



SUSTAINABLE CLEVELAND 2019
*Building an Economic Engine to Empower
a Green City on a Blue Lake*

August 12-14, 2009
Cleveland Convention Center

Pre-summit briefing paper:
**Preparing to design an economy
for a green city on a blue lake**

This packet contains background information that will help you participate in the Sustainable Cleveland 2019 Summit. It explains the concepts of sustainability that will be discussed. It also seeks to stimulate your imagination about what a sustainable economy could be like in the future, while providing analysis that will help you think critically about potential economic opportunities.

Please read this packet before coming to the summit.

Think about the issues and possibilities, and come prepared for an exciting and highly interactive experience!

Acknowledgements

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CITY OF CLEVELAND
Mayor Frank G. Jackson



As Mayor, I have been implementing initiatives to lead Cleveland through the current economic downturn, create opportunities for individuals to prosper and position the City for the future. Sustainable Cleveland 2019 and your participation are part of my strategy.

Sustainable Cleveland 2019 is about using our best assets, natural resources, and human capital to benefit the City of Cleveland, area businesses and the 1.6 million people in this region. The benefits we seek are economic prosperity for businesses and individuals and an improved quality of life in the region, while at the same time minimizing our impact on the environment. By holding this summit now, we are taking advantage of both the current economic challenges and the growing emphasis on green technology and sustainability.

The City of Cleveland has worked collaboratively with organizations and companies on the local, regional, national, and international level to set the stage for Cleveland to become a leader in the emerging green economy. Now, it is time to take these efforts to the next level. This report—compiled by dozens of people from a range of sectors—helps explain what assets and opportunity areas we already have. As a group, we have the political will, business acumen, technical expertise, entrepreneurial spirit, creative energy, and community commitment to help rebuild our economy in a sustainable way.

I am pleased to have worked with Case Western Reserve University’s Fowler Center for Sustainable Value and the Summit Design Team over the past several months, and I thank them for the many hours of preparation, analysis, and focus they have given to this work. Now, it is up to you to help make this summit a success. Success will be achieved when we identify a course of action for moving our economy forward into a future that is sustainable and prosperous for all in our community. In ten years, we will be able to say that Sustainable Cleveland 2019 made a great impact on our economy and led to Cleveland becoming a green city on a blue lake.


Sincerely,

Mayor Frank G. Jackson



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*... I've seen that there is no more powerful way to initiate significant change...
a community discovering what it cares about.
—Margaret J. Wheatley*

Quick overview of the summit

Goal of the summit

Create an action plan for creating a green and sustainable economy for Cleveland by the year 2019, the 50th anniversary of the famous Cuyahoga River fire.

Format of the event

The summit will not be like a typical conference where attendees spend most of the time listening to speakers (although there will be some great speakers). Instead, the summit will employ the “Appreciative Inquiry” process that engages everyone. Over the three days, participants will work together in groups to share their dreams for Cleveland and design actual projects that can turn their dreams into reality. This will be an interactive event that will draw upon the ideas and skills of every participant. *Important: Participants need to attend all three days of the summit in order for the process to work.*

Description of Appreciative Inquiry

Appreciative Inquiry (AI) is a process of organizational development and change focused on exploring and advancing what people value. AI has been pioneered by David Cooperrider, Fairmount Minerals Professor of Social Entrepreneurship at the Weatherhead School of Management at Case Western Reserve University. Prof. Cooperrider will facilitate the Sustainable Cleveland Summit. He has conducted similar summits for the United Nations, U.S. Navy,

His Holiness the Dalai Lama, and global forums on business and sustainability. The AI perspective has framed his advisory work with companies such as Boeing Corporation, Fairmount Minerals, Green Mountain Coffee Roasters, Parker-Hannifin, Sherwin-Williams, Wal-Mart, and organizations such as the Cleveland Clinic.

At an AI summit, groups of people (often large groups of hundreds of people) are invited to talk to one another about the times when they feel most hopeful and energized about their organization or community. Then they design strategies to align their strengths to move in positive directions. By building on strengths and opportunities, rather than focusing on faults or fixing problems, the AI process can unleash a group's positive energy, enhancing the capacity for collaboration and change and leading to amazing performance. By focusing on design, the process encourages creativity and an open-ended exploration of possibilities. (More information about AI can be found online at <http://appreciativeinquiry.case.edu/>.)

Who will attend?

More than 500 people from all walks of life are expected to attend the summit. Care was taken to invite a diverse group of people of different ages and backgrounds, including residents, community leaders, business leaders, elected officials, public officials, representatives of nonprofit organizations, educators, students, technical experts, sustainability experts, financial experts, artists, engineers, media representatives, and more. The goal is to assemble a cross-section of stakeholders who care about the future of Cleveland. When the "whole system" is in the room, better solutions will emerge.

Follow up after the summit

The City of Cleveland and the team of volunteers that helped to organize the summit are committed to implementing the project ideas generated by the summit. A portion of the foundation funding already obtained is reserved for follow-up activities, and the city will allocate capital funds to the projects.

A post-summit implementation organization is also contemplated. It might be modeled on the Cleveland Bicentennial Commission, which was assigned the task of getting many projects done in the years leading up to the city's bicentennial in 1996. In this case, a Summit Commission might manage an intensive, ten-year effort to do as many sustainability projects as possible. Then in the year 2019, the 50th anniversary of the famous Cuyahoga River fire, Cleveland could celebrate its emergence as a leading green city.



The summit task

To build an economic engine to empower a green city on a blue lake.

Objectives

Co-create transformative projects that will:

- (1) Focus our energy on the best of “what is” by designing projects that leverage our strengths and most unique assets;
- (2) Hone our strategies on specific goals, projects, and policies that generate momentum in our local and global communities; and
- (3) Create social, environmental, and economic value to build a sustainable economy.

Respond as a whole community, engaging 1.6 million people in Cleveland’s transformation to realize a green city on a blue lake. We will empower people to take action towards the objectives, projects, and initiatives created as a community.

Enlist leaders to spur action. A leader is anyone who is making change at this moment. We will leave this summit with concrete action plans and systems to start the transformation today.



Call to action: A powerful statement of purpose

By David Cooperrider

How do you engage thousands of people and institutions or organizations in the common cause of turning sustainability into an innovation engine—strengthening our economy, our ecology, and our life as a thriving community?

Our pre-summit research of successful change efforts—whether in business, society, or across industries—shows that one simple but overarching success ingredient is the formulation or articulation of the “shared body of beliefs” that serves to unite people and groups in common cause. For example, the United Nations Global Compact was founded with 50 companies who worked together to create a set of 10 guiding principles, which has indeed become the “backbone” of everything it does. Initially only 50 companies “signed on,” but then things spread: today over 5,000 of the world’s largest companies are part of the Global Compact—and thousands of projects or initiatives to create a more sustainable world have been born directly from application of the principles.

Likewise, businesses everywhere—especially those “built to last”—have one thing in common: almost all have drafted a powerful statement of “purpose and principles” that serves to unite diverse stakeholders. For example, one widely respected CEO, Dee Hock, the founder of the VISA corporation, told us that the single most important thing that can unify complex systems without killing creative freedom and innovation is to articulate the statement of purpose and principles (and then get out of the way) “where everyone part of an effort is encouraged to do anything he or she wants, at any level or in any way,

especially as long as it helps live and advance the community's deepest level purpose and principles."

By the term "powerful purpose" we mean a statement of mission that is so strong that participants, perhaps at the end of their life, would say: "my life had real meaning, purpose, and significance by being part of that effort." By the term "principles" we mean the deepest level body of beliefs that bind a community and define a community. That is principles as in, "We hold these truths to be self-evident: that all men are created equal.... " Again, this isn't a bunch of platitudes, but a manifesto, or constitution-like set of beliefs of what the people in the organization or community believe in and care about in their gut.

So the question for our community: what are our beliefs for a "green city on a blue lake"? If anything imaginable were possible, how might we design an inspiring charter or statement of powerful purpose and principles for this growing initiative? How might this statement of purpose and principles be used—to invite individuals, companies, schools, non-profits, government entities, and associations into common cause? How might it be used to spotlight purpose-driven innovations and successes? How might this "body of belief" be used to create a city-wide culture; a context that draws in like-minded companies, for example, or becomes a "way of life" in our community? How might this be used to design communication materials, inspire innovation, and ignite the speed and spread of positive developments?

Through our research we believe that one of the most powerful, long-term things that could come out of our summit is a draft of a statement of purpose and principles for this entire effort. Coupled with a portfolio of other more action-oriented initiatives, we believe this might well become a backbone for years to come, much like the Declaration of Independence and the Constitution are for our nation.

We can do this for Cleveland.

David Cooperrider is the Faculty Director of the Fowler Center for Sustainable Value and is the Fairmount Minerals Professor of Social Entrepreneurship at the Weatherhead School of Management, Case Western Reserve University. He is the co-creator of the Appreciative Inquiry method and will be the facilitator of the Sustainable Cleveland 2019 Summit.



Introduction: On the cusp of extraordinary change and opportunity

Cleveland has an amazing history of innovation and economic development. From the mid-1800s to the mid-1900s, Cleveland was a boom town of the industrial revolution. Our entrepreneurs and scientists developed industrial processes that helped to launch oil and chemical industries, the steel industry, machine tools, electrical components, paints and coatings, and other sectors of manufacturing.

We were social innovators, too. We assimilated hundreds of thousands of immigrants into American society. We were leaders of the labor union movement. We developed renowned education systems, libraries, parks, and cultural institutions. We pioneered new models of philanthropy and social welfare, such as the community foundation and public housing.

On the other hand, the industrial boom also created many problems. We trashed the environment with water pollution, air pollution, and toxic waste. Along side the great wealth was great poverty and unequal access to opportunities. Many immigrant groups, especially African-Americans, suffered painful discrimination.

By the end of the 20th century, we were being forced to make painful transitions. Globalization was taking basic manufacturing jobs overseas. Our blue-collar educational levels made us less competitive in the new economy. The entire region of Northeast Ohio was lagging economically, and the City of Cleveland was drained of jobs and wealth, as urban sprawl moved new development increasingly outside of the city (and even outside of Cuyahoga County).



The Charles Brush windmill on Euclid Avenue in 1888 and the Great Lakes Science Center wind turbine in 2009.

Finding a new story

Today, we are still trying to navigate through difficult transitions, trying to find new ways of doing things that respect this place while being successful in the larger world. We are drawing inspiration from our innovative, risk-taking heritage, but we are not forgetting the problems of the past.

This work of transition is difficult — and vital. To figure it out, everybody needs to be involved. And that is why the Sustainable Cleveland 2019 Summit was organized. It will bring together a broad cross-section of people for a powerful visioning and design process.

The summit is based on the belief that Cleveland is on the cusp of extraordinary change and opportunity. Indeed, there are signs we are about to find our new story. It's a story emerging from many directions — from thousands of people who are seeking a new way to live and grow businesses. They are asking, what kind of place is this? What can we do here? What kind of city can we become? They have begun to see new possibilities — clean industries creating new wealth, a beautiful lakefront, revitalized neighborhoods with energy-efficient homes, a countryside of protected farmland and natural areas, regional collaboration and strategies to reduce concentrated poverty, wind turbines on Lake Erie, greenways, bikeways, healthy local food, and countless other visions rooted in the unique potential of this place.

Many of these people are organized loosely under the banner of “sustainability.” They are seeking solutions that have multiple benefits — integrating people, planet and profit. They want to transcend the ideological barriers that have divided businesses, environmentalists, and social activists, and they want to work together to develop innovative technologies that can create good jobs while restoring the health of the Earth and its people. And they want to break down old hierarchies and work together in collaborative networks that are open and transparent.

The summit will be a time to come together to design solutions based on this framework of sustainability. The event will be filled with energy, inspiration, and confidence that we can do amazing things — as well as a strong sense of urgency.

We have done it before. We are doing it now. We can do even more in the future to realize the promise of a green city on a blue lake.

QUESTIONS TO THINK ABOUT

- What is your vision of a wildly successful Cleveland in 2019?
- What assets of Cleveland and the region excite you the most?
- Can you help make this summit a turning point for Cleveland?



Thinking about “sustainability”

An assumption of the summit is that the perspective of sustainability will help Cleveland attain its promise — indeed, that sustainability is essential for success in the future. The following is a brief introduction to the concept of sustainability, with an emphasis on how it can be applied to our economy.

The lens of sustainability

It is possible to grow the economy by focusing solely on wealth generation, but developing an economy that fosters innovation and development, improves the environment, and enhances social well-being requires focused investment in initiatives that benefit the entire system.

In the past, environmental and social interests have often been at odds with the economy. Business and society often held a false trade-off framed as: “We can have jobs or a clean environment but not both.” However, the key to tomorrow’s economy is using innovation to achieve both. Sustainability requires reframing old assumptions into: “How can we achieve economic prosperity along with social and environmental prosperity?” (Figure 1)

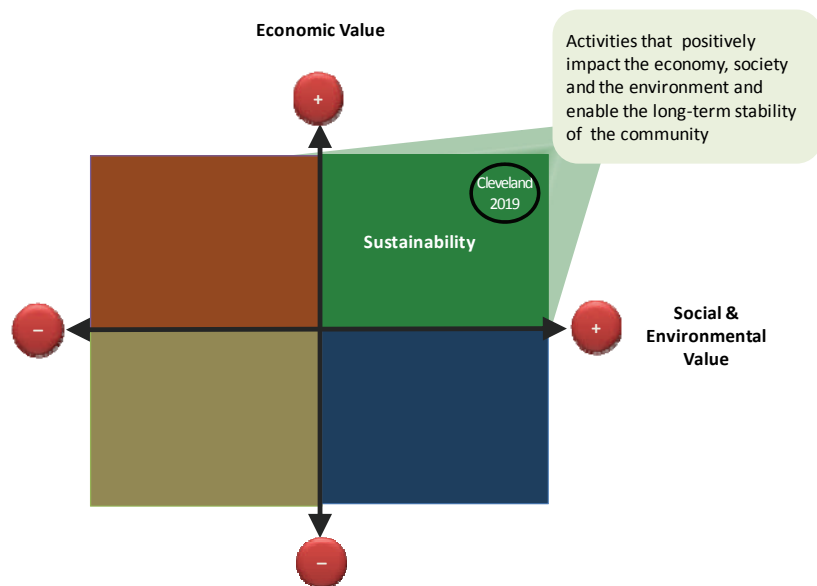


Figure 1: A sustainable economy creates economic, social and environmental value.

