURNALS

ON ETHICS AND MALPRACTICE

T

ON POLICY

JRNALS



IES IN MEMORANDUM WITH

LIST

IS

"Cultural Domain in Development and Validation of Tests on Arts to Assess the Skills of Student Graphic Designers", WSEAS

Transactions on Environment and Development, vol. 18, pp. 1-9, 2022

JOURNAL CONTENTS

Examining the Forms and Variations of the Lampung Script in Ancient Manuscripts

FARIDA ARIYANI

Faculty of Teacher Training and Education
University of Lampung

Jl. Prof. Dr. Ir. Sumantri Brojonegoro 1, Bandar Lampung, Lampung
INDONESIA

NURLAKSANA EKO RUSMINTO

Faculty of Teacher Training and Education
University of Lampung

Jl. Prof. Dr. Ir. Sumantri Brojonegoro 1, Bandar Lampung, Lampung
INDONESIA

SUMARTI

Faculty of Teacher Training and Education
University of Lampung

Jl. Prof. Dr. Ir. Sumantri Brojonegoro 1, Bandar Lampung, Lampung
INDONESIA

AS. RAKHMAD IDRIS

Lampung Province Language Office

Jl. Beringin II 40 Kompleks Gubernuran Telukbetung, Bandar Lampung, Lampung
INDONESIA

LISA MISLIANI

Lampung Province Language Office

Jl. Beringin II 40 Kompleks Gubernuran Telukbetung, Bandar Lampung, Lampung
INDONESIA

Abstract: - The study of the Lampung script's forms and variations in ancient manuscripts is a branch of linguistics concerned with the script's evolution. We made observations on the Lampung script on two ancient manuscripts, the NLP97N69 and the Hahiwang. Both manuscripts are housed separately. The NLP97N69 manuscript was found in Indonesia, whereas the Hahiwang in Germany. A philological and paleographic approach was adopted to investigate the Lampung script's forms and variations in the ancient manuscripts. Both manuscripts were examined in conjunction with a presentation of the scriptwriter's Lampung script. After raising the Lampung script, it was compared to the current script and Van der Tuuk's script table. Discrepancies were found out between the characters in the two manuscripts, the contemporary script, and Van der Tuuk's table. Furthermore, the *gha* script was found out to be unique to the NLP97N69 manuscript. It was created in an attempt to meet the needs of Lampung language users who desired a unique script that incorporated the *gha* sound. This study demonstrates that the Lampung script has evolved and changed over time in response to its users' needs. Additionally, the article discusses the implications and future directions for research.

Key-Words: manuscripts, scripts, philology, paleography, Lampung

Received: May 27, 2021. Revised: November 13, 2021. Accepted: December 18, 2021. Published: January 15, 2022.

1 Introduction

Lampung is one of the few regions in Indonesia's archipelago that still speaks and uses its indigenous language and script [1]–[3]. However, Lampung society's tradition of writing in Lampung script is currently restricted to 'decoration' purposes. As a result, policies for the Lampung language are required in order to address issues associated with its use and to avert its extinction [4]–[6]. Lampung Governor Regulation No. 39 of 2014 establishing Lampung Language and Script as Mandatory Local Content at the Elementary and Secondary School Levels is one of the government's efforts to preserve the Lampung language and script [2], [7]–[9]. The Lampung script that is currently known and taught to the Lampung people is the current Lampung script, despite the fact that the Lampung people possess the ancient Lampung script found in ancient Lampung manuscripts. As a result, many Lampung people are unable to read or even recognise the Lampung script found in ancient manuscripts referred to as the old Lampung script.

The Lampung people's lack of knowledge about the ancient Lampung script, which is one of their cultural products, ultimately results in some losses. Kohler, a Dutch captain who rose to the position of Military and Civilian Commander in the Lampung District, once wrote a sentence that Frieda Amran quoted in his article: "Not much is known about the Lampung people" [10]. According to him, Lampung's history was lost in the centuries-old darkness. There are no writings or stories remaining to resurrect the ancestors. The events preceding the arrival and reign of the Banten sultans are little known. The context of the preceding sentence very accurately describes the current state of affairs, namely when we (authors) were having difficulty locating references pertaining to Lampung's history (culture). Whereas Amran [10] asserts that the primary requirement for writing history in any perspective is written sources. Thus, historians, anthropologists, and other social scientists who study sociocultural issues through a historical lens require written evidence [11], [12].

Hakiki et al. [13] stated in their study that the Lampung region's position was also critical, as it had been "conquered" by various powers in the past, including Banten, Palembang, and finally the Dutch Colonial. However, research on Lampung culture, particularly on ancient manuscripts, religion, and Lampung culture, is still uncommon. As expressed by Eysinga, a Dutch colonial official, when he saw Lampung from the coast of Banten [10], these studies rise and fall. This is consistent with Pudjiastuti's [14]

assertion that little research has been conducted on Lampung. Since the nineteenth century, beginning with Van der Tuuk and K. F. Holle's research [15]. Van der Tuuk is best known for his book *Les Manuscrit Lampongs*, which delves into the Lampung language and script of the time period through the examination of manuscripts.

Ka ga nga is the name given to the script or style of writing used by the Central Malay, Rejang, Lampung, and Kerinci peoples. The Rencong script or Ulu writing is another name for the *ka ga nga* script [16]. Lampung people refer to the script as Had Lampung, *Surat Lampung*, or *Kelebai Surat Lampung*. Although the *ka ga nga* script is mentioned as the script used by the Central Malay, Rejang, Lampung, and Kerinci people, the scripts used by these communities differ in form [17].

The ancient Lampung script, which is found in a variety of ancient Lampung scripts, takes on a variety of forms. These variations represent 19 to 20 distinct sounds through the use of letters. Additionally, the Lampung script taught to students today (20 characters) is a simplification of the numerous ancient Lampung script variants [9]. However, prior to the establishment of the twenty Lampung scripts that exist today, only 19 were used.

The twentieth script, dubbed the *gha* script, was standardised in 1985 at a meeting of Lampung traditional leaders. Since 1979, there has been discussion about adding a twentieth script. However, on February 23, 1985, the Lampung Regional Customary Leaders Meeting Number 001/PAL/1985, chaired by Baheran Bakr [18], enshrined the standardisation of the *gha* script as the twentieth script in the Decree of the Lampung Regional Customary Leaders Meeting Number 001/PAL/1985.

This implies that the ancient Lampung script, a cultural treasure, is a medium for recording the supporting community's ideas, thoughts, and indigenous wisdom. Similarly, Lampung once relied heavily on ancient scripts as a primary mode of communication, as evidenced by ancient texts [14]. As a result, this study should be able to decipher the differences in the Lampung script's forms and variations prior to its transformation.

Numerous researchers in Indonesia have conducted paleographic studies on ancient manuscripts. However, this paper discusses only a few paleographic studies that have a direct connection to this research. In her thesis, *Ulu Writing in the Serawai and Pasemah Manuscripts: Text Editing and Paleographic Studies*, Astuti [19] examined the ulu script. She analysed six Ulu and Pasemah scripts in her study to ascertain their history

and development. Rahayu wrote about the *Merbabu Manuscripts: An Overview of Scripts and Their Development* in her 2009 thesis [20]. She examined the variations in the form and pattern of Buddhist script development in four Merapi Merbabu manuscripts and their relationship to the manuscript's dating. Additionally, Jaruki [21] published an article titled *A Study of the Sultan Manuscript/Document of the Sultan of the Raja of the Sultanate of West Kalimantan: Structure, Paleography, and Language* and he analysed data to determine the structure, writing style, and language contained in the letter *Sultan Pontianak, Sultan Syarif Usman Al-Qodri with the Dutch Government*. In addition to paleographic research on ancient manuscripts, Misliani [22] conducted research on Lampung ancient manuscripts regarding the Malay language symptoms contained in the ancient manuscripts with Lampung script, but in Malay.

