

THE CREATIVE SPARC

inspire...innovate...ignite...



AGTECH AND WATER

8.07 Billion...that's the current population of the planet, based on UN figures. It's a staggering number, and considering that this population needs food and water to exist, in an era where rapid climate change is dramatically effecting *both* necessities, it's little wonder that AgTech is a rapidly expanding industry.

To further highlight the significance of the growing food crisis and impact on the planet, nearly 11% of the global population is undernourished. Every day, roughly 30,000 people die of hunger according to the UN World Food Programme. These are numbers that underscore the BHAGs (big hairy audacious goals) that SPARC wants to contribute to - how can we reverse this trend and increase food supplies?

Vertical farming, genetically engineered crops resistant to disease, and hydroponics are just some of the technologies in the AgTech space. But, increasing crop yields from existing agricultural land is another way. Novel, low-energy intense fertiliser production is a growing area of research. However, so too is artificial humic matter generation - an area sited by

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BUSINESS UPDATES

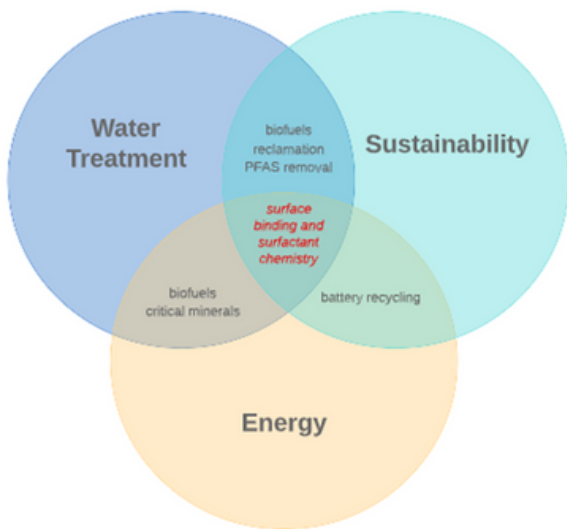
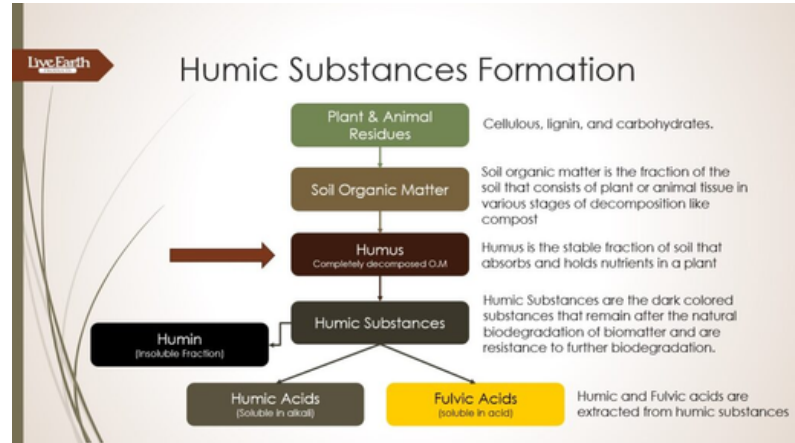
**AGTECH AND WATER -
RESEARCH SYNERGIES**

WHAT'S NEXT

QUOTE AND FUN FACT

IPUAC (International Union of Pure and Applied Chemistry) as one of the top ten emerging technologies in chemistry. Humic matter is the enriched material that remains when organic matter naturally decomposes over time - think peat and permafrosts in the Arctic. This material enriches the soil, giving valuable nutrients for plant growth. But just like permafrost, the process generates large amounts of CO₂ and methane.

Synthetic processes look to speed the breakdown of biomass as well as reduce greenhouse gas emissions. However, the leading technologies generate very low-grade humic matter, requiring large dose rates to effect sufficient crop enrichment and growth. Any new research and technology developed in this space to simultaneously improve the quality of the humic matter generated and reduce the carbon emissions would not only make for a great AgTech business but also greatly advance society.