What is the relationship between environment, society, and economy?

In 1987 the United Nations formed the World Commission on Environment and Development (the Brundtland Commission), which defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”¹ Natural and human resources are the foundation of the economy, and long-term economic growth can only be sustainable if it protects these resources for our children’s children. Figure 2 shows economy as being embedded in society, with both being embedded in the environment. In order to have a vibrant economy, it is also necessary to have a healthy society, whose long-term well-being is dependent on maintaining the natural environment. The types of sustainable outcomes shown in Figure 2 are all highly interrelated.

People want to live in an environmentally healthy location where they know that their children will not consume toxic material playing in the backyard or get sick from drinking contaminated water. They also want to be part of a community with excellent schools and access to high quality, affordable healthcare. With strong social and environmental attributes, such as a good education system, the economy can thrive and provide critical tax revenue that can reinforce efforts to maintain social and environmental assets.

For each dimension of sustainability there are indicators that tell a piece of the sustainability story. For the quality of the environment we can look at the size of the environmental impacts, such as efficiency of buildings, quality of the air and water, and reduction of waste. For society we can look at educational achievements, access to high-quality health care, the number of new residents that are migrating to the city, and the drop in crime. A sustainable economy can be measured by the growth of per capita income, increased employment rates, external investment in key industries, the growth of new businesses, or the number of businesses that have adopted sustainability strategies.

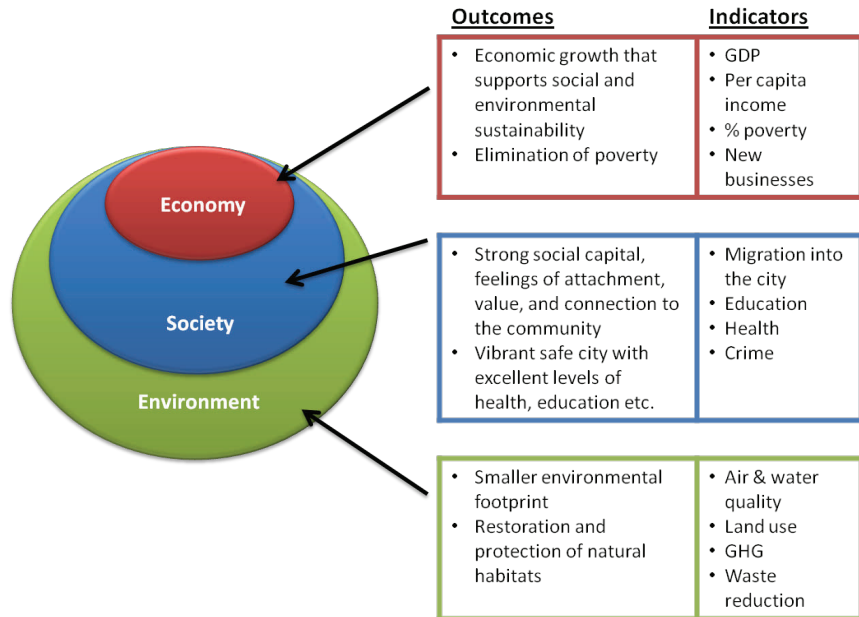


Figure 2: The economy is a component of society, both bounded by, and dependent upon, the environment.

The environment

The environment is intricately tied to the economy and society. Food, water, energy, health, and cultural security all impact and are dependent on the natural environment.

The environment impacts the well-being of a city at two levels. The first is the local environment. The parks, rivers, lakes, air, water, and soil quality in and around the city have a direct impact on the quality of life of the people that live and work there. But cities are also part of a global community, and the quality of the environment in other places also impacts the city. For example, 95% of the food that Clevelanders eat comes from other places in the U.S. and the world, so contaminated water used on plants in other states can cause an outbreak of salmonella at home. Understanding the role that the environment plays in our lives will allow us to make smart development decisions as we design Cleveland's future.

In 2005, the United Nations released the first Millennium Ecosystem Assessment, which found that over the past 50 years humans have altered ecosystems more rapidly and extensively than in any comparable time in human history. While the economic growth generated by resource extraction from these ecosystems has resulted in enormous gains in standards of living and well-being, it has also resulted in the degradation of 60% of the world's ecosystems. While there is still time to change our behavior, we are already seeing the impacts of our consumption. For example, the collapse of the Newfoundland cod fishery in the early 1990s caused by intense overfishing has cost tens of thousands of jobs, as well as at least \$2 billion in income support and retraining.² The report concluded that if measures are not taken to protect these systems, which provide clean air, water, climate stability, and materials to fuel the world economy and sustain life, then the harmful consequences of this degradation could grow significantly.³

The environment is intricately tied to the economy and society. Food, water, energy, health, and cultural security all impact and are dependent on the natural environment.

Over the last few years, global climate change has captured the unprecedented attention of government, industry, and the public at large — illuminating a host of new challenges and opportunities. The U.S., with less than 5% of the world's population, currently consumes 22% of the world's energy⁴ and is the second largest emitter of greenhouse gases after China.⁵ Eighty-seven percent of U.S. emissions come from energy production and use,⁶ and global demand for energy is expected to grow by 60% between 2002 and 2030.⁷ To provide basic electric services (lighting, communication, entertainment, water, and refrigeration, as well as the electricity embedded in the local production of agriculture and other goods and services) to meet population growth over the next 50 years, we will need to provide 1,000 kWh (kilowatt

hours) of electricity per person per year. Achieving global electrification at this level by 2050 will require bringing electricity to 100 million new users every year for the next 50 years, which is projected to require 10,000 GW (gigawatts) of global generating capacity, or three times the current amount. This is about twice the current rate of electrification.⁸ To reach this level of electrification and reduce greenhouse gas emissions, we will have to greatly scale up the production of renewable, green energy and increase the efficiency of energy delivery and use.

We have two choices. The first is to assume that the science of climate change is wrong and do nothing — continue on the same business model and hope for the best. The other option is to face these challenges head on — recognize that the factors that have shaped economic growth over the past century are shifting dramatically and use our collective ingenuity to create an economy that enhances the natural environment instead of degrading it. As with any paradigm shift, the rewards will go to those who innovate early.

The economy

In looking at the economy from a sustainability perspective, two key dimensions should be considered:

Providing global sustainability solutions — Growing the economy through developing world-class companies that will provide the sustainability solutions of the future.

Implementing local economic sustainability — Creating jobs, saving money, and building stronger community through implementing sustainability solutions locally.

Figure 3 provides an example of the types of sustainability solutions that are likely to be needed over the next 20 years to combat climate change. It provides a range of ideas for both global and local sustainability. For example, local opportunities such as residential building lighting, commercial combined heat and power, and industrial process improvement all have strong paybacks today. Technologies that could be the basis of globally competitive industries, such as advanced energy solutions, are also needed.

Success requirements

Economic success, whether in providing global sustainability solutions or implementing local sustainability, is highly dependent upon key social and environmental enablers. Figure 4 depicts the interrelationship between potential economic opportunities (the verticals) and key enablers (the horizontals). This diagram depicts some of the types of initiatives that could come out of the sustainability summit. For example, the vertical elements on the left side depict potential clusters for creating sustainable solutions of the future, while the

THE PROCESS OF SUSTAINABILITY

Ultimately, sustainability is really a process — a process of continual improvement or a context for better decision making. In general, we are likely to become more sustainable if we do the following:

- **Ask deeper questions**
- **Consider long-term implications**
- **Think about whole systems**
- **Discover opportunities that will create benefits in economy, social equity, and environment together**

elements on the right side depict other (primarily solution implementation) opportunities. Key enablers are necessary for these opportunities to succeed. For example, an appropriate and educated workforce is needed for all the opportunities, with the level, type, and mix of education varying by opportunity area. The same holds for other enablers such as finance, research and development, and policy.

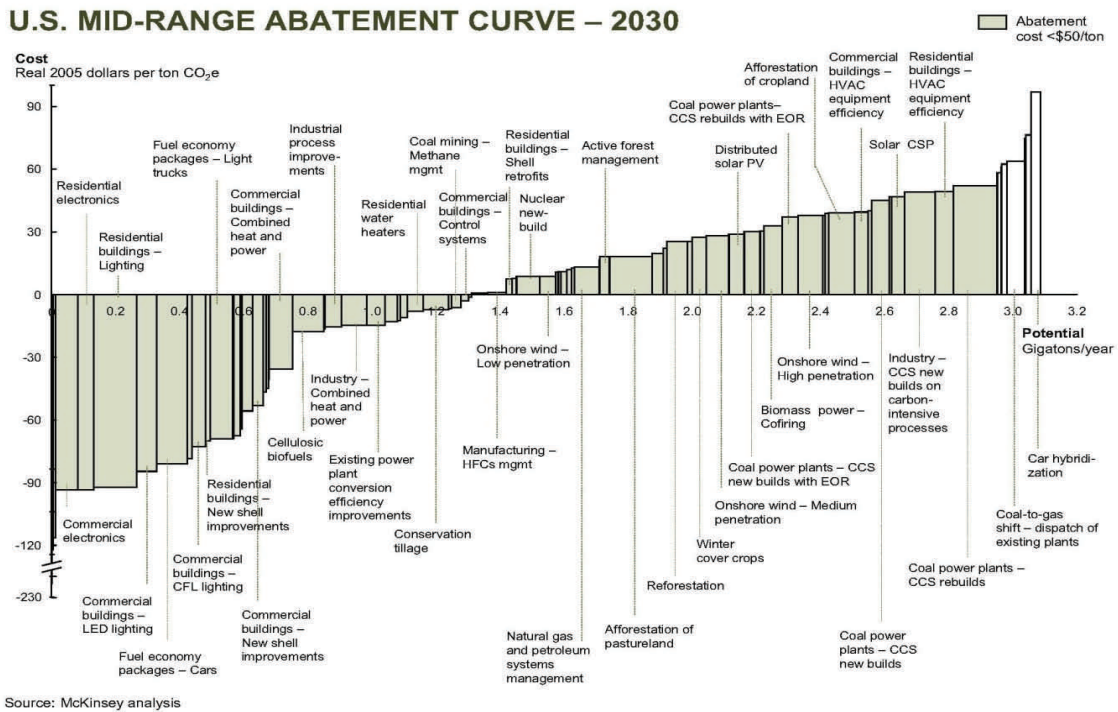


Figure 3: The McKinsey Abatement Curve (above) shows the opportunity cost of reducing U.S. greenhouse gas emissions. Options to the left have the quickest payback.

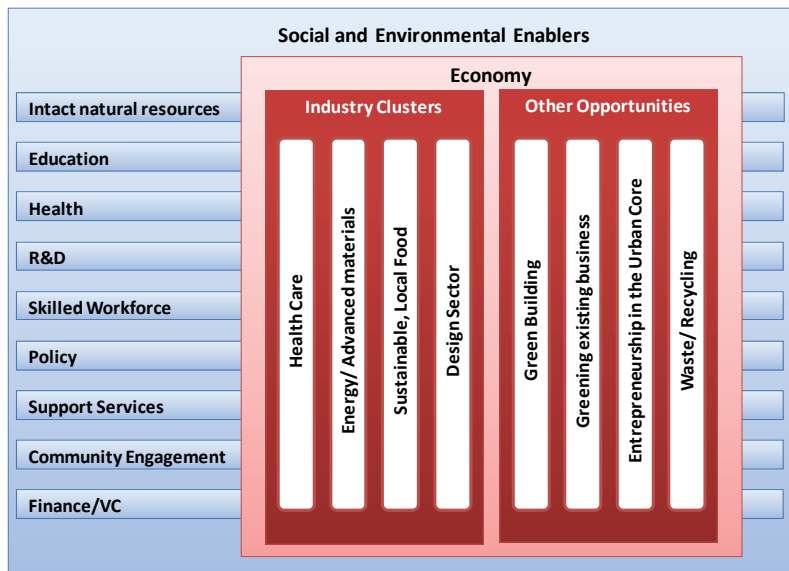


Figure 4: The diagram above illustrates some of the social and environmental enablers that support economic growth.



Applying sustainability to the economy of Cleveland and Northeast Ohio

A major focus of the summit will be to explore how the practice of sustainability can strengthen the economy and create jobs. What are we already good at doing that can grow into new business opportunities that meet the world's economic, social, and environmental needs? And how can we do things better here in Cleveland and Northeast Ohio, reduce costs, and thus keep more of our money circulating in the local economy?

Mayor Jackson's goal for the summit is to create an action plan for developing Cleveland's sustainable economy—an economy that supports business growth, protects the environment and creates opportunities for individuals to prosper. This goal is ambitious, but the core elements are not new. Many people have tried to grow the economy and have dedicated their lives to environmental protection, and the best minds in the world have looked at how to create opportunities for individuals to prosper. There have been a lot of successes, but despite these efforts, we have yet to achieve the overarching goal of long-term economic growth. At the Sustainable Cleveland 2019 Summit, we are going to try a new tool to overcome the challenges that Cleveland faces, the *lens of sustainability*. This lens shifts the end goal of the plan from driving economic growth to creating an economic engine to empower a green city on a blue lake. As we explore opportunities and design initiatives, it is important to understand what elements need to be in place for multiple generations of Clevelanders to benefit from the opportunity. Taking a holistic view of the economy will allow us to identify leverage points and gaps as we create the action plan for a sustainable Cleveland.

A Green City on a Blue Lake is a community that fosters innovation and economic development, improves the environment and public health, and bolsters the image of Cleveland.

~ GreenCityBlueLake Institute

To get you thinking about how to analyze the potential opportunities, we will again want to consider two strategies for economic development:

Providing global sustainability solutions — Growing the economy through developing world class leadership in providing the sustainability solutions needed for the future.

Implementing local economic sustainability — Creating jobs, saving money, and building stronger community through implementing sustainability solutions locally.

Providing global sustainability solutions

Increasingly economic prosperity is driven by innovation that enables success in a global economy. As supply chains globalize, manufacturing (and jobs) can be spread around the world, and each location competes with everywhere else. Within global supply chains, low-skilled jobs are either being automated or shipped to low-wage locations.

