WHITE PAPER

IAMgreen

Integrated Agriculture Modular Greentech

Growing Innovation, Sustainably Built

By Víctor Manuel Wido García

IAMgreen Business Plan

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1. Company Overview

1.1 Company Description IAMgreen is at the forefront of revolutionizing food production through our state-of-the-art high-pressure aeroponics modules, turnkey greenhouses, and groundbreaking research and development in advanced agricultural technologies. Our mission is to create sustainable local food production solutions that are resilient, efficient, and scalable. Our comprehensive approach integrates innovative vertical farming systems with cutting-edge R&D labs focused on enhancing agricultural technologies, making IAMgreen not just a greenhouse supplier but a pioneer in agricultural research. Our commitment to decentralizing sustainable technologies ensures that our innovations are freely accessible, promoting global collaboration for the greater good.

1.2 Value Proposition Our comprehensive approach ensures that each project is not only conceptualized but also successfully implemented, overcoming traditional agricultural challenges. Key Innovations:

- High-Pressure Aeroponics Modules: Designed to maximize efficiency and minimize resource use, our aeroponics systems enable the growth of microgreens, leafy greens, and vegetables with ease.
- Climate-Controlled Greenhouses: Our greenhouses replicate optimal growing conditions and are reinforced to withstand extreme weather conditions, ensuring year-round production.
- Advanced R&D Labs: Focused on pioneering research in geothermal cooling, electrified ionization in aeroponics, and advanced insulation sand batteries to enhance energy efficiency and sustainability in agriculture.

1.3 Mission At IAMgreen, our mission is to push the boundaries of food production and revolutionize it through sustainable and innovative vertical farming solutions. We are committed to enhancing food security and promoting environmental sustainability. Our approach includes providing advanced greenhouses that significantly increase food production efficiency, reduce water consumption, and minimize environmental impact. We help our clients grow fresh, nutritious food regardless of climatic conditions or geographic location. At IAMgreen, we believe in a future where innovation in vertical farming is the path to a greener, more sustainable, and food-secure world. By decentralizing our technologies, we empower communities globally to embrace sustainable practices.

1.4 Vision To become global leaders in vertical farming solutions, driving a shift towards more efficient and sustainable food production. We envision a world where cities can grow fresh, nutritious food, reducing reliance on traditional agriculture and minimizing environmental impact. Through our innovative solutions and the decentralization of our technologies, we aim to cultivate the future of food production, making it possible anywhere, anytime.

2. Company Description

2.1 Official Company Name Infraestructura Aeroponica de México Brand Name: IAMgreen

2.2 Legal Structure SAPI (Sociedad Anónima Promotora de Inversión) Partners & Current Participation:

- Víctor Manuel Wido García: 80%
- Manuel Galindo Artigas: 20%

2.3 Location San Jose del Cabo, Baja California Sur, Mexico

2.4 History

- **2018:** Design experimentation and installation of the first high-pressure aeroponic production module. Entered InnovaUNAM and received initial development funding from INADEM. Winners of the 2018 DOW Cleantech Challenge "Sustainability in the Value Chain." Media appearances: Gin TV & Radio Formula ZonaVerde Program. Construction of Commercial Prototype Greenhouse (CDMX).
- **2019:** Media appearance in El Financiero newspaper. Creation of industrial design for the high-pressure aeroponic prism-pyramid module. Applied for 6 million pesos in funding from INADEM but project funding was cut due to INADEM's dissolution. Named the third most disruptive company in Mexico by X Challenge 2019.
- **2020:** Transitioned commercial prototype to a commercial production greenhouse for leafy vegetables, operational until COVID-19 pandemic began.
- **2021:** COVID-19 pandemic impact.
- **2022:** Established Infraestructura Aeroponica de México S.A.P.I. Funded a Showroom Greenhouse in Los Cabos to validate the utility model.
- **2023:** Constructed the Showroom Greenhouse in Los Cabos. Began commercial operation producing sprouts for the high-end hotel sector. Initiated the startup visa process for Canada.

Innovation Awards:

- Dow Chemical Award: "Sustainability in the Value Chain" of Cleantech Challenge Mexico 2018.
- XChallenge 2019: Named the third most disruptive company in Mexico.

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3. Problems & Solutions

3.1 Macro Problems

- **Climate Change:** Extremely high or low temperatures, increasing frequency of heatwaves, winter storms, floods, droughts, and wildfires.
- **Population Growth:** Projected to reach 9.7 billion by 2050.
- **Food Waste:** Approximately 1.3 billion tons of food are wasted annually, enough to feed 2 billion people, leading to methane emissions and water pollution.
- **Environmental Damage from Agriculture:** Causes greenhouse gas emissions, soil erosion, biodiversity loss, ocean acidification, and water pollution.

