S U S T A I N A B L E J E R S E Y

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Sustainability Brief: Economic Competitiveness

The Global Competitiveness Report of the World Economic Forum defines competitiveness as "the set of institutions, policies, and factors that determine the level of productivity of a country". (Schwab, 2009) Typically this has been measured as the Gross Domestic Product (GDP) without regard to other factors such as livability or health or environmental conditions.

1 Background

Economic competitiveness was initially a local issue, then regional and national and now global due to increasing mobility and communication. Because goods and labor costs vary significantly, they currently can compensate for the logistical costs allowing competitiveness on a global scale. But as the economies grow the labor costs increase and logistical costs become more critical on the goods side though not necessarily on the service side. It has become increasingly obvious that downturns in one country now impact others significantly and quickly. In the face of this volatility new approaches to economic competitiveness are needed to allow for sustained and stable economic viability on a local and global scale

The Global Competitiveness Index 2009–2010 captures this open-ended dimension by providing a weighted average of many different components, each of which reflects one aspect of the complex concept that we call competitiveness. The 12 pillars of competitiveness are:

- **First pillar: Institutions**

The quality of the institutional environment, determined by legal and administrative frameworks within which income and wealth are generated, has a strong bearing on competitiveness and growth.

- **Second pillar: Infrastructure**

Extensive, efficient infrastructure is an essential driver of competitiveness. It ensures effective functioning of economies as an important factor in locating economic activity and the sectors that develop in a particular economy. Well-developed infrastructure reduces logistical impacts and integrates markets.

- **Third pillar: Macroeconomic stability**

Stability of the macroeconomic environment is critical for business and overall competitiveness. While stability alone cannot increase productivity, macroeconomic disarray can harm the economy.

- **Fourth pillar: Health and primary education**

A healthy workforce is vital to a country's competitiveness and productivity, as sick workers are often absent or operate at low levels of efficiency. Health services are critical for economic and moral considerations.

- **Fifth pillar: Higher education and training**

Quality higher education and training is crucial for economies to move up the value chain beyond simple production. The globalizing economy requires nurtured pools of well-educated workers able to adapt rapidly to changing environment.

- **Sixth pillar: Goods market efficiency**

Countries with efficient goods markets produce the right products and services as well as ensure that the goods are effectively traded. Healthy market competition is important in market efficiency and business productivity. The most efficient firms, producing goods demanded by the market, thrive.

- **Seventh pillar: Labor market efficiency**

Efficiency and flexibility of labor markets are critical for efficient worker allocations and effective incentives for optimal job performance. They must be flexible to shift workers from one activity to another rapidly and at low cost, and to allow for wage fluctuations without much social disruption.

- **Eighth pillar: Financial market sophistication**

An efficient, well- functioning financial sector allocates resources saved by its residents to their most productive uses, sending them to entrepreneurial or investment projects with the highest expected rates of return.

- **Ninth pillar: Technological readiness**

The agility with which an economy adopts existing technologies to enhance the productivity of its industries is critical. Technology is increasingly an important element. Information and communication technologies (ICT) have evolved into "general purpose technology" given their role in efficient commercial transactions.

- **Tenth pillar: Market size**

The size of the market affects productivity because large markets allow firms to exploit economies of scale. With globalization, international markets have become a substitute for domestic markets.

- **Eleventh pillar: Business sophistication**

Business sophistication is conducive to higher efficiency in the production enhancing competitiveness. It concerns quality of overall business networks and quality of operations and strategies. When companies and suppliers from a sector are interconnected in geographically proximate groups ("clusters"), efficiency is heightened, greater opportunities for innovation are created, and barriers to entry for new firms are reduced.

- **Twelfth pillar: Innovation**

Innovation is particularly important for economies as they approach the frontiers of knowledge and the possibility of integrating and adapting exogenous technologies tends to disappear. Although substantial gains are obtained by improving institutions, building infrastructure, reducing macroeconomic instability, or improving human capital, all these factors eventually seem to run into diminishing returns. The same is true for the efficiency of the labor, financial, and goods markets. In the long run, standards of living can be expanded only with innovation. Firms must design and develop cutting-edge products and processes to maintain a competitive edge. This requires an environment that is conducive to innovative activity, supported by both the public and the private sectors. (Schwab, 2009)