Still, there is an advantage to a place when the elements of innovation and the high-value orchestration of key activities are geographically co-located. Places like Silicon Valley in California and Route 128 outside of Boston are examples of vibrant economic clusters that have prospered in the modern economy.

The question for Cleveland is: Can we grow a sustainability cluster that brings prosperity and meets the needs of tomorrow? World-leading research from Case Western Reserve University provides some insight into what is needed to nurture a successful cluster. This research was used to create Figure 5, which summarizes key questions for creating a successful cluster.

Note that the chances of creating a successful cluster are very low if there is not already a critical mass of key players who perceive a growth opportunity. If these are in place, then there are a number of critical enablers, such as knowledge, financial resources (e.g., venture capital), and human resources (e.g., high-end researchers, engineers, and trained technicians), as well as the social networks needed for collaboration across organizations.

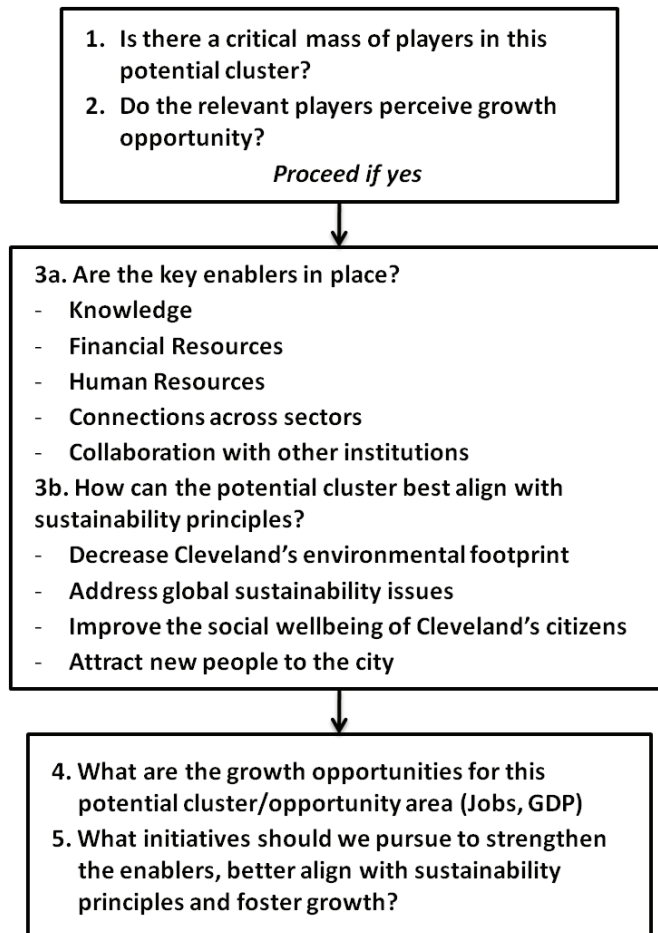


Figure 5: Key questions for creating a successful cluster.

As you consider the full range of opportunities that may be available to Cleveland and Northeast Ohio, think about the questions in Figure 5 above. The key is to think critically about what will build on our strengths and create prosperity for all. What will really work?

Figure 6 summarizes an analysis of existing industry sectors in the Cleveland metropolitan statistical area (MSA). It suggests that two industry sectors — advanced manufacturing and advanced materials — show promise for growth. What is not known is whether or not these industry sectors have the level of local interaction and supporting services (e.g., venture capital, legal support, market research) to be operating as one or more geographic clusters.

A lot of work has already been done to identify promising economic clusters of businesses in Northeast Ohio. In the briefing papers section below, there is a summary of programs, such as BioEnterprise and MAGNET, which are currently leading economic development efforts in the region.

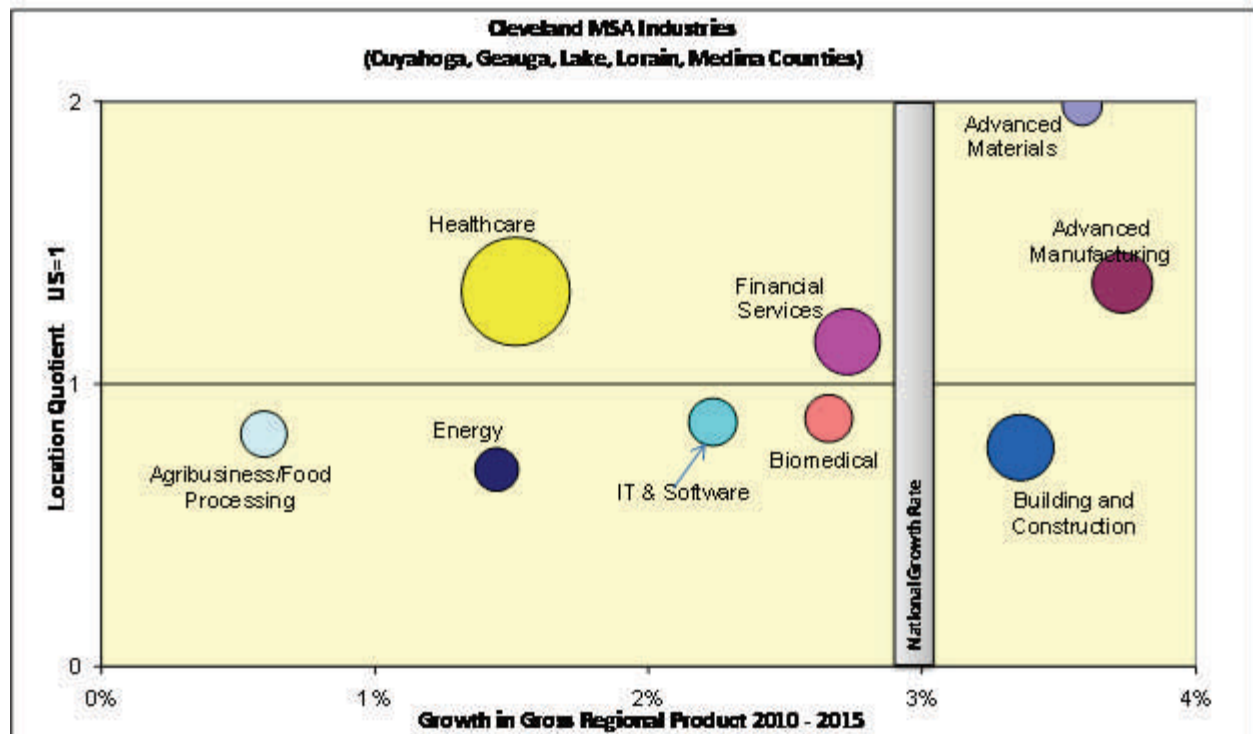


Figure 6: Performance of different industries in the Cleveland MSA region. Subsectors above the Location Quotient line 1 indicate that the Cleveland metropolitan area has a comparative advantage; industries to the right of National Growth Ratio have faster growth than the national rate. Chart developed by Russ Smith of Kleinhenz and Associates using data from Moody’s Economy.com.

Advanced materials and advanced manufacturing (see p. 29 for detailed write-up): Companies engaged in advanced materials and advanced manufacturing can view sustainability opportunities in a couple of ways. They can view sustainability as offering one of many market opportunities. As such, they can understand the market, identify potential customers, and position themselves to respond to customer needs. Alternatively, they can play a more proactive role and work together to develop and provide integrated solutions at the system or sub-system level. This approach is similar to what Johnson Controls did in the automotive industry when they went from being a parts supplier to providing integrated systems, such as seating and interiors. This type of an approach requires a higher level of innovation and, if done well, provides more profit and growth potential.

Questions for the summit:

1. What is the opportunity for Northeast Ohio and Cleveland-based advanced materials and advanced manufacturing companies to participate in the sustainability solutions market?
2. How can they position themselves to extract high value from this market?
3. Are there things that local companies can do to create a strong sustainability solutions cluster?

Advanced energy (see p. 31 for detailed write-up): Advanced energy is energy sourced from renewable energy (wind, solar, and biomass), fuel cells, and next generation coal and nuclear technologies.⁹ Advanced energy is an opportunity that is getting a lot of attention around the world. In May 2008, Ohio passed a new energy standard that requires electric utilities to obtain at least 25% of their power requirements by 2025 from advanced energy and energy efficiency sources. Half of this requirement must be satisfied by renewable energy, and utilities must begin obtaining new renewable energy supplies as soon as 2010.¹⁰ In addition, venture capitalists increased investments in alternative energy by 73% since April, with businesses devoted to energy generation, such as wind, solar, geothermal, and hydrogen power, drawing the most investment. At \$157 million, investments were up 181% from the first quarter.¹¹

While advanced energy appears to hold promise for Northeast Ohio, other regions appear to be ahead. The state of Iowa is now a global leader in wind power with nine manufacturing facilities. In April 2009, Indiana launched the Energy Systems Network (ESN), a partnership among private firms, research institutions, and public agencies that seeks to bring new advanced energy technologies to market. After Pennsylvania passed its renewable energy standard, the Spanish company Gamesa opened a wind turbine blade factory in the state. To become a leader in advanced energy, Northeast Ohio must build off existing efforts and foster connections between sectors like advanced manufacturing and materials.

Questions for the summit:

1. What is the scope of existing capabilities in advanced energy?
2. How do these capabilities compare to other regions of the country and world, and what would be required for Cleveland to become a significant player in advanced energy?
3. What assets can Cleveland leverage to become a significant player?
4. How can Cleveland bolster connections and knowledge sharing among relevant companies and institutions to accelerate progress in the advanced energy space?
5. What initiatives should be launched to accelerate progress?

Implementing local sustainability: The self-help economy

Implementing sustainability at home is a critical part of creating a vibrant economy. Local sustainability includes economic activity that is tied to geographic location. Examples of local sustainability include activities that save people money while providing employment or activities that encourage people to buy local goods and services, such as retrofitting buildings for energy efficiency, generating electricity from wind on the lake, implementing new waste management solutions that reuse or recycle materials, restoration activities, and pursuing profit enhancing sustainability strategies at the company level.

To foster a healthy community, it is important to create long-term employment opportunities for individuals with all levels of training. A key question for Cleveland is “Can we grow the number of local jobs through implementing sustainability related solutions?” If so, such jobs can be desirable because place-based jobs cannot be exported, and they provide opportunities for individuals to provide for their families while increasing the sustainability of their community.

While local sustainability activities might not bring new dollars into the local economy, they can keep more of our existing dollars circulating locally. A recent study on the West Michigan economy, for example, found that if the 600,000 residents of Grand Rapids and surrounding Kent County redirected just 10% of their total spending from national chains to local businesses, it would create nearly \$140 million in new economic activity for the region and 1,600 new jobs (www.localfirst.com).

Figure 7 shows how households in Northeast Ohio spend their money. The biggest budget items — totaling 63% of spending — are for housing and energy, transportation, and food.

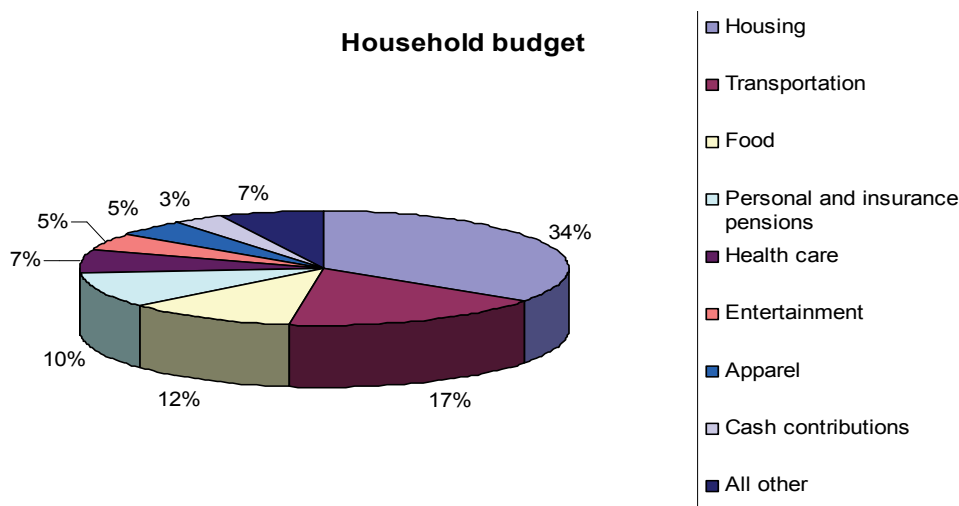


Figure 7: Percent distribution of average annual expenditures in the Cleveland metropolitan area, Consumer Expenditure Survey, 2006-2007.

It's not hard to imagine, then, how shifts in spending patterns in those big items can influence the flows of billions of dollars in Northeast Ohio. A weatherization or energy efficiency program can help people save energy and money at home or at work while infusing money into the economy through the use of local labor. Once the work is paid for, the savings continue for many years, keeping dollars in the local economy that once flowed out of the region to pay for imported energy and lowering the cost of living and working in the region. It also makes our economy more resilient and less affected by fluctuating energy prices.

Alternative transportation is another example of how sustainability can help the local economy. The cost of multiple cars is a big burden for many families. If the region can develop more communities with convenient transit, bike facilities, and walkable streets, then more families can reduce the 17% of their spending that now goes for transportation. Some of those dollars could be spent locally that are now spent on gasoline and other car-related expenses from outside the region. For example, Portland, OR, has been so successful in promoting a culture of bicycling that the bike-related industry now contributes \$90 million a year to the local economy, as well as 850 to 1150 jobs (www.altaplanning.com). That doesn't count all the other bicycle-related benefits to residents' health, traffic congestion, air quality, or quality of life.

Another positive attribute of this kind of economic development is that it is not a competitive, zero-sum game like many business ventures. If we save energy in Cleveland, it doesn't hurt Pittsburgh or Chicago. If China becomes more efficient, it doesn't diminish our savings. Instead, we can all collaborate, share best practices and improve together. It's good for everybody — and for the environment.

Finally, the beauty of this kind of economic development is that everybody can participate. You may not be able to do anything personally to develop the local biotech industry, but you can help keep money circulating in the local economy or lower the cost of living and working in the region. What if everyone felt the pride of knowing they were making a difference in the health and prosperity of their own lives and the larger community?

What other self-help strategies can we develop? How might we design the systems and networks that empower everyone to find their place in the sustainable regional economy?

