

APPENDIX

List of Meetings and Workshops in AY2022 (JST/UTC+0900)

4th Joint Coordination Committee (Hybrid JCC)

1. 1st September 2022 at 15:00–21:30 (09:00–15:30 Ethiopia Time)
Venue: Addis Ababa (Sapphire Hotel) & Online (Zoom)

Research Meeting at Ehime University

1. 3rd February 2023 at 14:00
4th February 2023 at 09:00

MNGD Research Seminar (Online)

1. Challenges and Prospects of Contemporary Paratransit: Mobility, Daily Survival, and Urban Politics in Asia and Africa
19th November 2022 at 09:00–11:40

International Student Workshop (Online)

1. 2nd MNGD International Student Workshop
29th June 2022 at 14:00–16:00
2. 3rd MNGD International Student Workshop
28th October 2022 at 16:00–18:10
3. 4th MNGD International Student Workshop
31st January 2023 at 16:00–18:10

General Meeting (Online)

1. 25th April 2022 at 17:00
2. 23rd May 2022 at 17:00

3. 27th June 2022 at 17:00
4. 25th July 2022 at 17:00
5. 22nd August 2022 at 17:00
6. 26th September 2022 at 17:00
7. 25th October 2022 at 17:00
8. 29th November 2022 at 17:00
9. 20th December 2022 at 17:00
10. 24th January 2023 at 17:00
11. 28th February 2023 at 17:00
12. 28th March 2023 at 17:00

Component 1 and 2 Joint Meeting (Online)

1. 14th April 2022 at 18:30
2. 12th May 2022 at 17:30
3. 9th June 2022 at 18:30
4. 14th July 2022 at 18:30
5. 11th August 2022 at 18:30
6. 8th September 2022 at 18:00
7. 13th October 2022 at 18:00
8. 10th November 2022 at 18:00
9. 15th December 2022 at 18:00
10. 12th January 2023 at 18:00
11. 9th February 2023 at 18:00
12. 3rd March 2023 at 18:00

Component 3 Meeting (Online)

1. 18th April 2022 at 17:00
2. 12th May 2022 at 10:00
3. 25th July 2022 at 10:00
4. 10th August 2022 at 15:30
5. 20th October 2022 at 19:30
6. 29th November 2022 at 16:00
7. 20th December 2022 at 16:00
8. 28th December 2022 at 14:00
9. 11th January 2023 at 16:30
10. 8th March 2023 at 13:30

Component 3: MNGD International Student Seminar

1. 2nd April 2022 at Kyoto University
Speaker: Mr. Kassahun Y., Mr. Argachew B. & Mr. Addisu M.
2. 6th April 2022 at Kyoto University
Speaker: Mr. Addisu M.
3. 20th April 2022 at Kyoto University
Speaker: Mr. Argachew B.
4. 5th September 2022 at Kyoto University
Speaker: Mr. Addisu M. & Mr. Kassahun Y.
5. 6th September 2022 at Kyoto University
Speaker: Mr. Argachew B.
6. 12th September 2022 at Kyoto University
Speaker: Mr. Argachew B.
7. 15th September 2022 at Kyoto University
Speaker: Mr. Addisu M.
8. 16th September 2022 at Kyoto University
Speaker: Mr. Argachew B. & Mr. Kassahun Y.
9. 20th September 2022 at Kyoto University
Speaker: Mr. Argachew B.
10. 27th September 2022 at Kyoto University
Speaker: Mr. Argachew B.
11. 3rd November 2022 at Jinka University
Speaker: Mr. Argachew B. & Mr. Kassahun Y.
12. 10th February 2023 at Kyoto University
Speaker: Mr. Kassahun Y., Mr. Argachew B. & Mr. Addisu M.
13. 17th February 2023 at Kyoto University
Speaker: Mr. Kassahun Y.
14. 24th February 2023 at Kyoto University
Speaker: Mr. Argachew B.
15. 3rd March 2023 at Kyoto University
Speaker: Mr. Addisu M.
16. 10th March 2023 at Kyoto University
Speaker: Mr. Kassahun Y.



[JPMJSA1807]

SATREPS MNGD PROJECT

MAKING NETWORKS FOR GLOBAL DEVELOPMENT

The 4th Joint Coordination Committee Meeting

1ST SEPTEMBER, 2022

9:30-15:30 (ETHIOPIA TIME)

VENUE: SAPPHIRE HOTEL, ADDIS ABABA, ETHIOPIA
AND ONLINE(15:30-21:30 JAPAN TIME)

The background image shows a dirt road in a rural area with large trees and people in the distance.

The 4th Joint Coordination Committee Meeting
SATREPS MNGD PROJECT
Making Networks for Glocal Development

DATE:

**September 1st, 2022, 09:00- (in Ethiopia)
15:00- (in Japan)**

VENUE:

Sapphire Hotel / Zoom (online)

AGENDA:

- Progress report and Discussion
- Plan after the impact of COVID-19

TIME SCHEDULE:

Ethiopia	Japan		
09:00	15:00	Registration	
09:30	15:30	Opening Remarks	Dr. Abraham Debebe (AASTU)
09:35	15:35	Message from Principal Investigator	Prof. Kimura (Kyoto University)
09:40	15:40	Message from JICA	Ms. Hirose (JICA Ethiopia)
09:45	15:45	Overview	Mr. Matsukuma (Kyoto University)
		- Objectives of JCC	
		- Input from Japan	
		- Input from Ethiopia	
10:00	16:00	Progress Report and Action Plan of the Project	
		- Output 1: Modification mechanism of problematic soil by cellulose-based soil additives is clarified	Dr. Fukubayashi (University of Miyazaki) Mr. Wendimu (AASTU)
10:30	16:30	- Output 2: Production technology of cellulose-based soil additives using locally available plants is developed	Prof. Yasuhara (Ehime University) Mr. Feyera (AASTU)
11:00	17:00	Break	
11:15	17:15	- Output 3: The operation model of construction measures for problematic soil aimed at reducing rural road disasters is developed	Dr. Kaneko (Kyoto University) Dr. Elias (Jinka University)
11:45	17:45	Q & A	
12:30	18:00	Break	
13:30	19:30	Discussion	
15:00	21:00	Close of Discussion	
15:15	21:15	Closing remarks	
15:30	21:30	Close	

Contact: contact@mngd.africa.kyoto-u.ac.jp

Research Meeting at Ehime University
SATREPS MNGD PROJECT
Making Networks for Glocal Development

DATE:

3rd and 4th February 2023
3rd Feb. 14:00- / 4th Feb. 09:00-

VENUE:

Ehime University

AGENDA:

- Progress report and Discussion
- Plan after the impact of COVID-19

TIME SCHEDULE:

Japan		
3rd		
14:00	Registration	
14:00	Laboratory Visit	Faculty of Engineering at Ehime University
15:00	Opening Remarks	Mr. Matsukuma (Kyoto University)
15:00	Component 1 Progress Report and Action Plan	Dr. Fukubayashi (University of Miyazaki)
15:20	Component 2 Progress Report and Action Plan	Prof. Yasuhara (Ehime University)
15:40	Component 3 Progress Report and Action Plan	Dr. Kaneko (Kyoto University)
16:00	Overall Discussion	
17:30	Closing Remarks	Prof. Kimura (Kyoto University)
4th		
09:00	Project-related Meetings Industrial Heritage Site Visit	

Contact: contact@mngd.africa.kyoto-u.ac.jp

Online meeting
Language: English

The 6th LIFELONG SCIENCES
INTERNATIONAL SEMINAR/
MNGD RESEARCH SEMINAR



CHALLENGES AND PROSPECTS OF CONTEMPORARY PARATRANSIT

Mobility, Daily Survival, and Urban Politics in Asia and Africa

Nov 19, 09:00 at JST/KST (Japan & Korea)
Nov 19, 08:00 at PHT (Philippines)
Nov 18, 19:00 at EST (Eastern Standard Time, USA)

Tro-tro in Ghana, Danfo in Lagos, and Jeepney in the Philippines. These are the paratransit, public transports operated by private operators. For a long time, paratransit has been playing a vital role in Asia and African cities to fill the growing mobility demands. Meanwhile, it has been a center of various major issues socially, culturally, and politically. This international seminar invites three scholars, who focus their studies on transport issues in Philippines, Nigeria, and Ethiopia respectively. Based on their rich experience in the field, they will present recurrent issues and challenges that paratransit faces and tries to see its future prospects across Asia and Africa.