Paleographic studies on ancient Lampung scripts have never been conducted, according to a search of various paleographic studies on ancient manuscripts and studies on ancient Lampung scripts. As a result, this paper addresses two issues: first, how was the Lampung script shaped in the two ancient manuscripts prior to their standardisation? Second, how are the Lampung script variations represented in the NLP97N69 and Hahiwang ancient manuscripts? The purpose of this study is to demonstrate the Lampung script's forms and variations in the ancient Lampung manuscripts, which is expected to provide additional information for determining the Lampung script's development period.

2 Method

The current study adopted a philological methodology, which is a compilation of the various modes of inquiry necessary for editing texts in extinct languages [23], [24]. We followed several steps including the following: 1) inventory of manuscripts, 2) synopsis of manuscripts, 3) determining the age of manuscripts, 4) manuscript reading, 5) manuscript to manuscript comparison, 6) technique selection, and 7) editing [25]. As a result, inventorying and describing the manuscript was the first step in conducting a philological study. We began by consulting Loir and Fathurahman's *Khazanah Manuscripts* [20] to ascertain the global distribution of Lampung manuscripts.

We consulted several catalogues, including the National Library of the Republic of Indonesia's Master Catalog of Archipelago Manuscripts and Indonesian and Great Britain Manuscripts: A Catalog of Manuscripts in Indonesian Languages in British Public Collections, as well as a list of Lampung

museum collections based on the information contained in the book. A search of these catalogues, however, revealed that the Lampung script has not been succinctly described. Lampung manuscripts' catalogue entry contains only information on the existence and number of manuscript storage locations. We identified two ancient manuscripts for examination, the NLP97N69 and the Hahiwang. Additionally, we used codicology to describe the manuscripts' physical characteristics.

We then edited the manuscripts to ensure that they adhered to diplomatic standards [23]. The diplomatic edition was divided into two phases. The first stage involved creating a facsimile edition, which involved reproducing or photographing each page of the manuscript (first to thirteenth pages). The second stage involved the purification of the written script, specifically from Lampung script to Latin script.

We examined the shape of each character in the NLP97N69 and Hahiwang manuscripts, as well as the style and manner of writing employed by each character. Each character was compared to the current Lampung script. This enabled the examination of the distinctions between the characters in each text.

3 Results and Discussion

3.1 NLP97N69 Manuscript Description

The manuscript described physically is one of those stored in 97 crate storage number 69 at the National Library. The following is a description of the NLP97N69 manuscript within this sub-chapter: (1) the condition of the manuscript; (2) the material of the manuscript; (3) the age of the manuscript; (4) the size of the manuscript; (5) the number of pages; (6) the number of lines per page; (7) the type of writing and ink used; and (8) the condition of each page of the manuscript.

Overall, the manuscript is in excellent condition. The manuscript is legible. However, on the final two pages, pages 12 and 13, the manuscript's centre is slightly damaged. On that page, the manuscript paper was divided, despite the fact that it did not separate the two halves of the paper.

The NLP97N69 is one of the Bark Book manuscripts kept at Indonesia's National Library. NLP97N69 is catalogued in the Bahrend Catalog as Peti 97 Number 69. This manuscript is housed on the National Library's fifth floor in either the collection room or the old manuscript storage room.

The bark manuscript NLP97N69 is referred to as the bark book. The manuscript incorporates halim bark. This manuscript was created using bark that has been processed to resemble paper, but with a rougher

texture and a stiffer sheet than European paper. This manuscript's paper is made from bark and is a dark brown colour with a combination of black at the manuscript's edges. Additionally, as the manuscript cover ages, it becomes thicker, harder, and wavy. In the top left corner of the manuscript cover, a white manuscript storage number, 69, is inscribed. On the middle left is a white paper patch with the following information: 97, 69, 97, 97, 97, 97, 97, 97, 97, :-.

The NLP97N69 manuscript lacks a colophon that could provide information about the manuscript's age. However, the age of the NLP97N69 manuscript can be estimated based on the typeface used in the manuscript. Based on Van der Tuuk's [15] study of the Lampung script's development, the Old Lampung script used around the XIII-XVII centuries underwent changes in some of its characters up to six times. The Lampung script used in the NLP97N69 script is from the youngest century, roughly the XVII century. Additionally, as a manuscript containing a storey about Nur Muhammad from one of the Sufi literatures, it indicates that the manuscript was written around the sixteenth century, when the symbols of Islam arrived in the Lampung area. According to this, the NLP97N69 manuscript was most likely written after the XVII century.

The NLP97N69 is shaped like a book, but not the kind where the pages are held together by a drain. However, the book is formed by folding bark that has been processed like paper 12 times to create a book that measures 18.8 cm long and 12.4 cm wide and has one face. When stretched, the fold has a width of 12.4 cm X 12 or 135.8 cm, plus the width of the 13th page, which is 9.4 cm long. This results in a width of 145.2 cm with a fixed length of 18.8 cm.

The number of pages containing text or at the top of the manuscript is 13 pages, based on the results of the manuscript's folds. A blank page appears at the bottom or back of the manuscript. This manuscript is not numbered.

Lampung script is used to write NLP97N69 3654. Lampung script belongs to the Kaganga family because Lampung letters, when used alone, contain the sound a, and are thus referred to as Basaja in the spelling [18]. Black ink is used to write. The writing is in excellent condition, making it easy to read.

The writing begins on the first page or immediately following the cover page and continues until the thirteenth page. Each page contains a different number of lines of writing. The first page contains 14 lines, the second 13 lines, the third 13 lines, the fourth 12 lines, the fifth 13 lines, the sixth 12 lines, the seventh 12 lines, the eighth 13 lines, the ninth 13 lines, the tenth 14 lines, the eleventh 12

lines, the twelfth 12 lines, and the thirteenth page contains 9 lines.

There are also illustrations of flowers on several pages of text. This flower image is used to indicate the beginning of a new discussion or chapter. The flowers depicted in this text have a variety of petals. Following this word on page I, row 10, is a drawing of a flower with four petals on top and bottom. On page II, row 12, near the beginning of the row, there is a drawing of a six-petalled flower. On page IV, the eighth line after the word, there is an illustration of a six-petalled flower. On page V, the tenth line after the title, there is a drawing of a six-petalled flower.

