

Pangea – harvest food, water, and energy  
Pain – lessen stress on modern food system

### **Brief Description**

Pangea is an outdoor hydroponic garden system that incorporates water collection with solar, and wind power capture technologies to sustain the garden and its immediate surroundings. The system will allow for the growing of food while conserving water and energy via water collection and conservation design, solar panels, and a vertical axis wind turbine.

### **Mission**

There is a strong global interest to increase urban food production while reducing energy consumption to lessen stress on the modern food production system. Many popular urban innovations in food production eliminate the need for soil, land rotation, fertilizer, and pesticides. Named after the hymn (Pange) of St. Thomas Aquinas and the supercontinent Pangea it is proposed that the Pangea system can address the global needs by bridging the gap between food, water, and energy. Pangea aims to be another tool for the quickly growing field of urban farming.

### **Technology and Systems**

Thin-Film solar panel array inline retractable automated climate conditioned greenhouse. Vertical Axis Wind Turbines (VAWTs) above solar panels and vertically aligned structural beams or poles. Gutter system feeding water through piping network to water containment, processing, utility, and distribution tanks. Dehumidifiers strategically positioned to compensate for degradation and maximize water collection. LED horticultural light strips throughout all plant growing, staging, and germination stations. Water walls and fans where advised and in conjunction with wind capture and generation. Automated nutrient and water performed in tandem with air temperature, water temperature, humidity, air pressure, wind speed and direction, rainfall, electric conductivity, ph, water pressure, water level, air pumps, water pumps, and camera sensors. Software from sensors and technology regulate actions of operations from retracting the fabric awning to ideal picking times.

### **Objective Goals**

Currently, the yield of several crops corresponds to Pangea and a classic soil-filled garden bed of equal size located adjacent to the system. Data is also storing water use of each system and Pangea's renewable energy production.

### **Business Strategy**

Lease top floors of parking garages in densely populated communities to lessen distribution costs. Convert top floors into seeding and germination, growing, picking, selling, eating, and social segments.