PROGRAM

9:00 - 9:10 JST/KST(19 Nov) 8:00 - 8:10 PHT(19 Nov) 19:00 - 19:10 EST(18 Nov)	Introduction	Eunji Choi , Center for African Area Studies, Kyoto University
9:10 - 9:55 JST/KST(19 Nov) 8:10 - 8:55 PHT(19 Nov) 19:10 - 19:55 EST(18 Nov)	Presentation 1	Terminal is Our Life: Job Mobility and Adaptive Strategy of Transport Workers in Addis Ababa Eunji Choi , Center for African Area Studies, Kyoto University Chair: Morie Kaneko , Center for African Area Studies, Kyoto University Commentator: Daniel Agbiboa , African and African American Studies, Harvard University
10:00 - 10:45 JST/KST(19 Nov) 9:00 - 9:45 PHT(19 Nov) 20:00 - 20:45 EST(18 Nov)	Presentation 2	Thinking for Convivial Infrastructure: A Case Study of Jeepney in Metro Manila Zenta Nishio , Graduate School of Core Ethic and Frontier Sciences, Ritsumeikan University Chair: Eunji Choi , Center for African Area Studies, Kyoto University Commentator: Michael D. Pante , Department of History, Ateneo De Manila University
10:50 - 11:35 JST/KST(19 Nov) 9:50 - 10:35 PHT(19 Nov) 20:50 - 21:35 EST(18 Nov)	Presentation 3	Transport Labor, Corruption, and Everyday Survival in an African Megacity Daniel Agbiboa , African and African American Studies, Harvard University Chair: Tomohiro Machikita , Center for Southeast Asian Studies, Kyoto University Commentator: James Nyachae Michira , Department of African Studies, Hankuk University of Foreign Studies
11:35 - 11:40 JST/KST(19 Nov) 10:35 - 10:40 PHT(19 Nov) 21:35 - 21:40 EST(18 Nov)	Closing remarks	Masayoshi Shigeta , Center for African Area Studies, Kyoto University

Inquiry: inquiry@jambo.africa.kyoto-u.ac.jp
Web: <http://www.lifelong-sci.jinkan.kyoto-u.ac.jp/>

The registration forms: <https://forms.gle/m313LzVbsc88CcsB6>
Advance entry deadline: 15 November 2022



Organizers: Grant-in-Aid for Scientific Research for Transformative Research Areas(A) "Lifelong sciences: Reconceptualization of development and aging in the super aging society" [No.20H05806], SATREPS/MNGD project [JPMJSA1807], Center for African Area Studies, Kyoto University.



Host: AASTU Monthly Seminar (Center of Excellence in Construction Quality & Technology and College of Architecture & Civil Engineering)
Organizer: SATREPS-JST MNGD Project

International Student Workshop

29TH JUNE, 2022

20:00-22:00 (JAPAN TIME) / 14:00-16:00 (ETHIOPIA TIME)

ONLINE(ZOOM)

Program _____ * 20 minutes presentation and 15 minutes discussion.

- 20:00 (JST) Opening Remarks
- 20:05-20:40 *Simulation of Pseudo-expansive Black Cotton Soil by Using Combination of Bentonite and Kasaoka Clay Soils*
Frehaileab Admasu Gidebo (Ehime University, AASTU)
- 20:40-21:15 *Effect of Diatomaceous Earth on Desiccation Cracking of Expansive Soils*
Alemshet Bekele Tadesse (University of Miyazaki, AASTU)
- 21:15-21:50 *Mechanical Properties of Soils Treated with Fine Shredded Paper (FSP) and Hydrated Lime*
Teshome Birhanu (Kyoto University, AASTU)
- 21:50 Closing Remarks
- 22:00 Close

*AASTU: Addis Ababa Science and Technology University, Ethiopia

Abstract



Simulation of Pseudo-expansive Black Cotton Soil by Using Combination of Bentonite and Kasaoka Clay Soils

Frehaileab Admasu Gidebo

(Ph.D. Candidate, Department of Civil and Environmental Engineering, Ehime University, Japan.
Lecturer, Researcher, Department of Civil Engineering, AASTU.)

Hideaki YASUHARA

(Professor, Department of Civil and Environmental Engineering, Ehime University, Japan.)

Naoki KINOSHITA

(Professor, Department of Civil and Environmental Engineering, Ehime University, Japan.)

Expansive black cotton soil is mainly made from clay mineral groups such as the smectite, kaolinite, and some types of illite group of minerals. These clay minerals are known for a high degree of expansiveness/swell-shrinkage, a large volume of surface area, and small particle size. This behavior of the clay soils results in damage to civil infrastructure, loss of economic benefits, and disruption of social

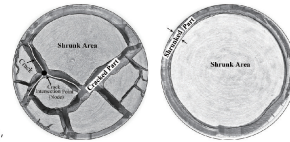
activities where the infrastructures are built up in this type of soil. The subject of this article is to simulate/replicate the expansive black cotton soil by using the mixture of other clay soils based on their physical, mineralogical, and chemical composition parameters. The various combinations of soils have been attempted and investigated to create/replicate the artificial/pseudo black cotton soil. Atterberg limit, shrinkage limit, Free Swelling Ratio (FSR), and X-Ray Diffraction (XRD) analysis test methods have been performed to simulate the expansive clay soil and as well as to analyze the engineering property of the replicated clay soil.

Keywords: Simulated black cotton soil, Bentonite and kasaoka clay, Swell-shrinkage, Engineering property of the soil

Effect of Diatomaceous Earth on Desiccation Cracking of Expansive Soils

Alemshet Bekele Tadesse

(Ph.D. Candidate, Faculty of Engineering, University of Miyazaki, Japan.
Lecturer, Department of Civil Engineering/ College of Architecture and Civil Engineering, AASTU.)



Expansive soils shrink and swell, causing considerable density differences as the moisture content varies and cracks develop as the soil dries. This cracking condition has a detrimental effect on the stability of infrastructure built on expansive soil, such as road embankments. In this study, experimental tests were conducted on saturated slurry to investigate diatomaceous earth's effect (at 5%, 10%, 15%, and 20% DE percent by mass) on the desiccation cracking of expansive soils. The study quantitatively uses the computer image analysis technique to examine and express soil desiccation cracking from digital images. Experimental parameters examined and analyzed here are the geometric features of cracks, such as surface crack area and crack connectivity. The study defines soil crack area ratio and cracking index to show the effect of diatomaceous earth on expansive soil desiccation cracking. The experimental results show that the desiccation cracking is uneven and of significant size on 0%, 5%, and 15% DE blends. However, the blend at 10% and 20% DE shows reduced desiccation cracking and a homogenous radial cracking pattern. The soil blend at 20% DE effectively reduces desiccation cracking. The study revealed that diatomaceous earth substantially affects surface crack reduction through the image analysis approach, an essential quantitative method to quantify soil desiccation cracking.

