



Establishment of Environmentally Sound Management of Construction and Demolition Waste and Its Wise Utilization for

Environmental Pollution Control and for New Recycled Construction Materials in Vietnam



With a name standing for “Science and Technology Research Partnership for Sustainable Development Program”, the SATREPS project implemented from 2018 is within the partnership framework between Vietnam and Japan. The main implementation organizations of the 5-year project include Hanoi University of Civil Engineering (HUCE) and Saitama University (SU). Throughout the year 2021, despite difficulties and obstacles caused by the ongoing Covid-19 pandemic ever since 2020, the members have been making non-stop effort to adapt to the “new normal” situation, as well as adjusting the project’s plans and research work. Thus, while many business trips and training courses are cancelled, there are still exceptional achievements in four main activities of the project.

I. MAIN ACTIVITIES IN VIETNAM

[Activity 1: Development of guidelines for establishing an environmentally sound management system for construction and demolition waste (CDW)]

- The project has been focusing on doing survey and research on the current situation in Da Nang city, as well as asking for support from concerned parties. On Nov 21st, 2021, "SATREPS Workshop on Evaluation of the implementation of solid waste classification at source in Da Nang city to serve the goal of sustainable waste management" has been held in Da Nang. In this event, the "JST-JICA SATREPS Report on Construction and Demolition Waste Management in Da Nang, Vietnam" was handed over to Da Nang’s DONRE.
- The draft of "Technical Guideline for On-site building demolition work for sorting materials" was reviewed by a scientific committee under MOC.



Workshop on Evaluation of the implementation of solid waste classification at source in Da Nang



Graded recycled concrete and clay brick aggregates for unbound road base and subbase materials

[Activity 2: Development of technical instructions and standards for evaluation and quality control of recycled materials from CDW]

- The draft standard of "Technical requirements - Testing methods for Recycled Materials from Construction Demolition Waste for Base and Subbase of Urban Roads" was reviewed by a scientific committee under MOC.
- Research on mechanical properties of recycled materials from CDW in Vietnam has been conducted, and were published in peer-reviewed international journal papers.

[Activity 3: Development of new technologies for environmental pollution control and infrastructure construction by utilizing recycled materials in Vietnam]

Many experiments and researches on wastewater treatment, gas transport characteristics of recycled materials, and road pavement system have been carried out both by Vietnam and Japan. The results after that were delivered in peer-reviewed international conference proceedings papers.



[Activity 4: Proposal of strategic business models for promoting CDW recycling and practically effective promotion measures for environmental sound CDW management and recycling]

- In Oct 2021, the MOU in collaboration on implementing SATREPS Project between Hanoi DONRE and SATREPS was agreed.
- The financial economic evaluation of CDW recycling projects in VN have been published on a peer-reviewed international journal paper, as well as peer-reviewed international conference proceedings papers.
- Numerous online meetings has been held to establish Hanoi CDW recycling promotion committee.

II. OUTREACH

❖ Technical cooperation and advisory



The process of onsite CDW sorting and recycling has been made into a short documentary film. The video is a great way to offer viewers an easy-to-understand demonstration, as well as promoting the meaningful activities and objectives of SATREPS project.

❖ Implementation the MOU between SATREPS and Da Nang City

On Nov 21st, 2021, cooperated with Da Nang DONRE to organize a workshop on “Evaluation of the implementation of solid waste classification at source in Da Nang city to serve the goal of sustainable waste management”. Throughout this workshop, experts from both Vietnam and Japan had presented many topics related to solid waste management and treatment experiences. Strategies for building and implementing a management model and recycling CDW in Da Nang city by 2025 was also shared.



❖ **The construction of permeable pavement system at HUCE and Deep C industrial zone in collaboration with a project of Japanese Ministry of Environment**



Within the framework of Project SATREPS, a cooperation project between Hanoi University of Civil Engineering and Japan Ecosystem Co., funded by Ministry of Environment of Japan, recycled concrete products from CDW have been researched and piloted at campus of Hanoi University of Civil Engineering and DEEP – C Industrial Park, Hai Phong. This concrete technology is forecasted to be widely applied in urban design for sustainable development, environmental protection and creating new markets for the construction sector.

