



Biosolids and compost use: sustainable practice and current significant partnerships

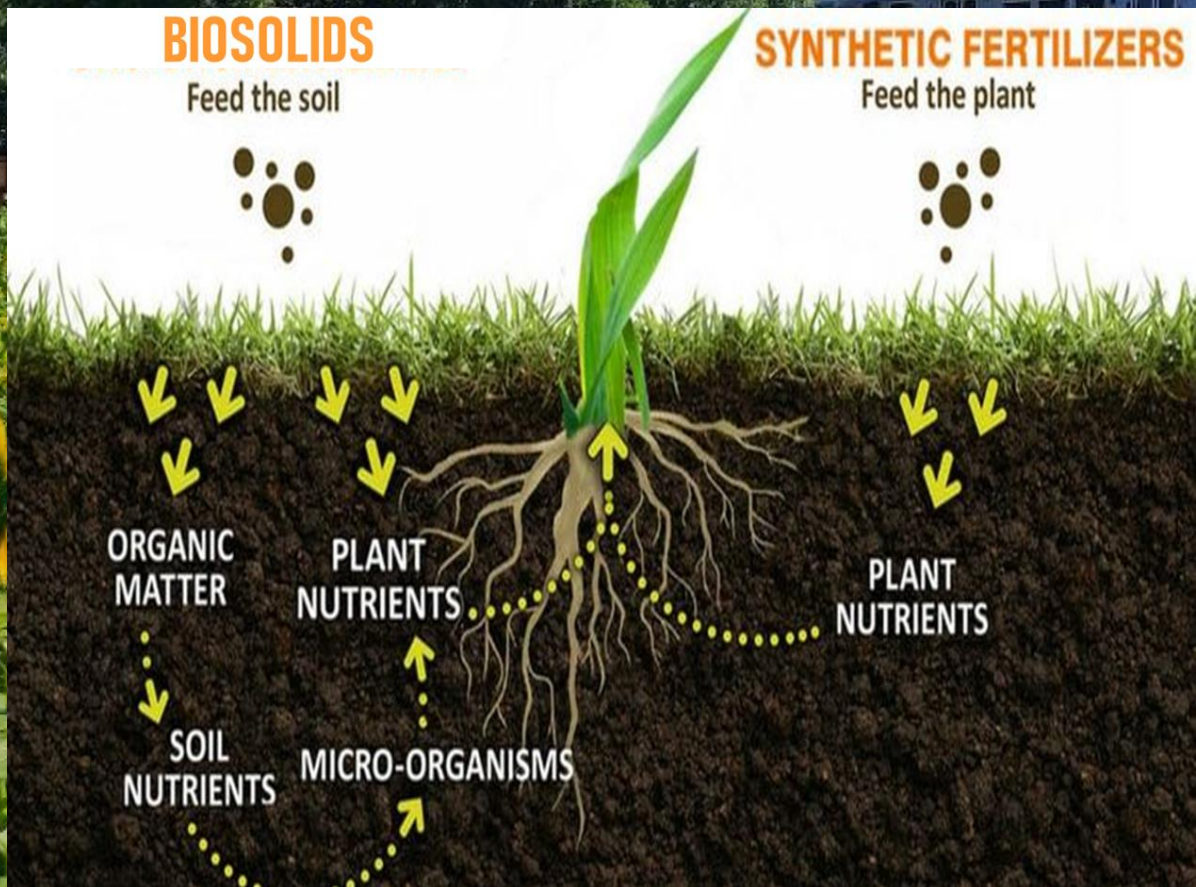
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METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO



**Metropolitan Water
Reclamation District
of Greater Chicago**



Benefits of biosolids

- ▶ Better plant growth
- ▶ Reduced runoff
- ▶ Better water quality
- ▶ Healthier environments

