

“SAMVED” HACKATHON 2026

TITLE PAGE

- Problem Statement ID – *6982f0e0087b2d7ffbefbac0*
- Problem Statement Title–*Data Driven Public Health Management System*
- Theme– *PRANAVAYU(BREATH OF LIFE)*
- Team ID–*693589418e427b64eaaec302*
- Team Name (Registered on portal)-*DIGITAL SAVIORS*



MIT
Vishwapravati
University

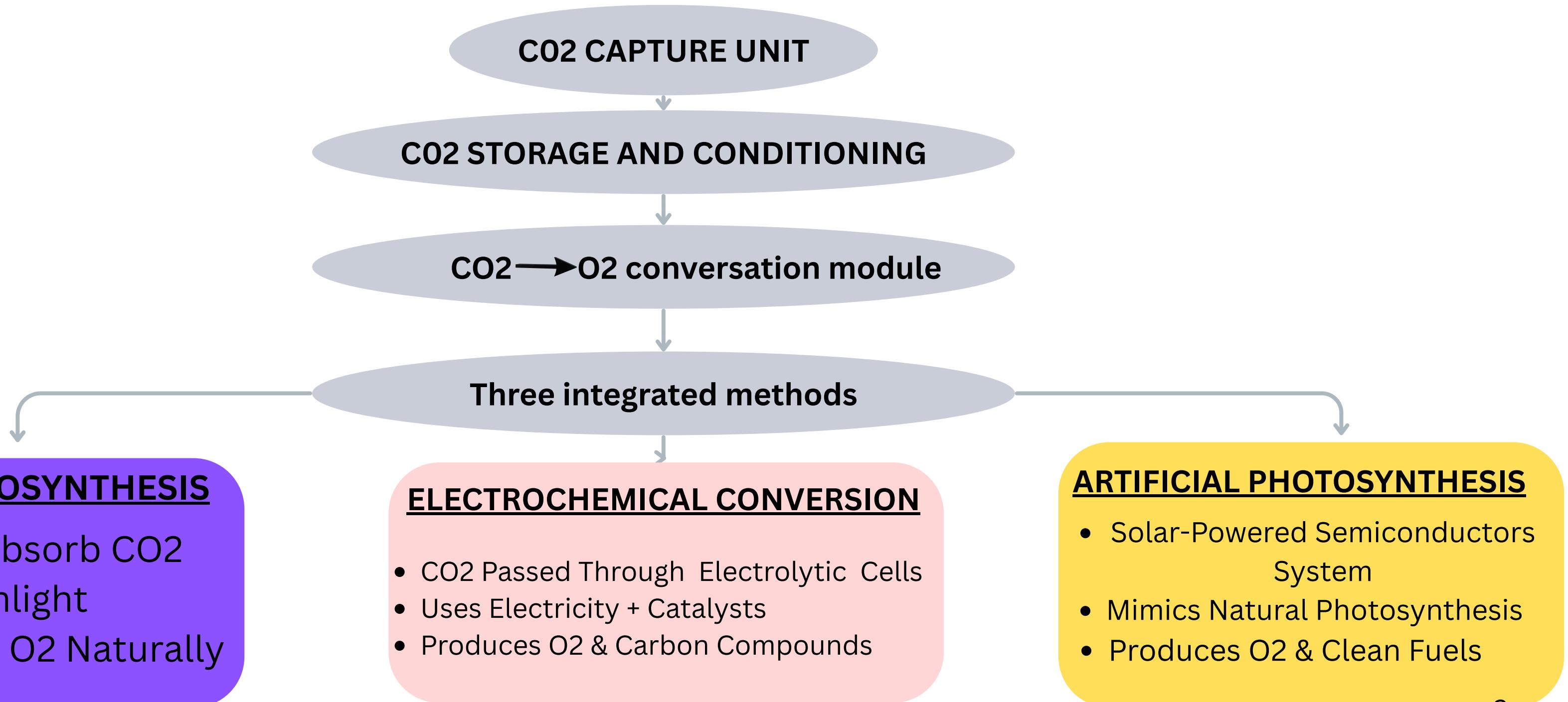


सोलापुर
महानगरपालिका,