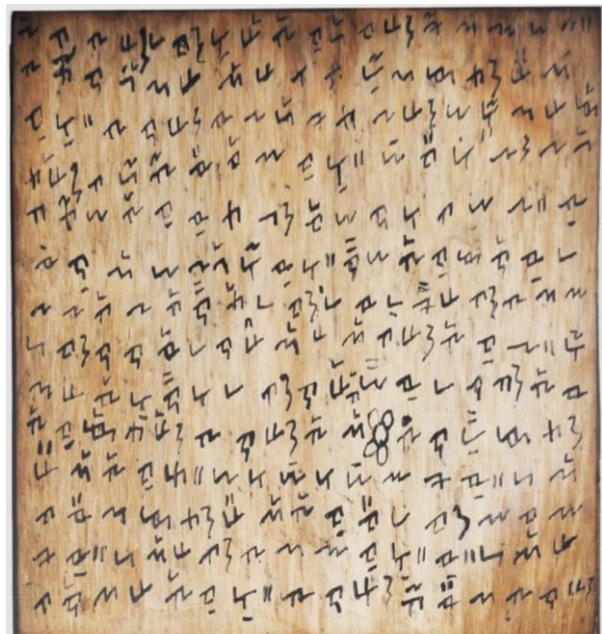


Figure 1. Facsimile Format Page I of NLP97N69 Manuscript

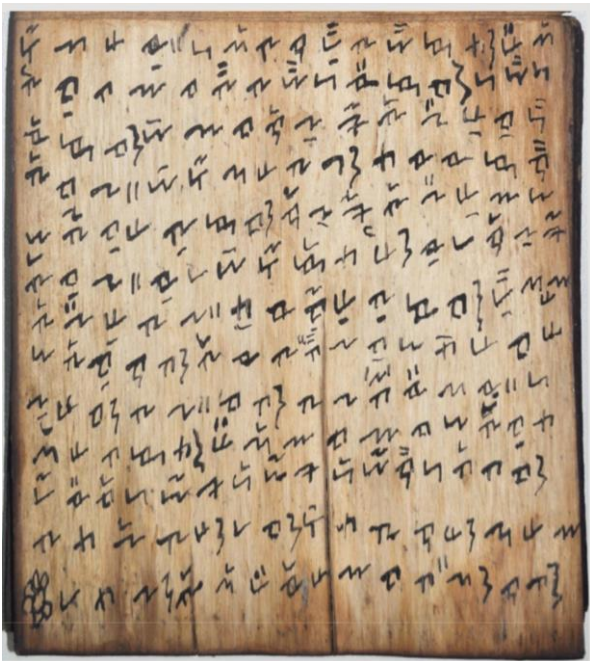


Figure 2. Facsimile Format Page II of the NLP97N69 Manuscript

The manuscript's page VI contains multiple flower images. After the word *wind* in the fourth line, there is a drawing of a flower with three petals attached to only the left. After the word *wind* in the seventh line, there is a drawing of a flower with four petals arranged from top to bottom but only covering the left side of the flower. In the eighth row, right at the start of the row, there is an image of a six-petalled flower.

On page VII, an image of a flower in the seventh row is included. The flower images on this page are slightly different from the previous pages' flower images. The four petals are arranged in a broken line with a circle in the centre on the bottom right. There are no floral illustrations on pages VIII, IX, or X.

There is an image of a six-petalled flower on page XI of the fifth row. A three-petalled flower is depicted on page XII of the eighth row. On this page, the flower petals are drawn larger than on the previous page's flower images. The petals of the flower are arranged correctly. There are no floral illustrations on Page XIII.

3.2 Description of the Hahiwang Manuscript

Hahiwang is one of the bamboo manuscripts housed in Germany's Staatsbibliothek Zu Berlin in The Hag. This ancient manuscript is catalogued as Schoem IX 1 in the Staatsbibliothek Zu Berlin's Catalog of Indonesian Manuscripts Collection.

The description of the materials used to create the script is included to illustrate the manuscript's basic components. Bamboo can be used to create the

manuscript. Bamboo *betung* was traditionally used as a medium for writing texts. It is referred to in Latin as *Dendrocalamus Asper*. This bamboo is a very strong and robust species of bamboo, growing in an upright position with clearly visible segments. Bamboo typically grows to a height of 30 metres. The bamboo that is used to write the script must first be soaked in water for an extended period of time until it darkens in colour. Following that, the soaked bamboo is dried in the sun until completely dry [14].

Hahiwang, also known as *gelumpai* script, is a bamboo-based script. The bamboo on which this manuscript is built has been treated in such a way that its surface can be scratched during the writing process. Some of the bamboo used to write scripts is whole, while others is split into multiple pieces. The Hahiwang manuscript makes extensive use of split bamboo.

Ancient manuscripts that are bound with European paper employ a curing system. However, the Hahiwang script, which is based on a bamboo slat, creates a hole at one end of the bamboo to connect the script.

The manuscript's age can be determined in a variety of ways, one of which is through the colophon. The colophon is the section that contains various types of information. However, there is a possibility that we will occasionally need to exercise caution because the manuscripts we are dealing with are copies of other manuscripts that are unquestionably older [26]. The Hahiwang manuscript lacks a colophon that could provide information about the manuscript's age. However, the age of the Hahiwang manuscript can be estimated based on the type of characters used in the manuscript. According to Van der Tuuk's [15] study of the Lampung script's development, the Old Lampung script used between the XIII and XVII centuries changed some of its characters up to six times. The Lampung script used in the Hahiwang script is the script that was not used in that period's youngest century. However, the opening greeting, which contains the word *assalamualaikum*, indicates that the manuscript was written around the sixteenth century, when Islamic symbols arrived in the Lampung area. According to this, the Hahiwang manuscript was most likely written after the sixteenth century.

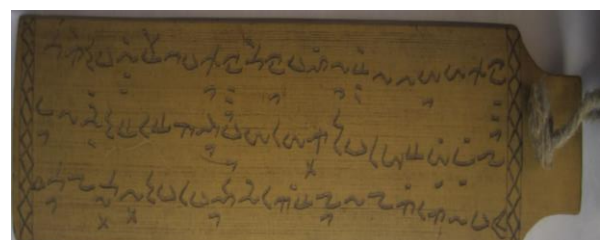


Figure 3. Facsimile Format of the Hahiwang Manuscript

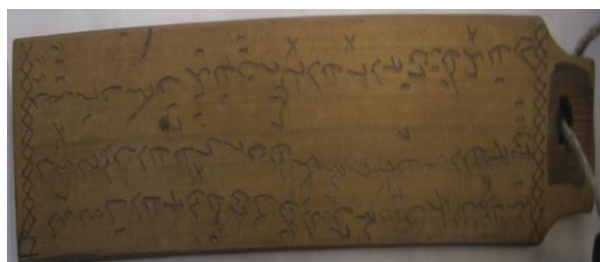


Figure 4. Facsimile Format of the Hahiwang Manuscript

The Hahiwang manuscript is composed of split bamboo, not whole bamboo, which is called *gelumpai*. The bamboo blade bearing the text Hahiwang measures 12.5 cm in length and 2 cm in width. If the bamboo contains the text of Hahiwang in chronological order, the Hahiwang manuscript will measure 12 cm x 52 cm. The manuscript is numbered from 1 to 26 at the back.

The bamboo base of the script requires the use of a special writing utensil. Typically, a taper lading is used to write the Lampung script, which is composed of hard materials such as bamboo and animal horns. A lading taper is a small knife with a pointed, sharp tip. The bamboo that serves as the script's foundation will be scratched to create the text with this pointed plate. The Lampung script is used to write the Hahiwang manuscript. Due to the fact that the Hahiwang text was written on bamboo, the script did not include ink to indicate the writing. However, scripts that employ bamboo media employ *hapul* and roasted candlenuts to emphasise the letters inscribed on the script's base [14].

