

様式 A-1
(FY2025)

2026年 3月 5日

サイエンス・ダイアログ 実施報告書

1. 学校名： 山口県立徳山高等学校
2. 講師氏名： Gemechu Beyene Mekonnen (ゲメチュ・ビエネ・メコネン) 先生
3. 講義補助者氏名： 伊藤 理彩 先生
4. 実施日時： 2026年 3月 3日 (火) 13:30 ~ 15:30
5. 参加生徒： 文科 1 年生 30人 (合計 30人)
備考：(例：理数科の生徒)
6. 講義題目： Disaster Waste Managemant in Developing Countries (発展途上国における災害廃棄物管理)
7. 講義概要： 災害とは何か。災害廃棄物とは何か。突然発生して人々の日常に多大な悪影響を及ぼす災害廃棄物をどのように処理するか。それを妨げる要因は何か。発展途上国の現状は？何が問題となっているのか？もし災害が起きたときあなたが市長なら何を優先して対策をするか。
8. 講義形式：
対面 ・ オンライン (どちらか選択ください。)
 - 1) 講義時間 90 分 質疑応答時間 30 分
 - 2) 講義方法 (例：プロジェクター使用による講義、実験・実習の有無など)
プロジェクターによる講義と5, 6人のグループによるグループワークとプレゼンテーション。
 - 3) 事前学習
有 ・ 無 (どちらか選択ください。)
使用教材：送っていただいた資料の事前の読み込み。
9. その他特筆すべき事項：
事前学習から当日の取組に至るまで、生徒は熱心に生き生きと取り組んだ。
分かりやすい資料提供とプレゼンテーションで生徒は付いていき易かった。

Form B-2
(FY2025)
Must be typed

Date (日付) 03/03/2026

Activity Report -Science Dialogue Program-
(サイエンス・ダイアログ 実施報告書)

Fellow's name (講師氏名): MEKONNEN Gemechu Beyene (ID No. P25308)

- Name and title of the lecture assistant (講義補助者の職・氏名)

Dr. Lisa Ito, Associate Professor

- Participating school (学校名): Yamaguchi Prefectural Tokuyama Senior High School

- Date (実施日時): 03/03/2026

- Lecture title (講義題目): Disaster Waste Management

- Lecture format (講義形式):

◆ Onsite ・ Online (Please choose one.)(対面 ・ オンライン)((どちらか選択ください。))

◆ Lecture time (講義時間) 90 min (分), Q&A time (質疑応答時間) 30 min (分)

◆ Lecture style(ex.: used projector, conducted experiments)

(講義方法 (例: プロジェクター使用による講義、実験・実習の有無など))

Used projector for the presentation. There were group work and presentation also by students.

- Lecture summary (講義概要): Please summarize your lecture within 200-500 words.

The lecture lasted for a total of 120 minutes and was designed to introduce students to the topic of disaster waste management. The session began with a general overview of disasters, including different types of drivers that occur globally. This introduction helped establish a foundation for understanding disaster waste. The lecture then explained what disaster waste is, the different types of waste generated during disasters, and why such waste poses serious management challenges. Key functions of disaster waste management were also presented to help students understand the roles of governments, communities, and individual citizens in reducing disaster risks.

To provide broader context, the relationship between disasters and climate change was discussed. Increasing evidence suggests that climate change is contributing to the increased frequency and intensity of certain disasters. Students were introduced to several major disaster events that have occurred in Japan, and they were encouraged to reflect on their impacts and the lessons learned from these events. Through this discussion, the goals of disaster waste

management were clarified, particularly the importance of protecting public health, minimizing environmental damage, and supporting rapid recovery after disasters.

Following this conceptual introduction, I presented my research on disaster waste management. Disasters can generate extremely large volumes of waste within a short period of time, which can overwhelm existing waste management systems if not properly managed. My research emphasizes the importance of effective disaster waste management strategies in reducing environmental and public health risks. In this context, Japan's experience was introduced as an important source of practical knowledge and lessons that may be useful for developing countries facing similar challenges.