QUESTIONS FOR IDENTIFYING AREAS OF BIG OPPORTUNITY

- What sectors of the economy are ripe for growth and can produce large numbers of jobs?
- Do we have clusters of firms with critical mass in those sectors?
- Is the cluster oriented toward supplying sustainable products/services?
- Are there forums for promoting the cross-fertilization of ideas, collaborating on worker training, or working on joint research projects?

QUESTIONS FOR THINKING ABOUT GREEN JOBS AND A SUSTAINABLE ECONOMY

The Sustainable Cleveland 2019 Summit provides an opportunity for people to look through the lens of sustainability and see new possibilities for economic development. To stimulate your imagination, here are some questions to think about:

- For any economic development idea, what is the size of the market opportunity and might the opportunity translate into a couple of jobs or thousands of jobs?
- Are the new jobs good jobs that provide a pathway out of poverty?
- Are the new opportunities located in a sustainable location — one that uses existing infrastructure (roads, water systems, housing, etc.) to minimize long-term costs to tax-payers, minimizes the amount of driving required, and supports the redevelopment of existing communities?
- Does it bring money into Cleveland, either by producing a product to sell outside of the Cleveland area or by meeting a local need and keeping existing dollars here that are now spent outside the region?
- Does it make Cleveland more resilient by diversifying the economy and reducing risk (such as the risk from increasing energy prices)?
- Does it help people become better educated?
- Are the jobs rooted here so they can't be outsourced easily?
- How can we get bigger economic impact from the infrastructure investments the region is already making, such as the many millions spent each year on transportation or the \$2.5 billion that will be spent to control combined sewer overflows?
- Does the idea help to restore the environment and create beautiful places?
- Community development corporations are already anchors of Cleveland neighborhoods and a big part of the local restoration economy. How can they rise to a higher level of impact?
- How can we do a better job matching job training with actual job openings that companies need to fill?
- What regulatory or bureaucratic barriers need to be overcome?
- How can we turn vacant land into an opportunity?
- How do we measure success — number of jobs, income levels, educational attainment, narrowing of economic disparities, or a more well-rounded measure like a Genuine Progress Indicator (GPI), which incorporates numerous economic, social and environmental variables? (For more about Northeast Ohio's GPI, see www.gcbl.org/state-sustainability-2009/genuine-progress-indicator-northeast-ohio.)



Current economic development programs

Over the past 30 years, Northeast Ohio has lagged behind the rest of the nation in most measures of economic performance. The region has struggled to cope with the loss of well paying manufacturing jobs. In addition to the general loss of jobs, there has been a redistribution of employment within the region. Central cities, such as Cleveland, have suffered huge losses as investment and jobs have migrated out to new suburbs.

Myriad economic studies have analyzed the causes of deindustrialization and the options for transitioning to economic sectors with the potential for growth. The latest economic development strategies have included:

- Developing the most promising economic clusters by supporting business start-ups
- Supporting high-performance manufacturing
- Raising educational attainment
- Promoting racial and economic inclusion
- Promoting government efficiency and collaboration
- Marketing the region

Developing clusters

A recent study from NorTech, the champion for growing the technology economy in Northeast Ohio, evaluated the growth potential of industry clusters in Northeast Ohio based on:

- Growth impact — scale of job growth potential, average wage, contribution to a healthier and more diverse economy, and potential for attracting top talent.
- Feasibility to leverage Northeast Ohio assets — current base of assets and businesses, distinctiveness of Northeast Ohio resources, visible new business growth, potential for coordinated leadership.

The study found five industry clusters with high promise — biosciences, polymers and advanced materials, instrumentation and controls, aerospace, IT software and services, and advanced energy. In response, a suite of support organizations and entrepreneurship services has been developed to nurture companies in these clusters. In addition to NorTech, these include JumpStart, TechLift, BioEnterprise, Ohio Fuel Cell Coalition, One Community, Polymer Ohio, WIRE-Net, and targeted programs to promote advanced energy, flexible electronics, and other technologies. The State of Ohio supports many of these efforts with funding through the Ohio Third Frontier, Wright Centers of Innovation, and other economic development initiatives.

Recently, in partnership with the Cleveland Foundation and Cuyahoga County, the advanced energy cluster has received a lot of attention, especially regarding the possibility of citing the world's first freshwater wind turbines on Lake Erie. The plan is that a freshwater wind farm will lure a wind turbine manufacturer to Cleveland, which in turn would promote the expansion of the region's already extensive supply chain for turbine components. (See more below on the potential of the advanced energy cluster.)

Supporting high-performance manufacturing

Despite the decline of heavy industry, manufacturing remains a key part of the region's economy. Northeast Ohio has some of the most advanced and efficient manufacturing facilities in the world, as well as a skilled workforce. This productivity is a competitive advantage. A number of programs seek to support advanced manufacturing, including the Manufacturing Advocacy and Growth Network (MAGNET) and WIRE-Net.

Raising educational attainment

Northeast Ohio lags behind competing regions in measures of educational attainment, such as the proportion of the population with college degrees. This is a problem when the economy is shifting toward knowledge-based industries that require rapid innovation.

In response, a complex mix of initiatives has evolved at all levels of education — including efforts to improve early childhood education, increase high school graduation rates, improve workforce training, expand college internship programs to attract talented young people to Cleveland, and increase research funding at universities. In addition, the Ohio Board of Regents is reorganizing the state's university system to promote centers of excellence. And there have been efforts to increase state funding for schools, as well as to experiment more with various models of alternative schools at the primary and secondary levels.

Promoting racial and economic inclusion

In a global economy, diversity is an economic asset. Cleveland takes pride in being a diverse city. To spread greater inclusiveness throughout the larger

region, the Greater Cleveland Partnership, Policy Bridge, and other organizations conduct programs to promote diversity and support minority business development. The summit could develop other ideas for expanding access to opportunities to all.

Promoting government efficiency and collaboration

Northeast Ohio has a highly fragmented structure of local governments, which inhibits regional collaboration and increases the overall cost of government. Community leaders have been struggling with this issue for decades without much progress. Several new initiatives, however, are showing promise. Mayors from across the region have developed the Regional Prosperity Initiative to explore ways to collaborate on land use planning and the sharing of new tax revenue among communities. Meanwhile, the Fund for Our Economic Future is sponsoring EfficientGovNow, a competitive grants program to fund projects that promote local government collaboration and efficiency.

Marketing the region

This is a great place to live and work! To hammer home that point, economic development efforts have included programs to market the region. The latest include the Cleveland Plus campaign, Advance Northeast Ohio, and Team NEO, the business attraction organization.

They tell a story of a region with amazing assets. As the Cleveland Plus website says:

America's innovators, entrepreneurs and business giants built the Cleveland Plus region to take advantage of our central location to U.S. and Canadian markets. Then and now, the region is home to many of the world's largest Fortune 500 businesses. This heritage made us the inventor of liquid crystal displays, the best at bypass surgeries and the nation's leader in polymers, plastics and chemicals. This heritage left 30 colleges and universities developing next generation technologies and 175,000 degree-seeking innovative minds; a highly productive 2 million strong workforce with Midwest values and work ethic; and a fundamental ability to produce and distribute products worldwide cost-effectively. Today, we leverage these roots to expand into emerging markets.

At a larger scale, this story of amazing assets was reaffirmed recently by a report from the Brookings Institution called "The Vital Center: A Federal-State Compact to Renew the Great Lakes Region." The report describes the region as a social innovator and economic powerhouse accounting for 32.5% of U.S. gross state product. The Great Lakes have arguably the greatest network of universities in the world, with 19 out of the world's top-ranked institutions. The region has leading programs in health care, biosciences, advanced manufacturing, and other fields. It also has significant infrastructure assets and the world's greatest reserve of freshwater.



Briefing papers: Ideas and background for discussion

The briefing papers in this section profile some economic **opportunity areas** we may want to explore during the summit. There are short profiles about:

- Advanced manufacturing and advanced materials
- Advanced energy
- Local food
- Sustainable business practices
- Green building
- Restoration economy
- Water
- Land use and urban sprawl,
- Vacant land and green space
- Transportation

This is not meant to be an exhaustive list, and other opportunity areas will likely be identified during the summit. To help evaluate the opportunity areas, see the questions in Figure 5.

In addition, the briefing papers include discussions of programs or practices that are not economic clusters but are important **enablers** of a more successful and sustainable economy in general. Some examples of enablers include education, social entrepreneurship, social capital, community health, and policy. Building a strong foundation for economic growth will require us to take a critical look at the state of key enablers and employ innovative approaches to address some of the toughest social and environmental issues. There are many efforts throughout Cleveland that focus on these enablers. Creating mechanisms that allow us to build off of existing efforts, share knowledge between organizations and institutions will allow us to harness Cleveland's full potential

and accelerate economic growth. Enablers discussed below include:

- Education
- Social capital: Fostering connections and open networks for a sustainable future
- Social entrepreneurship in the urban core
- Policies enablers

Discussions about how to strengthen such enablers could also be valuable at the summit.



Economic opportunity

ADVANCED MANUFACTURING AND ADVANCED MATERIALS

What is it?

Cleveland and Northeast Ohio are home to some of the leading companies in advanced manufacturing and advanced materials — two industries that could play a significant role in creating the tools and infrastructure to help solve some of the most pressing sustainability challenges. Advanced manufacturing is manufacturing that applies cutting-edge concepts in electronics, computers, software, and automation to improve production.¹² Advanced materials are materials that involve knowledge and creation at the molecular and/or atomic scale for the purpose of advancing technology and improving the human experience.¹³ From the earliest days of Cleveland's concentration on iron and steel, the city has been a pioneer in materials sciences and products. Today, this field not only encompasses Cleveland's traditional strengths in metals and metals fabrication, but many others, including, specialty metals, polymers, ceramics, carbon, liquid crystals, bio materials, and others. Figure 6 shows Cleveland's capabilities in these areas.

Why is it sustainable?

The U.S., with less than 5% of the world's population, currently consumes 22%¹⁴ of the world's energy and is the second largest emitter of greenhouse gases after China.¹⁵ Eighty-seven percent of U.S. emissions come from energy production and use, and the remaining 13% are from industrial waste, industrial processes and agriculture.¹⁶ Products that are needed to support the green economy range from wind turbines to LED lights to auxiliary power units and will require the creation of high quality, low-impact materials, new approaches to industry, and manufacturing processes that maximize

energy efficiency. Advanced manufacturing and advanced materials can also provide solutions to other sustainability challenges such as waste, water, and toxic pollution.

Why is it an opportunity?

The McKinsey abatement curve (Figure 3) provides a sense of the types of actions that will need to be taken to reduce U.S. greenhouse gas emissions by 2030. Many of these actions require advanced manufacturing and advanced materials expertise to come to fruition.

In June 2009 Greentech Media Inc., the industry-leading online media company covering green technology news and analysis, released quarterly data showing that venture capital investment in green technologies totaled \$1.2 billion in 85 deals in the second quarter of 2009. This is up from \$836 million in 59 deals in the first quarter of 2009.¹⁷ The Cleveland area is in a good position to capitalize on this opportunity. In 2007 advanced manufacturing and advanced materials sectors employed over 33,000 people in the Cleveland metropolitan area (MSA) and generated \$4.5 billion, 3% of the U.S. gross product in these fields.¹⁸ Leveraging the region's assets in both of these fields would enable Cleveland companies to own two fundamental areas of the green economy's value chain and, more importantly, the intellectual property associated with the creation and integration of key portions of the green products value chain.

There are already many synergies between the materials and manufacturing industries. As a major manufacturing state, Ohio is a significant user of materials. These materials include chemicals and polymers that are typically combined to create advanced materials such as composites. In fact, it is estimated that chemicals, polymers, and advanced materials are integral components in 90% of all manufactured goods produced in Ohio.¹⁹ Cleveland MSA companies in advanced materials and advanced manufacturing include Day-Glo Color Corporation, Lubrizol Corporation, PolyOne Corp., Henkel Adhesive Technologies, PPG Industries Inc., Sherwin-Williams Automotive Finishes Corporation, Lincoln Electric Co., Parker Hannifin Corporation, Gorman-Rup Co., FMC Foodtech Inc., Demag Cranes & Components Corp., and Hydromatic Pumps Inc.²⁰ In addition to industry, area universities, including, Case Western Reserve, Kent State, Cleveland State and the University of Akron, all have recognized centers of excellence in these fields. For two highly specialized fields, this is a significant number of relevant players and could create the seeds of a new industry sector.

Cleveland- and Northeast Ohio-based companies engaged in advanced manufacturing and advanced materials and can view sustainability opportunities in a couple of ways. They can view sustainability as offering one of many market opportunities. As such, they can understand the market, identify potential customers, and position themselves to respond to customer needs. Alternatively, they can play a more proactive role and work together to develop and provide integrated solutions at the system or sub-system level. This approach is similar to what Johnson Controls did in the automotive industry when they went from being a parts supplier to providing integrated systems, such as seating and interiors. This type of an approach requires a higher level of innovation and, if done well, provides more profit and growth potential.

QUESTIONS FOR DISCUSSION

1. What is the size and nature of the opportunity for Cleveland-based advanced materials and advanced manufacturing companies to participate in the sustainability solutions market?
2. What existing materials and manufacturing activities can be leveraged to grow a sustainability solutions cluster?
3. How can local companies position themselves to extract high value from this market?
4. What initiatives should be launched to accelerate progress?



Economic opportunity

ADVANCED ENERGY

What is it?

Advanced energy is energy sourced from renewable energy (wind, solar and biomass), fuel cells, and next-generation coal and nuclear technologies.²¹ Advanced energy is an opportunity that is getting a lot of attention around the world. In May 2008, Ohio passed a new energy standard that requires electric utilities to obtain at least 25% of their power requirements by 2025 from advanced energy and energy efficiency sources. Half of this requirement must be satisfied by renewable energy, and utilities must begin obtaining new renewable energy supplies as soon as 2010.²² In addition, venture capitalists increased investments in alternative energy by 73% since April, businesses devoted to energy generation, such as wind, solar, geothermal and hydrogen power, drew the most investment. At \$157 million, investments were up 181% from the first quarter.²³

Ohio's new energy standard and the venture capital interest in renewable energy technology shows that there is considerable demand for advanced energy. According to a 2009 report published by Pew Charitable Trusts, in 2007 Ohio ranked 8th in the United States in terms of clean energy patents and 17th for venture capital investment.²⁴ This indicates that while there is some movement in this field, there is a lot of work that must be done for Cleveland to grow an internationally competitive cluster around advanced energy. To be a contender in the advanced energy economy, Cleveland must improve its capabilities in capital formation, availability of public financial incentives, research and development, translation of technology innovations from the lab to commercial deployment, and public-private partnerships.