Keywords: Expansive soil, Desiccation cracking, Diatomaceous earth (DE), Image analysis



Mechanical Properties of Soils Treated with Fine Shredded Paper (FSP) and Hydrated Lime

Teshome Birhanu

(Ph.D. Candidate, Department of Civil and Earth Resources Engineering, Kyoto University, Japan.
Chief Research Assistance in Geotech laboratory, AASTU.)

As urbanization and population increase, there is a shortage of land where construction is required to build over a weak and soft clay subsoil profile that has a low bearing capacity which may cause excessive settlement. To mitigate this problem, replacing the soft soil with selected material is one of the techniques used for several decades. However, as this approach is too expensive researchers come up with some stabilization methods using different stabilizing agents like cement, lime, solid wastes, an agricultural byproduct, chemicals, fibers and so on.

In this study finely shredded paper (referred as FSP) is utilized in combination with hydrated lime as an additive of stabilization of Kasaoka clay soil. The study focuses on the improvement of the engineering properties of soil with the addition of different content of additives both the FSP and hydrated lime. For this purpose, a series of laboratory experiments were conducted using samples at different curing periods. The compressive strength value of treated soil increases as the curing period increases from 7, 28, and 60 days. In addition, X-ray Fluorescence (XRF) and Scanning Electron Microscope (SEM) are conducted to understand microscopic characteristics of the stabilization process where the formation of flocculation is clearly observed as the curing period increases. The combination of FSP fiber and hydrated lime creates new cementitious material between clay particles which creates a stiffer soil matrix that changes the properties of treated soils.

Utilization of fine shredded paper with hydrated lime for subgrade stabilization of soft soil can be used as a sustainable and cost-effective method of improvement where it can be used for rural road maintenance.

Keywords: Fine shredded paper, Hydrated lime, Kasaoka clay, Unconfined compressive strength



Host and Organizer: SATREPS-JST MNGD Project

International Student Workshop

28TH OCTOBER, 2022

16:00-18:10 (JAPAN TIME) / 10:00-12:10 (ETHIOPIA TIME)

ONLINE(ZOOM)

Program

* 20 minutes presentation and 20 minutes discussion.

16:00 (JST)
10:00 (EAT) Opening Remarks

16:05-16:45 (JST)
10:05-10:45 (EAT) *Mechanical Properties of Soils Treated with Fine Shredded Paper (FSP) and Hydrated Lime*
Teshome Birhanu (Kyoto University / Addis Ababa Science and Technology University)

16:45-17:25 (JST)
10:45-11:25 (EAT) *Rural Community Road Access and its Effects on Staple Crop Production: Special Reference with Ensete Production and Market Activities in Three Villages, South Ari Woreda, South Omo Zone Ethiopia*
Argachew Bochena Elisi (Kyoto University / Jinka University)

17:25-18:05 (JST)
11:25-12:05 (EAT) *Road Construction History in The Highlands of South Ari Woreda, Southern Ethiopia: The Case of Shangama Woset Kebele*
Kassahun Yemane (Kyoto University / Jinka University)

18:05 (JST)
12:05 (EAT) Closing Remarks

18:10 (JST)
12:10 (EAT) Close

Abstract



Mechanical Properties of Soils Treated with Fine Shredded Paper (FSP) and Hydrated Lime

Teshome Birhanu
(Ph.D. Candidate, Department of Civil and Earth Resources Engineering, Kyoto University, Kyoto, Japan. / Chief Research Assistance in Geotech laboratory, Addis Ababa Science and Technology University, Addis Ababa, Ethiopia)

As urbanization and population increase, there is a shortage of land where construction is required to build over a weak and soft clay subsoil profile that has a low bearing capacity which may cause excessive settlement. To mitigate this problem, replacing the soft soil with selected material is one of the techniques used for several decades. However, as this approach is too expensive researchers come up with some stabilization methods using different stabilizing agents like cement, lime, solid wastes, an agricultural byproduct, chemicals, fibers and so on.

In this study finely shredded paper (referred as FSP) is utilized in combination with hydrated lime as an additive of stabilization of Kasaoka clay soil. The study focuses on the improvement of the engineering properties of soil with the addition of different content of additives both the FSP and hydrated lime. For this purpose, a series of laboratory experiments treated soil increases as the curing period increases from 7, 28, and 60 days. In addition, X-ray Fluorescence (XRF) and Scanning Electron Microscope (SEM) are conducted to understand microscopic characteristics of the stabilization process where the formation of flocculation is clearly observed as the curing period increases. The combination of FSP fiber and hydrated lime creates new cementitious material between clay particles which creates a stiffer soil matrix that changes the properties of treated soils.

Utilization of fine shredded paper with hydrated lime for subgrade stabilization of soft soil can be used as a sustainable and cost-effective method of improvement where it can be used for rural road maintenance.

Keywords: Fine shredded paper, Hydrated lime, Kasaoka clay, Unconfined compressive, Strength

Rural Community Road Access and its Effects on Staple Crop Production: Special Reference with Ensete Production and Market Activities in Three Villages, South Ari Woreda, South Omo Zone Ethiopia

Argachew Bochena

(Ph.D. Candidate, Graduate School of Asian and African Area Studies, Kyoto University, Kyoto, Japan/
Lecturer, College of Social Sciences and Humanities, Jinka University, Jinka, Ethiopia.)

In this workshop, I would like to present the first round of fieldwork data that I collected from thirty-two households from early June 2022 to late August 2022 in three study sites namely Woset, Billi, and Arki villages, and to get comments and advice from the workshop participants for the upcoming fieldwork from November 1st, 2022.

During the fieldwork data was collected through semi-structured interviews, observations, and market surveys. My fieldwork data revealed findings such as 1) interview results of 32 heads of household indicated that household heads family sizes and their enset landholding are positively associated 2) market survey in three villages showed that the road construction created price and amount variations of kocho 3) the construction of roads in woset and billi kebeles contributed to decreased the required time to go to market and might have facilitated the increment of 21 household heads frequency of market visits 4) interview with 21 household heads in woset and billi villages implies that after the households connected with roads the cash they obtain from enset product selling at the market is improved and the covers their household expenses than before the construction of the road 5) the inaccessibility of the road in arki limited households means of transport to be head portage and horses as compared to woset and billi households 6) majority (29 out of 32) of household heads replied that enset cultivation in the study site is challenged by enset diseases.

Keywords: Rural road access, Rural community, Enset, Sustainability, Local knowledge



Road Construction History in The Highlands of South Ari Woreda, South Ethiopia: The Case of Shangama Woset Kebele

Kassahun Yemane

(Ph.D. Candidate, Graduate School of Asian and African Area Studies, Kyoto University, Kyoto, Japan/
Lecturer, College of Social Sciences and Humanities, Jinka University, Jinka, Ethiopia.)

