

European Defence Challenge V edition



Biotechnological Innovations for Landmine Neutralization: Leveraging Termites and Shewanella

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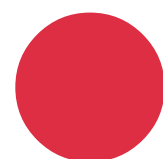
www.europeandefencechallenge.eu

The European Defence Challenge was established under the ASSETS+ project (2020-2023)

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A safer tomorrow begins today

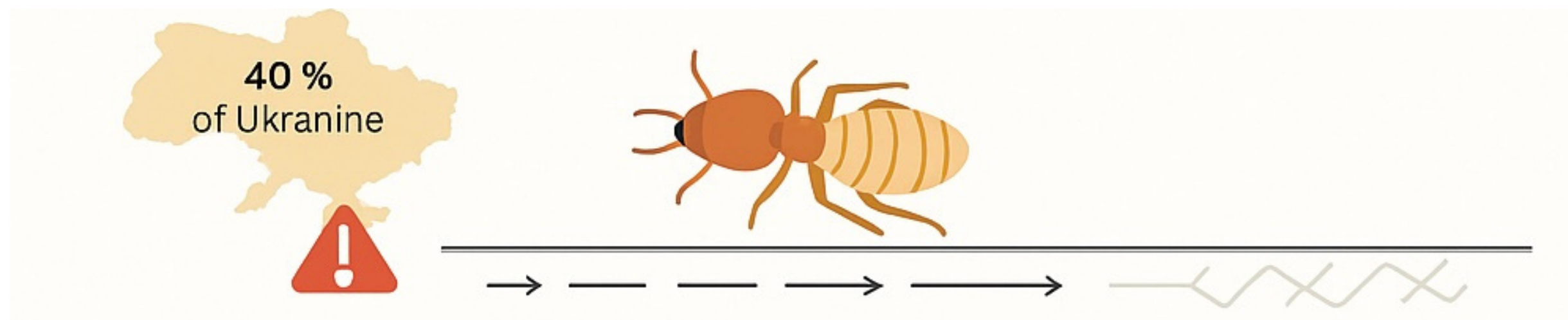
Our solution: genetically modified termites that detect landmines and
Shewanella bacteria designed to neutralize them



- Land mines cause thousands of casualties yearly
- Ukraine is heavily contaminated by landmines



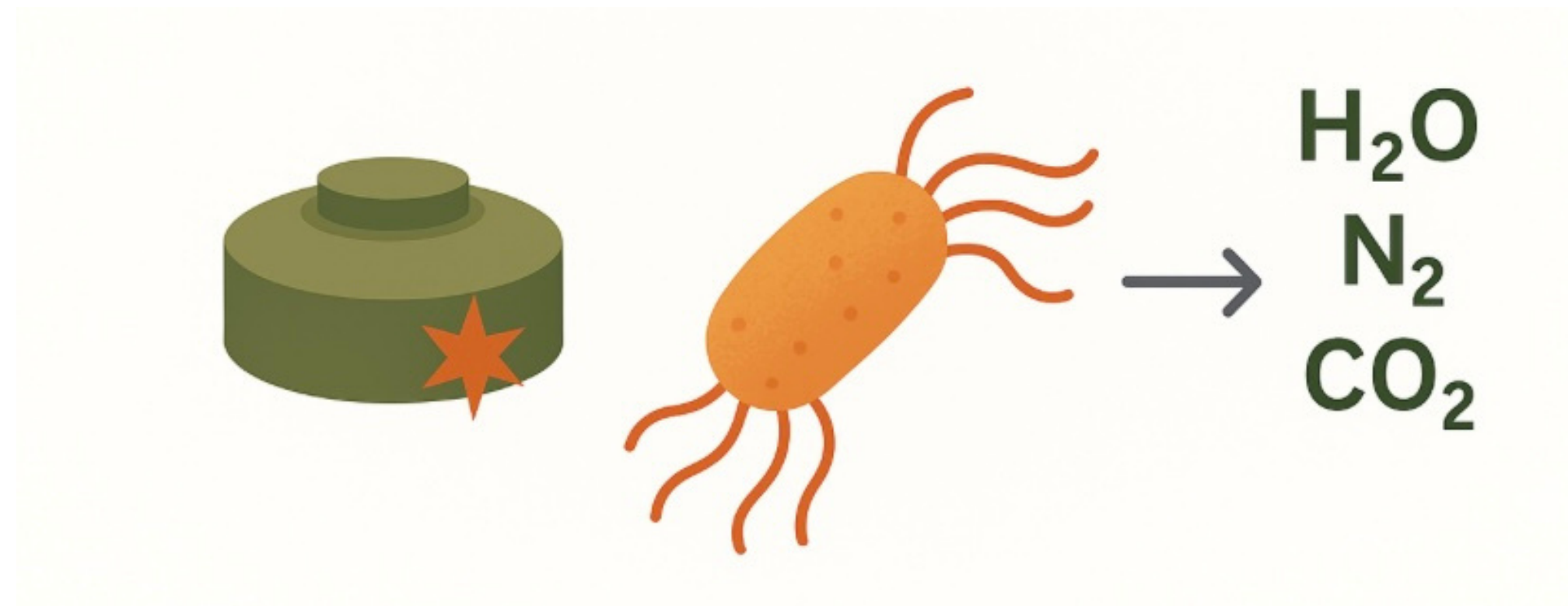
- Utilise genetically modified insects trained to detect nylon coated tripwires in anti personnel landmines via the CRISPR-Cas9 technology



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Deactivating Landmines with Shewanella

- After termites trace landmine tripwires, genetically modified *Shewanella oneidensis* is released. Enhanced with CRISPR, it targets and breaks down explosive compounds and metal components—neutralizing landmines and restoring the soil.



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Why It Works



Safe

no human
contact, no
detonation



Eco

no damage,
soil restored



Cheap

low tech,
scalable



Fast

quick detection
& cleanup



Smart

CRISPR +
biology in
action