E-Waste Remediation in Uttar Pradesh, India
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Problem
Everyday, 400,000 PHONES and 140,000 COMPUTERS are thrown away. Up to 80% of that waste is exported to developing countries such as India.

CAUSES
- Economy
- Regulations
- Technology

Toxins released by chemical stripping → Lead (Pb) and Mercury (Hg)

IMPACTS
ENVIRONMENT
- Toxins emitted into AIR by burning of e-waste
- Chemicals discharged into RIVERS and BANKS
- Toxins leached into the SOIL

HEALTH
- Children have impaired cognitive function
- 80% of workers have respiratory diseases

Solution:
Phytoremediation

- $5 cost to buy 100 seeds
- 3 months to fully harvest
- 61% metal accumulated from soil

Toxins accumulate via metal-binding peptides

Phytoremediation is a biological process that takes advantage of the uptake capabilities in the root-shoot system to extract heavy metals in high concentration from contaminated soil.

Implementation and Assessment
1. Contact UMass Amherst to help genetically modify the plant
2. Communicate with Toxics Link Organization (E-Waste NGO) to organize logistics
3. Toxics Link will help educate the public and retrain workers
4. Workers will plant the seeds and harvest the mature crops
5. Assess solutions through surveying the public and conducting soil tests

Key References