On the first chip, writing begins with the text's initial opening sign, two square brackets, and the opening word greetings. Each chip contains a different number of lines of writing. The first to ten pieces contain three lines of text; the eleventh page contains three lines; the twelfth page contains three lines; the thirteenth page contains four lines; the fourteenth page contains three lines; and the fifteenth to twenty-sixth page contains three lines.

At the start of each paragraph, there is an opening sign indicating the start of the text. The text begins with two square brackets. Throughout the text, this bracketed image takes on two distinct shapes. From the first to the fifth pieces, two square brackets are written in a row to the side. From the sixth to the twenty-sixth lines, the text's first indication is in the form of a row of square brackets written upwards.

3.3 Information of the Manuscripts

The Sumatran script is known as the *ka ga nga* family script. This script is an indirect descendant of the Palawa script. *Ka ga nga* is the name given to the script or style of writing used by the Central Malay, Rejang, Lampung, and Kerinci peoples. The Rencong script or Ulu writing is another name for the *ka ga nga* script [16]. Lampung people refer to the script as Had Lampung, *Surat Lampung*, or *Kelebai Surat Lampung*. Although the *ka ga nga* script is mentioned as the script used by the Central Malay, Rejang, Lampung, and Kerinci communities, the scripts used by these communities differ in form [17]. The genealogy of the characters that developed in Sumatra is depicted in Figure 5.

Lampung script has evolved since its inception. Lampung people generally classify the Lampung script into two categories: the Old Lampung script and the Lampung script as it is today. Lampung script is a syllabic script or syllable script, which means that it consists of consonants and vowels.

According to historical evidence, the development of scripts representing regional languages in the archipelago began with the spread of Hinduism and Buddhism [27]–[30]. Additionally, it accelerated when Islam began to penetrate the archipelago. Thus, the Lampung script evolved most likely from the Palawa script and was also influenced by the Arabic script [31], [32]. Around the seventh century, the Srivijaya Kingdom in South Sumatra is believed to have been the birthplace of the Lampung script [33].

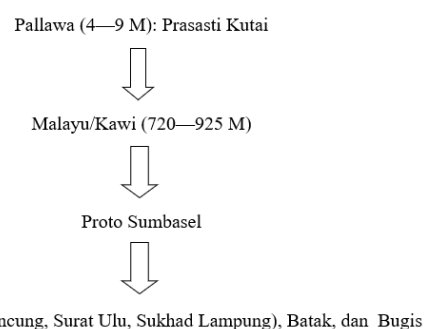


Figure 5. Genealogy based on the Development of the Characters on Sumatra Island

Lampung script's use as a tool for recording various pieces of information in the Lampung area can be divided into three eras: the past, colonialism, and the present [34]. The Lampung script is not even a representation of the Lampung language. However, historical evidence suggests that the Lampung script was used to represent the Malay or Banten language. Along with the historically diverse forms, the writing style has several variants, including Khad Lampung

Ho, Khad Lampung Jebi, Khad Lampung Tumbai, Khad Lampung Ampai, Khad Lampung Angka, and Khad Lampung Ganta.

Based on the foregoing, information about the Lampung script is necessary to support the script's study in the following section. Additionally, this subchapter will include a description of the old Lampung script and the current Lampung script, which will serve as a foundation for identifying the various forms of the old Lampung script.

3.3.1 Old Lampung Script

Since its inception, the Lampung script has grown in popularity. As a result, the Lampung people

classify the Lampung script into two categories: the old Lampung script and the current Lampung script. According to Van der Tuuk's [15] study of the Lampung script's development in Les Manuscripts Lampongs, the Lampung script has numerous writing variants. These differences were identified in ten Lampung scripts. The following is a synopsis of Van der Tuuk's [15] study of script variations in ten ancient Lampung scripts. This synopsis is presented in Table 1.

Table 1. Variations of the Van der Tuuk's Lampung Script

| No | Scripts | Scripts | | | | | | | | | | | |
|----|---------|---------|----|-----|----|---|----|---|---|---|---|---|---|
| | | A | | | | | | B | C | D | E | F | |
| | | I | II | III | IV | V | VI | | | | | | |
| 1 | ka | က | က | က | က | က | က | က | က | က | က | က | က |
| 2 | ga | ဂ | ဂ | ဂ | ဂ | ဂ | ဂ | ဂ | ဂ | ဂ | ဂ | ဂ | ဂ |
| 3 | nga | န | န | န | န | န | န | န | န | န | န | န | န |
| 4 | pa | ပ | ပ | ပ | ပ | ပ | ပ | ပ | ပ | ပ | ပ | ပ | ပ |
| 5 | ba | ဘ | ဘ | ဘ | ဘ | ဘ | ဘ | ဘ | ဘ | ဘ | ဘ | ဘ | ဘ |
| 6 | ma | မ | မ | မ | မ | မ | မ | မ | မ | မ | မ | မ | မ |
| 7 | ta | တ | တ | တ | တ | တ | တ | တ | တ | တ | တ | တ | တ |
| 8 | da | ဒ | ဒ | ဒ | ဒ | ဒ | ဒ | ဒ | ဒ | ဒ | ဒ | ဒ | ဒ |
| 9 | na | န | န | န | န | န | န | န | န | န | န | န | န |
| 10 | ca | စ | စ | စ | စ | စ | စ | စ | စ | စ | စ | စ | စ |
| 11 | ja | ဇ | ဇ | ဇ | ဇ | ဇ | ဇ | ဇ | ဇ | ဇ | ဇ | ဇ | ဇ |
| 12 | nya | န | န | န | - | - | - | - | - | န | န | န | န |
| 13 | ya | ယ | ယ | ယ | ယ | ယ | ယ | ယ | ယ | ယ | ယ | ယ | ယ |
| 14 | a | အ | အ | အ | အ | အ | အ | အ | အ | အ | အ | အ | အ |
| 15 | la | လ | လ | လ | လ | လ | လ | လ | လ | လ | လ | လ | လ |
| 16 | ra | ရ | ရ | ရ | ရ | ရ | ရ | ရ | ရ | ရ | ရ | ရ | ရ |
| 17 | sa | ဆ | ဆ | ဆ | ဆ | ဆ | ဆ | ဆ | ဆ | ဆ | ဆ | ဆ | ဆ |
| 18 | wa | ဝ | ဝ | ဝ | ဝ | ဝ | ဝ | ဝ | ဝ | ဝ | ဝ | ဝ | ဝ |
| 19 | ha | ဟ | ဟ | ဟ | ဟ | ဟ | ဟ | ဟ | ဟ | ဟ | ဟ | ဟ | ဟ |
| 20 | gra | - | - | - | - | - | - | - | - | - | - | - | - |

The script is classified into three types: alphabetical, syllabic, and morphemic. One consonant and one vowel are represented by the one-letter alphabet. The Latin script, for example, is used in English and Indonesian. A single character's syllabic script or syllable is represented by a

consonant and a vowel. Japanese, Javanese, and Lampung scripts are all examples. Morpheme script is a morpheme-based script in which each morpheme represents a collection of sounds, a tone, and a meaning. Kridalaksana in Enchantment of Language

Table 2. Sound Signs based on Van der Tuuk's Study

| No | Scripts | Scripts | | | | | | | | | | |
|----|----------|---------|----|-----|----|---|----|---|---|---|---|---|
| | | A | | | | | | B | C | D | E | F |
| | | I | II | III | IV | V | VI | | | | | |
| 1 | i | | | | | | | | | | | |
| 2 | u | | | | | | | | | | | |
| 3 | e | | | | | | | | | | | |
| 4 | ng | | | | | | | | | | | |
| 5 | r | | | | | | | | | | | |
| 6 | h | | | | | | | | | | | |
| 7 | n | | | | | | | | | | | |
| 8 | ay | | | | | | | | | | | |
| 9 | aw | | | | | | | | | | | |
| 10 | o | | | | | | | | | | | |
| 11 | kill/die | | | | | | | | | | | |

[35] provides an illustration of morphemic characters found in Mandarin. Lampung script is included in the *ka ga nga* family as a syllabic script.