The main purpose of this presentation is to describe the road construction history in the highland area of South Ari woreda namely Shangama Woset kebele based on the field data collected from the site between 6th June 2022 and 23rd August 2022. Primary data was collected using semi-structured interview and field observation and secondary data was collected from different government offices. The researcher directly communicated with six informants who were purposely selected from different Limat Budins, which is a local association organized for the community road construction and other developmental activities, in the kebele and the coordinate points of natural and human induced factors affecting the Gazer-Woset Road quality were recorded by using Global Positioning System (GPS). The primary field data reveals that the study site have short state led road construction history, twelve years. Due to the lag of the state led road construction in the kebele the community constructed two major roads by human labor for four years, 2002-2005, to access transportation service between Gazer town and Woset village. After the universal rural road access program (URRAP) constructed the Gazer-Woset Road in 2010, which connected Gazer town and Woset village, the traveling time on foot between Gazer town and Woset village was reduced approximately by 60 percent. However, the Gazer-Woset Road construction by Universal Rural Road Access Program was started twelve years ago and the road was reconstructed two times by different governmental organizations namely Universal Rural Road Access Program and Southern Nation Nationalities and Peoples Region Rural Road Office, it couldn't serve the public transportation serving vehicles. Based on the secondary data, it was found that budget for rural road construction and maintenance shouldn't only come from the government treasury it should be supported by rural community.

Keywords: Road history, Road disasters, Rural community, URRAP and region rural road



Host and Organizer: SATREPS-JST MNGD Project

International Student Workshop

31ST JANUARY, 2023

16:00-18:10 (JAPAN TIME) / 10:00-12:10 (ETHIOPIA TIME)

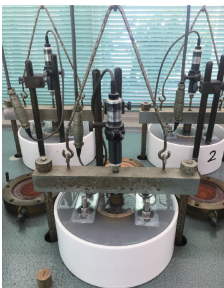
ONLINE(ZOOM)

Program

* 20 minutes presentation and 20 minutes discussion.

- 16:00 (JST)
10:00 (EAT) Opening Remarks
- 16:05-16:45 (JST)
10:05-10:45 (EAT) *An experimental study on the coupled effect of diatomaceous earth and hydrated lime in expansive soil*
Alemshet Bekele Tadesse (University of Miyazaki / Addis Ababa Science and Technology University)
- 16:45-17:25 (JST)
10:45-11:25 (EAT) *Experimental Evaluation of Geotechnical Characteristics of Pseudo-Expansive Soil Modified from Unsaturated Clay Soils*
Frehaileab Admasu Gidebo (Ehime University / Addis Ababa Science and Technology University)
- 17:25-18:05 (JST)
11:25-12:05 (EAT) *Permeability of Soils Treated with Fine Shredded Paper (FSP)*
Teshome Birhanu Kebede (Kyoto University / Addis Ababa Science and Technology University)
- 18:05 (JST)
12:05 (EAT) Closing Remarks
- 18:10 (JST)
12:10 (EAT) Close

Abstract



An experimental study on the coupled effect of diatomaceous earth and hydrated lime in expansive soil

Alemshet Bekele Tadesse

(Ph.D. Candidate, Interdisciplinary Graduate School of Agriculture and Engineering, University of Miyazaki, Japan/
Lecturer, Addis Ababa Science and Technology University, Ethiopia)

Stabilizing expansive soil is one of the soil-ground improvement methods for minimizing embankment problems associated with clays with montmorillonite minerals. In this paper, macro-level mechanical and micro-level analysis is being conducted on Yanaizu expansive soils (YES) stabilized with 5% and 10% Diatomaceous Earth (DE) and 4% and 8% Hydrated Lime (HL). The effectiveness of DE and HL as a stabilizer is being evaluated using the one-dimensional swell consolidation (SC) test, unconfined compressive strength (UCS) test, and direct shear strength (DSS) test. Also, the soil water potential of Yanaizu expansive soil is under investigation. The

Mineralogy of Yanaizu's expansive soil was studied using X-ray diffraction analysis (XRD).

Furthermore, microlevel tests like cation exchange capacity (CEC), scanning electron microscopy (SEM), and energy dispersive spectroscopy (EDX) will also be used to determine the main microlevel governing improvements in the expansive soil. The result of XRD analysis identified the presence of Montmorillonite, Vermiculite, and Cristobalite in Yanaizu expansive soil (YES). SEM-EDX analysis will be made to discover the expansive soil particle rearrangement showed crushed, twisted, or flaked soil particle crystals in a joined pattern. Also, the contact among the particles is surface-to-surface or surface-to-edge. Therefore, the macro and micro level improvement study of YES due to DE and HL application is being studied.

Keywords: Yanaizu Expansive Soil, Diatomaceous Earth, Hydrated Lime, Macro and Micro Level Improvement

Experimental Evaluation of Geotechnical Characteristics of Pseudo-Expansive Soil Modified from Unsaturated Clay Soils

Frehaileab Admasu Gidebo

(Ph.D. Candidate, Department of Civil and Environmental Engineering, Ehime University, Japan/
Lecturer, Addis Ababa Science and Technology University, Ethiopia)

Hideaki YASUHARA, and Naoki KINOSHITA

(Professor, Department of Civil and Environmental Engineering, Ehime University, Japan)



Expansive soil is a typical problematic soil for geotechnical engineering applications; that is not broadly investigated outside of the region it exists. The fundamental problem of the expansive soil is associated with volume change behaviors mainly swell-shrinkage characteristics. The soil severely expands/swells during the wet season and shrinks during the dry season. These characteristics cause unprecedented damage to the lightly founded buildings and road subgrade constructed in this type of soil. The subject of this article is to manufacture artificial/pseudo-expansive soil from the combination of unsaturated clay soils such as kunigel-V1, kasaoka clay, and tochi clay soils. This article also aims to evaluate the geotechnical characteristics of pseudo-expansive soil modified from unsaturated clay soils. The numerous aspects of the combination of the soil (kunigel-V1, 21.8%, kasaoka clay 39.1%, and tochi clay, 39.1%) by weight were experimentally tested based on standard geotechnical testing procedures. The chemical composition and mineralogical analysis were also carried out by using XRD, and SEM image analysis. The consistency limit values viz., liquid limit, plastic limit, linear shrinkage test, free swell ratio, and other various tests were performed to evaluate the characteristics of modified soil against the original soil. The test results provided that the pseudoexpansive soil modified from the unsaturated clay soil demonstrated similar geotechnical characteristics to the original expansive black cotton soil.

Keywords: pseudo-expansive soil, modified clay soil, geotechnical characteristics, microstructural analysis, shrink-swell behavior



Permeability of Soils Treated with Fine Shredded Paper (FSP)

Teshome Birhanu

(Ph.D. Candidate, Department of Civil and Earth Resources Engineering, Kyoto University, Japan/
Chief Research Assistance in Geotech laboratory, Addis Ababa Science and Technology University, Ethiopia)

The hydraulic conductivity is one of the fundamental engineering properties of soft soils, as it has a crucial role during the settlement of the subgrade soils when it exposed for variation of moisture content.

Mostly the coefficient of permeability of the soil is highly related with its porosity. In addition, the shape of the pores and how they are interconnected influences the hydraulic conductivity.

Previously some improved characteristics of soft soil mixed with finely shredded paper (FSP) were investigated. In this paper our study is mainly focusing on the effect of FSP addition on the hydraulic conductivity properties of clays. As this additive has high water absorbing characteristics and clearly unknown its effect on the permeability of treated soils.

The specimen is prepared by dry mixing of Kasaoka clay with different amount of FSP and 1.2 liquid limit of the mix. Saturated slurry of the specimen assembled on odometer for consolidation process. From the results, the treated soil with large amount of FSP additive shows largest consolidation which indicates intrusion of FSP keeps the void ratio higher and makes the mix more compressible.