Why is it sustainable?

Advanced energy creates value for all of the economy, the environment, and for society. For example, if Cuyahoga County's Great Lakes Wind Energy Pilot project is successful, it will integrate all three sustainability value propositions. It will be the start of a manufacturing cluster for that industry, begin the transition to cleaner energy, and provide opportunities, including education, for green collar jobs.

In 2008, the U.S. emitted 5,802 million metric tons CO₂ related to energy use and production.²⁵ At the state level, Ohio also ranks near the top on indicators for carbon emissions and their regulation:

- 4th in total CO₂ emissions (2003)
- 18th per capita CO₂ emissions (2003)
- 7th highest population
- 3rd in manufacturing

Building an advanced energy sector benefits the environment by significantly reducing greenhouse gas emissions related to the production and use of energy, a significant contributor to global warming. By supporting advanced energy, Cleveland's economic growth will allow the world to decrease its carbon emissions, and by applying this technology to Cleveland, our environmental footprint will decrease. There are also many social benefits. Renewable energy creates four times as many jobs per megawatt of installed capacity as natural gas and creates 40% more jobs per dollar invested than coal-fired plants.²⁶ More than 130,000 Ohio jobs could see growth or wage increases.²⁷ Renewables also

relieve the health impacts of air pollution from burning coal. In sum, by reducing greenhouse gas emissions, avoiding nonrenewable resources such as fossil fuels, promoting social conscientiousness, and stimulating the local economy, this area of opportunity captures the essence of sustainability.

Why is it an opportunity?

The Renewable Energy Policy Project has estimated that a federal renewable energy portfolio standard mandating a 25% reduction in CO₂ by 2025, would create 51,269 wind, solar, geothermal, and biomass manufacturing jobs in Ohio.²⁸ Securing 30% of that opportunity would result in more than 15,000 new jobs in Northeast Ohio.

A focus on advanced energy could be a significant opportunity for the region. A modern wind turbine is composed of approximately 8,000 different components, from steel towers, to precision gear boxes, to specialty lubricants and computerized software.²⁹ If Cleveland applied its expertise in manufacturing and materials, there could be an opportunity to use component manufacturing as a starting point for creating subsystems, capturing a far greater portion of the market. Today more than 60 Ohio companies currently manufacture wind components, including local companies like Cardinal Fastener & Specialty, The Dyson Corporation, Lubrizol, Parker Hannifin, and Timken.

While in 2006 the renewable energy industry in Ohio only supported approximately 6,600 jobs and generated \$800 million in revenues,³⁰ growth in market demand and increased investment by the federal government and venture capitalists indicate that there is a significant opportunity in advanced energy, and the Cleveland/Northeast Ohio area's expertise in manufacturing, materials, and transportation has been recognized by several players. German-based IBC Solar AG chose Cleveland for its U.S. headquarters because of the area's potential in the generation of solar power. Ohio has over

800 companies in the fuel cell supply chain and has invested over \$100 million in fuel cell research and development.³¹

While advanced energy holds promise for Northeast Ohio, the clock is ticking. The state of Iowa is now a global leader in wind power with nine manufacturing facilities. The state now gets 15% of its electricity from wind, the highest percentage of any U.S. state, including California. In April 2009, Indiana launched the Energy Systems Network (ESN), a partnership among private firms, research institutions, and public agencies that seek to bring new advanced energy technologies to market. After Pennsylvania passed its renewable energy standard, the Spanish company Gamesa opened a wind turbine blade factory in the state.

To become a leader in advanced energy, Northeast Ohio must build off existing efforts and foster connections between sectors like advanced manufacturing and materials.

QUESTIONS FOR DISCUSSION

1. What is the size and nature of the opportunity for Cleveland-based advanced energy?
2. What is the scope of existing capabilities in advanced energy?
3. How do these capabilities compare to other regions of the country and world and what would be required for Cleveland to become a significant player in advanced energy?
4. What assets can Cleveland leverage to become a significant player?
5. How can Cleveland bolster connections and knowledge sharing among relevant companies and institutions to accelerate progress in the advanced energy space?
6. What initiatives should be launched to accelerate progress?



Economic opportunity **LOCAL FOOD**

What is it?

Each year Northeast Ohio businesses, organizations, institutions, and families spend over \$14 billion dollars on food, yet less than 5% of this purchasing goes towards locally grown and produced products. The remaining 95% of this market, which is primarily non-discretionary spending that could benefit our local economy regardless of the next boom or bust, represents an emerging opportunity for entrepreneurship and regional economic development in sustainable local food production. According to a study by the New Economics Foundation in London, a dollar spent locally generates twice as much income for the local economy. When businesses are not owned locally, money leaves the community at every transaction.³²

Local food is the production, processing, distribution, and consumption of food within a specific region, often defined as 100 miles from farm to fork. Often when people are talking about local food they are also talking about small farms that use sustainable practices that minimize the impact of farming on the environment in terms of air and water pollution, energy use, land use, and soil contamination. Local food tends to be fresher because it is picked within 24 hours of being sold, so combining this with sustainable farming practices reduces the impact of food production on the environment and on the consumer. The opportunity for Cleveland and Northeast Ohio is to increase the number of local small farmers producing sustainably farmed fruits, vegetables, dairy, meat, and poultry. By increasing the number of sustainable local food producers, shifting existing production into local markets, and directing more of our

food dollars towards these markets, we have the opportunity to create a thriving local food economy in and around Cleveland that would create both social and environmental value.

Why is it sustainable?

Environmental Health— Sustainably grown local food has the potential of reducing Cleveland's food environmental footprint. The primary benefits to the environment include reducing water and soil contamination, restoring green space in the city with urban gardens, decreasing the greenhouse gas emissions associated with transporting food, and substituting compost for commercial fertilizers. The greatest environmental impacts associated with agriculture are on the farm, so a critical part of reducing Cleveland's footprint must be focused on integrating sustainable practices at the farm level.

Community Health — One might argue that agriculture was the first evolutionary event that brought together disparate groups of people. By re-localizing our food system we now have the opportunity to rebuild the social capital we lost in part due the centralization and industrialization of agriculture. Indeed, recent studies have shown that neighborhoods with community gardens benefit from reduced crime rates, increased property values, and improved quality of life for residents. One example of how communities have benefited from local food production is in Berkeley, CA. In 1995, Martin Luther King Middle School started a new program called the Edible Schoolyard where students turned a one-acre vacant lot into a community garden. The garden became a living classroom and teachers used it as a tool for their math, English, science and art classes. The food from this

program is used to supplement school lunches, ensuring that kids obtain a healthy diet and lowering family food cost.³³ Locally, the Green Corps program of the Cleveland Botanical Garden is a great example of students in the city learning how to grow food, process food, and develop business skills by selling their nutritious products at local markets. When we consider the impact that local food projects — whether community gardens, farmers’ markets, or food-based businesses — could have on the food deserts in many low-income neighborhoods, it becomes clear that local food could have a transformational impact on community health.

Personal health — Today, Americans spend more on fast foods than they do on movies, books, magazines, newspapers, videos, and recorded music combined (Eric Schlosser, *Fast Food Nation*). High-fructose corn syrup (only introduced in 1980) is now contained in almost every processed food product available today (Michael Pollan, *The Omnivore’s Dilemma*). According to a study conducted by the National Academy Institute of Medicine, “over the past three decades, the childhood obesity rate has more than doubled for preschool children aged 2-5 years and adolescents aged 12-19 years, and it has more than tripled for children aged 6-11 years. At present, approximately nine million children over six years of age are considered obese.”³⁴ The report states that two of the primary causes of obesity are the pressures on families to minimize food costs, acquisition and preparation time, resulting in frequent consumption of convenience foods that are high in calories and fat and reduced access and affordability in some communities to fruits, vegetables, and other nutritious foods.³⁵ Closer to home, one in every three children born in Northeast Ohio will develop diabetes. Amongst minorities this ratio increases to one in two. If these trends continue, diet-related illnesses — which currently cost the U.S. healthcare system \$147 billion each year — will further threaten the personal and economic health of our region. Current studies show that fresh local food is more

nutrient dense and has a beneficial impact on personal health. By increasing access to fresh foods and developing a healthy regional food culture, local food has the potential to improve personal health and lower healthcare costs.

Why is it an opportunity?

Some people believe that local food has the potential to generate thousands of green jobs in Northeast Ohio, requiring a wide range of skills and education levels.³⁶ Most promising among these opportunities are entrepreneurial farming, value-added processing and preservation, local foods distribution, and food waste composting. The local food cluster is already well established and provides a strong base upon which to further develop and grow the initiative. In fact, Cleveland was recently ranked second by Sustainlane.com for sustainability in local food and agriculture.

Some of our regional assets already include:

Livestock:

- 4,400 cattle producers
- 1,550 poultry operations
- 1,000 hog farms
- 1,400 dairy farms

Farms:

- 40+ local wineries
- 675 fruit and berry farms
- 235 tree farms
- 4,000 hay farms
- 975 vegetable and potato farms

Gardens/Markets

- 225 community gardens
- 46 aquaculture operations
- 20+ farmers’ markets
- 800 nurseries and greenhouses

Other assets include grocery stores and restaurants that feature local food, distribution companies such as Fresh Fork Market, and supporting organizations, including the Cleveland-Cuyahoga

County Food Policy Coalition, New Agrarian Center, Cuyahoga Valley Countryside Conservancy, E4S, and OSU Extension.

Perhaps the most important reason to support the development of local food is that it exists at the cross section of nearly every important issue of our time and has the ability to create local solutions for current crises in land and water use, rising energy costs, healthcare, poverty, and climate change.

QUESTIONS FOR DISCUSSION

1. What is the size and nature of the opportunity for a local food economy?
2. How can we scale up local food initiatives to achieve our objectives of creating jobs, improving personal and community health, and protecting the environment?
3. How can we make local food an integral part of Cleveland's diet to maximize on the health benefits of fresh food? (e.g., How can we make purchasing local food more cost-effective for the consumer?)
4. Are there innovative solutions that we can come up with to increase the demand for local food and improve the chances of economic success for small farmers (e.g., using local food for school lunches)?
5. How can Cleveland bolster connections and knowledge sharing among relevant companies and institutions to accelerate progress in local food?
6. What new initiatives should be launched to accelerate progress?



Economic opportunity

SUSTAINABLE BUSINESS PRACTICES

What is it?

Increasingly, businesses of all sizes are starting to find new opportunities in putting sustainability to work to gain triple bottom (economic, environmental, and social) and top line benefits for their organizations and their regions. The leading companies are using sustainability principles to drive innovation and create new sources of value. In broad terms, these leaders are deriving value in three ways:

Savings – Reducing the costs of energy, waste, materials, water, pollution, etc.

Revenue – Developing new products and new markets that benefit customers and the world.

Amplification – Increasing the impact of business initiatives by working across silos and within supply chains, and through engaging employees and other stakeholders.

Some of the most forward-thinking business and government leaders are now proclaiming that sustainability is the future and the responsibility of business. For example, the Interface floor covering company, says "...Ours is a long-term commitment to sustainability, a systems-based perspective that fundamentally changed our company. It touches operations and manufacturing, it guides senior management and our associates' decision-making, and it influences our relationships with customers, suppliers and the entire web of commerce in which we conduct business. Sustainability is part of Interface's DNA."

Why is it sustainable?

Saving money

The first steps in implementation often start with saving money in operations and then move into new product development and new market opportunities. Operational first steps include reducing waste or investing in low- or no-cost energy efficiency and water conservation. For instance, a local manufacturer of office furniture, Taylor Companies, expects to save \$23,000 in waste hauling from two sites in 2010 through their Zero Waste Initiative. Talan Products, a local stamping manufacturer, has reduced their waste to landfill by 80% in just over a year.

Other companies are discovering how a sustainability orientation is impacting the bottom line through improved employee health and satisfaction. For instance, associates are voluntarily participating in Wal-Mart's Personal Sustainability Project (PSP), which encourages associates to integrate a small change into their lives to benefit their own health and well-being, as well as the environment. PSP's can include anything from developing healthier eating habits to helping clean up parks and recreation areas in local communities. Since the onset of the program in 2007, nearly 20,000 associates have quit smoking, more than 3 million pounds of plastic have been recycled, and employees have collectively lost more than 184,000 pounds from eating healthier and exercising regularly.

Inspiring innovation and design

Breakthrough technology and products are the result of integrating sustainability principles into design. Examples include Interface's Spring Leaf carpet tiles inspired by the "organized chaos" of the forest floor, allowing for faster installation with significantly less waste. Herman Miller's Aeron chair went through their pioneering design process, "Design for Environment," which considers material chemistry and safety inputs, disassembly, and recyclability. Moen's latest efficient showerhead design has spray holes inspired by the spiral shapes often found in natural objects, such as the whorls of seeds in a sunflower.

Launching new business opportunities

Businesses focused on sustainability are alert to new markets and opportunities. In Northeast Ohio in the late 1990s green building emerged as an opportunity, followed by advanced energy (including energy efficiency, wind, solar, fuel cells and biofuels) in the early part of this decade. Increasingly, new businesses are emerging in the local food sector — from food growing, distribution, processing, and serving in new restaurants. Other sectors ripe for development include waste-to-profit businesses, building deconstruction, solar thermal installation, transportation, eco-systems services, and advanced materials (bio-based, light weight and energy efficient). See the E4S Sustainable Business to Business Resource Directory with over 150 new and existing businesses providing services in these growing industries, www.e4s.org/content/directory.asp.

Market trends toward green economy

According to LOHAS.com: Lifestyles of Health and Sustainability (LOHAS) describes an estimated \$209 billion U.S. marketplace for goods and services focused on health, the environment, social justice, personal development, and sustainable living. Approximately 19% of the adults in the U.S. are currently considered

LOHAS consumers. Another source, Hill & Knowlton, says that consumer goods companies are increasingly looking to sell products with sustainability attributes and that 79% of Americans say they consider corporate citizenship before buying.