Lampung's syllabic script consists of one consonant and one vowel, resulting in the presence of the sound /a/ in a stand-alone Lampung script. Lampung script is also known as *Basaja* [18]. Lampung language does not rely solely on the sound or vowel a to fulfil its communication function. Lampung has additional vowel sounds. The following is a list of additional audible signs based on Van der Tuuk's research.

3.3.2 Today's Lampung script

Lampung's current script is a simplified version of the ancient Lampung script, which is quite varied. In 1971, a Decree of the Head of Representative of the Ministry of Education and Culture initiated the process of standardising the Lampung script, which was adapted to the Lampung script reading and writing textbook compiled by M. Noeh. The Decree was issued in response to the research team's proposal to schedule the beginning of Lampung script reading and writing lessons for students.

One reason for wanting to standardise the Lampung script is to eliminate the numerous variations of the Lampung script found in various areas throughout Lampung Province. The government wishes to ensure that each region retains its own variation of the Lampung script. The government, however, wishes to standardise a form of Lampung script that can be used throughout the country. Additionally, the government wishes to incorporate the findings of a research team's study of the Lampung script by increasing the number of

Lampung scripts from 19 to 20. The *gha* script is the twentieth script added.

On February 23, 1985, the two proposals that had been put forward since 1971 were finally approved, based on the results of traditional leaders' deliberations. Following this, the government issued two regulations aimed at further preserving the Lampung script as an integral part of Lampung culture: Lampung Provincial Regulation Number 2 of 2008 on the Preservation of Lampung Culture and Lampung Governor Regulation Number 39 of 2014 on Lampung Language and Script Subjects as Mandatory Local Content at the Elementary and Secondary Education Unit Levels [7].

Additionally, some experts have conducted research on the history and development of the Lampung script. The following table compares old and new Lampung scripts, based on a summary conducted by Pudjiastuti [14], [36].

3.4 Forms and Variations of the Lampung Script in the NLP97N69 and the Hahiwang Manuscripts

The appearance of characters in each manuscript varies according to the author's writing style. The previous presentation demonstrated variations in the appearance of the Lampung script in ten ancient Lampung scripts described by Van Der Tuuk [15]. Thus, the following describes the Lampung script's appearance and characters in two ancient Lampung scripts, namely the NLP97N69 and the Hahiwang manuscripts. The introduction of the old Lampung script in both manuscripts was determined by

referring to Van der Tuuk's Les Manuscripts Lampongs [15].

Table 3. Old and New Lampung Scripts

| No | Scripts | Script | |
|----|---------|--------|-----|
| | | Old | New |
| | | I | II |
| 1 | ka | | |
| 2 | ga | | |
| 3 | nga | | |
| 4 | pa | | |
| 5 | ba | | |
| 6 | ma | | |
| 7 | ta | | |
| 8 | da | | |
| 9 | na | | |
| 10 | ca | | |
| 11 | ja | | |
| 12 | nya | | |
| 13 | ya | | |
| 14 | a | | |
| 15 | la | | |
| 16 | ra | | |
| 17 | sa | | |
| 18 | wa | | |
| 19 | ha | | |
| 20 | gra | | |

In this section, we describe the shape of the characters contained in the NLP97N69 and Hahiwang texts sequentially (alphabetically). Each character is analysed for its function and usage in the text before it becomes a word or sentence. Additionally, each character will be compared to the current form of the Lampung script in order to demonstrate the differences and peculiarities between the old Lampung script and the NLP97N69 and Hahiwang scripts.

There are twenty Lampung script forms in the NLP97N69 manuscript: *ka, ga, nga, pa, ba, ma, ta, da, na, ta, ja, nya, ya, a, la, ra, sa, wa, ha, and gha*, but only nineteen in the Hahiwang manuscript. The following table compares the Lampung script used in the NLP97N69 to the Hahiwang. The script's forms and variants are compared to the contemporary Lampung script in order to demonstrate the distinction between the ancient Lampung script and the contemporary Lampung script.

Table 4. Forms and Variations of the Lampung Script

| No. | Today's characters and their sounds | Script on NLP97N69 Manuscript | Characters in the Hahiwang Manuscript |
|-----|-------------------------------------|-------------------------------|---------------------------------------|
| 1. | k (Ka) | | |
| 2. | g (Ga) | | |
| 3. | G (Nga) | | |
| 4. | p (Pa) | | |
| 5. | b (Ba) | | |
| 6. | m (Ma) | | |
| 7. | t (Ta) | | |
| 8. | d (Da) | | |
| 9. | n (Na) | | |
| 10. | c (Ca) | | |
| 11. | j (Ja) | | |
| 12. | N (Nya) | | |
| 13. | y (Ya) | | |
| 14. | a (A) | | |
| 15. | l (La) | | |
| 16. | r (Ra) | | |
| 17. | s (Sa) | | |
| 18. | w (Wa) | | |
| 19. | h (Ha) | | |
| 20. | H (Gha) | | - |

Ka. The lampung script sequence begins with the *ka* script. In the current Lampung script, the *ka* script takes the form: *k*. The vertical line in the middle of the horizontal line without crossing it is the *ka* script's distinguishing feature. The writing begins with the formation of a diagonal line ascending from left to right and then vertically downward. The diagonal line upward is lengthened relative to the vertical line downward. The second pull establishes a vertical line in the diagonal line's centre. The *ka* script found in the NLP97N69 and Hahiwang texts is identical to the current *ka* script and to the ten *ka* characters found in the Van der Tuuk script variation table [15]. However, in the Hahiwang text, the diagonal line in the *ka* script is horizontal.

Ga. The *ga* script is the second character in the sequence of the Lampung script. In the current

Lampung script, the *ga* script takes the following form: *g*. The *ga* script is similar to the *ka* script in shape, but lacks the vertical line in the centre of the horizontal line. The letter *ga* is written by first drawing a diagonal line upward from left to right and then vertically downward. The diagonal line upward is lengthened relative to the vertical line downward. The *ga* characters found in the NLP97N69 text are identical to those found in the current *ga* script and to the ten *ga* characters found in the Van der Tuuk script variation table [15]. The *ga* script used in the Hahiwang text is identical to the current *ga* script and to the ten *ga* characters listed in the Van der Tuuk script variation table [15]. The diagonal line in the *ga* character in the Hahiwang text, on the other hand, is horizontal.