Urban Ecosystem

With single-minded system: a problem

Energy

Food

Clean water

Pollution

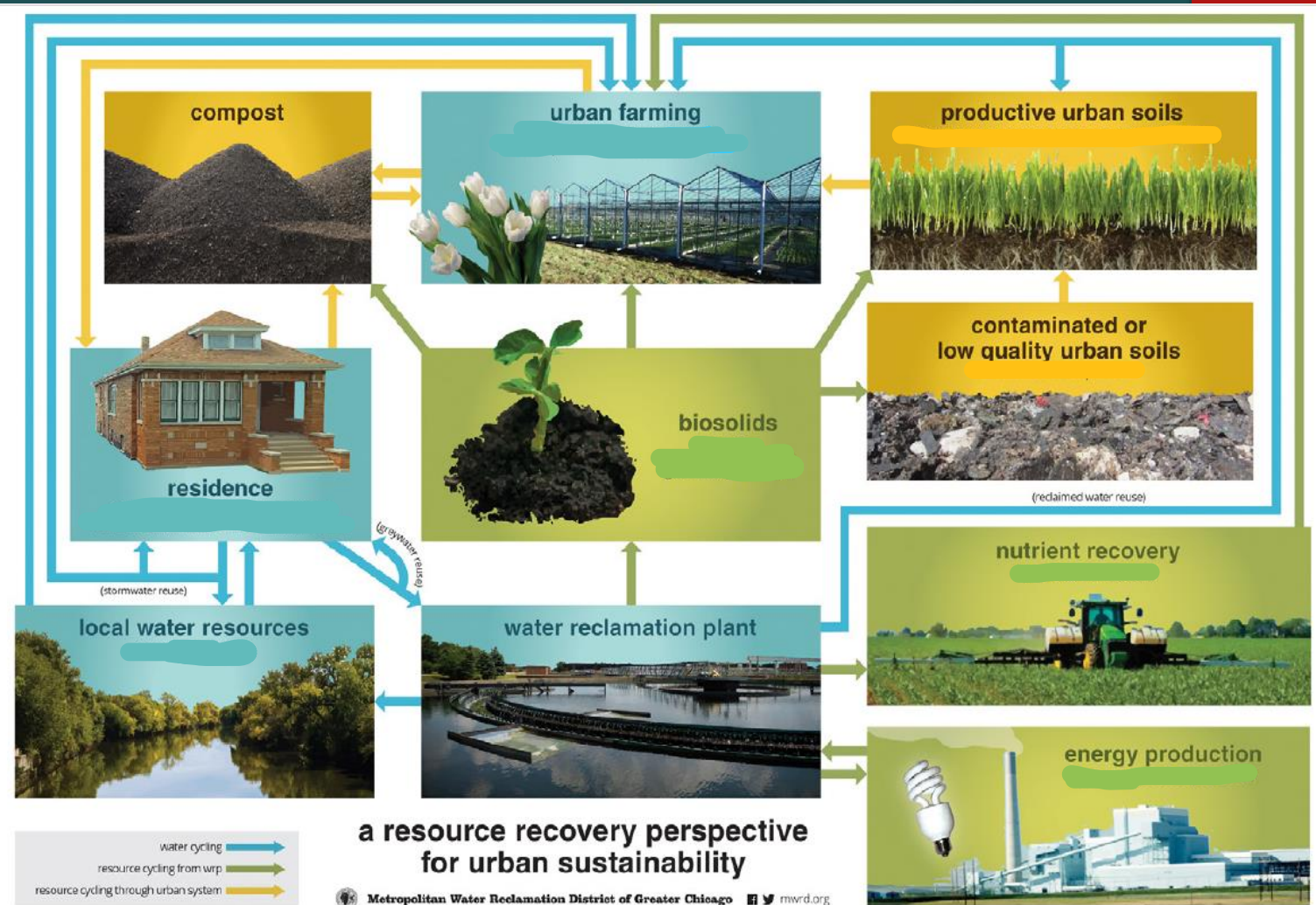
Waste

Contaminated
water/flooding



Urban ecosystem with sustainable loop

- ▶ Cycling nutrients locally
- ▶ Return carbon to soil
- ▶ Local use = local impacts
- ▶ Less flooding, less water pollution