The lecture then expanded to discuss the situation in developing countries, where waste management systems are often limited even under normal conditions. Students were introduced to the additional challenges these countries face in managing disaster waste, such as limited infrastructure, financial constraints, and insufficient institutional capacity. Lessons that can be drawn from Japan's experience were highlighted as potential pathways for improving disaster preparedness and waste management systems.

Examples from the City of Kitakyushu were also presented. Kitakyushu has successfully reduced the risks of pollution and urban flooding through effective solid waste management practices and strong environmental governance. These experiences were shared with students as practical examples of how well-organized waste management systems can contribute to environmental protection and disaster risk reduction.

The lecture encouraged active engagement through question-and-answer discussions and group activities. Students asked thoughtful questions and were encouraged to reflect on their potential roles as future engineers, scientists, policymakers, and responsible citizens in building more resilient societies. Each student had the opportunity to speak at least once during the session, which helped build their confidence in English communication and enhanced their motivation to pursue further learning and research on environmental and sustainability issues.

◆Other noteworthy information (その他特筆すべき事項):

This was my first time interacting with high school students in Japan. Preparing the lecture required additional time to ensure that both the content of the presentation and the language level were appropriate for the students. I carefully adjusted the examples, explanations, and terminology so that complex topics could be easily understood by a high school audience. This experience help learn how to better communicate scientific knowledge to non-specialist audiences. In particular, how scientific concepts can be simplified without losing their core meaning, making them accessible and engaging for younger students. It also allows to reflect on the importance of adapting communication styles when presenting research to different audiences.

The interaction with students was highly rewarding. Their curiosity, questions, and participation during discussions demonstrated a strong interest in environmental issues and disaster risk

reduction. This experience strengthened my understanding of the importance of science communication and outreach in inspiring the next generation to think about sustainability and resilient societies.

- Impressions and comments from the lecture assistant (講義補助者の方から、本プログラムに対する意見・感想等がありましたら、お願いいたします。):

JSPS の海外特別研究員から、直接、英語で最先端の研究について聴講するという機会はなかなかないので、学生としても貴重な経験になったと思います。Mekonnen 氏は、エチオピアで講師として勤務した経験もあり、講義のスキルも大変高く、2 時間という長丁場にもかかわらず、学生も皆、集中して聴講し、タスクに取り組んでいました。タスクの内容も、「実際、自分が市長になったら？」というもので、災害廃棄物の問題を自分のものとして考える機会は、普段なかなかないので、このタスクをやってみて、新たな気づきが得られた学生も多かったと思います。講義への積極性も大変高く、全ての生徒が英語の得意・不得意に関わらず、「自分の考えを英語にして伝える」ということができました。この経験も、今後の国際コミュニケーションの機会において、学生の皆さんの自信に繋がってくると思います。さらに発展途上国の現状を現場にいた本人から聞く、というチャンスも普段ないので、日本と公衆衛生の環境がいかに異なっているか、具体的な状況を初めて聞いて、危機的な状況の実感がわいた、という学生も多いと思います。これからの国際社会において、災害はいつどこで起こるか分からないものであり、さらに常日頃から日本だけでなく、地球規模で、どうやって汚染物質から環境を守っていくか、という問題は非常に重要なテーマとなってくるので、その点でも、今回の講義はその論点にも踏み込むものであり、学ぶところが多いものでした。



Functions in Disaster Waste Management

災害廃棄物管理における中核的機能

Disaster Waste Management F...

- [1] Estimating waste
災害廃棄物の発生量
- [2] Working with people
さまざまな人々と協力して働く
- [3] Handling dangerous
有害廃棄物の取り扱
- [4] Management
災害廃棄物の管理
- [5] Preparing storage site
災害前に仮置き場を準備する



Handwritten notes on a whiteboard:

- Collection
- Food
- Separation
- plastic
- Hazardous objects
- Temporary
- Storage
- String

Additional notes: 3/3 (次) 日直 弘津 明日