How does SPARC fit into this space? Currently, we've got several projects in the water treatment and energy space. But we're always looking to leverage our findings in one area into tangential areas - horizontal growth. Developing products for new, seemingly unrelated, market sectors because the underlying chemistry is similar, or the waste streams of one sector can be the raw material streams for another. All organic matter eventually breaks down to humic matter...and wastewater treatment systems create large amounts of biomass perfect for humic matter creation. The development of novel water treatment additives that speed this process would be a unique material on the market. And it's these types of cross-sector ideas that also pool the talents of multi-

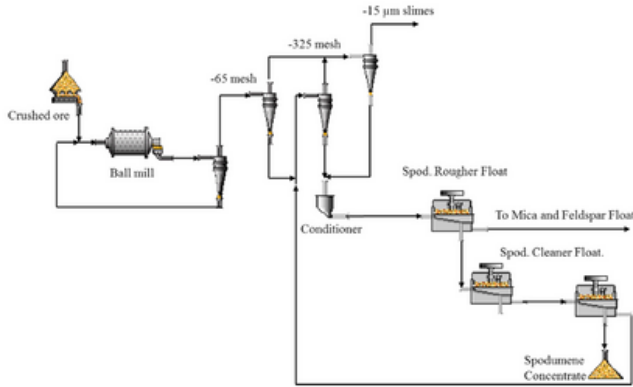
disciplinary researchers and collaborators - similar to our current projects and university partners. All stemming from one BHAG - how can we inspire and contribute towards a better world. One team, one vision.

SPARC - WHAT'S NEXT

Along with the research projects and the grant application, we've also been looking to expand and increase our capabilities. We're currently in the mist of doing that by interviewing for a new researcher position here at SPARC to increase our skill base as well as our project pipeline. But along with increasing our permanent staffing, we're also looking to expand our research potential with a new laboratory facility. We're currently sharing research facilities with our sister company, Harrison Manufacturing. The expansion of both companies has meant that a new laboratory would greatly improve the overall Group resources as well as improve research efficiencies for both companies. With the business approvals and expansions all in place, we're awaiting final council approvals and recommendations before proceeding, and we're hopeful to be moving into the new laboratories early in the new year. It's definitely an exciting time for the business and we can't wait to share the developments with you in the near future.

SPARC BUSINESS UPDATES

The Critical Minerals Development Program grant received by SPARC has officially commenced back at the start of July. Our further research development of a lithium selective frother additive has begun in the labs here, as well as our collaborators in Western Australia School of Mines (WASM). There, we're in the process of bringing on a new PhD candidate to commence work there in Kalgoorlie. While it's still very early on in the grant project lifecycle, we're excited to drive the project forward and really start the collaboration going. In addition to the research development in our labs, as well as at WASM, the funding also entails vital new manufacturing facilities and upgrades which are currently in the scoping and sourcing stages.



In addition to our collaboration with WASM, we've initiated a project collaboration with UNSW towards novel flocculant additives for wastewater treatment. In this instance, we have applied for an Industry PhD grant programme. This programme funds candidates conducting research with an industry-focus and stipulates the candidate work a minimum of 9-months in the industry partners facilities. We anticipate launching this project around May next year and look forward to hosting the candidate throughout their doctoral research candidacy.

Finally, our first official project is one close to our Harrison Group roots - a novel EP (extreme pressure) additive system for grease and oil lubricant technology. Our development of this novel additive technology has generated some exciting results in regard to performance and solubility in base oils. We've got a bit more optimisation work to do, but we're looking towards beginning some scale-up work by the end of the year with anticipated plant trials next year. We're really thrilled for these results and the outcomes, as it would be the first official technology transfer for SPARC - a milestone that we all have eyes on and can't wait to get into production for the Harrison Group!

This is just a taste of some of the big projects and technologies progressing through our ideas pipeline. To see more of the crazy ideas we have in development, or work with us on crazy ideas of your own, reach out to us at sparc@harrison.com.au or our [website](#). We're constantly looking to build our collaboration network and we'd love to see how we could work together!

QUOTE & FUN FACT

Diverse teams are key to a project success. But diverse how? [A recent study](#) showed that creativity and brainstorming excels when the team is comprised of 'big thinkers' (like Steve Jobs or Elon Musk), but project *accomplishment* and success occurs when there is at least one analytical thinker - the person focused on details and tasks. Balance is always the key!

"Individual commitment to a group effort - that is what makes a team work, a company work, a society work, a civilisation work."
- ***Vince Lombardi, American NFL coach and namesake of the Super Bowl trophy***