The hydraulic conductivity is obtained from the falling head permeability cell using modified triaxial cell setup for this experiment. From the permeability tests it obtained that, the soil treated with 20% FSP has the largest hydraulic conductivity with respect to pure clay which indicate the FSP additive increases flow of water across the specimen due to its (i.e., FSP) particle size and pervious nature.

Keywords: Permeability, Kasaoka clay, and finely shredded papers

Short-term Training Program: 30th November–14th December 2022**Member List (in alphabetical sequence)**

	Name	Affiliation	Position
1	Asmera Nassir	Ethiopian Roads Administration	Staff
2	Ayewew Yihune	Addis Ababa Science and Technology University	Lecturer
3	Belachew Gebrewold	Addis Ababa Science and Technology University	Lecturer
4	Ehitabezahu Mekonnen	Ethiopian Roads Administration	Staff
5	Eilias Alemu	Jinka University	Vice President
6	Eleyas Assefa	Addis Ababa Science and Technology University	Assistant Professor
7	Fitsum Tesfaye	Addis Ababa Science and Technology University	Assistant Professor
8	Girma Gonfa	Addis Ababa Science and Technology University	Associate Professor
9	Kusse Gudishe	Jinka University	President
10	Yitayou Eshete	Addis Ababa Science and Technology University	Lecturer

Schedule

Date	Activity
Nov. 30 Wed.	• Depart Addis Ababa
Dec. 1 Thu.	• Arrive at Osaka, Move to Kyoto
Dec. 2 Fri.	• Orientation • Visit laboratories at Kyoto University (Katsura Campus)
Dec. 3 Sat.	• Members of AASTU, ERA: Participate in Joint Seminar (Katsura Campus) • Members of Jinka University: Meet with Prof. Shigeta (Main Campus)
Dec. 4 Sun.	• Organize project materials and assignments • Move to Osaka
Dec. 5 Mon.	• Visit highway construction site in Kobe
Dec. 6 Tue.	• Visit riverbank construction site in Osaka • Back to Kyoto
Dec. 7 Wed.	• Project meeting at Kyoto University
Dec. 8 Thu.	• Fly to Miyazaki • Visit laboratories of the University of Miyazaki
Dec. 9 Fri.	• Courtesy visit to the President of the University of Miyazaki and the Dean • Visit laboratories of the University of Miyazaki • Visit special geological formation site
Dec. 10 Sat.	• Fly back to Kyoto
Dec. 11 Sun.	• Organize project materials and assignments • Prepare presentation on 13th
Dec. 12 Mon.	• Members of AASTU, ERA: Prepare presentation on 13th • Members of Jinka University: Meet with the Director of the Africa Center
Dec. 13 Tue.	• Participate in workshop at Kyoto University • Depart Osaka
Dec. 14 Wed.	• Arrive at Addis Ababa



**Dec. 2nd: Short-term Training Has Started.
In Front of the Clock Tower of Kyoto University.**



Dec. 2nd: The Group Visited Civil Engineering Labs in Kyoto University. Mr. Teshome, One of International Students of the MNGD Project, Showed Them the Geotechnical Engineering Lab Where the MNGD Project Experiments Are Conducted.



Dec. 5th: The Group Visited the Headquarters of Hanshin Expressway Co., Ltd. at Nakanoshima and Toured the Construction Sites of Open-cut Tunnels at the Osaka Bay Highway West Extension at the Komae Construction Yard.



Dec. 9th: The Group Visited the University of Miyazaki. Mr. Alemshet, a PhD Student at the University of Miyazaki, Gave Them a Detailed Explanation of the Experiments He Is Currently Working on Expansive Soils.

List of Meeting Materials for the Meeting of the Center for African Area Studies in AY2023

1. Meeting materials for the meeting of the Center for African Area Studies on 21st April 2022
2. Meeting materials for the meeting of the Center for African Area Studies on 12th May 2022
3. Meeting materials for the meeting of the Center for African Area Studies on 2nd June 2022
4. Meeting materials for the meeting of the Center for African Area Studies on 7th July 2022
5. Meeting materials for the meeting of the Center for African Area Studies on 10th November 2022
6. Meeting materials for the meeting of the Center for African Area Studies on 1st December 2022
7. Meeting materials for the meeting of the Center for African Area Studies on 5th January 2023
8. Meeting materials for the meeting of the Center for African Area Studies on 2nd February 2023
9. Meeting materials for the meeting of the Center for African Area Studies on 28th February 2023



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MNGD PROJECT

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SATREPSエチオピア（MNGDプロジェクト）活動報告_2022.4.21.

1. 報告2022.3.4-2022.4.21

0) エチオピア国内状況（COVID19現状ほか）

- ・新型コロナウイルス感染第4波収束。一日あたりの新規感染者数最大5185人（12/28）から37人（3/15）へ減少。
- ・治安も落ち着き、JICAの短期出張者も渡航再開。

1) 題目1 特殊土改良メカニズム解明（セルロース系土質改良材による特殊土の改良メカニズムの解明）

- ・題目1、2での合同月例会議を開催。AASTUでセルドロン、エンセーテとブラックコットンソイルの混合実験を進めている。

2) 題目2 土質改良材開発（在来植物からのセルロース系土質改良材の生産技術の開発）

- ・愛媛大学にて疑似ブラックコットンソイルにリュウキュウイトバショウ、サトウキビのバガス、麦わら、セルドロン、おがくず、もみ殻、竹のマイクロ粉末を混合する実験を開始。

3) 題目3 モデル構築（地方での道路災害低減化に向けた特殊土対策工の運用モデルの構築）

- ・研究報告冊子ZAIRAICHI-MNGD issue03およびCOVID-19対策冊子エチオピア版を発行。
- ・3/12、ライデン大学アフリカセンターAbbink教授をゲストスピーカーに迎え、Round-table Talkを開催。
- ・ジンカ大学実験室の清掃・整備がほぼ完了。

4) その他

- ・3/25、全体会議開催。

2. 今後の予定

2.1) 全体の予定

- ・4/25に全体会議（2022年度前期は第4月曜17時開始）：Gebre（アジスアベバ大学）調査報告を予定。
- ・渡航予定：松隈研究員（4/26～7/16）、ASAFAS留学生2人（Arcachew, Kassahun）6月のエチオピア渡航申請がASAFAS専攻長会議で承認され、渡航準備（6/1～8/27）。
- ・今年度のJCCはアジスアベバで開催。（8月末～9月初旬に開催予定）

2.2) 題目1：宮崎大学とAASTUでの実験を進め、成果を共有。

2.3) 題目2：実験と改良材検討を進め、成果を共有。

2.4) 題目3：重田・金子、ASAFAS留学生（Argachew, Kassahun）と毎週水曜定期ミーティング（3/9, 3/16, 3/30）。





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SATREPSエチオピア (MNGDプロジェクト) 活動報告_2022.5.12.