Nga. The *nga* script is the third in the sequence of Lampung scripts. In the current Lampung script, the *nga* script takes the following form: *g*. To begin writing the *nga* script, form an upward diagonal line from left to right, then a short vertical line downward, followed by another upward diagonal line. The second pull establishes a vertical line parallel to the second diagonal line. The *nga* script in the NLP97N69 and Hahiwang texts is not identical to the current *nga* script, but it is similar in shape to the *nga* script in column A.V of the Van der Tuuk script variation table. The writing begins by forming a diagonal line up from left to right, followed by a short vertical line down and then another diagonal line up. The second pull creates a brief vertical line downward, followed by a diagonal line upward.

Pa. The *pa* script is the fourth character in the sequence of the Lampung script. In the current Lampung script, the *pa* script takes the following form: *p*. The *pa* script is shaped similarly to the *ga* script, but inverted. To begin writing the *pa* script, draw a downward diagonal line from left to right and then up diagonally. The diagonal line on the downward side is shorter than the diagonal line on the upward side. The *pa* script found in the NLP97N69 and Hahiwang texts is identical to the current *pa* script and to the ten *pa* characters found in the Van der Tuuk script variation table [15].

Ba. The *ba* script is the fifth character in the sequence of the Lampung script. In the current Lampung script, the *ba* script takes the following form: *b*. The writing begins by drawing a diagonal line from left to right and then diagonally up. The diagonal line on the downward side is shorter than the diagonal line on the upward side. The second pull, forming a short vertical line down at the intersection of the diagonal line up and down. The *ba* script in the NLP97N69 and Hahiwang texts is identical to the current *ba* script, but none of the *ba* characters in the

Van der Tuuk's [15] script variation table are identical. However, in the Hahiwang text, the diagonal line in the *ba* script is horizontal.

Ma. The *ma* script is the sixth character in the sequence of the Lampung script. In the current Lampung script, the *ma* script takes the following form: *m*. To begin writing the letter *ma*, draw a diagonal line from left to right and then up diagonally. The diagonal line on the downward side is shorter than the diagonal line on the upward side. The second pull will result in the formation of a short vertical line up in the centre of the diagonal line up. The *ma* script found in the NLP97N69 and Hahiwang texts is identical to the current *ma* script and also to the *ma* script found in columns AV, A.VI, B, C, E, and F of the table of Van der Tuuk's [15]. script variations. However, in the Hahiwang text, the diagonal line in the *ma* script is made horizontal.

Ta. *Ta* script is the seventh script in Lampung's sequence of scripts. In the current Lampung script, the *ta* script takes the following form: *t*. To begin writing the *ta* character, create a diagonal line ascending from left to right. The second drag creates a short vertical line in the centre of the first diagonal line, followed by a diagonal line up and down to the right. The diagonal line to the right is lengthened relative to the vertical line to the left. The *ta* script found in the NLP97N69 and Hahiwang texts is not identical to the current *ta* script, but it does have the same shape as the *ta* script found in column A.I of the Van der Tuuk's [15] script variation table. The *ta* character is written by first drawing a diagonal line upward from left to right and then vertically downward. The diagonal line upward is lengthened relative to the vertical line downward. Form a vertical line down from the centre of the first diagonal line in the second pull, which is then continued with a horizontal line to the right. The vertical line extending downward is shorter than the horizontal line extending to the right.

Da. *Da* is the eighth script in the Lampung script family. In the current Lampung script, the *da* script takes the following form: *d*. To begin writing the *da* script, draw a diagonal line upward from left to right, followed by a vertical line downward. The diagonal line upward is lengthened relative to the vertical line downward. The *da* script used in the NLP97N69 and Hahiwang texts is not identical to the current *da* script, but it is similar in shape to the *ta* script found in column A.II of the Van der Tuuk's [15] script variation table. To begin writing the *da* script, draw a diagonal line upward from left to right, followed by a vertical line downward. The diagonal line upward is lengthened relative to the vertical line downward. Form a vertical line downward from the centre of the

first diagonal line in the second pull, followed by a short horizontal line to the right and then a vertical line downward.

Na. The *na* script is the ninth in the sequence of Lampung scripts. In the current Lampung script, the *na* script takes the following form: *n*. The writing begins with the formation of a diagonal line from left to right, followed by a short vertical line down, followed by another diagonal line to the right, followed by another short vertical line down. The *na* script found in the NLP97N69 and Hahiwang texts is identical to the current *na* script and also to the *na* script found in columns A.II to d.VI, B, C, D, E, and F of the table of Van der Tuuk's [15] script variations. The *na* character is currently written as is the *na* character in the NLP97N69 text.

Ca. The *ca* script is the tenth in the sequence of Lampung scripts. In the current Lampung script, the *ca* script takes the following form: *c*. To begin writing the letter *ca*, draw a vertical line from top to bottom, followed by a diagonal line up and to the right, followed by a short vertical line down. The second pull creates a vertical line that cuts through the diagonal line's centre. The *ca* script found in the NLP97N69 and Hahiwang texts is identical to the current *ca* script and also to the *ca* script found in columns A.II, A.IV, AV, A.VI, B, C, D, E, and F of the table of Van der Tuuk's [15] script variations.

Ja. In the Lampung script sequence, the *ja* script is the eleventh script. In the current Lampung script, the *ja* script takes the following form: *j*. To begin writing the letter *ja*, form a diagonal line from left to right, then a short vertical line down, then another diagonal line to the right, followed by another short vertical line down. The second pull creates a short vertical line through the centre of the first diagonal line up. The *ja* script in the NLP97N69 and Hahiwang texts is not identical to the current *ja* script, and none of the *ja* script forms in the Van der Tuuk's [15] script variation table are identical to the *ja* script in the NLP97N69 and Hahiwang texts. However, there are several variants of the letter *ja* in the table of variations of the Van der Tuuk's [15] script column A.IV, V, VI, B, C, and F that are nearly identical to the variants found in the texts NLP97N69 and Hahiwang.

Nya. The *nya* is the twelfth script in the Lampung script family. In the current Lampung script, the *nya* script takes the following form: *n*. The initial writing is accomplished by drawing an upward diagonal line from left to right, followed by a short vertical line downward, followed by another diagonal line upward to the right, followed by another short vertical line downward, followed by another diagonal line upward to the right. The *nya* characters found in the

NLP97N69 text are identical to the current *nya* character and also to the *nya* character found in columns A.II, A.III, and F of the table of Van der Tuuk's [15] script variations. The *nya* script used in the Hahiwang text is shaped differently than the modern *nya* script. It does, however, have the same form as the *nya* characters in columns A.I, D, and E of the table of Van der Tuuk's [15] script variants. In the Hahiwang text, the *nya* character is written by first drawing a horizontal line from left to right and then vertically downward. The horizontal line is made longer than the vertical line running downward. The second pull establishes a vertical line in the diagonal line's centre. The third drag creates a vertical line in the horizontal line's left third.

Ya. *Ya* is the thirteenth script in Lampung's sequence of scripts. *Ya* in Lampung script has been renamed *y*. To begin writing the characters, draw a vertical line from top to bottom, then a diagonal line up and to the right, followed by a short vertical line down and then another diagonal line up and to the right. The *ya* script found in the NLP97N69 text is identical to the current *ya* script and also to the ten *ga* characters found in the Van der Tuuk's [15] script variation table. The *ya* script in the Hahiwang text resembles modern script.

