

SRS RN Track 2: Convergent Innovations for Regional Circular Economies (CIRCULAR)



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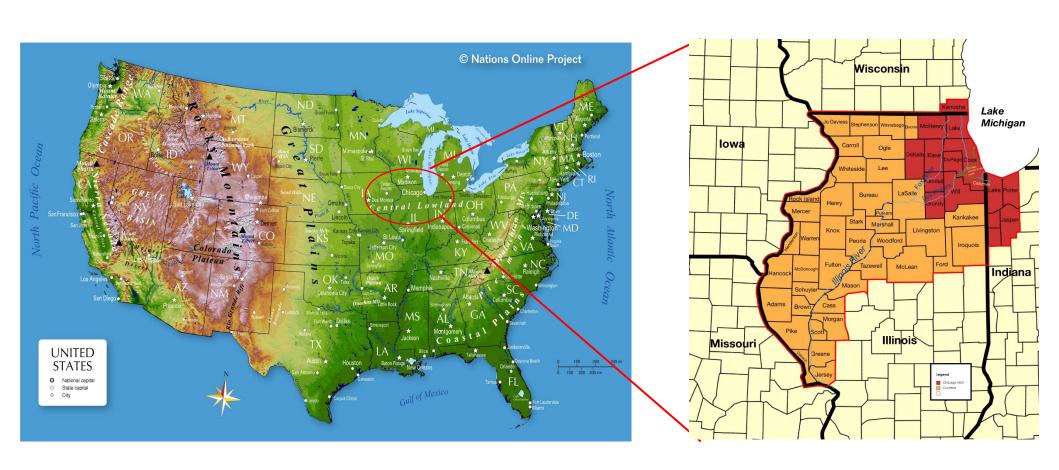
Project overview

Using the Metro Chicago region with its urban-rural linkages, this SRS network explores the underlying system structures and interactions that give rise to unsustainable resource consumption and waste generation, and identifies potential solutions grounded in the emerging field of the Circular Economy (CE). The research network has:

- engaged interdisciplinary researchers and non-academic partners in a process to co-create a research agenda for transforming regional systems towards CE;
- explored convergent research mechanisms for deep integration of knowledge, methods, tools, and expertise from diverse perspectives that can advance the study of regional circular economies; and
- initiated a collaborative platform upon which the scientific community and key stakeholders can share knowledge, translate findings, and enhance diversity and engagement.

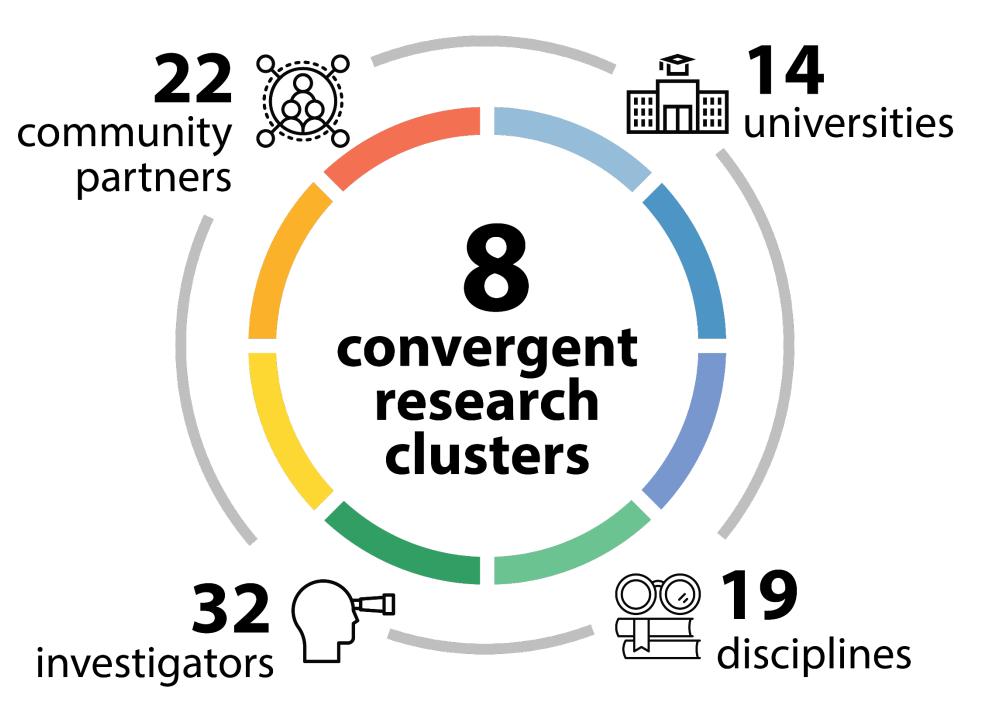
Study Area

Chicago MSA plus urban-rural linkages in Illinois, NW Indiana and SE Wisconsin



	Rural	Urban
Area	21,585 mi ²	10, 857 mi ²
Population	1.2M	10M
GRP	~\$70B	~\$700B

Network structure and organization



- **26 Monthly meetings**
 - 13 meetings for research discussions
 - 13 interviews with community partners
- 8 convergent research clusters with 20+ biweekly meetings
- Face-to-face meeting (August '22)
- 3 internal surveys 2 papers in preparation

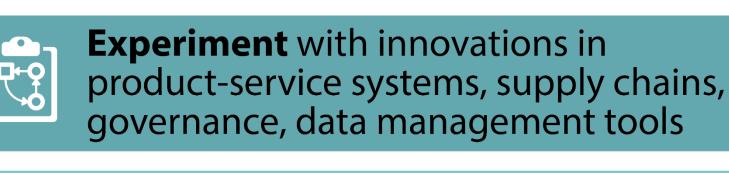
Research approach

CURRENT STATUS

Stock and flow of materials

Barriers and incentives to CE

Social, economic and environmental costs



Measure social, economic and environment impacts and strategies for stakeholder uptake and empowerment

Collect, analyze and visualize data for circular resource management

Engage diverse urban-rural community members in circular transformations, supporting existing initiatives

FUTURE CE OUTCOMES

Circular regional system

Reduced socioeconomic and environmental costs

Social justice and equity

Formal and informal learning

Emergent focal areas

RESEARCH PROJECTS INITIATED

Baseline assessment of circularity across region – current material flows, policies, incentives, circularity potential within and across different industrial sectors and jurisdictions

Household recycling across urban and rural regions – randomized control trials evaluating role of information, infrastructure, AI, financial and other incentives

Circular management of "Copi" – building a circular supply chain, shared governance and management around the Asian Carp, an invasive fish species in the Illinois river

Regenerative materials - Al-guided design of alternative raw materials using municipal and organic waste that satisfy technical and life cycle performance requirements

Blockchain Applications in the CE – assessing the benefits and trade-offs of using blockchain to manage end of life materials for recirculation

Justice, equity and circularity – examines disparate impacts of linear economy on diverse rural and urban communities and explores strategies for job and business creation along circular value chain