1. 報告2022.4.22-2022.5.12

0) エチオピア国内状況 (COVID19現状ほか)

- ・新型コロナウイルス感染第4波収束。一日あたりの新規感染者数2372人(4/1)から12人(4/23)へ。
- ・治安の安定化を受け、JICAの短期出張は現地滞在可能者数の制限を廃止したが、ジンカで暴動が発生するなど要注視。

1) 題目1 特殊土改良メカニズム解明 (セルロース系土質改良材による特殊土の改良メカニズムの解明)

- ・題目1、2での合同月例会議を開催。AASTUより、今後の実験スケジュールが提出。
- ・当プロジェクトで開発する「植物由来の土質改良材」を、ERAの定める道路の土質基準と合わせることも視野に入れて、ERAのメンバーらと議論を進める。

2) 題目2 土質改良材開発 (在来植物からのセルロース系土質改良材の生産技術の開発)

- ・題目1と合同会議。

3) 題目3 モデル構築 (地方での道路災害低減化に向けた特殊土対策工の運用モデルの構築)

- ・4/18、地理情報分析についてのミーティング。今後の活動は、
1: ブラックコットンソイルの現地採取サンプル分析と衛星画像からブラックコットンソイルの分布推定。
2: 道路災害に関する地理情報の分析のため、ベースマップ上に現地での災害箇所と対策についての聞き取り情報を掲載。

4) その他

- ・4/25、全体会議開催。Gebre (アジスアベバ大学) がジンカ周辺2カ所での交通量調査に関する報告を行う。新年度、日本側とエチオピア側の研究者の調査連携について話し合い。

2. 今後の予定

2.1) 全体の予定: 5/23に全体会議。

- ・渡航予定: 松隈研究員(4/29~7/16)、萩原研究員(5/16~7/1)、留学生Kassahun, Argachew(6/1~8/27)。

- ・9/1 JCCをハイブリッド形式にて開催(アジスアベバで対面開催)。

- ・12月 国内全体会議を愛媛大学で開催。

2.2) 題目1: 宮崎大学とAASTUでの実験を進め、成果を共有。

2.3) 題目2: 実験と改良材検討を進め、成果を共有。

2.4) 題目3: 重田・金子・ASAFAS留学生(Argachew, Kassahun)と毎週水曜定期ミーティング。(4/6, 4/13, 4/20, 4/27)

留学生の渡航後、ジンカに気象観測装置を設置し、データ収集と管理の仕組みを整える。

運用モデルの構築を念頭に置き、調査を行っている地域を中心に道路建設のデモンストレーションに取り込む準備を進める。

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SATREPSエチオピア (MNGDプロジェクト) 活動報告_2022.6.2.

1. 報告2022.5.13-2022.6.2

0) エチオピア国内状況 (COVID19現状ほか)

- ・新型コロナウイルス感染、微増。新規感染者数32人/週 (4/18) から42人/週 (5/16) へ。5/21には100人/週を超える。
- ・ルネッサンスダムをめぐり、スーダン・エジプトの対立が深まっている。また各地で政治的な利害関係をめぐって衝突が起こっており注視が必要。アディスアベバ市内でも連邦政府軍・州政府軍が配備されており、エチオピア政府は治安維持に注力している。
- ・インフレ進む。\$ 1=52ブル (2019年は\$ 1=27ブル)

1) 題目1 特殊土改良メカニズム解明 (セルロース系土質改良材による特殊土の改良メカニズムの解明)

- ・5/12、題目1、2での合同月例会議と事前打ち合わせ開催。今後、セルドロンによるブラックコットンソイルのクラック抑制効果の有効性を見極め、セメント系固形剤を用いたり、土のう補強を行ったりする追加実験も行っていく。コロナ禍で渡航できていない間、AASTUで進められなかった力学実験を早急に進めていくことを確認。

2) 題目2 土質改良材開発 (在来植物からのセルロース系土質改良材の生産技術の開発)

- ・題目1と合同会議。

3) 題目3 モデル構築 (地方での道路災害低減化に向けた特殊土対策工の運用モデルの構築)

- ・5/12: 打ち合わせを実施。6月から南オモにて現地調査を開始する留学生2名の調査準備 (道路災害についての聞き取りおよび地理情報収集)。
- ・5/18: 国際エチオピア学会 (9/28~10/2 @アジスアベバ大学) でMNGDプロジェクトに関するパネル発表 (Local knowledge for innovation and sustainable development: Multidisciplinary approaches to the understandings of community initiatives, organizers: M. SHIGETA & M. KANEKO) の申請が受理。
- ・5/11, 18: Gebre (アジスアベバ大学) と南オモ現地状況についての情報共有と、今後の調査委託内容について打ち合わせ。

4) その他

- ・5/23、全体会議開催。各メンバーのエチオピア渡航予定と業務内容を確認。

2. 今後の予定

2.1) 全体の予定: 6/27に全体会議。

- ・渡航: 松隈研究員 (4/29~7/16)、萩原研究員 (5/16~7/1)、留学生Argachew, Kassahun (6/1~8/27)
- ・渡航予定: 京大・金子、重田 (8/6~9/2)、宮崎大・福林 (8/25~9/2)、京大・木村 (8/28~9/4)、京大・宮崎 (9/1~9/20)、8月~9月: 愛媛大・安原、宮崎大・亀井、京大・澤村、岩井
- ・9/1 JCCをハイブリッド形式にて開催 (アジスアベバで対面開催)。
- ・12月 国内全体会議を愛媛大学で開催。

2.2) 題目1: 宮崎大学とAASTUでの実験を進め、成果を共有。

2.3) 題目2: 実験と改良材検討を進め、成果を共有。

2.4) 題目3: 留学生 (Argachew, Kassahun) 渡航中のため毎週水曜定期ミーティングは休み。





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SATREPSエチオピア (MNGDプロジェクト) 活動報告_2022.7.7.

1. 報告2022.6.3-2022.7.7

0) エチオピア国内状況 (COVID19現状ほか)

- ・WHOエチオピア、アフリカ疾病予防センター (アフリカCDC) は、エチオピアがCOVID19感染第5波にあると発表。6月4週目: 新規感染者数平均620名/日、陽性率14% (4月第4週平均32名/日、陽性率0.7%)。
- ・ルネッサンス・ダムをめぐる、スーダンとエジプトの対立。国内の各地で民族、宗教間対立の衝突が起こっており、連邦政府軍、州政府軍が市内に配備。
- ・インフレ率36.6%。

1) 題目1 特殊土改良メカニズム解明 (セルロース系土質改良材による特殊土の改良メカニズムの解明)

- ・6/9: 題目1、2合同月例会議と事前打ち合わせを開催。AASTUから6月末に提出される今後の実験計画案をもとに、日本からの研究者の渡航計画、活動内容を協議。

2) 題目2 土質改良材開発 (在来植物からのセルロース系土質改良材の生産技術の開発)

- ・題目1と合同会議。愛媛大学で作成中の疑似ブラックコットンソイルを調整。

3) 題目3 モデル構築 (地方での道路災害低減化に向けた特殊土対策工の運用モデルの構築)

- ・留学生2名は、フィールドワーク開始。ジンカ大学での気象観測装置の設置を依頼。
- ・6/16: エチオピア道路公社 (ERA) 環境・社会マネジメントチーム・リーダーとミーティング。2021年よりURRAPの後継プログラム (RCAP: Rural Community Access Program) が策定された。トレーニング部門が現在マニュアルを作成中。これをMNGDでも共有する準備を進める。
- ・Gebre (アジス大) と調査チームに、予定している道路建設デモンストレーションへの協力を要請検討。

4) その他

- ・6/27: 全体会議開催。各メンバーのエチオピア渡航予定と業務内容を確認。短期招聘者の人数、日程を、2022年10月12日からの2週間と、11月30日からの2週間、各4名と決定。
- ・6/29: 留学生ワークショップ開催。AASTU monthly seminarと共催。
- ・6/30: 在日エチオピア大使 (Tefera Derbew Yimam大使) 一行と在エチオピア日本大使 (伊藤恭子大使) がCAASを訪問。MNGDプロジェクトや留学生の研究活動について共有。

2. 今後の予定

2.1) 全体の予定: 7/25に全体会議。

- ・渡航: 松隈(4/29~7/16)、萩原(5/16~7/1*) 留学生Argachew、Kassahun(6/1~8/27)
- ・渡航予定: 京大・金子、重田(8/6~9/2)、松隈(8/23~2023年1/10)、宮崎大・福林(8/23~9/5)、京大・萩原(8/25~)、京大・木村(8/28~9/4)、京大・宮崎(9/1~9/10)、京大・木戸、浅井(9/17~10/15)、愛媛大・安原、宮崎大・亀井、京大・澤村、岩井(9/21~9/30)。
- ・9/1 JCCをハイブリッド形式にて開催 (アジスアベバで対面開催)。
- ・12月 国内全体会議を愛媛大学で開催。

2.2) 題目1: 宮崎大学とAASTUでの実験を進め、成果を共有。

2.3) 題目2: 実験と改良材検討を進め、成果を共有。

2.4) 題目3: 留学生 (Argachew、Kassahun) 渡航中のため毎週水曜定期ミーティングは休み。





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SATREPSエチオピア（MNGDプロジェクト）活動報告_2022.11.10.

