



SOUTHEAST ASIA-EUROPE
JOINT FUNDING SCHEME FOR
RESEARCH AND INNOVATION

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EcoSmart: IoT-based Electrokinetic Remediation for Heavy Metals

Topic 3

Brokerage Event – 9th Call

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My and my institution's area of expertise

Name: Sheryl Dinglasan Fenol

Position: Associate Professor /
Laboratory Head

Unit: College of Engineering and
Information Technology / Research
Center

Organisation: Cavite State University

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Country: Philippines

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Expertise: Microelectronics, energy storage device,
modelling and simulation, coffee

- Application of electronics in agriculture
- Simulation and modelling of agricultural machineries and agricultural systems
- Development of energy materials from agricultural waste product



My and my institution's area of expertise

Expertise: Agriculture and Natural Sciences, Engineering, and Biomedical Sciences

- Coffee-related research: DNA fingerprinting, tissue culture, soil management, pest and diseases, and post-harvesting machine
- Climate change adaptation and local resilience-related research like climate risk vulnerability assessment, disaster risk reduction management, and water quality assessment.
- Research on antimicrobial resistance

My proposed Research Idea for the 9th JFS Call

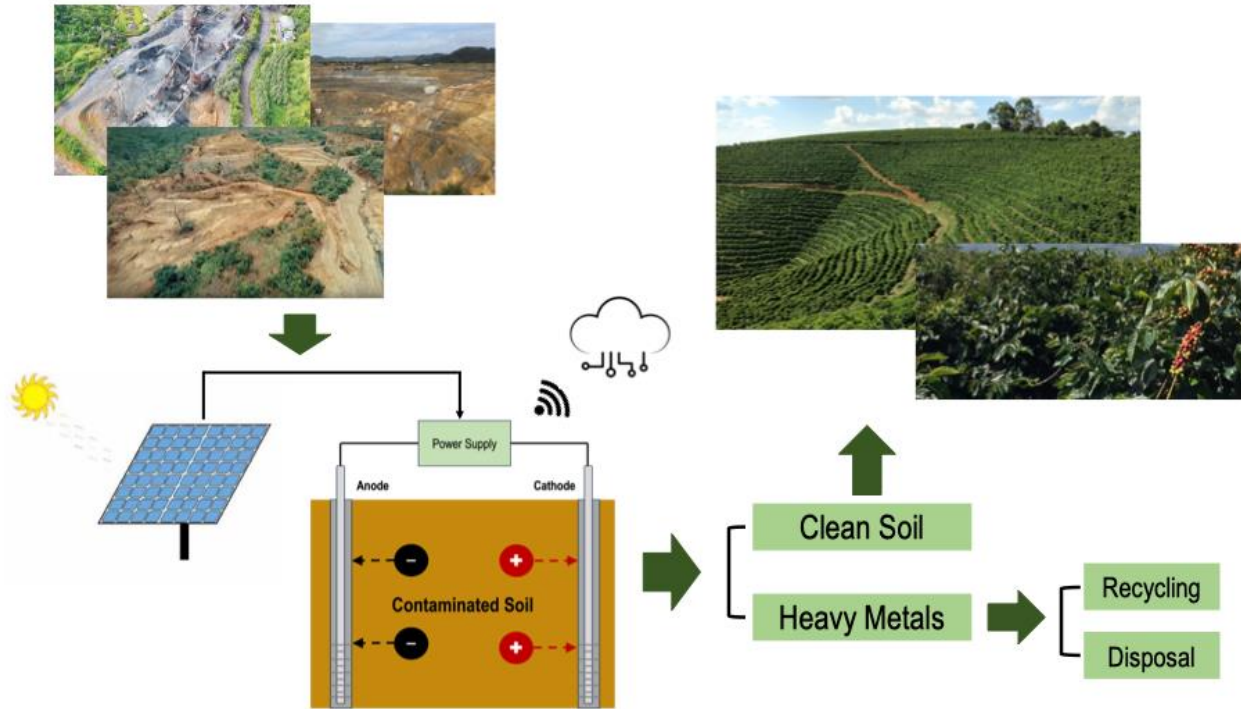
Research Question:

- How to prevent floods and landslides?
- Is there a way to remove heavy metals in soils?
- How to increase the coffee production?

Proposed Project Activity:

- Development of Electrokinetic remediation system
- Visit and coordinate for the potential experiment site
- Planting of coffee seedlings
- Heavy metals recycling and disposal

My proposed Research Idea for the 9th JFS Call



My proposed Research Idea for the 9th JFS Call

Proposed Research Activity: Development of Electrokinetic remediation system

- Design and simulate the system using software
- Develop the program for the system
- Fabricate the hardware
- Test and evaluate

Proposed Research Activity: Visit and coordinate for the potential experiment site

- Coordinate with the specific agency that manages the abandoned/inactive mining site
- Site visit

My proposed Research Idea for the 9th JFS Call

Proposed Research Activity: Planting of coffee seedlings

- Determine the treatment and area to be planted (area = 2x3 meters per plant)
- Monitor the microclimate and growth response of coffee plant
- Data recording, management, and modeling

- **Proposed Research Activity:** Heavy metals recycling and disposal
- Determine the heavy metals that can be captured in a specific area
- Develop an optimized process for the recycling and disposal of heavy metals

Project Consortium

My organisation: Cavite State University

Role: Our university will develop the EK remediation system and provide the seedlings and expertise in planting coffee.

Project Consortium

Partners that we are seeking for our project consortium:

Region: Europe

Expertise: Heavy metals testing, disposal, and recycling

Role: Can analyze heavy metals in soils and have expertise in recycling or proper disposal of heavy metal waste. Also can

Region: Southeast Asia or Europe

Expertise: Agricultural

Role: Can replicate the same experiment set-up in the country

Maraming Salamat !
(Thank you very much!)