3.2 Solutions

- **Vertical Farming:** High-pressure aeroponic production modules in a prism-pyramid configuration enable highly efficient food production with high density per square meter. Reduces food transportation needs, decreasing waste and greenhouse gas emissions.
- **Efficient Water Consumption:** Reduces water consumption by 98% compared to traditional agriculture, crucial in areas facing water challenges.
- **Resilience to Climate Extremes:** Greenhouses with reinforced structures and ETFE cushion technology withstand extreme conditions from heat to hurricanes, ensuring year-round production.
- **Elimination of Agrochemicals:** No harmful agrochemicals are used, benefiting both human health and the environment.
- **Food Security:** Enables local food production, increasing food security. Fresh, nutritious food can be grown anywhere, anytime, regardless of climatic conditions.
- **Sustainability of Aluminum:** High-pressure aeroponic modules and greenhouses made primarily of aluminum offer numerous sustainability benefits, including infinite recyclability, durability, and reduced environmental impact.

3.3 Research and Development Contributions

- **Advanced Insulation Sand Battery:** Provides sustainable heating solutions for greenhouses during winter, reducing reliance on fossil fuels.
- **Geothermal Cooling:** Utilizes earth tubes and evaporative cooling, significantly reducing energy consumption for greenhouse temperature regulation.
- **Electrified Ionization in Aeroponics:** Improves nutrient uptake and plant growth, leading to higher yields and more efficient production.

3.4 Micro Problems for IAMgreen's Target Market

- **Self-Sufficient Hotels & Restaurants**
    - **Problems:**

        - Limited Space for Fresh Produce Production
        - High Dependence on External Suppliers
        - Sustainability and Cost Concerns
        - Climatic Vulnerability
    - **Solutions IAMgreen Provides:**
        - Compact Vertical Farming Modules
        - Consistent Quality and Supply
        - Sustainable Production
        - Climate-Resilient Structures
- **Small and Medium Urban Farmers**
    - **Problems:**
        - Limited Resources
        - High Production Costs
        - Environmental Impact
        - Technical Challenges
    - **Solutions IAMgreen Provides:**
        - Resource-Efficient Systems
        - Cost-Effective Production
        - Environmentally Friendly Methods
        - Comprehensive Support and Training
- **Innovative Supermarket Chains**
    - **Problems:**
        - Supply Chain Vulnerability
        - Freshness and Quality Concerns
        - Consumer Demand for Sustainability
        - Space and Infrastructure Limitations
    - **Solutions IAMgreen Provides:**
        - On-Site Production
        - Enhanced Freshness and Quality
        - Sustainable Practices
        - Modular and Scalable Solutions

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4. Products

4.1 Resilient Greenhouse for Extreme Climates Our greenhouse is built with structural aluminum and ETFE cushions, designed for production in coastal and desert areas capable of withstanding high temperatures and hurricanes. The highly durable ETFE technology with excellent insulation properties allows a stable production environment even in extreme conditions. The design prevents snow accumulation, making it suitable for low-temperature areas. Equipped with evaporative and geothermal cooling systems, it also features water and energy autonomy through desalination and solar thermal energy. Our innovative vertical production module uses high-pressure aeroponics in a prism-pyramid shape, increasing

production density by up to ten times compared to traditional agriculture while reducing water consumption by 98%. These systems do not use harmful agrochemicals and are extremely energy efficient.

4.2 Urban Greenhouse for Rooftop Installation This greenhouse is made with structural aluminum and ETFE, combining unmatched lightness and strength, making it ideal for rooftop installations in urban areas. Despite its lightness, it is extremely durable due to ETFE properties that withstand various climatic challenges. This greenhouse features sustainable heating and cooling systems and uses our high-pressure aeroponic vertical production module. Like our other product, this greenhouse offers significantly higher production density using only 2% of the water required in traditional agriculture and avoiding harmful agrochemicals. Both greenhouses are prefabricated, allowing quick installation and can be easily transported worldwide. We also provide comprehensive consulting and all necessary resources, including manuals and tools, to enable our clients to start their production quickly and hassle-free.

4.3 Product Components:

- ETFE Greenhouse
- High-Pressure Aeroponic Module
- Geothermal cooling system
- Industrial A/C support cooling system
- Solar system: Desalination & Energy
- Processes with industrial automation

4.4 High-Pressure Aeroponic Module Component Description: Our modular design, developed internally at IAMgreen, uses high-pressure aeroponics technology (resource-efficient) combined with verticality and climate control to create higher production density. The high-pressure misting production system generates droplets smaller than 50 microns, developing root system filaments that can absorb nutrients and water more efficiently than traditional agriculture and other cultivation techniques such as hydroponics and regular aeroponics.