❖ **Other events:**

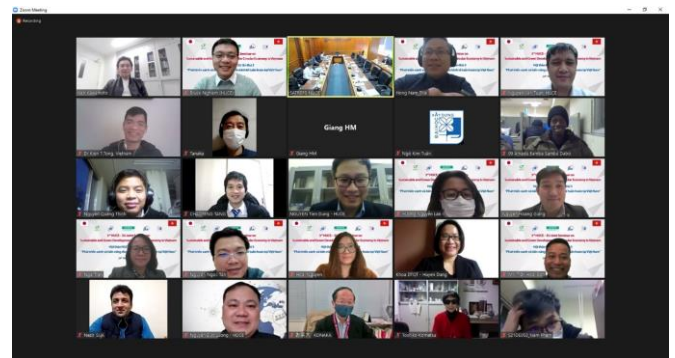


The 4th Joint Coordinating Committee (JCC) Meeting was held in the morning of February 24th, 2022. The purpose of this event is to present research results achieved in the past 4 years for the Joint Coordination Council to evaluate and to orient the work plan for the coming year.

❖ **Seminars and workshop:**

On February 24th, 2022, Hanoi University of Civil Engineering (HUCE) successfully held the 3rd Joint Seminar between HUCE and Saitama University (SU). The theme this year is: "Sustainable and Green Development for Circular Economy in Vietnam".

In the event, experts and scholars had been sharing their current researches, as well as experiences and suggestions for new ideas applied to SATREPS project, thus contributing to the goal of Circular Economy Development. Covid-19 pandemic, while being an obstacle, also serves as a motivation for the tight-knit cooperation and work between HUCE and SU.



❖ **Academic publication:**

- Peer-reviewed international journal paper on current management of CDW in VN has been published (Nguyen et al., 2021. Sustainability)
- Peer-reviewed international conference proceedings paper on illegal dumping of CDW in Hanoi has been published (Luu et al., 2021. CPEG2020+1)
- Peer-reviewed international journal papers on mechanical properties of recycled materials from CDW in VN have been published (Thai et al., 2021. Int. J. GEOMATE; Shah et al., 2021. Int. J. GEOMATE)
- Peer-reviewed international conference proceedings paper on mechanical properties of recycled materials from CDW in VN have been published (Fernandes et al., 2021. ACEPS 2021; Thai, et al., 2021. CPEG2020+1)
- Peer-reviewed international journal papers on wastewater treatment have been published (matsuno et al., 2021. int. j. geomate; hoai et al, 2021. environments; kumara and kawamoto, 2021. sustainability; kumara and kawamoto, 2021. water, air & soil pollution)
- Peer-reviewed international journal paper on gas transport characteristics of recycled materials in VN has been published (Pham et al., 2021. Int. J. GEOMATE)
- Peer-reviewed international conference proceedings papers on wastewater treatment have been published (Hoai et al., 2021. CPEG2020+1; Zafar et al., 2021. ICSBE 2020; Zafar et al., 2021. CPEG2020+1)
- Peer-reviewed international conference proceedings papers on road pavement system have been published (Ito et al., 2021. ICSBE 2020; Ngo et al., 2021. GEOMATE 2021)
- Peer-reviewed international journal paper on financial economic evaluation of CDW recycling in VN has been published (Hoang et al., 2021. Waste Management)
- Peer-reviewed international conference proceedings papers on financial economic evaluation of CDW recycling in VN have been published (Hoang et al., 2021. Sardinia 2021; Kien et al., 2021. CIGOS 2021)

❖ **Keynote and invited speech:**

- Kawamoto, K. JST-JICA Technical Cooperation Project on Construction Waste in Vietnam and Construction Management and Recycling in Japan. Seminar on Waste Management toward Circular Economy, Viet Nam-Japan Environmental Week. December 15th, 2021.
- Kawamoto, K. Sustainable Waste Management in The Construction Industry: A View from Statistical Data in Some Selected Countries. 8th International Symposium on Advanced Civil and Environmental Engineering Practices for Sustainable Development (ACEPS 2021). October 07th, 2021.

❖ **Media and press release:**

- Projecting the future of a formal recycling industry for construction and demolition waste in Vietnam. National Institute for Environmental Studies, Japan. January 13th 2022.
<https://www.nies.go.jp/whatsnew/20220113/20220113-e.html>
- Vietnam and Japan on sharing experiences of waste management aligned with circular economy.
<https://baochinhphu.vn/viet-nam-nhat-ban chia-se kinh-nghiem-quan-ly-chat-thai-theo-huong-kinh-te-tuan-hoan-102305604.htm>
- SATREPS Workshop on Evaluation of the implementation of solid waste classification at source in Da Nang city to serve the goal of sustainable waste management
https://danang.gov.vn/chi-tiet?id=46447&_c=100000150,3,9

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