our mission

To develop circular economies of food production, energy conservation and material reuse, while empowering people of all backgrounds to make their cities healthier and more efficient.

What is a Circular Economy?
In a circular economy, conventional waste streams from one process are repurposed as inputs for another, creating a circular, closed-loop model of material reuse.
Bakery: ash → lye
Brewery: spent grain → livestock feed, growing medium, bread, biobricks
Coffee roaster: chaff → growing medium, biobricks
Mushroom farm: straw → bulking agent, mulch
Shrimp/aquaponics farm: poop → nutrients for algae
Algae → Fish feed
Greens/produce: excess organic material → compost

Kombucha: SCOBY → other consumables?
Spices: packaging material → mushrooms?
Ice: water → indoor or outdoor agriculture use?
What is the circular economy?

John Murrow | Interim Executive Director, Plant Chicago

Outline of a Circular Economy

**Principle 1**
Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows. ReSOLVE levers: regenerate, virtualise, exchange.

- Renewables flow management
- Regenerate
- Substitute materials
- Virtualise
- Restore
- Stock management

**Principle 2**
Optimise resource yields by circulating products, components, and materials in use at the highest utility at all times in both technical and biological cycles. ReSOLVE levers: regenerate, share, optimise, loop.

- Regeneration
- Biochemical feedstock
- Biogas
- Cascades
- Extraction of biochemical feedstock

**Principle 3**
Foster system effectiveness by revealing and designing out negative externalities. All ReSOLVE levers.

Minimise systematic leakage and negative externalities

1. Hunting and fishing
2. Can take both post-harvest and post-consumer waste as an input

Rethinking vocabulary in a circular economy

- We become “users” not “consumers”
- Redefining “waste”. Waste is an opportunity!
- Biological and technical “nutrients”
- CE is “regenerative” or “restorative” by design
- The many R’s (reduce), reuse, refurbish, remanufacture, recycle.
- Materials, nutrients, molecules... whatever you call it... it’s not waste!
Key principles of our local circular economy

1) Renewable energy is requirement!
2) “Waste” is minimized, either in materials or energy
3) Product economy moves towards a service economy
4) Fast moving goods (high volume and frequent purchases) should be biologically based and safe to return to the environment
5) Economic growth without using “new” materials or nutrients
6) Shared economic success
7) Equitable economic success
The limitations of a circular economy

Creating a “regenerative” economy has to take into account those aspects of society that are not easily monetized.

- Equity
- Open space
- Meeting community needs
- Meeting ecosystem needs
Three examples in a local circular economy

- Technology example: Anaerobic Digestion
Research and Demonstration

Education

Markets
The Aquaponics Cycle

1. Fish produce waste
2. Microbes & worms convert waste to fertilizer for plants
3. Plants filter water that returns to the fish

Fish

Plants

Microbes & Worms

THE AQUAPONICS CYCLE
Research
Technology Demonstration
Education
Markets
Plant Chicago’s 2016 Programmatic Achievements

- Over $3,800 worth of healthy food incentives distributed
- 35 small food businesses supported in 2016 (60% women or minority owned)
- Currently averaging over 400 visitors per market (30% from Back of the Yards)
- Over 3,000 students participated in education programming
- 6 reports on research projects open sourced on our website
- Supported 7 future innovators in the circular economy space
- Partnered on a material flow analysis on businesses in *The Plant*
Technology Demonstration
Plant Chicago programs:

- Education
- Markets
- Research and Demonstration