Another measure of the growing green economy is the amount of stimulus funding going into green technologies and jobs. According to the GE website: "By some estimates, the total green component of all global stimulus programs now exceeds \$400 billion." Ohio will get \$96 million stimulus funding to boost green manufacturing and will focus on manufacturers who want to make parts or assemble wind turbines, solar arrays, and other renewable energy technologies.

Training in sustainability strategies

To support an integrated approach to sustainability over 50 regional companies are participating or have graduated from the E4S Sustainability Implementation Group process since 2006. This unique-to-Northeast Ohio program is an 8-month, peer-based learning program for teams of 3-5 leaders from 7-10 companies that results in a strategic plan and a network of resources to support the plan for each participating company. In addition, MAGNET launched an Eco-Smart Manufacturing Program in 2009 to assist manufacturers in integrating sustainability principles into their business strategies.

Executive training courses are offered through the Fowler Center for Sustainable Value at Case Western Reserve University. And the Corporate Sustainable Network offers a monthly program to facilitate dialogue and information sharing among business leaders of Northeast Ohio's 150 largest corporations.

Measuring sustainable businesses

There are many product and business sustainability measuring and reporting tools. The latest is Wal-Mart's Sustainability Index, which starts

with gathering information about its 60,000 suppliers and will eventually be used to create a measurement tool for products and to determine what products end up on its shelves (www.reuters.com/article/GCA-GreenBusiness/idUSTRE56E5BJ20090715). Examples of others include the UN Global Compact, the Global Reporting Initiative, Dow Jones Sustainability Index, and Green Plus. Local sustainability consulting firm, BrownFlynn, was the first Global Reporting Initiative (GRI) Certified Training Partner in the U.S.

Why is it an opportunity?

The opportunity is for Cleveland-based businesses to become leaders in applying sustainable business practices to business challenges and opportunities to create economic, environmental, and community benefits for business and the region. From the summit, one or more initiatives could be aimed at increasing the momentum of sustainable business practices. This could vary from the creation of learning or action networks, to educational programs, to joint initiatives that include multiple companies and organizations.

Further reading:

Biomimicry, www.biomimicryinstitute.org/
BrownFlynn, www.brownflynn.com
Entrepreneurs for Sustainability (E4S),
www.e4s.org
Fowler Center for Sustainable Value, <http://weatherhead.case.edu/fowler/projects.cfm>
GreenBiz, www.greenbiz.com
Herman Miller, www.hermanmiller.com
Interface, www.interfaceglobal.com
Natural Step, www.naturalstepusa.org/
UN Global Compact, www.unglobalcompact.org

QUESTIONS FOR DISCUSSION

1. What is the size and nature of the opportunity for enacting sustainable business practices in small and large Cleveland businesses?
2. What is the scope of existing sustainability initiatives pursued by Cleveland businesses?
3. What existing initiatives can be leveraged in order for Cleveland to create better, more sustainable businesses?
4. How do Cleveland businesses prepare for existing and future challenges?
5. What new initiatives should be launched to accelerate progress?



Economic opportunity

GREEN BUILDING

What is it?

Cold weather and a large stock of old buildings provide a major opportunity for green building initiatives to contribute to Cleveland's economy, environment, and quality of life. Green building is an approach to the design of buildings that seeks to reduce the impact of the built environment on human health and the natural environment by efficiently using energy, water, and other resources; protecting occupant health and improving employee productivity; and reducing waste, pollution, and environmental impacts. Ideally, optimized performance is achieved throughout a building's lifecycle through better siting of the building, design, construction, operation, maintenance, and removal. The most common standard for green buildings is the LEED (Leadership in Energy and Environmental Design) rating system of the U.S. Green Building Council (www.usgbc.org). And, while new green buildings get a lot of attention, it's also green to renovate existing buildings, as their materials contain significant stores of energy and value.

Why is it sustainable?

The performance of buildings is a huge issue for the long-term sustainability of our society. Nationally, buildings account for 72% of electricity consumption, 39% of energy use, 38% of all carbon dioxide emissions, 40% of raw materials use, 30% of waste output, and 14% of potable water consumption (USGBC). Since most buildings will be around for decades, the building decisions made today will have repercussions for many years.

By constructing greener buildings, we can achieve the following benefits, according to the USGBC:

- Environmental benefits — Enhance and protect ecosystems and biodiversity, improve air and water quality, reduce solid waste, conserve natural resources. In Northeast Ohio, buildings account for 46% of carbon dioxide emissions that contribute to global warming, according to an emissions inventory conducted by the GreenCityBlueLake Institute (www.gcbl.org/energy/regional-agenda/climate-change/transition-paths/buildings-transition-path).
- Economic benefits — Reduce operating costs, enhance asset value and profits, improve employee productivity and satisfaction, optimize life-cycle economic performance. In the Cleveland metropolitan area, homeowners and renters could save up to 4% of their income by investing in retrofits alone (www.peri.umass.edu/fileadmin/pdf/other_publication_types/green_economics/green_prosperity/Cleveland_Green_Proprosperity.pdf).
- Health and community benefits — Improve air, thermal, and acoustic environments, enhance occupant comfort and health, minimize strain on local infrastructure, contribute to overall quality of life.

Since people spend approximately 90% of their time indoors, indoor air quality is of vital importance, yet it is an often overlooked factor of health. Studies suggest that improved indoor air quality may directly increase employee

productivity, thus resulting in an economic benefit for the company (<http://eetd.lbl.gov/ied/sfrb/performance-cost.html>). The U.S. General Accounting Office reports that 50% of the nation's schools have poor ventilation and significant sources of pollution (www.wcpn.org/WCPN/news/7096). One of the consequences is that students and teachers who suffer from asthma are compromised, resulting in elevated absenteeism. Due to a doubling of asthma cases in young children, in 2001 the EPA funded programs in 20 Cleveland schools for a kit called Indoor Air Quality Tools for Schools. This kit (still in use) contains helpful guidelines for promoting healthy air quality as well as useful communications for parents, administrators, and policy makers (www.epa.gov/iaq/schools/actionkit.html). Further research on the results of this program in Cleveland schools needs to be done.

What is the opportunity?

A number of facts point to the opportunity in green building:

- More than a quarter of a million homes in Cuyahoga County were built before 1949 and would benefit from weatherization and energy efficiency improvements (www.clevelandrestoration.org).
- The National Association of Home Builders suggests that energy efficient retrofit jobs of a certain capacity could generate three times more jobs than traditional residential remodeling (www.sahfnet.org/index_23_1_1.pdf).
- A study by McKinsey & Co. states that energy-efficient retrofits could generate between 500,000 and 750,000 jobs in the U.S. through 2020.
- The Recovery and Reinvestment Act of 2009 allocated \$3.2 billion to the Department of Energy (DOE) for Energy Efficiency and Conservation Block Grants to improve energy efficiencies and install renewable systems.
- DOE and the U.S. Department of Housing and Urban Development (HUD) together are

managing \$16 billion for the Weatherization Assistance program. If built or retrofitted properly, the potential for energy use reduction in each building is between 25-50% (Turner, C. & Frankel, li. 2008, Energy performance of LEED for New Construction buildings).

Furthermore, an industry has developed around green building which creates jobs and opportunities for material suppliers to grow. According to one study, in 2008 the U.S. market for green building materials generated sales of close to \$57 billion and is expected to grow to \$80 billion by 2013. In 2006 nearly 500,000 people in Ohio were employed in energy efficiency related jobs, which include the manufacturing of materials for green buildings and appliances as well as retrofitting existing buildings and new construction of energy-efficient buildings. The 2006 gross revenues for energy efficiency totaled more than \$50 billion. The American Solar Energy Society projects that Ohio energy efficiency jobs and revenue will more than double by 2030.

Cleveland has existing examples of green buildings that can be replicated on a large scale. For example, the Cleveland Environmental Center, originally built as a bank in 1918, was renovated in 2003 as Ohio's first commercial green building retrofit including energy-efficient geothermal heating and cooling and abundant day lighting. The building demonstrates how sustainability contributes to historic preservation and neighborhood redevelopment.

Additional resources

Cleveland EcoVillage, www.gcbl.org
Cleveland Restoration Society,
www.clevelandrestoration.org/
Environmental Health Watch Affordable Green Housing Program, www.ehw.org
GreenCityBlueLake Institute climate transition plan for buildings, www.gcbl.org
Northeast Ohio Chapter of the USGBC,
www.clevelandgbc.org
U.S. Green Building Council, www.usgbc.org

QUESTIONS FOR DISCUSSION

1. What is the size and nature of the opportunity for cost-effective green building retrofits in Cleveland for residential, commercial, government, and non-profit sectors?
2. What is the scope of existing green building projects in Cleveland?
3. What existing initiatives can be leveraged to accelerate progress, and grow job opportunities?
4. What is the size and nature of the opportunity for new buildings in Cleveland?
5. What new initiatives should be launched to accelerate progress and influence new building construction such that we increase the use of state-of-the-art green building techniques?



Economic opportunity

RESTORATION ECONOMY

What is it?

Author of *The Restoration Economy*, Storm Cunningham, states that “Despite the fact that restoration development will dominate the twenty-first century, its phenomenal rate of growth has gone largely undocumented...economic growth based primarily on the exploitation of new resources and territories is giving way to economic growth based on expanding our resources and improving our existing assets.”³⁷ Furthermore, he predicts that by 2020 restoration development will account for over 50% of all development-related expenditures in the U.S. and Europe. To take advantage of this trend, Cleveland can increase restoration activities in at least three areas that can add the most value to the local economy: restoring buildings, redeveloping brownfields, and restoring water ecosystems and waterfronts.

Why is it sustainable?

Restoration work tends to be inherently sustainable. It focuses on the maintenance of existing assets, taking care of nature, preserving history and a sense of place, and creating the long-term faith in a city that will last. Cleveland has good examples of restoration on which to build. The restoration of Playhouse Square brought the second largest theater complex in the nation back to life as a cultural attraction and economic engine for downtown. Cleveland’s network of nonprofit neighborhood development organizations has had numerous regeneration successes. A current example is the Gordon Square Arts District in the Detroit-Shoreway neighborhood, which will open this fall. And the clean up of the

Cuyahoga River is an inspiring example of ecological restoration that has led to economic revitalization.

Why is it an opportunity?

By leveraging current initiatives, restoration economy efforts can be a greater economic generator. The report, *Re-imagining a More Sustainable Cleveland*, produced by Neighborhood Progress Inc. and Kent State University’s Urban Design Collaborative, highlights numerous restoration opportunities for vacant land in the city.³⁸ To correct combined sewer overflow problems that pollute urban streams and Lake Erie, the Northeast Ohio Regional Sewer District is preparing to invest \$2.5 billion. New funding for environmental restoration activities will be coming from federal appropriations for Great Lakes cleanup. Improved water and habitat quality can help attract residents to the city, increase property values, and attract business activity through tourism, fishing, and recreation.³⁹ In addition, the rehabilitation of old buildings throughout the city is strengthening neighborhoods, creating jobs (renovation tends to be more labor-intensive than new construction), and preserving resources.

QUESTIONS FOR DISCUSSION

1. What is the size and nature of the opportunity for a restoration economy in Cleveland?
2. What is the scope of existing programs that address restoration economy activities?
3. What actions could be taken to leverage existing programs to accelerate progress?
4. Are there other areas in addition to waterfronts, buildings, and brownfields that Cleveland should look at through a restoration economy lens?
5. How can Cleveland bolster connections and knowledge sharing among relevant communities and institutions to accelerate progress of a restoration economy?



Economic opportunity

WATER

What is it?

Greater Cleveland has access to abundant fresh water. Lake Erie alone has almost 10,000 square surface miles of water, its volume equivalent to 13,000 billion gallons. The Great Lakes as a whole represent 95% of the surface fresh water in the U.S. and 20% of surface fresh water globally. Water-related industry, ranging from shipping, boating, fishing, tourism, electric power generation (from traditional sources such as coal and nuclear to new sources such as wind power), and other water-dependent industries have historically been one of the major pillars of the Greater Cleveland economy.

In recent decades, water has also contributed to a negative image of Cleveland as the city of the burning river. Now that the Cuyahoga River has been substantially cleaned up, we have the opportunity to celebrate our Great Lakes location in new ways.

Why is it sustainable?

Water quality in Lake Erie and the related watershed have recovered from near death in the 1960s and 1970s but still require vigilance and restoration from the activities of over 12 million people who occupy that watershed in the U.S. and Canada. Increasing global population and decreasing water supply from a multitude of causes, including climate change, make water a high-demand resource, now and in the future. Water is a quintessential place-based asset, as economics, physics, technology, and ecological considerations discourage its movement in large quantities. The preservation of water quality and quantity has economic, social, and environmental benefits.

What is the opportunity?

Simply put, water is one of three reasons why Greater Cleveland is one of the best places in the world for sustainable development: (1) sustainable use of our fresh water assets can be accomplished with a significantly larger population than we now enjoy; (2) our water delivery and waste water/sewer infrastructure, while in need of upgrades, can also support a larger population than we now have; and, (3) most climate models that simulate projected climate change treat the city and region in a relatively gentle manner.

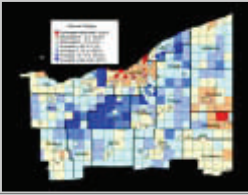
In addition to the water supply advantage our region enjoys, we also have expertise in the handling of water (industrial companies making pumps, valves, hydraulics), purifying water, and remediating water pollution (after all, we cleaned up the Burning River). Thus, we might be able to develop a cluster of firms to develop water products and services. Milwaukee is already working hard on this concept. The Milwaukee 7 Water Council is seeking to make the Milwaukee region the world water hub for freshwater research, economic development and education (www.milwaukee7-watercouncil.com). The Milwaukee region has 120 companies and about 20,000 workers in water-related industries. It also is developing research capacity at the University of Wisconsin-Milwaukee with a Great Lakes Water Institute and a School of Freshwater Sciences.

Locally, the Great Lakes Science Center is seeking to develop a Freshwater Institute focused on education and research about the Great Lakes. And the GreenCityBlueLake Institute and the Cuyahoga County Planning Commission are

advancing the concept of Global Water Ventures of Cleveland, which would make Cleveland a center for developing new water-related products and services (www.gcbl.org/water/regional-agenda/water-ventures-of-cleveland).