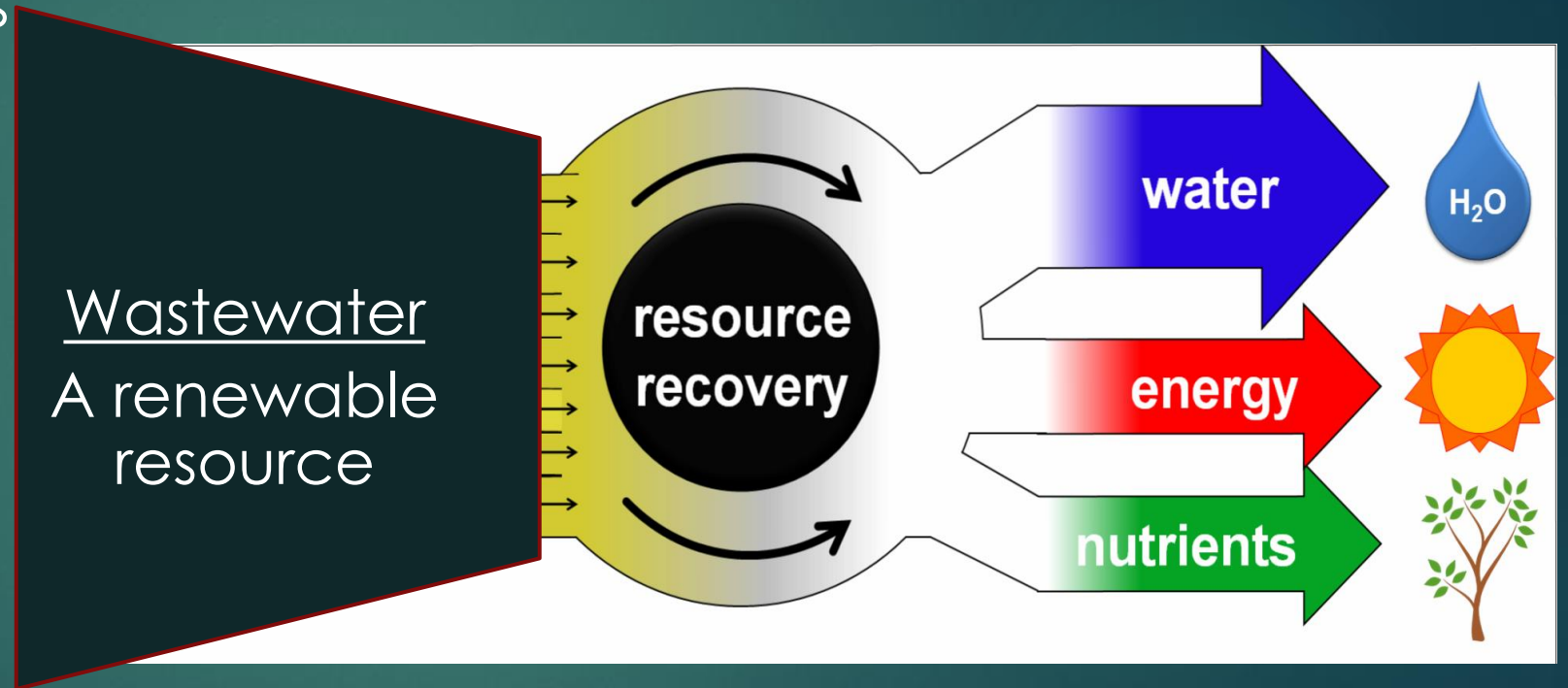


(From Kumar and Hundal. 2016. Soil in the city: Sustainably improving urban soils. JEQ)

Wastewater Treatments

- A paradigm shift to minimize climate impact

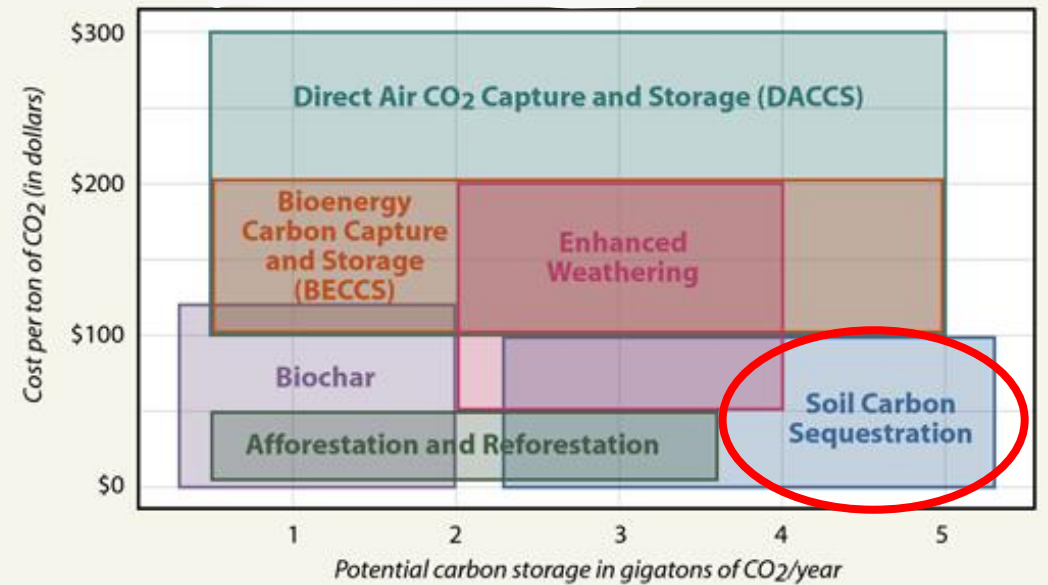
- Wastewater Treatments
 - Co-digest organics
 - Sequester C in soil
- Produce renewable energy
 - Electricity
 - Heat
 - Transportation fuel



