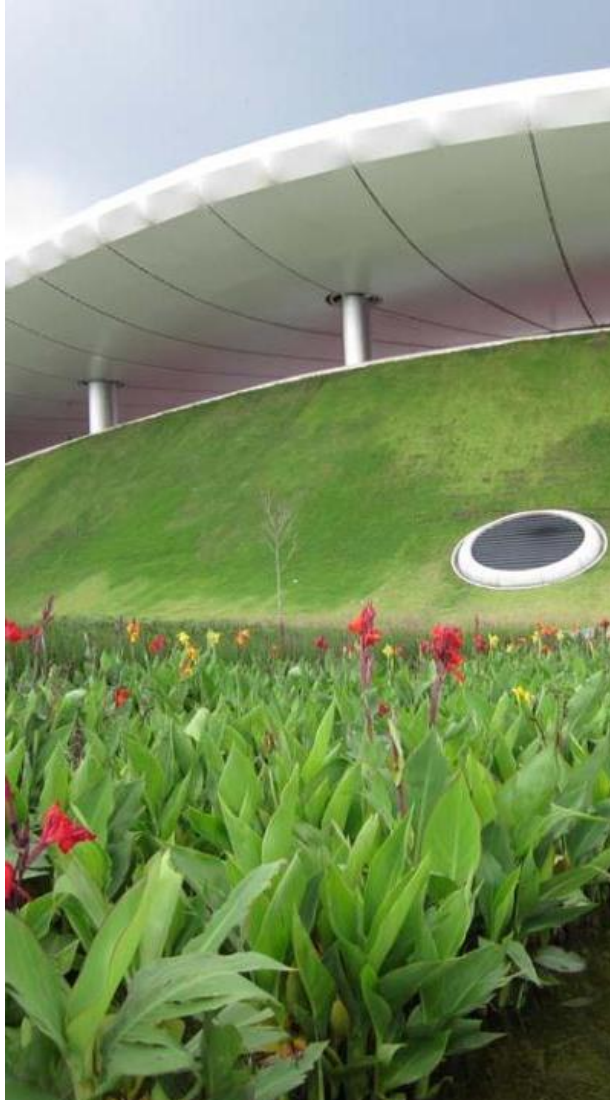
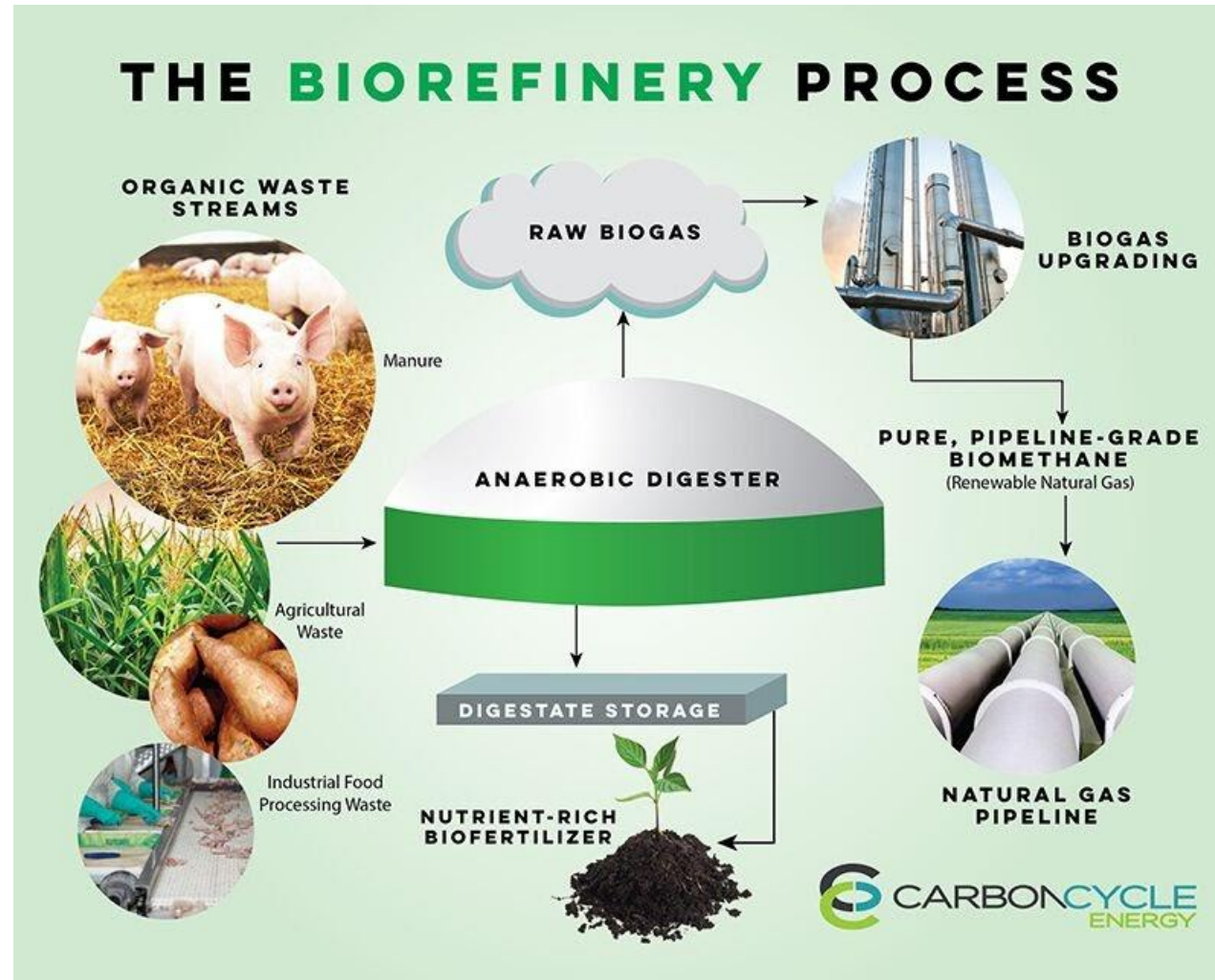