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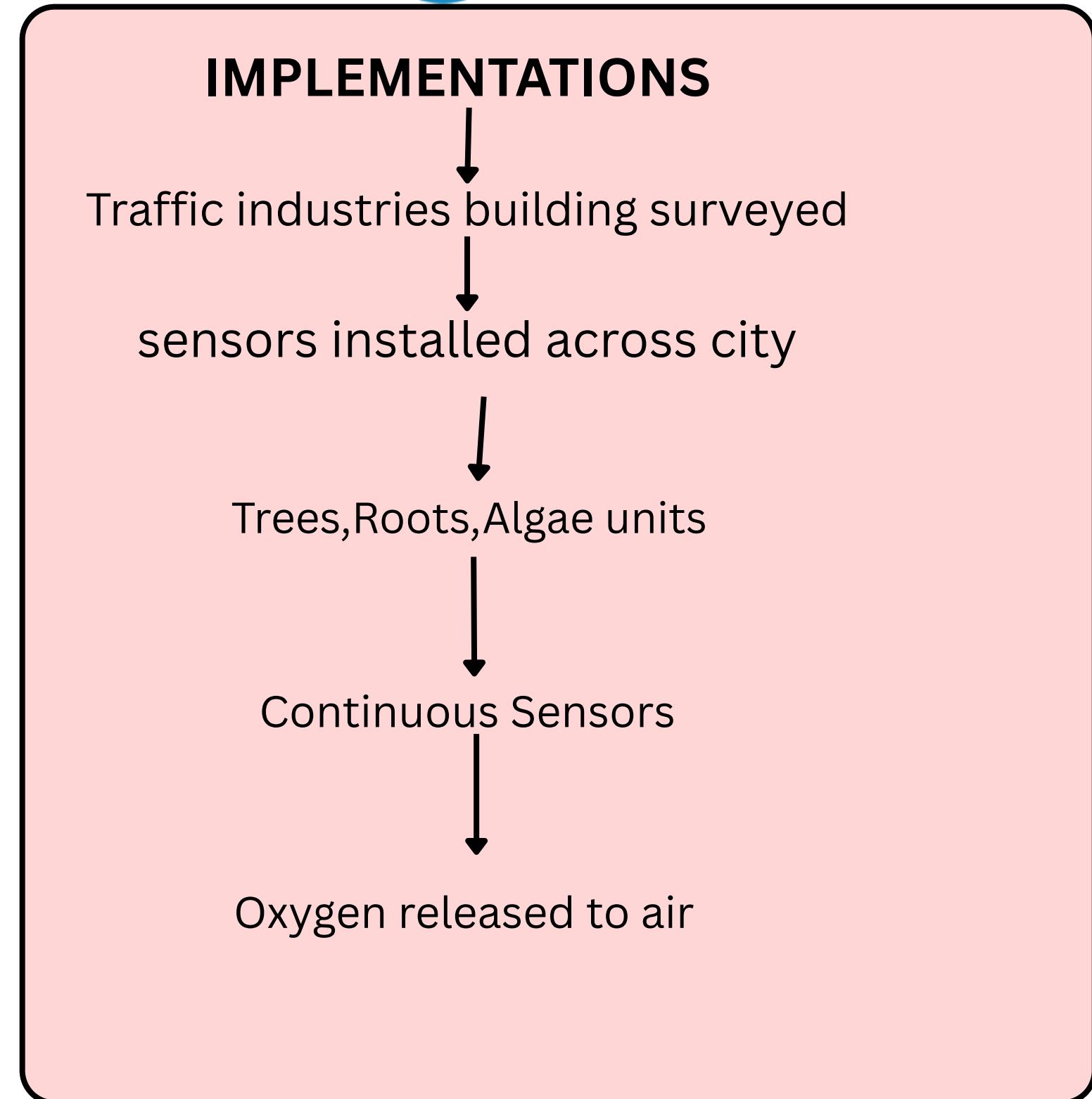
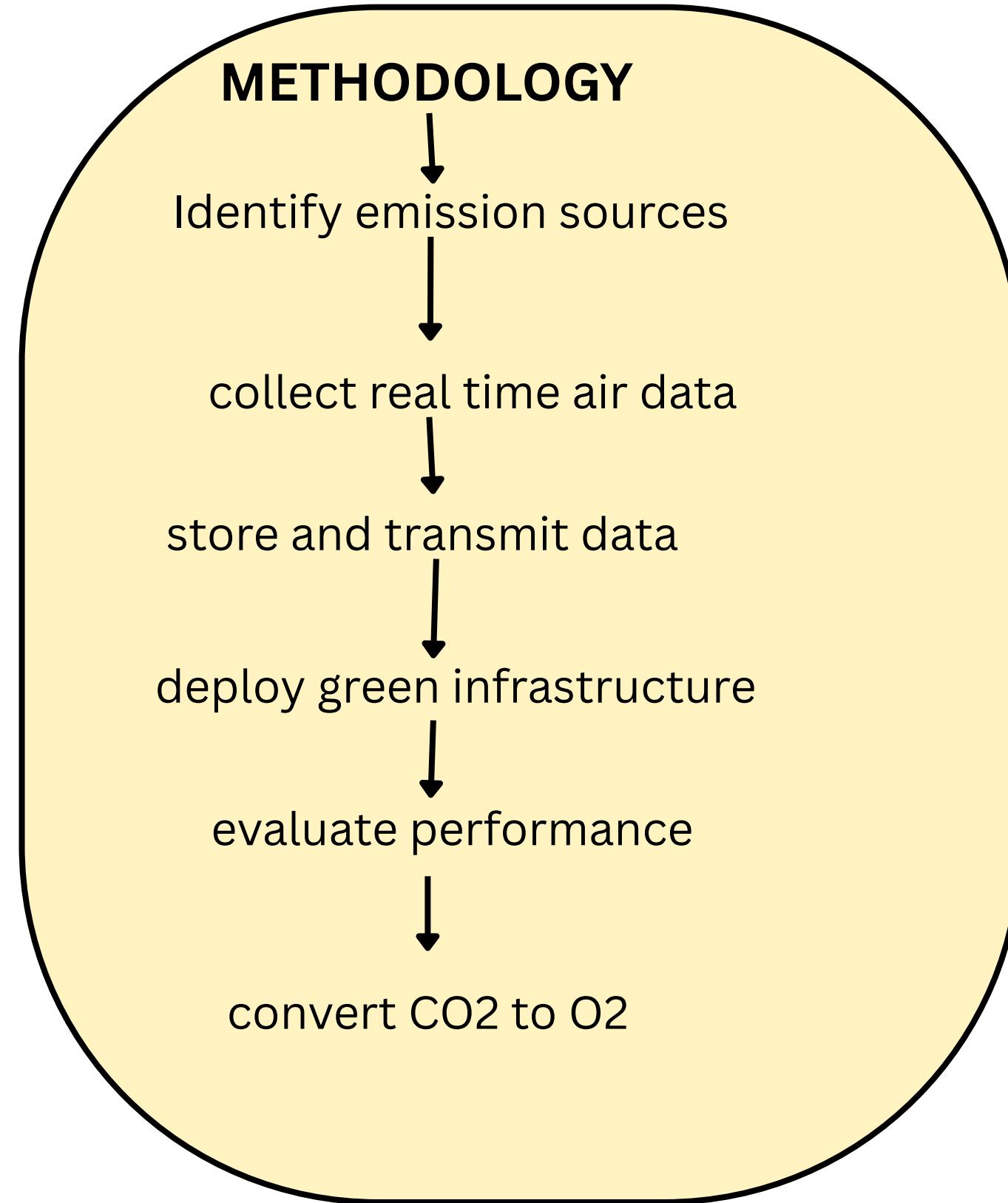
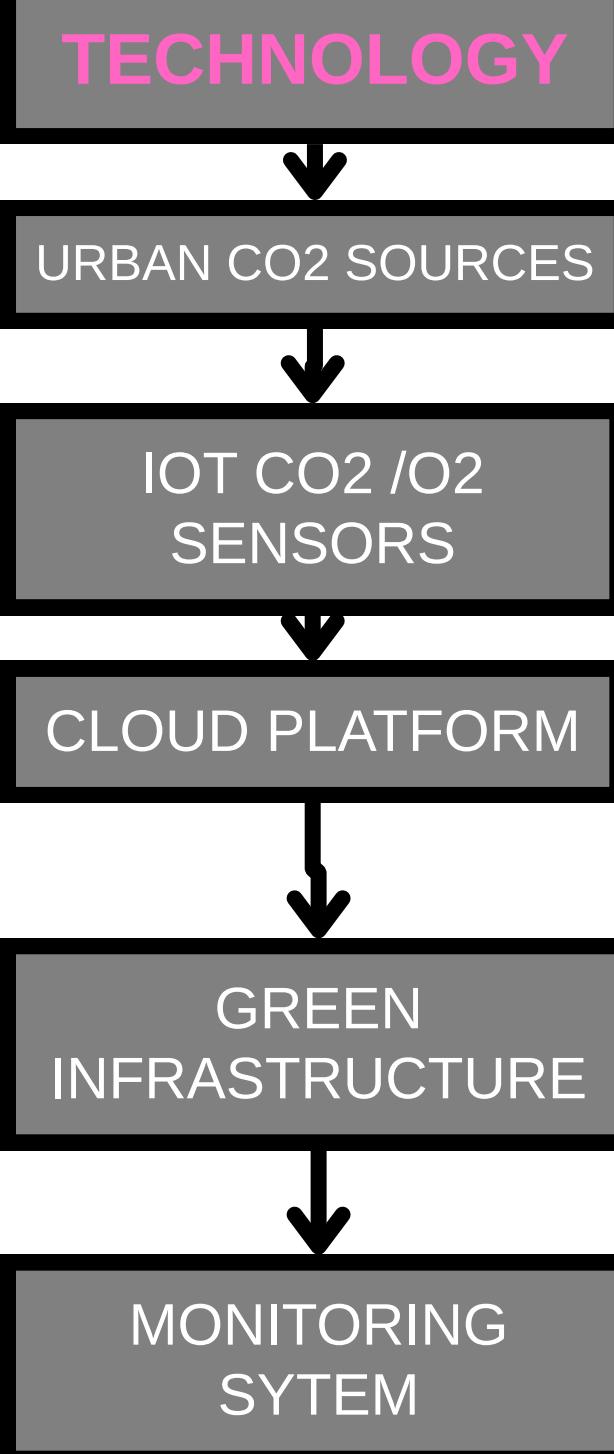
PRANAVAYU