QUESTIONS FOR DISCUSSION

1. What is the scope of existing capabilities in water?
2. How can Cleveland capitalize on our water resources and knowledge in a sustainable way?
3. What would an economic development opportunity around water look like, and what actions could we take to make it happen?
4. How do these capabilities compare to other regions of the country and world and what would be required for Cleveland to become a significant player in a water opportunity?
5. How can Cleveland bolster connections and knowledge sharing among relevant companies and institutions to refine our value proposition around a water opportunity?
6. What initiatives should be launched to accelerate progress?



Economic opportunity

LAND USE AND URBAN SPRAWL

What is it?

Cleveland is one of the poorest cities in the nation not just because of the loss of manufacturing jobs, but because the middle class has moved out of the city. Indeed, wealth and investment are now moving out of Cuyahoga County to the surrounding counties. Thus, an agenda for sustainable economic redevelopment must consider the regional trends of outmigration from the urban core.

This is a regional issue. For decades people have been concerned about land use trends in Northeast Ohio. They have seen historic cities being abandoned, new suburbs being developed and requiring costly new infrastructure, growing disparities of wealth between communities, children losing opportunities to connect to nature, prime farmland being paved over, people becoming more dependent on driving cars longer distances, and intractable problems of air and water pollution.

All these problems are rooted in patterns of land use — the spatial distribution of development in the region. The land use patterns, in turn, are related to the highly fragmented system of local governments in the region, which works against collaboration and prevents people from having a broader vision of the needs of the whole region.

What are the sustainability linkages that might enable change today?

While land use issues are always difficult and controversial, a number of factors may be combining to make change more likely in the coming years:

- Cost pressures — The economic crisis has made more people realize that we can't afford to maintain existing infrastructure, much less continually extend infrastructure to newly developing areas.
- Energy prices — The paradigm of development we've known for the past 50 years (low-density development on large lots that requires cars to be driven long distances) is a high-energy, high-mileage paradigm that may no longer be sustainable at a time of rising energy prices and concern about climate change.
- State involvement — Today the state is more supportive of regionalism. The Strickland administration is helping to explore solutions. The Lake Erie Balanced Growth Program is testing how to plan within watersheds. ODOT's Transportation Priorities Task Force calls for transportation investments to leverage existing assets. And there is a statewide, nonprofit organization, Greater Ohio, working on land use policy issues and developing a Restoring Prosperity agenda (www.greaterohio.org).
- Federal support — The Obama administration supports the revitalization of cities as the centers of healthy metropolitan regions. Starting with the economic stimulus package, there is funding to implement new ideas.
- Suburban leadership — The Regional Prosperity Initiative of the Northeast Ohio Mayors and City Managers Association is exploring new ways to do regional land use planning and tax base sharing (www.neo-rpi.org). The effort has strong leadership from mayors from wealthy suburbs, not just from elected officials from the declining urban core. They provide a fresh perspective on the interconnected fortunes of all communities in the region.
- Philanthropic leadership — With the Fund

for Our Economic Future, the region's philanthropic community is united as never before in the support of regional actions to promote economic development.

- Regional business marketing — The reorganization of economic development programs in recent years has resulted in a stronger regional focus. Team NEO and Cleveland Plus market the whole region.
- Greater public awareness of regionalism — Public awareness of regionalism has continued to grow in recent years. The Voices & Choices process helped, and its follow-up program, Advance Northeast Ohio, continues to frame issues with a regional lens. Many other civic, economic, and environmental organizations continue to build awareness about smarter approaches to regional land use.
- Heightened environmental concerns — Several of the region's most serious and costly environmental challenges — air quality nonattainment and stormwater pollution — are exacerbated by sprawling land use patterns.
- Heightened quality of life concerns — There is growing recognition that quality urban places can help attract highly educated workers needed for the new economy.
- Heightened concerns that Northeast Ohio is falling behind — There is a general sense that the region is lagging behind more competitive regions that have lower costs of government, greater collaborative, and stronger strategic focus.
- Technology — New technologies for communication and land use planning make it much easier to have regional conversations about possible futures.

All these factors make it more likely that people will be motivated to care about the region in a new way — and be motivated to consider alternate land use futures.

Models of regional visioning and planning

Regions across the country have been struggling with land use issues similar to those in Northeast

Ohio (although often from the perspective of managing greater rates of growth). As a result, there are many examples of regional planning efforts that have engaged citizens to explore scenarios of future development. Here are some noteworthy examples, which offer ideas about the important questions to ask and interesting methods of outreach:

- Go To 2040, the comprehensive planning campaign for metropolitan Chicago: <http://www.goto2040.org/>
- Going Places, an integrated land use vision for the Miami Valley region (Dayton): <http://www.mvrpc.org/rlu/>
- Metropolitan Council (Twin Cities region) 2030 Regional Development Framework : <http://www.metrocouncil.org/planning/framework/documents.htm>
- Atlanta Regional Commission Envision6 plan for land use, transportation and water: <http://www.atlantaregional.com/html/126.aspx>
- Envision Central Texas: <http://www.envisioncentraltexas.org/>
- Envision Utah: <http://www.envisionutah.org/>

QUESTIONS FOR DISCUSSION

1. What is the scope of existing programs to address land use and urban sprawl?
2. How can we optimize the way that space is used in the Cleveland region so that it supports economic development?
3. Is there an opportunity to create local jobs by addressing regional land-use issues?
4. How can Cleveland bolster connections and knowledge sharing among relevant stakeholders to make land use an asset to economic development?
5. What initiatives should be launched to accelerate progress?



Economic opportunity

VACANT LAND AND GREEN SPACE

Much of this section was drawn from *Reimagining a More Sustainable Cleveland*, a project of Neighborhood Progress Inc., with staff support from the Kent State University's Cleveland Urban Design Collaborative (www.cudc.kent.edu).

What is the issue?

People are rethinking the issue of vacant land in Cleveland, seeking to turn vacancy from a liability to an opportunity to imagine a greener city. There are approximately 3,300 acres of vacant land within city limits, and an estimated 15,000 vacant buildings. Many of these vacant properties are poorly maintained, and they diminish the value of the remaining, more viable buildings and neighborhoods in the city. The city demolishes about 1,000 vacant houses per year; private demolitions and fires are also reducing the number of derelict structures in the city. After demolition, surplus land becomes a raw asset for the city—a resource for future development as the city's population stabilizes and progress is made toward recovery.

In addition to rethinking vacant land, people are seeking to connect Cleveland to greenspace and natural resources in other ways.

What are the opportunities?

Going forward, the City of Cleveland has the opportunity to use its excess land in ways that advance a larger, comprehensive sustainability strategy for the city, benefit low-income and underemployed residents, enhance the quality of neighborhood life, create prosperity in the city, and help address climate change. This can include:

- Green infrastructure strategies, including the expansion of parks and natural areas, and linkages between green space amenities within the city and region, ecosystem restoration to manage stormwater, reduce urban heat island effects, and enhance biodiversity, and remediation for contaminated sites.
- Productive landscapes as an economic development strategy (e.g., using land for food or energy production).

Capitalizing on this moment to set aside land for recreation, agriculture, green infrastructure, and other non-traditional land uses will benefit existing residents and help to attract new residents and development. By balancing current and future demands for new development with the conservation of key sites across the city, Cleveland can reinvent itself as a more productive, sustainable, healthy, and ecologically sound city. Increasingly, this is an issue for Cuyahoga County many other communities in Northeast Ohio. The new Cuyahoga County Land Bank (www.cuyahogalandbank.org) will make it easier to put vacant properties back into productive use in the county.

The city also has significant opportunities for enhanced greenspace and recreational trails. Two existing priorities are the lakefront and the Towpath Trail. Such projects can help energize a city.

QUESTIONS FOR DISCUSSION

1. What is the size and nature of the opportunity for the redevelopment of vacant land?
2. What creative strategies will put vacant land back into productive uses with environmental, social and economic benefits?
3. What greenspace developments will have the greatest impact?
4. What creative partnerships can accelerate projects?
5. What initiatives should be launched to capitalize on this opportunity?



Economic opportunity

TRANSPORTATION

What is the issue?

Over the past 50 years we have developed a transportation system in Northeast Ohio that makes people overly dependent on cars. While cars provide great mobility, their benefits come with many costs — economic, social, and environmental. And while it's true that historically automobile-related manufacturing has provided many industrial jobs in the region, the number of those jobs has declined in recent years.

What is the sustainability connection?

Economy

The cost of owning and operating a car is more of a burden in places where people have fewer transportation choices. Using 2003 data, the study, "Driven to Spend: Pumping Dollars Out of Our Households and Communities," by the Surface Transportation Policy Project and the Center for Neighborhood Technology, found that families in the Cleveland metro area spent a relatively high amount of their household budget, on transportation — more than they spent on food or education. Only families in Houston spent at a higher rate. Meanwhile households in metro areas that are less auto-dependent spent less. For example, people in the Baltimore area got to work by means other than automobiles (such as transit) twice as often as people in Cleveland. As a result, Baltimore households spent less of their budgets on transportation. This represents big savings: If households in Baltimore spent the national average on transportation, they would have spent an extra \$2 billion in 2003.

Low-income families are unduly impacted by high transportation costs, since transportation costs claim a higher percentage of their budgets. In the city of Cleveland many households cannot even afford to own a car. Many of those who do own one are trapped in a desperate cycle of car dependency, where they need a car to hold a job but then pay out much of their earnings to maintain the car. Having less expensive transportation choices would put money in their pockets, which could be spent on goods and services in the local economy.

Social

The automobile-dependent transportation system has health impacts. In addition to deaths and injuries from car accidents, a car-oriented lifestyle is linked to the epidemic of obesity. In communities without walkable neighborhoods, people get less exercise as part of their daily activities. In addition, the car actually reduces the freedom of many people who can't drive — children who are dependent on grown-ups to take them everywhere because there's no place for them to walk or bike to, senior citizens who have lost their drivers licenses and are marooned in a sprawling suburb, and low-income people who can't afford a car.

Environmental

Increasingly, vehicle emissions are the region's biggest air pollution problem. They are a big reason why Northeast Ohio fails to attain federal air quality standards (and if the nonattainment continues, it could constrain economic growth by preventing new industrial facilities from locating here). In addition, the transportation sector is responsible for 28% of the seven-county region's

carbon dioxide emissions, making our fossil-fuel-burning transportation system a big part of our impact on global warming.

Opportunities to consider

Transportation funding is usually the biggest flow of capital dollars flowing into local communities. Think about all the ways the money could be invested to:

- Improve transportation alternatives — transit, biking, car sharing, pedestrian spaces — that offer money-saving, health-promoting, low-carbon ways to get around.
- Develop walkable neighborhoods, the vibrant urban places that attract educated workers.
- Provide affordable ways for the unemployed to reach new jobs.
- Improve freight transportation that is more energy efficient, such as rail and water shipping.

QUESTIONS FOR DISCUSSION

1. What is the size and nature of the opportunity for sustainable transportation in Cleveland?
2. What existing initiatives could be leveraged to promote a more sustainable transportation system?
3. How have other cities addressed sustainable transportation?
4. How can Cleveland bolster connections and knowledge sharing among relevant communities and institutions to accelerate progress of decreasing dependence on automobiles?
5. What new initiatives and policy reforms should be launched to accelerate the process of bringing sustainable transportation to Cleveland?



Enabler **EDUCATION**

What is it?

An educated community and workforce are critical elements of a strong economy and a vibrant city. Two categories of education are needed to support Cleveland's future economy: higher education in specific fields related to globally competitive industries and continuous job training programs to enable local sustainability initiatives.

The world is shifting to a new global economy, one where knowledge is the most valuable asset. Competing in the international knowledge economy means ensuring that the appropriate people, skills, and capabilities are developed, with city leaders demonstrating that they understand how these qualities can be captured and allowed to prosper. The Commission on the Skills of the American Workforce's 2006 report, *Tough Choices or Tough Times*, suggests that our nation is at risk because the American education system is broken, and Cleveland is not immune to this critique. In order for Cleveland to thrive in tomorrow's economy, it must produce workers with higher academic knowledge that differentiate themselves from competitors through creativity and innovation. For Cleveland to create opportunities for lower skilled workers, it is important that these opportunities are tied to place. Disparities between the rich and the poor have been accelerated by globalization and the outsourcing of jobs. To create a place-based sustainable economy that can't be outsourced, basic skills need to be combined with specific job training programs to enhance the capabilities of our existing workforce.

Why is it enabling?

The key to enabling people to have access to long-term employment and indeed to create a new economic engine in Cleveland lies with the innovation and strength of curriculum in the K-12 education system and in the local colleges and universities. Today, many cities have formulated strategies for transforming their economy into a "knowledge" or "creative" economy. In these modern cities citizens' knowledge, creativity, and innovation are identified as the driving force of wealth creation. Knowledge cities value the quality and density of educational and research excellence and of redeveloping old industrial areas into centers for knowledge workers. Creating great urban teachers and learners by engaging people of all ages and abilities in the learning lives of our children is imperative. In order to create a vibrant economy Cleveland needs to leverage all of its assets in education.

Why should it be an initiative?

Cities are engaged in a global competition for investment. The caliber of educational achievement and the creativity of their citizens are therefore vital in each city's efforts to attract new businesses and people to fuel their prosperity. In 2003, the Brookings Institution released a report called "Living Cities: The National Community Development Initiative" which analyzed the census data for 23 U.S. cities and compared these results to the 100 largest cities. The report found that 11.4% of Cleveland adults over 25 have a bachelor's degree, the fifth lowest among the 100 largest cities, and 69% have a

high school diploma. Of the 23 Living Cities, Cleveland had the second smallest university population with only 6.5% of the population over 15 enrolled in college or university. While these numbers are an improvement over the 1990 census numbers, for Cleveland to have a strong economy, it is necessary to find innovative solutions to accelerate progress.

For Cleveland to support a burgeoning sustainable economy, it is essential to invest in education to provide a strong workforce at all levels. By revolutionizing education from early childhood through adulthood, we will enable a promising future for Cleveland. Going forward, major initiatives in this area are important in order to bolster the success stories that exist in Cleveland already, and to create as many new ones as possible.