- ▶ MWRD Biosolids: 40,000 tons carbon per year


Soil is our greatest carbon storage tank

How Do Carbon Storage Techniques Stack Up?



SOURCE: IPCC

InsideClimate News



MWRD Biosolids Land Applied (2000 – 2021)

- Biosolids applied: 1,749,405 dry tons
- C Sequestered: 673,857 dry tons
- Equivalent to 146,491 passenger cars off the road for a year



Nutrient loss reduction

MWRD Biosolids: Nitrogen = 6,000 tons per yr

Phosphorus = 3,000 tons per yr

Nutrients in Wastewater Recovered and Reused in Biosolids

- **Reduce Excess Nutrients in Local Waterways**
- **Reduce Hypoxia in Gulf of Mexico**
- **Provide nutrients for local production**

Municipal partnerships in the U.S.


- ▶ TAGRO (Tacoma, Washington) and Pierce County Conservation District
 - ▶ “We have had a long-standing partnership with the Tagro program. They **provide biosolids** in-kind to our more than 90 community gardens and orchards. We support the gardens and also do a fair amount of **educating the community** about soil and biosolids specifically. We have many gardeners and gardens that love Tagro and are exceptionally beautiful and productive because of the partnership - we’ve **reclaimed many vacant lots** that would not have been productive otherwise.” –Kristin McIvor, Director Pierce County Conservation District



BLOOM D.C. Water

- ▶ “We’ve achieved huge diversity in customers we have cultivated. Farms of all kinds including hemp, traditional commercial crops etc, cemeteries, golf courses, homeowners, soil blenders, retailers, nurseries etc etc! We sold 56,000+ tons this fiscal year!” April Thompson, Director of Marketing





“Milorganite has a rich history in partnering with local farmers, municipalities, parks, superintendents, neighborhood association, university researchers, non for profits and master gardeners in educating and promoting the use of recycled nutrients for nearly 100 years. Milorganite has led the way in biosolids research and remains a benchmark in most university turf / fertilizer research. Milorganite continues to forge relationships with sustainability partners throughout the greater Milwaukee area and across the county, partners like Melinda Meyers and Joe Lamp’l who teach the importance of sustainability and beneficial reuse. Milorganite remains a staple in several MMSD (Milwaukee Metropolitan Sewerage District) outreach initiatives such as the “Green schools, and Rain Gardens” programs that promote the beneficial reuse of biosolids in establishing healthy soils that are able to best manage storm water runoff in our local communities.” Jaime Staufenbeil, Operations Manager and Agronomist

Milorganite, Milwaukee Metropolitan Sewerage District

Downers Grove Sanitary District

- ▶ “Our public distribution program was approved by IEPA in 1981. This was our only means of biosolids disposal until 2016. We now take FOG into our digesters to **increase gas production and become a net zero energy facility.** As a result of that effort, we have had to start Class B land application of part of our biosolids.” Amy Underwood, P.E., General Manager