- **Innovation & Technology:** The use of high-pressure aeroponics is an innovation in urban agriculture. It allows higher production density, making urban agriculture commercially viable. It also reduces resource use and improves nutrient absorption efficiency.
- **Sustainability:** The high-pressure aeroponic module enhances sustainability by using resources efficiently. Its water use is notably efficient, consuming up to 98% less than traditional agriculture.
- **Installed Capacity of IAMgreen 8 square meter production module:**
    - Leafy Greens: Monthly Production: 120 kg
    - Peashoots, Sunflower Shoots, and Wheatgrass: Monthly Production: 182 kg
    - Microgreens: Monthly Production: 50 kg

4.5 ETFE Greenhouse Component Description: The ETFE Greenhouse is designed for high-quality production of vegetables, edible flowers, and microgreens in areas affected by extreme climatic conditions, including high temperatures and hurricanes as well as low temperatures and winter storms. Made of structural aluminum and ETFE (12m x 42m x 6m), it withstands hurricane wind loads. The design incorporates evaporative cooling and geothermal cooling systems. The greenhouse is divided into sections for mother plants and cloning production zones.

- **Innovation & Technology:** Our ETFE greenhouse stands out for its use of innovative materials and cooling technologies. ETFE is corrosion-resistant, lightweight, and has thermal insulation properties. It allows light transmission according to required parameters, providing an optimal environment for plant growth supplemented with artificial lighting for locations with long winters and low temperatures.
- **Sustainability:** The use of ETFE & Aluminum contributes to greenhouse sustainability. These materials are 100% recyclable, durable, and resistant to extreme weather changes. ETFE also has self-cleaning properties, reducing maintenance and operational costs.

4.6 IAMgreen App - Greenhouse Management Software The IAMgreen App is an innovative operational software designed to make managing and operating a greenhouse effortless for users. The app provides day-by-day activities, instructional materials, and real-time monitoring to ensure optimal greenhouse performance and productivity.

- **Key Features:**
    - **Daily Task Scheduler:** A dynamic calendar that outlines daily, weekly, and monthly tasks with automated reminders.
    - **Instructional Materials:** Step-by-step instructional videos and concise, easy-to-read one-page guides.
    - **Real-Time Monitoring:** Monitor and adjust temperature, humidity, light settings, nutrient levels, and water usage.
    - **User-Friendly Interface:** Intuitive design with a central dashboard, easy navigation, and multi-language support.
    - **Integration with IAMgreen Systems:** Seamless control and monitoring of high-pressure aeroponics and ETFE greenhouse systems.
    - **Support and Community:** In-app chat support and a community forum for user interaction and assistance.
    - **Analytics and Reporting:** Detailed performance reports, customizable analytics, and data export options.
    - **Customization and Scalability:** Modular design suitable for small urban greenhouses to large commercial setups.

4.7 Research and Development Labs:

- **Advanced Insulation Sand Battery:** Development of a sand battery system that stores thermal energy from renewable sources using advanced insulation techniques to maximize thermal retention and efficiency.
- **Geothermal Cooling:** Investigates the use of geothermal cooling through earth tubes combined with evaporative cooling systems to enhance the efficiency and sustainability of greenhouse temperature regulation.
- **Electrified Ionization in Aeroponics:** Focuses on the ionization of nutrient solutions and the integration of electrical stimulation in high-pressure aeroponics to improve nutrient uptake and plant growth.

4.8 Decentralization and Consultancy Strategy IAMgreen is committed to decentralizing sustainable technologies for the greater good. All patents and technologies developed in our R&D labs will be made freely available to anyone who wishes to use or improve them. This open-access approach aims to democratize access to advanced agricultural technologies, fostering global collaboration and innovation. To support and monetize this initiative, we offer comprehensive consultancy services. Clients who wish to implement our technologies can purchase consultancy packages, providing them with tailored support, expertise, and resources necessary for successful integration and operation. This dual approach allows us to promote widespread adoption of sustainable technologies while also generating revenue from our R&D efforts.

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5. Target Market

5.1 Self-Sufficient Hotels & Restaurants

- Primary target market includes three-star and higher hotels or restaurants located in urban or rural areas that seek to be self-sufficient in producing fresh, high-quality vegetables.

5.2 Small and Medium Urban Farmers

- Second target market comprises small and medium-sized farmers operating in urban environments who want to increase their productivity through vertical farming.

5.3 Innovative Supermarket Chains

- Third target market includes supermarket chains that want to attract customers who value fresh and sustainable food by producing their own leafy greens and vegetables on-site.

6. Conclusion

At IAMgreen, we are dedicated to transforming the future of food production through innovative vertical farming solutions and pioneering research. Our integration of advanced R&D projects ensures that we remain at the cutting edge of agricultural technology, providing sustainable, efficient, and scalable solutions for a greener future. By decentralizing our technologies, we aim to foster global collaboration and innovation, making sustainable agricultural advancements accessible to all.