1. 報告2022.10.7-2022.11.10

0) エチオピア国内状況（COVID19現状ほか）

- ・10月会議での報告から大きな変化なし。

1) 題目1 特殊土改良メカニズム解明（セルロース系土質改良材による特殊土の改良メカニズムの解明）

- ・アジスアベバ科学技術大学（AASTU）が全国一斉試験の会場になり、3週間程度校内立ち入り禁止になったため、エチオピア道路公社（ERA）実験室にて、木戸（京大）、院生の浅井（京大）、Teshome（京大）が力学実験を行い、また実験方法を指導。試験後はAASTUで実験を行い、日本で実施したセルドロンでの実験結果を参照して、AASTUでの実験結果と比較検討。

2) 題目2 土質改良材開発（在来植物からのセルロース系土質改良材の生産技術の開発）

- ・植物素材を粉体化する実験を実施するため、AASTU校内に、大型粉砕機を設置する簡易の小屋を建設。
- ・院生のFrehaileab（愛媛大）がAASTUでBamboo Wasteを用いて実験を開始。
- ・重田・金子（京大）が、ジンカ滞在中に在来植物のエンセーテ2個体分の葉軸内皮を地元農家から入手し、ジンカ大学実験室にて乾燥させ、そのエンセーテ内皮を実験素材としてAASTUへ搬送。

3) 題目3 モデル構築（地方での道路災害低減化に向けた特殊土対策工の運用モデルの構築）

- ・10/6～11/4：重田・金子（京大）がジンカに滞在し、道路補修デモンストレーションサイトの選定のため2つのカバレ（村）の役人と打ち合わせした上でサイト候補地の視察を行い選定。地元の工房に依頼し、2019年実施時に不具合があった点をふまえて道路補修に適した道具の改変を依頼して発注（地元の素材を使うことを留意）。実物大走行実験の実施に向け、ジンカ大学関係者と協議して、校内に実験区画を選定。道路維持管理体制に関わる研修の準備。
- ・10/26-27：日本大使代理とJICA所長ほか職員（計6人）がジンカを訪問しプロジェクトサイト等を視察。
- ・11/3～：Kassahun（ASAFAS院生）とArgachew（ASAFAS院生）が南オモ県にて現地調査を開始。

4) その他

- ・10/25：月例会議開催。8～10月に現地へ渡航した日本人メンバーによる活動報告及び今後の取り組みについて確認。
- ・10/28：留学生ワークショップ、オンライン開催。AASTU、ジンカ大学、京都大学、宮崎大学のメンバー参加。

2. 今後の予定

- 2.1) 全体の予定：11/22に全体会議。
 - ・渡航中：京大・松隈(9/20～1/10)、Argachew, Kassahun (ASAFAS留学生) (11/1～1/27)
 - ・渡航予定：福林・亀井（宮崎大）(11/16～11/27)
 - ・短期研修（11/30～12/14）：AASTU・ジンカ大・ERAから10名招聘。京都・大阪・宮崎にて研修実施。
- 2.2) 題目1：AASTUにて力学実験を進める。改良材の配合率を検討。
- 2.3) 題目2：AASTUにて植物素材の粉体化と改良材大量生産方法を検討。ジンカ大学へ大型粉砕機を搬送。
- 2.4) 題目3：B村にて道路補修デモンストレーション。ジンカ大学及びB村にて道路維持管理研修（11/22：地方役人役職者向け、11/23村役人向け）。ジンカ大学校内の実物大走行実験区画にて実施準備。留学生定期ミーティング休み。





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MNGD PROJECT



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SATREPSエチオピア (MNGDプロジェクト) 活動報告_2022.12.1.

1. 報告2022.11.11-2022.12.1

0) エチオピア国内状況 (COVID19現状ほか)

- ・ 11月会議での報告から大きな変化なし。

1) 題目1 特殊土改良メカニズム解明 (セルロース系土質改良材による特殊土の改良メカニズムの解明)

- ・ 題目2との定例ミーティングに加え、Wendimu氏 (AASTU) から隔週で報告を受けて実験を進める。

2) 題目2 土質改良材開発 (在来植物からのセルロース系土質改良材の生産技術の開発)

- ・ 亀井 (宮崎大) を中心に、AASTUに設置した粉碎機で、植物素材を粉体化する実験を実施。コーヒー・パーム、サトウキビ・バガス、テフ藁、エンセーテの葉・葉脈、内皮を破碎し、結果を検討中。粉碎機の摩擦熱による火災への注意と、粉塵を防ぐマスクなどの準備が必要。

3) 題目3 モデル構築 (地方での道路災害低減化に向けた特殊土対策工の運用モデルの構築)

- ・ 11/16-27: 福林・亀井 (宮崎大) がAASTUとジンカを訪問。2019年デモ実施サイトの道路補修を行う。
- ・ 11/22: 地方役人役職者向け道路維持管理研修、11/23、村役人向け同研修を実施。
- ・ 11/29: 定例ミーティングを開催。ジンカでの活動報告と、今後の活動について検討。
- ・ 11/3~1月下旬: Argachew, Kassahun (ASAFAS院生) が南オモ県にて現地調査。

4) その他

- ・ 11/19: リサーチセミナー「Challenges and Prospects of Contemporary Paratransit: Mobility, Daily Survival, and Urban Politics in Asia and Africa」を開催。
- ・ 11/29: 全体会議開催。11月に現地へ渡航した日本人メンバーによる活動報告及び今後の取り組みについて確認。
- ・ 11/30~12/14: 短期研修として、AASTUより6名、ERAより2名、ジンカ大より2名が来日。期間中、京都、大阪、宮崎を訪問し、研究室や実験室、工事現場を視察。

2. 今後の予定

2.1) 全体の予定: 12/20に全体会議。

- ・ 渡航: 京大・松隈(9/20~1/10)、ASAFAS院生・Argachew, Kassahun (11/1~1/27)
- ・ 渡航予定: 松隈 (2/6~7/14)、京大・重田・金子 (3/23~4/6)、宮崎大・福林(3/25~4/5)

2.2) 題目1: AASTUにて化学実験を進める。改良材の配合率を検討。

2.3) 題目2: AASTUにて、植物素材の粉体化と改良材の大量生産の方法を検討。ジンカ大学へ大型粉碎機を搬送予定。

2.4) 題目3: ZAIRAICHの発行。動画撮影と公開。留学生定期ミーティングは休み。





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SATREPSエチオピア (MNGDプロジェクト) 活動報告_2023.1.5.