QUESTIONS FOR DISCUSSION

1. To what extent does Cleveland's education system support a global and local economy?
2. Are we investing in right skills and knowledge to build a strong economy? Are there other areas that we should be focusing on?
3. What educational programs within and external to Cleveland have been the most successful at creating a skilled workforce and is there a way to leverage and scale up the impact of these initiatives?
4. How can Cleveland bolster connections and knowledge sharing among relevant institutions, corporations, citizens and stakeholders to ensure that our education system is an asset to economic development?
5. What new initiatives should be launched to accelerate progress?



Enabler

SOCIAL CAPITAL

What is it?

Fostering **connections** between people, ideas, organizations, and initiatives is essential to all of us as we work to leverage sustainability as an economic engine for our city and our region. Connections occur best when certain conditions are present: trust, open-mindedness, personal leadership and commitment, the ability of participants to see the world from multiple perspectives, and the ability of participants to see potential purposeful connections and potential successes. In addition, connections are encouraged by open and transparent communication systems, shared collaboration skills, good facilitation processes, and technological support.

These connections create **social capital**, which represents great potential for our city. A working definition of social capital includes reciprocal relationships between networks. The quality of interactions between institutions determines the quality of social capital.⁴⁰ When a city has strong social capital, it experiences dynamic and aligned action on behalf of diverse individuals and groups. Organizations collaborate, networks thrive, innovations emerge, and people share a great pride of place. Others are attracted to visit, relocate, and become a part of the vitality and energy. There is a strong correlation between high levels of social capital and positive experiences of:

- Education and employment
- Housing, transport, and urban design
- Crime and community safety (neighborhood watch)
- Physical and mental health (i.e., through sports and volunteering)

Social capital is a key enabler at two levels and both are key to building a healthy and sustainable city:

Micro – this is networking and collective action among individuals and small organizations at the grassroots level. This is particularly important in creating the self-help economy and solving many of the challenges in the urban core.

Macro – this is networking and aligned action at the industry and large organization level. This is particularly important for creating and growing internationally competitive industry sectors.

Today, Cleveland/Northeast Ohio has many organizations and networks working to create a vibrant economy and a more vital place to live, work, and play. However, many of these efforts are overlapping and disconnected. The opportunity is to forge and nurture connections among organizations, networks, and sectors.

What is it enabling?

Strengthening social capital can create synergies and accelerate implementation of the Sustainable Cleveland 2019 initiatives. An initiative that focuses on growing our social capital can look at ways to amplify the efforts of the existing networks, forge connections between networks, and learn from their successes and failures as we take on the 2019 agenda. It can explore and develop opportunities to connect individuals and organizations with diverse backgrounds and encourage collaboration, co-creation, and entrepreneurship. It can uncover and enable factors that accelerate learning and support aligned action and foster networks that inspire, encourage

and support the entrepreneurs and change agents who create new products and services. And, it can develop the means to provide greater access for local businesses and organizations to engage in opportunities that improve the city's / region's economic health and well-being while advancing their own objectives and growing their own businesses.

Why should it be an initiative here?

If Cleveland intends to engage 1.6 million people in building an economic engine to empower a green city on a blue lake, we need to foster the connections that will grow our macro social capital. No matter how essential a single initiative, organization, or network may be, in and of itself, it is not sufficient. We need to focus on the connections that will leverage the efforts of many — that will unleash the power of our social capital for large-scale transformation.

To succeed, we will need to expand and amplify the existing networks in the region. We can build upon examples such as WIRE-Net's Great Lakes Wind Network, Corporate Sustainability Network, E4S, Cleveland-Cuyahoga County Food Policy Coalition, GreenCityBlueLake, Northeast Ohio Biomimicry Action Network, and NorTech's advanced energy initiative and other technology networks, Great Lakes Science Center's Fresh Water Institute, neighborhood development, and other promising initiatives. In addition, there are emerging social media networks, such as localfoodcleveland.org and zerowasteneo.org. And we have a leading initiative working on the technology of networked communications, One-Community.

QUESTIONS FOR DISCUSSION

1. How can we best strengthen existing micro and macro social capital in order to:
 - a. Facilitate and grow successful economic clusters.
 - b. Build a vibrant self-help economy.
 - c. Gain synergies and focus efforts among the range of social services activities in the urban core.
 - d. Ensure momentum and impact from activities following the summit.
 - e. Include and inspire large portions of Cleveland's population to participate in building a green city on a blue lake.
2. How can Cleveland bolster connections and knowledge sharing among institutions, corporations, citizens and stake holders to grow the economy?
3. What initiatives should be launched to build micro and macro social capital?



Enabler

SOCIAL ENTREPRENEURSHIP IN THE URBAN CORE

What is it?

A key enabler of sustainability as an economic engine is to unleash the full potential of those who already live in Cleveland's urban core. Today there is a high unemployment rate and low levels of education. Moreover there are significant numbers of disenfranchised residents who require an "on-ramp" to becoming engaged in economic activities. As demand for social sector services continues to rise beyond the limits of traditional funding sources, social sector organizations throughout the U.S. are increasingly turning to commercially-oriented means to close the funding gap. One of the better-known funders of social innovators, Bill Drayton of Ashoka, argues that we are now on the verge of a potentially huge increase in innovation and productivity in the social sector led by this group of committed individuals who have been labeled "social entrepreneurs."

While there are many organizations already working on the challenges associated with the urban core, a new level of innovation is required in order to realize a step change in outcomes realized. A key place to look for such innovations is with social entrepreneurs and social enterprises that have already developed "pattern changing" solutions suitable for scaling up and adapting to local conditions. Typically the solutions offered by innovative social entrepreneurs and social enterprises have a large social and financial payback associated with them, but they can often be difficult to fund because they do not fit neatly into existing funding criteria and structures. The opportunity is to actively search for, adapt, and scale the most innovative solutions that have been developed both within Cleveland and throughout the world.

What is it enabling?

Initiatives within this opportunity area can enable at-risk residents of Cleveland's core to engage productively with social and economic opportunities. This would include finding solutions to enable youth to avoid gangs and go on to school, helping ex-offenders get reintegrated into society, providing entrepreneurship education, and providing innovative low-income urban schools that effectively address key challenges (e.g., high school dropout rate, low passing rates on standardized tests, inadequate curriculum). Initiatives could also help increase rates of higher education, increase supply of high quality housing, engage the elderly, reduce at-risk activities in young girls, help students learn to solve problems without violence, and improve financial literacy.

Why should it be an initiative here?

It is critical that Cleveland overcome key obstacles in order to achieve high levels of employment among city residents. Educational programs by themselves are likely to be insufficient since a significant portion of the population is unlikely to enroll without additional support.

A few examples of innovative solutions from Cleveland and other parts of the U.S. are listed below:

NFTE: E CITY (Entrepreneurship: Connecting, Inspiring and Teaching Youth) is a NFTE-affiliated nonprofit organization that offers entrepreneurial education to inner-city and at-risk youth. The program teaches business and life skills to greater

Cleveland youth through in-school, after school, and summer BizCamp formats.

Omega Boys Club-Street Soldiers: Mission is to keep young people alive (unharmed by violence) and free (from incarceration) by promoting the understanding and adoption of a violence prevention model which views violence as a public health disease.

Delancey Street: Residential self-help organization for substance abusers, ex-convicts, homeless and others who have hit bottom.

Jumpstart: An education initiative that offers a unique, results-driven, and research-based supplemental program to enhance the educational opportunities for students at Head Start and other early learning programs serving low-income children.

Others:

Genesys Works (summer jobs for at-risk youth)

Girls on the Run (improving self-esteem in young girls through physical education)

Year Up (intensive education and apprenticeship for young urban adults)

Peace Games (conflict resolution in youth)

First Place Fund for Youth (reducing homelessness among foster youth)

Emerging Markets (on the ground market research for bringing banking institutions into low-income areas)

Green Corps and City Fresh in Cleveland (urban agriculture)

Cleveland has the opportunity to further reach troubled and disenfranchised populations in the inner core through aligning and leveraging the efforts that are currently going on in the city. There is also a large potential opportunity to identify specific innovative solutions from within Cleveland, and around the U.S. and the world, to be deliberately tested and scaled.

QUESTIONS FOR DISCUSSION

1. How can social entrepreneurship be an enabler of economic growth in the urban core?
2. What actions are currently being taken and how can we build on these actions to unlock the full potential of Cleveland's urban core?
3. In particular, what are the opportunities to enable challenged populations (e.g. high school drop outs, gang members, ex-offenders, substance abusers) with an effective on-ramp for education and job training?
4. How can we introduce innovative solutions that greatly improve our chances of positive results?
5. What initiatives should be launched to support social entrepreneurship?



Enabler

POLICY ENABLERS

What is it?

While, broadly speaking, policy can enable many aspects of sustainability, here we want to deal specifically with two aspects of policy. The first is to find ways that policy can help scale innovative solutions that provide a net cost savings to society. The second is to find ways that policy or other city government action can help foster sustainable behaviors.

Scaling social innovations: Many of the most innovative solutions to social challenges are difficult to fund through traditional means, and yet they hold the potential for solving key challenges and returning a high payback to society. One small example is the Seed School in Washington, D.C. This boarding school model for inner city youth has had 98% of its graduates accepted into college. It has tested and proven the model that for some children to graduate high school and go on to college a boarding school is the best model. The payback to society for investing an extra \$10,000 per year per student is huge when you take into account that without the boarding school alternative many of the students would likely end up unemployed, in low paying jobs, or even in jail. While the Seed School model is ready to be adopted and scaled, the adoption rate has been quite low. What policy changes are needed to enable Cleveland to seek out and invest in promising high-return innovations such as this one?

Influencing sustainable behavior: The field of behavioral economics has demonstrated that people do not follow simple logic in processing information and making decisions as is assumed by conventional economists. As such, many economic solutions do not work as assumed in the

real world. Furthermore, simple changes affect the choices and decisions that people make. Given this reality, there are many ways to present choices to influence everyday decisions. A simple example has to do with how food is arranged in a school cafeteria. Some arrangements lead to higher consumption of healthy foods, while others lead to exactly the opposite. Another example is that people who are educated about environmental issues think recycling is a good idea, yet they do not recycle. With successful progress through signaling intentions, such as a public sign-up sheet, recycling increases. A final example demonstrates how poor families are often deterred from filling out the FAFSA (Federal Application for Federal Student Aid) because the form is long and cumbersome, despite the fact that completion could result in up to \$50,000 in loans. Policy makers are now shifting resources into the details of the FAFSA execution, which should increase applications.

Why is it enabling?

Policy can enable all aspects of sustainability. However, two key areas to highlight here are policies aimed at scaling social innovations and policies aimed at encouraging sustainable behaviors.

Why should it be an initiative here?

Sensible policy holds the potential to facilitate innovative solutions that foster sustainability and deliver net cost savings to tax payers.

QUESTIONS FOR DISCUSSION

1. How can Cleveland incorporate knowledge of behavioral economics into its communications and policies in ways that foster sustainable behaviors?
2. Does Cleveland have a plan to create constructive dialogue with its citizens about sustainability initiatives? How will information and dialogue be made relevant and accessible to all citizens?
3. What are the specific areas / services in which partnership could be most effective in engaging policy enablers?
4. What initiatives should be launched to accelerate progress?



RESOURCES

Websites for local sustainability and economic development

Advance Northeast Ohio, www.advancenortheastohio.org
Apollo Alliance, <http://apolloalliance.org>
BioEnterprise, www.bioenterprise.com
City of Cleveland Office of Sustainability, www.city.cleveland.oh.us/CityofCleveland/Home/Government/CityAgencies/PublicUtilities/Sustainability
Cleveland Botanical Garden, www.cbgarden.org
Cleveland Carbon Fund, www.clevelandcarbonfund.org
Cleveland-Cuyahoga County Food Policy Coalition, www.cccfoodpolicy.org
Cleveland Foundation, www.clevelandfoundation.org
Corporate Sustainability Network, www.csuohio.edu/business/sustainability/csn.html
Cuyahoga County Solid Waste District, www.cuyahogaswd.org
Cuyahoga Valley Countryside Conservancy, www.cvcountryside.org
Entrepreneurs for Sustainability, www.e4s.org
Environmental Health Watch, www.ehw.org
Fowler Center for Sustainable Value, <http://weatherhead.case.edu/fowler/>
Fund for Our Economic Future, www.futurefundneo.org
Generation Foundation, www.generationfoundation.org
George Gund Foundation, www.gundfdn.org
Greater Cleveland Partnership, www.gcpartnership.com
Greater Ohio, www.greaterohio.org
Great Lakes Energy Development Task Force,
<http://development.cuyahogacounty.us/en-US/energy-task-force.aspx>
GreenBiz.com, www.greenbiz.com
GreenCityBlueLake Institute, www.gcbl.org
GCBL State of Sustainability 2009 report, www.gcbl.org/sos2009
Green Energy Ohio, www.greenenergyohio.org/page.cfm
Green jobs studies, www.gcbl.org/economy/regional-agenda/green-jobs
ICLEI, www.icleiusa.org
Institute for Local Self-Reliance, www.ilsr.org
JumpStart, www.jumpstartinc.org
Local Food Cleveland, www.localfoodcleveland.org
MAGNET, www.magnetnetwork.org
Neighborhood Progress Inc., www.neighborhoodprogress.org
New Agrarian Center, http://web.me.com/blueheron55/NAC_Site/Welcome.html
NorTech, www.nortech.org
Northeast Ohio Chapter of the U.S. Green Building Coalition, www.clevelandgbc.org
Northeast Ohio Clean Transportation Program, www.earthdaycoalition.org
Northeast Ohio Regional Sewer District, www.neorsd.org

Ohio Department of Development, www.development.ohio.gov
OneCommunity, www.onecommunity.org
ParkWorks, www.parkworks.org
Policy Matters Ohio, www.policymattersohio.org
Regional Prosperity Initiative, www.neo-rpi.org
Re-Imagining a More Sustainable Cleveland, www.cudc.kent.edu
Shorebank Enterprise Cleveland, www.shorebankenterprise.org
TeamNEO, www.teamneo.org
Vital Center report, www.brookings.edu/reports/2006/10metropolitanpolicy_austin.aspx
WECO Fund, www.wecofund.com
WIRE-Net, www.wire-net.org
Zero Waste Northeast Ohio, www.zerowasteneo.org

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