Partnerships with the MWRD

Green Infrastructure Project Opportunity Program

- ▶ Municipal partners
in Cook County





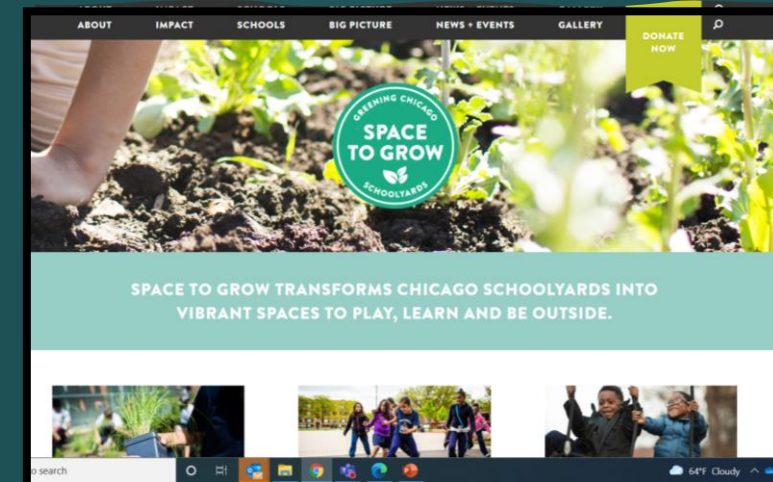
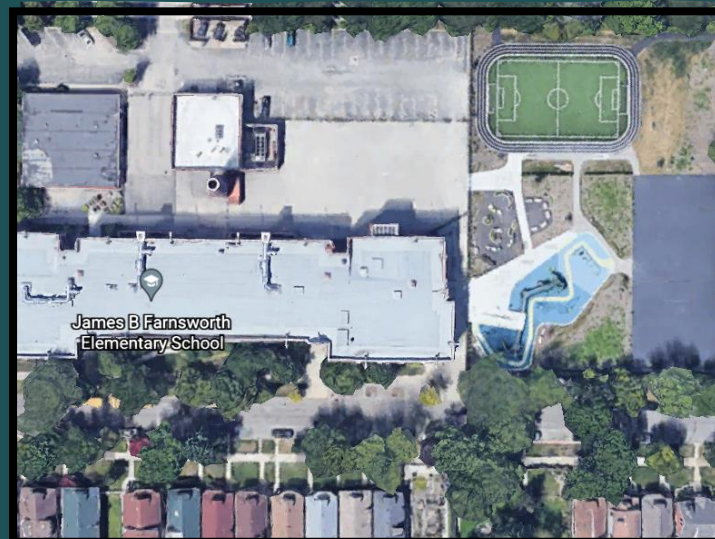
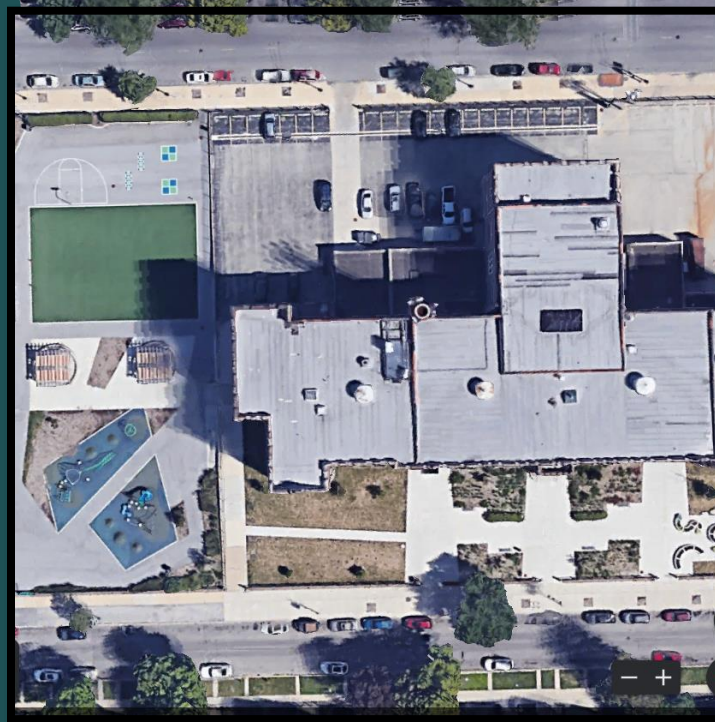
Alsip Boat Ramp ➔ Mary Schmidt Community Sanctuary

- ▶ Village of Alsip
- ▶ Morton Arboretum
- ▶ Chicago Region Tree Initiative
- ▶ Great Lakes Restoration Grant



Space to Grow

- ▶ Partners: Healthy Schools Campaign, Openlands, Chicago Public Schools, Chicago Department of Water, and the Metropolitan Water Reclamation District of Greater Chicago
- ▶ Goal to connect children to clean water and nature, provide space to play, and help manage neighborhood flooding