# Eliminating the Concept of Waste: A New Paradigm in Wastewater Management



**ARRA Comprehensive Municipal Waste  
Resource Recovery & Energy Generation  
Pilot Demonstration Projects**

## Enhanced Bio-Energy Production





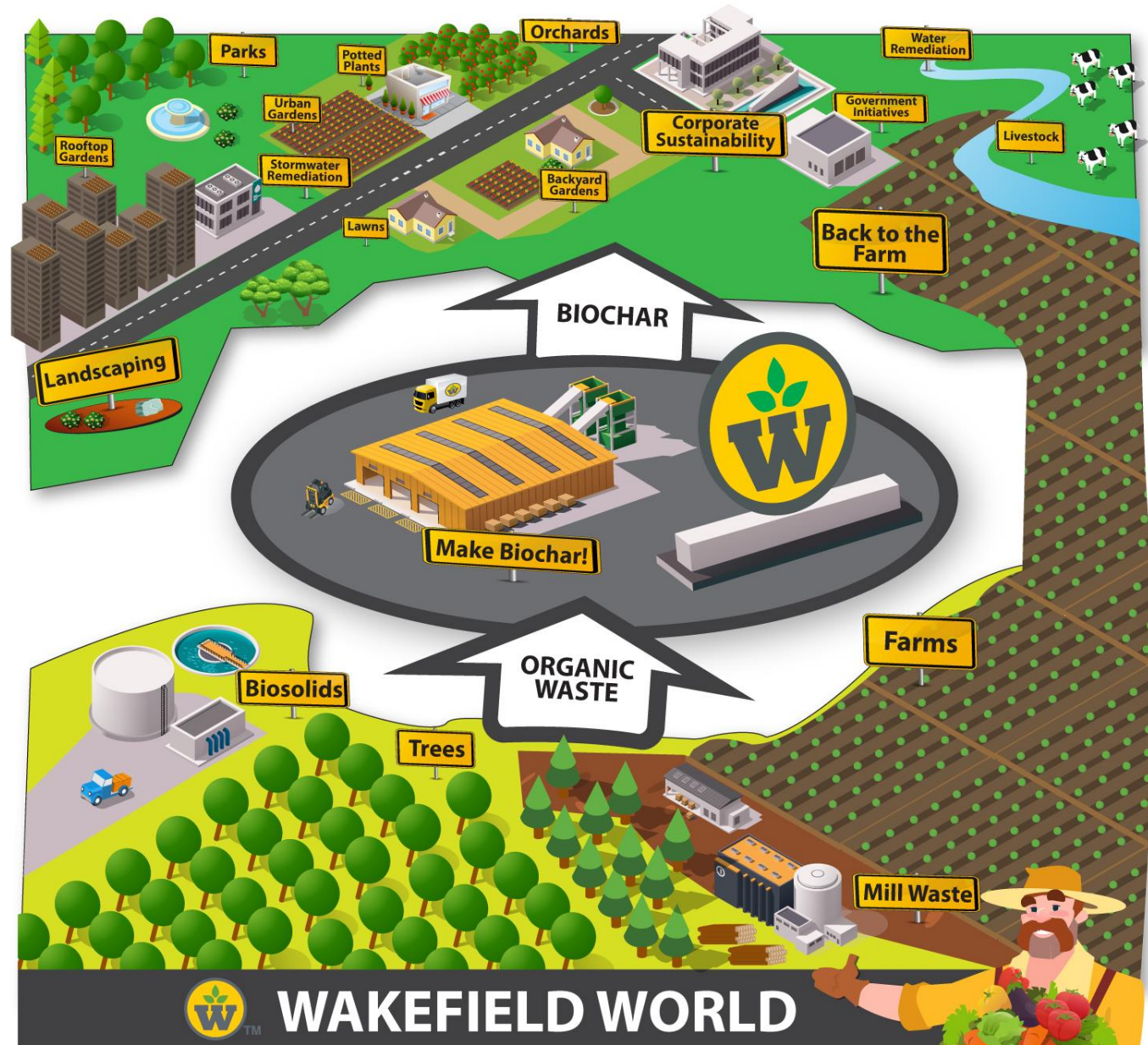
# Pyrolysis & the Production of Biochar

## Wakefield Biochar



Pyrolysis & Biochar Production Facility at Municipal Wastewater Plant, California,  