[BREATH OF LIFE]

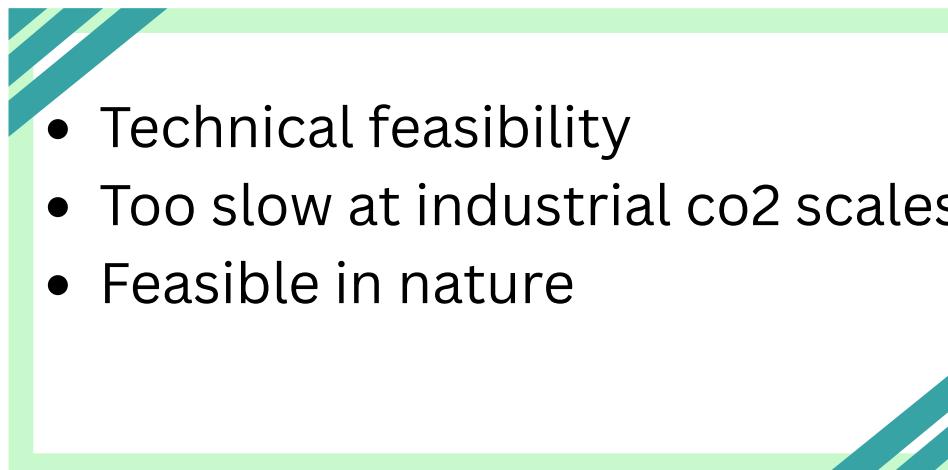
Pranavayu (co2-to-o2)delivers social well-being, economic growth, and environmental sustainability through clean technology.”