Use of Biosolids at Park Districts, Schools, and Municipalities

NEWS

MAIN PROGRAMS ▾ ARCHIVE SPONSORS ABOUT
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SCIENCE & NATURE

Chicago Park District Working to Heal Environment, Ecosystem at Big Marsh Park

Patty Wetli | January 28, 2021 2:09 pm



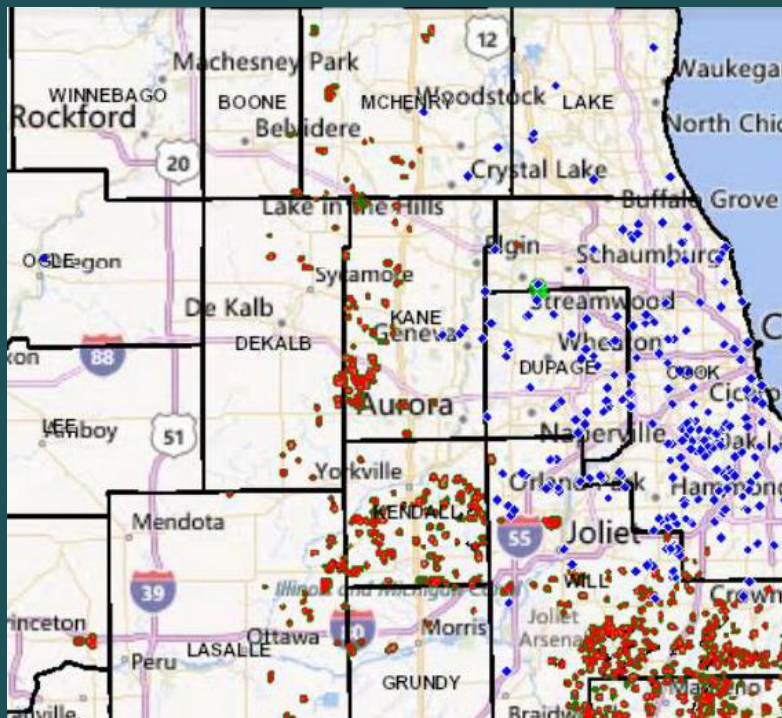
They tested different combinations of topsoil, a commercially-sourced nutrient-dense compost, and a biosolids compound (called EQ Compost) from the Metropolitan Water Reclamation District of Greater Chicago. (EQ is a blend of treated waste and material such as wood chips, grass clippings and leaves.)

oing and short-
partnerships to
ablish new parks,
courses, and
ens
tablish damaged
tain healthy turf
plants



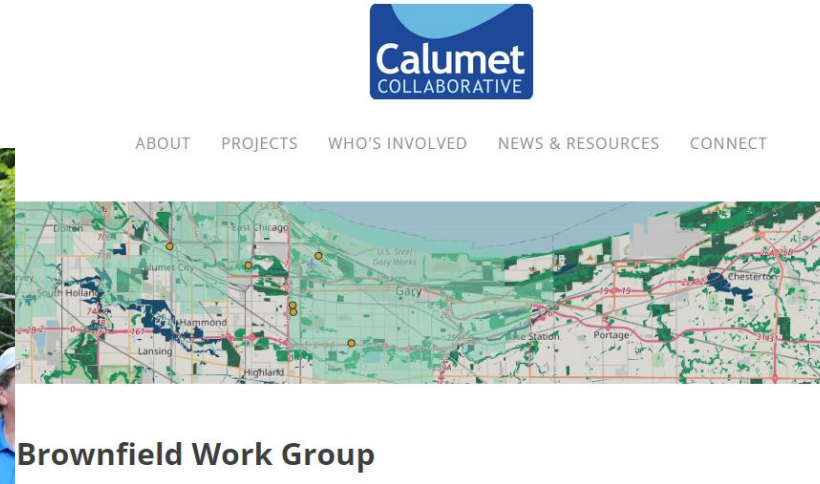
Illinois Farm Bureau and Cook County Farm Bureau

- ▶ Nutrient loss reduction program
- ▶ Partnering to share information and resources
- ▶ Connecting biosolids to urban and conventional farms