Powered by BFT Technology

# SUSTAINABLE BIOCHAR MANUFACTURING





# Applied Ecologies for On-Site Wastewater Treatment



# ONSITE WASTEWATER TREATMENT



## APPLIED ECOLOGIES

primary treatment  
(interceptor tank)

constructed wetlands

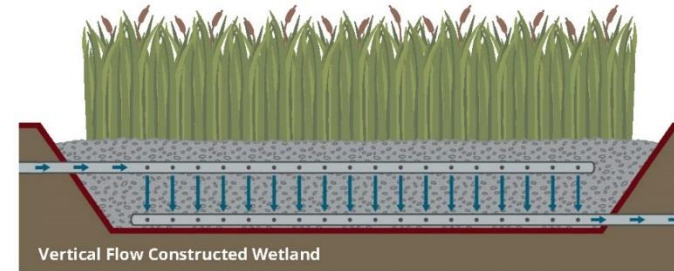
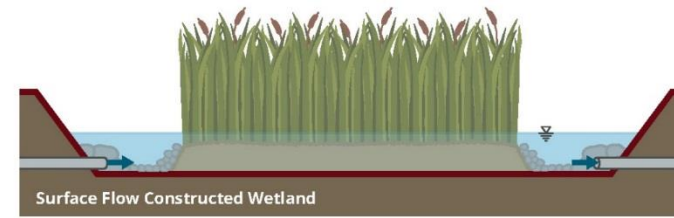
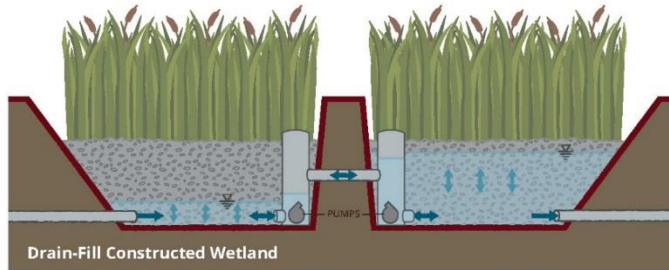
recirculating sand filter

