

Partnership Brief â UNIST ^ eMSSC´† (SunShare / TriSource / MSSC)

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Executive Summary

UNISTâ s breakthrough in ****Laâ .â Srâ .â MnOâ (LSMO) inverse-L evaporators**** achieves record sol

Together, we can demonstrate the worldâ s first ****zero-electric solar desalination + microbial valorization****

Specific Technical Contributions from eMSSC´†

1. ****Brine & Salt Valorization****

- Constructed wetlands + halophyte systems for polishing concentrate.
- Solid salt capture & mineral recovery tied to soil/carbon projects.
- Integration with MSSC ponds/bogs for microbial upcycling.

2. ****Water Quality & Safety****

- Proven MSSC sensor stack (DO/ORP/pH/EC/temp) for inline QA.
- Options for UV-C or micro-dosing disinfection before potable use.
- Logging frameworks for field validation and regulatory reporting.

3. ****Field Deployment Platforms****

- Active ****farm-scale testbeds**** (Texas flower farm + duck pond bog).
- TriSource plumbing already configured for hybrid AWG + solar desal modules.
- Open hardware BOMs for rapid 0.5â 1 m´† proof-of-concept builds.

Joint Development Opportunities & Shared IP Potential

- ****Module Co-Development****: Adapt UNIST LSMO evaporator coating to cartridge-style panels with T
- ****Nature+Tech Integration****: MSSC wetland bioreactors coupled to UNIST evaporators for full brine r
- ****Shared IP Pathways****: Co-patent derivative designs (e.g., multi-stage LSMO + bio-wetland polishing
- ****Open/Closed Strategy****: Publish performance results while protecting jointly-developed hardware g

Collaboration Timeline

- ****0â 3 months****:

- Build carbon-black inverse-L PoC (0.5 m´†) in MSSC pond testbed.
- Share data on salt edge-harvest & microbial compatibility.

- ****3â 6 months****:

- Integrate UNIST-provided LSMO coatings into TriSource cassettes.
- Field trials in brackish well/pond water, QA with MSSC sensors.

- ****6â 12 months****:

- Joint pilot: 5â 6 m´† array achieving ****60â 65 L/day**** target.
- Publish ****field validation note**** (co-authored AEM addendum / Nature Water case study).