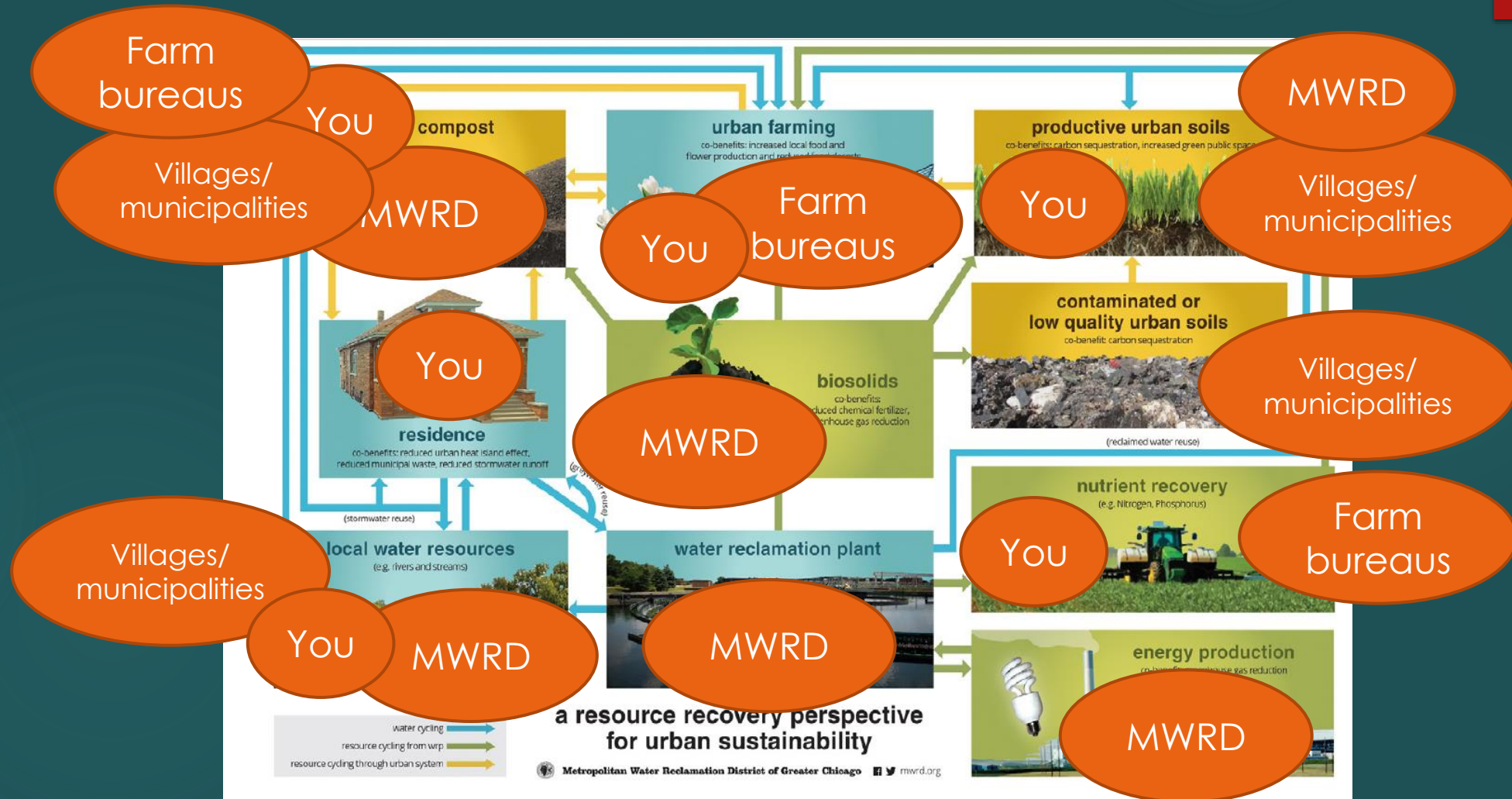
Other partnerships

- ▶ Regional and national non-profit organizations
 - ▶ IFSC
 - ▶ Calumet Collaborative
- ▶ Professional organizations
 - ▶ Midwest Biosolids Association
- ▶ University partnerships



Brownfield Work Group

Partnerships build sustainability



(From Kumar and Hundal. 2016. Soil in the city: Sustainably improving urban soils. JEQ)

Thank you!

For more information:

- ▶ Go to mwr.org
- ▶ Services
- ▶ Biosolids or EQ Compost

Or go directly to mwr.org/biosolids
or mwr.org/eq-compost

- ▶ Or contact Theresa Johnston,
johnstont@mwr.org