A. The script *a* is the fourteenth in the sequence of Lampung scripts. The current Lampung script's *a* script takes the following form: *a*. To begin writing the letter *a*, form a diagonal line up from left to right, then a short vertical line down, followed by another diagonal line up. The second pull establishes a vertical line parallel to the first diagonal line. The *a* character in the NLP97N69 text is identical to the current *a* character and also to the ten letters *a* in the table of Van der Tuuk's [15] script variations. The script *a* in the Hahiwang text is distinct from the current *a* and the ten letters *a* in the table of Van der Tuuk's [15] script variations. To begin writing the *a*, draw a horizontal line from left to right, then a short vertical line down, followed by another horizontal line to the right.

La. The *la* script is the fifteenth script in the sequence of the Lampung scripts. In the current Lampung script, the script *la* takes the form: *l*. To begin writing the letter *la*, form a diagonal line up from left to right, then a short vertical line down, followed by another diagonal line up. The *la* script in the NLP97N69 text is identical to the current *la* script and to the ten *la* characters in the Van der Tuuk's [15] script variation table. The *la* script found in the Hahiwang text is similar in shape to the current *la* script and also resembles the ten *la* characters found in the Van der Tuuk's [15] script variation table.

However, in the Hahiwang text, the diagonal line in the script *la* is made horizontal.

Ra. The *ra* script is the sixteenth in the sequence of Lampung scripts. In the current Lampung script, the *ra* takes the following form: *r*. The *ra* character is written by first drawing a diagonal line up from left to right and then a short vertical line down. The second pull is performed by tracing a short vertical line downward from the centre of the first pull's diagonal line and then tracing a diagonal line to the right. In the second pull, the downward vertical line is made shorter than the upward diagonal line. The *ra* script found in the NLP97N69 and Hahiwang texts is identical to the current *ra* script and to the *ra* script found in the AI, A.II, A.III, A.IV, AV, A.VI, B columns, C, and F of the table of Van der Tuuk's [15] script variations. However, in the Hahiwang text, the diagonal line in the *ra* is made horizontal.

Sa. The *sa* script is the seventeenth in the sequence of Lampung scripts. In the current Lampung script, the *sa* script takes the following form: *s*. The *sa* character is written by first drawing a diagonal line up from left to right and then a short vertical line down. The second pull is accomplished by drawing a short vertical line up from the diagonal line's centre. The *sa* script contained in the NLP97N69 text is nearly identical to the current *sa* form and also to the *sa* form contained in columns C and F of the table of Van der Tuuk's [15] script variations. To begin writing the *sa* script on the NLP97N69 text, create a diagonal line ascending from left to right, followed by a short vertical line downward. The second pull is accomplished by cutting the diagonal line with a vertical line. The *sa* script used in the Hahiwang text is distinct from the modern *sa* script. It does, however, take the same form as the letter *sa* in columns D and E of the table of Van der Tuuk's [15] script variants. The *sa* script is written in the Hahiwang text by first drawing a diagonal line up to the left, then a horizontal line to the right, and finally a diagonal line down to the left.

Wa. *Wa* is the eighteenth script in the Lampung script family. In the current Lampung script, the *wa* script takes the following form: *w*. The *wa* character is written by first drawing a diagonal line upward from left to right and then a short vertical line downward. The second pull is accomplished by drawing a diagonal line up directly above the end of the vertical line created in the first pull. The *wa* script found in the NLP97N69 and Hahiwang texts is nearly identical to the current *wa* script and to the *wa* script found in column A.III of the Van der Tuuk's [15] script variation table. The *wa* script is written in the NLP97N69 and Hahiwang texts by first drawing a diagonal line from left to right and then a short

vertical line down. The second pull is formed by cutting the vertical line in the first pull with a diagonal line up to the right. However, in the Hahiwang text, the diagonal line in the *wa* script is made horizontal.

Ha is the nineteenth script in the Lampung script family. In the current Lampung script, the script *ha* takes the form: *h*. To begin writing the letter *ha*, draw a vertical line from top to bottom, then a diagonal line up and to the right, followed by a vertical line down. The *ha* script found in the NLP97N69 and Hahiwang texts is identical to the current *ha* script and to the ten *ha* characters found in the Van der Tuuk's [15] script variation table.

Gha. The *gha* script is the twentieth script in Lampung's sequence of scripts. In the current Lampung script, the *gha* script takes the following form: *h*. The *gha* script is written by first forming a short vertical line down and then a diagonal line up to the right. The second pull is accomplished by drawing a diagonal line upward and then a short vertical line downward. The NLP97N69 text contains a *gha* script that is identical to the current *gha* script. However, the *gha* script is not present in any of the characters listed in the table of Van der Tuuk's [15] script variants. The Hahiwang text does not contain the *gha* script. As a result, the Hahiwang text contains only nineteen characters.

4 Conclusion

Lampung script has received little research. A paleographic study examining the shape of the Lampung script is a significant step in the history of the Lampung script's development. This study is critical in terms of preserving and developing local languages and scripts.

The current findings suggest that the shape of the Lampung script changed prior to the script being used today. The paleographic study conducted in this study makes use of the contemporary Lampung script and Van der Tuuk's [15] Lampung script table as a point of comparison. This research demonstrates that not all of the characters in the two manuscripts correspond to those in the contemporary script or the Van der Tuuk's table. The differences in forms and variations discovered in this study indicate that the Lampung script evolves and changes in response to the script's users' needs. Additionally, it was discovered that the scriptwriter of the Hahiwang did not use the *gha* script. This demonstrates that the *gha* script developed in response to the requirements of its users, particularly after Islam arrived and introduced a vocabulary containing the letter *gha*.

Additionally, the findings imply that the local government, with the support of all parties, should take an active role in preserving the Lampung scripts, such as by using Lampung scripts for public signage. This study, however, has limitations. While this study was able to shed light on the differences between ancient Lampung scripts and those in use today, it was conducted in isolation from historical and cultural contexts. As a result, future research should focus on perspectives to gain a more holistic understanding of the phenomenon. Additionally, conducting research with participants, such as through interviews, is a good way to ensure that conclusions are valid.

References:

- [1] M. A. Muhammad, "Mobile dictionary aksara Lampung berbasis teknologi spa (single webpage application)," *Electr. J. Rekayasa Dan Teknol. Elektro*, vol. 11, no. 2, pp. 66–71, 2017.
- [2] Z. Abidin, P. Permata, and F. Ariyani, "Translation of the Lampung language text dialect of Nyo into the Indonesian language with DMT and SMT approach," *INTENSIF J. Ilm. Penelit. dan Penerapan Teknol. Sist. Inf.*, vol. 5, no. 1, pp. 58–71, Feb. 2021, doi: 10.29407/intensif.v5i1.14670.
- [3] L. Septianasari, "Language Trajectory and Language Planning in Maintaining Indigenous Language of Lampung, *Advances in Social Science*," *Educ. Humanit. Res. (ASSEHR)*, vol. 82, pp. 104–108, 2017.
- [4] R. Meshtrie, *The Cambridge Handbook of Sociolinguistics*. Cambridge: Cambridge University Press, 2011.
- [5] R. Wardhaugh, *An Introduction to Sociolinguistics*. Oxford: Blackwell Publishing, 1986.
- [6] J. Holmes, *An Introduction to Sociolinguistics*. New York: Longmen, 1992.
- [7] "Lampung Governor Regulation Number 39 of 2014 concerning Lampung Language and Script Subjects as Mandatory Local Content at Elementary and Secondary Education Unit Levels." 2014.
- [8] H. Hartono, B. Pitoewas, and H. Yanzi, "Peranan mulok bahasa Lampung dalam upaya pelestarian bahasa dan budaya Lampung (The role of local content of Lampung language in the preservation of Lampung language and culture)," *J. Kult. Demokr.*, vol. 4, no. 3, 2016.
- [9] A. Imran, "The development of Iqra' Lampung script teaching materials for primary school levels in Bandar Lampung city," *Int. J. Educ. Stud. Soc. Sci.*, vol. 1, no. 1, pp. 38 – 43, 2021.
- [10] F. Amran, *Mencari Jejak Masa Lalu Lampung; Lampung Tumbai 2014*. Lampung: LaBRAK, 2016.
- [11] G. C. Bond, "Fieldnotes: Research in past occurrences," in *Fieldnotes*, Cornell University Press, 2019, pp. 273–289.
- [12] J. Haldon *et al.*, "History meets palaeoscience: Consilience and collaboration in studying past societal responses to environmental change," *Proc. Natl. Acad. Sci.*, vol. 115, no. 13, pp. 3210–3218, 2018.
- [13] K. M. Hakiki, "Prasasti Dalung Kuripan; Dokumentasi Perjanjian Banten – Lampung Tahun 1552 M," *Al Adyan J. Stud. Lintas Agama*, vol. 15, no. 2, 2020.
- [14] T. Pudjiastuti, *Aksara dan Naskah Kuno Lampung dalam Pandangan Masyarakat Lampung Kini*. Jakarta: Departemen Pendidikan dan Kebudayaan, 1997.
- [15] H. N. V. Tuuk, *Les Manuscrits Lampongs, en Possession de M. Le Baron Sloet van de Belle*. Leiden: T. Hoobeirg et Files, Libraries-Editeurs, 1868.
- [16] S. Sarwono, *Juarian Beringin: Suntingan Teks dan Tinjauan Bentuk*. Depok: Universitas Indonesia, 1993.
- [17] P. Voorhoeve, C. Ricklefs, and A. T. Gallop, "Indonesian Manuscript in Great Britain; A Catalogue of Manuscripts in Indonesian Languages in British Public Relation." Jakarta; Ecole Francaise d'Extreme-Orient, 2014.
- [18] H. B. Bakr, *Pelajaran Praktis Membaca dan Menulis Huruf Lampung*. Tanggamus: CV. Tanggamus offset, 1984.
- [19] I. K. Astuti, "Vitality of Lampung language and its maintenance efforts through cultural exposure in educational program," Diponegoro University, 2017.
- [20] A. Rahayu, *Naskah-Naskah Merbabu: Tinjauan atas Aksara dan Perkembangannya*. Depok: Universitas Indonesia, 2009.
- [21] M. Jaruki, "Naskah Surat/Dokumen Sultan Raja Kesultanan Kalimantan Barat: Kajian Struktur, Paleografi, dan Kebahasaan," *Kandai*, vol. 13, no. 1, pp. 137–156, 2017.
- [22] L. Misliani, *Suntingan Teks dan Telaah Gejala Bahasa Melayu pada Naskah Beraksara*. Lampung, Depok: Universitas Indonesia, 2012.
- [23] R. D. Fulk, "Philological methods,"

- Cambridge Handb. English Hist. Linguist.*, pp. 95–107, 2016, doi: 10.1017/CBO9781139600231.007.
- [24] I. K. Nuarca, “Metode filologi: Sebuah pengantar (Philological method: An introduction),” Denpasar, 2017. [Online]. Available: <http://erepo.unud.ac.id/id/eprint/17713/1/6dc497b6ce3a98d7d2f4ff8ed6008f94.pdf>.
- [25] T. Permadi, “Cara kerja suntingan teks yang disajikan J.J. Rass dalam mengedisi naskah Hikayat Banjar (How did J.J. Rass edit the script of Hikayat Banjar?),” Bandung, 2012. [Online]. Available: http://file.upi.edu/Direktori/FPBS/JUR._PEN_D._BHS._DAN_SASTRA_INDONESIA/197006242006041-TEDI_PERMADI/Cara_Kerja_Suntingan_Teks_JJ_Rass.pdf.
- [26] S. W. R. Mulyadi, *Kodikologi Melayu di Indonesia*. Depok: Fakultas Ilmu Budaya Universitas Indonesia, 1994.
- [27] N. Susanti, “Script and identity of Indonesia,” *MALINDO-Journal Malaysian Indones. Stud.*, vol. 1, no. 1, pp. 1–7, 2019.
- [28] J. F. Hartmann, “The spread of south Indic scripts in Southeast Asia,” *Crossroads An Interdiscip. J. Southeast Asian Stud.*, vol. 3, no. 1, pp. 6–20, 1986.
- [29] K. A. Adelaar, D. J. Prentice, C. D. Grijns, H. Steinhauer, and A. van Engelenhoven, “Malay: Its history, role and spread,” in *Atlas of languages of intercultural communication in the Pacific, Asia, and the Americas*, De Gruyter Mouton, 2011, pp. 673–694.
- [30] A. H. Omar, “The development of Malay: A supranational collaboration,” in *Languages in the Malaysian Education System*, Routledge, 2015, pp. 161–176.
- [31] C. R. Miller, “Devanagari’s descendants in North and South India, Indonesia and the Philippines,” *Writ. Syst. Res.*, vol. 6, no. 1, pp. 10–24, 2014.
- [32] C. R. Miller, “A survey of indigenous scripts of Indonesia and the Philippines,” in *Proceedings of the international workshop on endangered scripts of Island Southeast Asia*, 2014, pp. 1–49.
- [33] L. Y. Andaya, “The search for the ‘origins’ of Melayu,” *J. Southeast Asian Stud.*, vol. 32, no. 3, pp. 315–330, 2001.
- [34] H. Dongoran, A. A. Musadad, and D. Sulistyanningru, “The Philosophical Values of Siger in Saibatin and Papadun Society,” *Int. J. Multicult. Multireligious Underst.*, vol. 5, no. 4, pp. 233–240, 2018.
- [35] Kushartanti, *Pesona Bahasa: Langkah Awal Memahami Linguistik*. Jakarta: Gramedia Pustaka Utama, 2005.
- [36] T. Pudjiastuti, *Naskah dan Studi Naskah*. Bogor: Akademia, 2006.

Contribution of individual authors to the creation of a scientific article (ghostwriting policy)

Farida Ariyani and Nurlaksana Eko Rusminto contributed to the interpretation of data and source identification. Sumarti conducted the data analysis. As. Rakhmad Idris and Lisa Misliani aided in the analysis process by gaining access to the original Hahiwang and NLP97N69 manuscripts.

Follow: www.wseas.org/multimedia/contributor-role-instruction.pdf

Sources of funding for research presented in a scientific article or scientific article itself

Report potential sources of funding if there is any

Creative Commons Attribution License 4.0 (Attribution 4.0 International, CC BY 4.0)

This article is published under the terms of the Creative Commons Attribution License 4.0 https://creativecommons.org/licenses/by/4.0/deed.en_US