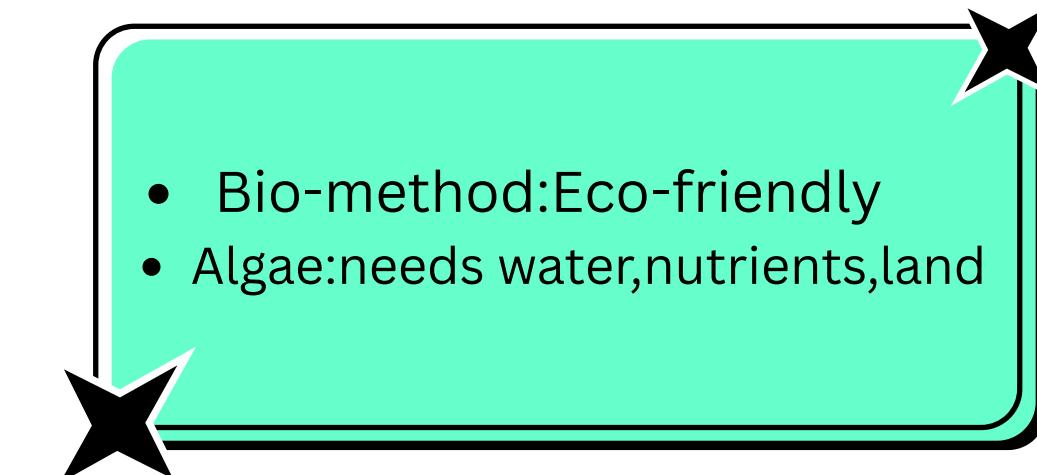
TECHNICAL APPROACH



FEASIBILITY AND VIABILITY

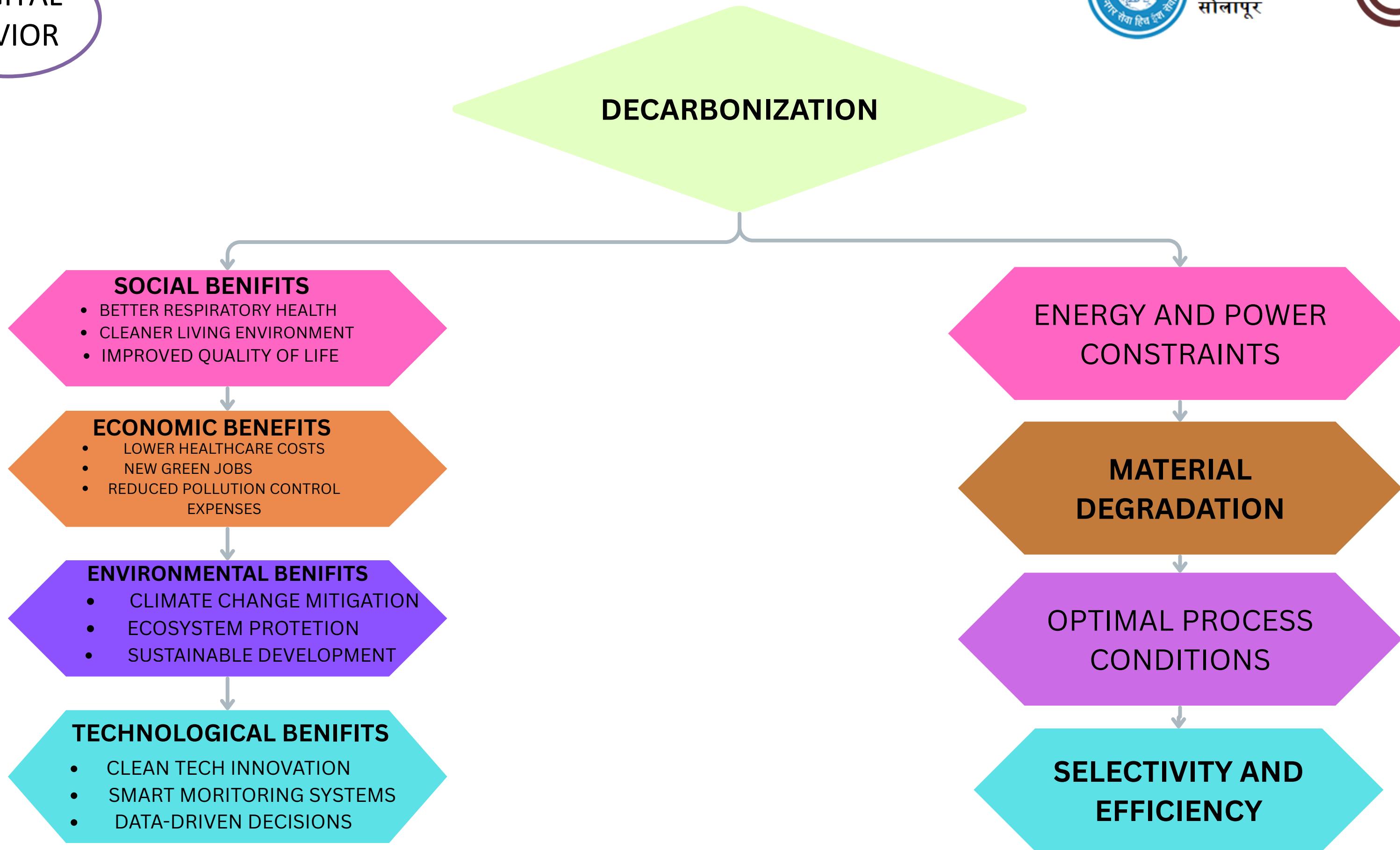


METHOD	COST	SCALABILITY
Photosynthesis	low	very low
Artificial splitting	very high	low
Algae reactors	medium	medium



- TECHNECAL CHALLENGES:
- High Energy Requirement
- Low Conversion Efficiency
- ENVIRONMENTAL RISKS:
- Indirect CO2 Emission
- Resource Consumption
- OPERATIONAL CHALLENGES:
- System Stability
- Safety Management

IMPACT AND BENEFITS



RESEARCH AND REFERENCES



- Nanjing University: 98.6% Efficient Direct Electrochemical Splitting (2025) in March 2025, Researchers From Nanjing University and Fudan University Published a landmark Paper in Angewandte Chemie.
- NASA'S MOXIE:(Mars Oxygen In-suit Resource Utilization Experiment) converts martian CO₂ into breathable O₂ using solid oxide electrolysis, a process tested successfully on the perseverance rover.
- E. D. Wachsman, Electrolytic Reduction of CO₂ to O₂ and CO for ISRU with High Conductivity Solid Oxide Electrolytes, NASA Report Contract # NAG 10- 303 (2003).
- Zhou, G.; Yang, J.; Zhu, X.; Li, Q.; Yu, Q.; El-alami, W.; Wang, C.; She, Y.; Qian, J.; Xu, H.; Li, H. Cryoinduced closely bonded heterostructure for effective CO₂ conversion: The case of ultrathin BP nanosheets/gC₃N₄. Journal of Energy Chemistry 2020, 49, 89-95, <https://doi.org/10.1016/j.jec.2020.01.020>.