land application / irrigation

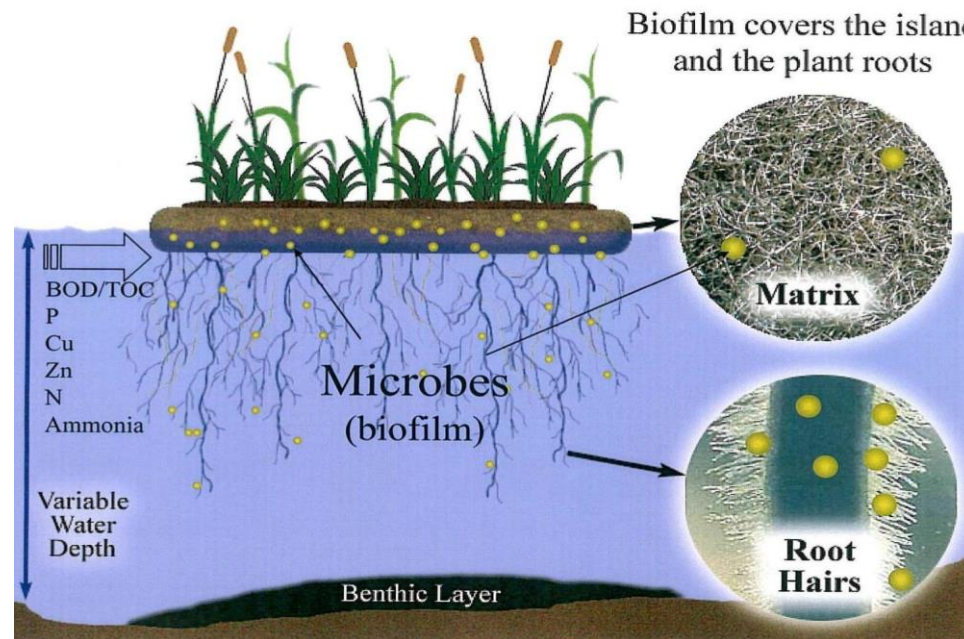


## CONSTRUCTED WETLAND TYPES

Constructed wetlands for wastewater treatment can be configured to meet a variety of water quality, footprint, habitat, and aesthetic goals. They range from primarily passive operation to active operation with treatment dosing or cycling. Additionally, treatment media options include gravel, saturated soil, specialty rock, and woodchips.



# Step 1 - Restorer Lagoons for Nutrient Harvesting and Purification





## Tyson Chicken Plant - Berlin, Maryland

Large scale industrial wastewater restorer application.





# KickStart

Charged BioChar Soil Conditioner





# Soil MicroBiotics Benefits



Enhances Atmospheric Nitrogen Absorption

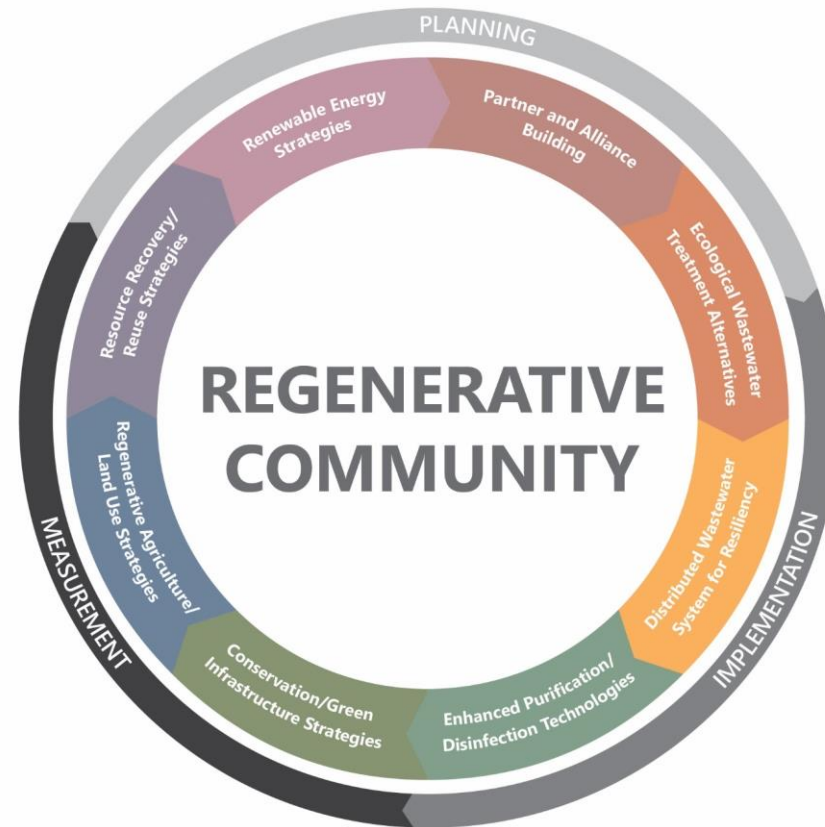
Solubilizes Naturally Occurring Phosphorus Bound to Soil Particles

- “Free-living” bacteria, fungi and organic enzymes. These beneficial bacteria include, but are not limited to:

- |                                  |                            |
|----------------------------------|----------------------------|
| • Desulfovibrio                  | Azotobacter vinelandii     |
| • Anabaena cylindrica            | Rhodobacter capsulatus     |
| • Nostoc commune                 | Escherichia intermedia     |
| • <i>Rhodobacter sphaeroides</i> | Bacillus macerans          |
| • Klebsiella pneumoniae          | Bacillus polymyxa          |
| • Clostridium                    | Rhodopseudomonas palustris |



# Thank You & Questions



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