1. 報告2022.12.2-2023.1.5

0) エチオピア国内状況 (COVID19現状ほか)

- ・12月会議での報告から大きな変化なし。

1) 題目1 特殊土改良メカニズム解明 (セルロース系土質改良材による特殊土の改良メカニズムの解明)

- ・題目2との定例ミーティングに加え、Wendimu氏 (AASTU) から隔週で報告を受けて実験を進める。

2) 題目2 土質改良材開発 (在来植物からのセルロース系土質改良材の生産技術の開発)

- ・改良材実験に使用する大型粉砕機がジンカ大学へ納品。
- ・AASTUではブラックコットンソイルに消石灰と改良材候補植物の粉体を入れて強度を調べる実験を実施。供試体の含水比なども調整しながらデータ収集、整理を進める。

3) 題目3 モデル構築 (地方での道路災害低減化に向けた特殊土対策工の運用モデルの構築)

- ・12/20: 定例ミーティング実施。11月に福林 (宮崎大) が実施した道路補修デモと研修について報告。
- ・12/28: 定例ミーティング実施。今後の活動について検討。
- ・11/3~1月下旬: Argachew、Kassahun (ASAFAS院生) が南オモ県にて現地調査。

4) その他

- ・11月: 移動式実験車両2台が納品。現在、車両登録手続き中。
- ・11/30-12/14: 短期研修を実施。招聘者10名 (AASTU: Fitsum Tesfaye助教、Eleyas Assefa助教、Girma Gonfa准教授、Belachew Gebrewold講師、Yitayou Eshete講師、Ayenew Yihune講師、ジンカ大学: Kusse Gudishe学長、Eilias Alemu副学長、ERA: Asmera Nassir氏、Ehitabezahu Nigussie氏)。京都、大阪、神戸、宮崎にて研修。実験室、工事現場視察、12/13に成果報告会を開催。12/13、帰国。
- ・12/20: 全体会議開催。今後の渡航計画、招聘計画についての検討。

2. 今後の予定

- 2.1) 全体の予定: 1/24に全体会議。
 - ・1月下旬: 留学生セミナー開催。日程等調整中。
 - ・2/3-4に愛媛大学にて全体会議開催。
 - ・渡航: 京大・松隈(9/20~1/10)、Argachew、Kassahun (ASAFAS院生) (11/1~1/27)
- 2.2) 題目1: AASTUにて力学実験を進める。改良材の配合率を検討。
- 2.3) 題目2: AASTUにて、植物素材の粉体化と改良材の大量生産の方法を検討。
- 2.4) 題目3: ZAIRAICHの編集。動画撮影、編集とWeb公開。留学生定期ミーティング休み。





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SATREPSエチオピア (MNGDプロジェクト) 活動報告_2023.2.2.

1. 報告2023.1.6-2023.2.2

0) エチオピア国内状況 (COVID19現状ほか)

- ・1月会議での報告から大きな変化なし。

1) 題目1 特殊土改良メカニズム解明 (セルロース系土質改良材による特殊土の改良メカニズムの解明)

- ・ AASTUに設置した粉砕機の破砕条件を考慮しながら、素材は、セルドロン、エンセーテ、コーヒー殻を優先し、ブラックコットンソイルへの「消石灰」と「セルロース」の混合率、「粒径」の組み合わせに関する試験を実施。

2) 題目2 土質改良材開発 (在来植物からのセルロース系土質改良材の生産技術の開発)

- ・ 愛媛大学では擬似ブラックコットンソイルに、AASTUに設置した粉砕機の条件を考慮した粒径の素材を用いて給水試験、化学分析を行い、改良効果を検証。
- ・ 今後、AASTUにて、SEM (微視構造観察)、XRD (鉱物分析) 試験を実施し、改良効果のメカニズムを検証。

3) 題目3 モデル構築 (地方での道路災害低減化に向けた特殊土対策工の運用モデルの構築)

- ・ 1/11: 定例ミーティング実施。災害危険度地図作成方法について検討。福林 (宮崎大)、重田・金子 (京大) が、3月にジンカで実施予定のセルドロンを用いた実物大走行試験の打ち合わせ。
- ・ 「道路整備方法の仮マニュアル」と「防災リーダー育成テキスト」の作成について検討。
- ・ 南オモにおいて実施した委託調査結果を刊行準備 (ZAIRAICHI No.6)。

4) その他

- ・ 移動式実験車両2台(11月納品)車両登録手続き中。
- ・ 1/24: 全体会議開催。JSTへ提出する年次計画ドラフト、3月以降の渡航計画、招聘計画について検討。
- ・ 1/31: 第4回留学生セミナー開催。

2. 今後の予定

- 2.1) 全体の予定: 2/3-4全体会議 (対面) @愛媛大学。2/28全体会議 (オンライン)。
・ 渡航予定: 京大・松隈 (2/6~7/14)

2.2) 題目1: AASTUにて化学実験を進める。改良材の配合率を検討。

2.3) 題目2: AASTUにて、植物素材の粉体化と改良材の大量生産の方法を検討。

2.4) 題目3: ZAIRAICHI編集・発行。動画撮影、編集。Webサイトにて公開。留学生定期ミーティング。





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SATREPSエチオピア (MNGDプロジェクト) 活動報告_2023.2.28.

1. 報告2023.1.25-2023.2.28

0) エチオピア国内状況 (COVID19現状ほか)

- ・研究代表者・木村亮先生 (京大工学) が今年度3月末で早期退職。アフリカセンター特任教授の職位で、4月からも引き続き研究代表者としてプロジェクトを継続予定。
- ・2/6 モデルサイトであるSouth Omo Zoneを含むSouthern Ethiopia Region新設に関する住民投票実施。新設に賛成多数という結果 (報道有り)。

1) 題目1 特殊土改良メカニズム解明 (セルロース系土質改良材による特殊土の改良メカニズムの解明)

- ・ブラックコットンソイルへの石灰と粉体植物の混合率などの組み合わせに関する試験を継続。
- ・2月末: AASTUからセルロロン(FSP)とSugarcane bagasseについての実験結果の報告を受ける。

2) 題目2 土質改良材開発 (在来植物からのセルロース系土質改良材の生産技術の開発)

- ・3月に日本人研究者が渡航する時に植物素材を大量に粉体化する作業をマニュアル化。

3) 題目3 モデル構築 (地方での道路災害低減化に向けた特殊土対策工の運用モデルの構築)

- ・南オモにおいて実施した委託調査結果を3月中旬刊行準備 (ZAIRAICHI No.6)。

4) その他

- ・移動式実験車両2台(11月納品)車両登録手続き完了。
- ・1/31: 第4回留学生セミナー開催。
- ・2/3-4: 愛媛大学にて対面の全体会議を実施。
- ・2/28: 全体会議開催。現地での消耗品購入方法について検討。

2. 今後の予定

- 2.1) 全体の予定: 2/28全体会議 (オンライン)。
 - ・渡航予定: 京大・松隈 (2/6~7/14)、宮崎大・亀井 (3/22~4/2)、京大・金子・重田 (3/23~4/4)、京大・澤村 (3/25~4/2)、宮崎大・福林 (3/25~4/5)
- 2.2) 題目1: AASTUにて力学実験を進める。改良材の配合率を検討。
- 2.3) 題目2: AASTUにて、植物素材の粉体化と改良材の大量生産の方法を検討。
- 2.4) 題目3: ZAIRAICHI編集・発行。動画撮影、編集。Webサイトにて公開。留学生定期ミーティング。