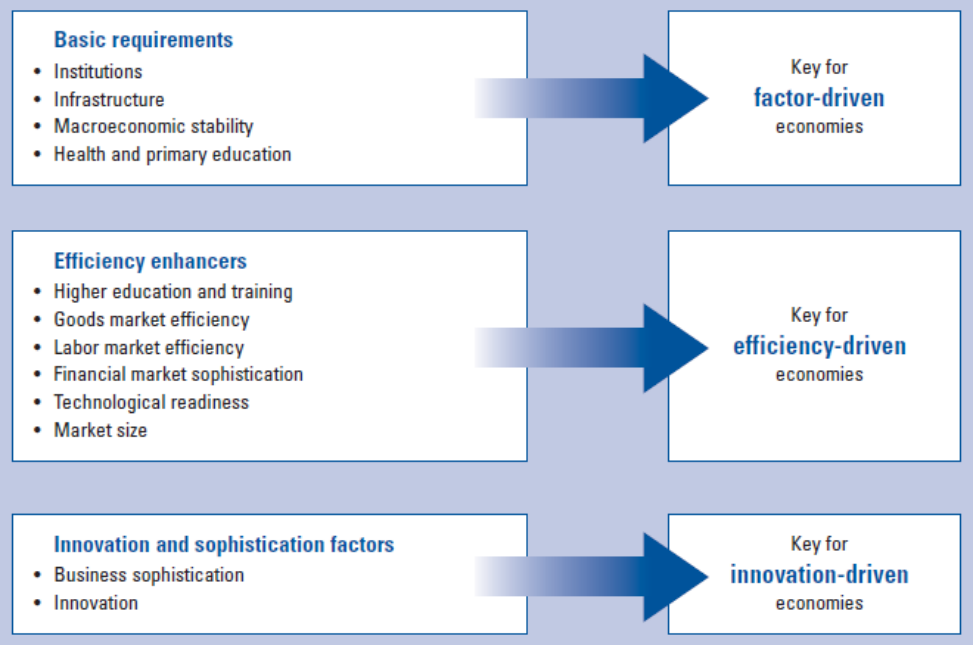

Figure 1: 12 pillars of competitiveness

2 Sustainability Issues

2.1 Global Recession and Emerging Economies

Globalization in general and the long term economic challenges of the multinational recessions have changed the thinking on economic competitiveness. Local companies can now compete globally with the only restriction or possible detriment being logistics. Services industries can be located far from the physical delivery of their services. Emerging economies, especially the BRICS (Brazil, Russia, India, China and South Africa) have increasing power to affect the global economy both in their increasing demands for goods and services and in their management of their own economies. Sustainable principles must be incorporated into the market in order to manage the new challenges of the global market.

2.2 Resource Scarcity and Cost Volatility

Resource scarcity is increasingly affecting economic competitiveness in both the local and global marketplace. As developed economies and emerging economies evolve in their manufacturing and resources needs the market for resources is becoming highly volatile due to increased demand and limited sourcing. Those controlling the resources can impact the availability and cost and thereby the competitiveness in the market. "The Foundation's report paints a clear picture: our linear 'take-make-dispose' approach is leading to scarcity, volatility, and pricing levels that are unaffordable for our economy's manufacturing base. (Ellen MacArthur Foundation, 2013)" Sustainable consumption levels and therefore revised manufacturing and services must be implemented to stabilize the volatility and more importantly to conserve scarce resources for future needs.

2.3 Increased Demand

While population growth was initially the primary concern in global sustainability, the greater concern has become the tremendous rise of a global middle class and their increased consumption of all resources. "McKinsey anticipates the emergence of three billion new middle-class consumers by 2030." (Ellen MacArthur Foundation, 2013) In this market, resource, manufacturing and logistical costs, all critical to

economic competitiveness, are in continuous flux making consistent competitiveness extremely difficult. Relatively new concepts (1976-2013) such as a refocused asset-based comprehensive economic development, circular economy, de-growth and alternatives to the basic gross domestic product measurement of economic health are being discussed and implemented. These concepts have their origins in the increasing recognition of global and local sustainability as the critical drivers of future economic viability and competitiveness.

"In Cradle to Cradle, they argue that we can and must make every (thing) out of materials that can be either completely reusable in other products or completely biodegradable … importantly, this creates a massive new opportunity for job creation-in our own country, because in the future, as labor costs begin to level out, logistics will be the most expensive thing and the local will become not only the most cost-beneficial but the necessary this approach is the only viable solution for economic growth..." (Friedman, 2008) International companies are now implementing cradle to cradle manufacturing as a means to greater economic competitiveness. The entire concept of the market place and consumption needs to be changed to respond to the vastly increased market demand and the now acknowledged limits of the planet.

3 Sustainability Responses

As sustainability is incorporated into the decision making process of the public and private sectors economic competitiveness will need to be inclusive of not just economic but also environmental and social conditions. The entire concept of the market place and consumption needs to be changed to respond to the vastly increased market demand and the now acknowledged limits of the planet.

3.1 Asset-based Comprehensive Economic Development Strategy (ACEDS)

Asset-based economic development looks to the strengths of a local community and pairs them with potential markets that can be used to expand the local and regional economies. ACED also takes a broader approach to what assets are included in the strategy: natural environments, social and cultural assets and economic advantages. The comprehensive strategy engages all the potential of the community and makes the development more sustainable and resilient to market changes. Traditional economic development must be rethought for this approach. It also requires leadership, collaboration and innovation locally and regionally. Financing must also be well thought through and consistently a part of the overall implementations.

"Asset-based comprehensive economic development can have many benefits for communities, including:

- Long-term, sustained economic growth
- Local return on investment
- Job creation and retention
- Increase in per capital income
- Increase in local tax base
- Strengthening regional networks" (Anna Read, ICMA)

3.2 Community –based Economic Development

ICMA has a version of asset- based economic development called Community-Based Economic Development (CBED). It promotes an inclusive and comprehensive approach to support public-private

cooperation and engage community resources. " The CBED approach recognizes that economic development programs involve many sectors—housing, education, labor force development, infrastructure, finance, law, health, civil society, and private sector development—and allows for the efficient use of resources in a way that benefits businesses and citizens alike." (ICMA, Local Econmonic Development)

3.3 Clusters

Clusters are both naturally forming and developed groups of related industries that are located in physical proximity to access local resources, technologies and create linkages and alliances. They cooperate and compete with each other for employees, contracts and economic growth locally and regionally. They create a highly sustainable source of jobs and local income because the common and diverse opportunities can respond to market changes. Clusters typically are customized to specific local conditions that provide unique benefits. An important local condition for successful clusters is the opportunity to form strong public /private partnerships. While linkages between firms is a given, the additional support that can come from academic institutions, venture capitalists, regulators and the public sector in general is vital to sustainable economic competitiveness. Cluster approaches are based on a few principles:

- Strong Public/Private Collaboration
- Co-opetition: cooperation and competition
- Leadership Identification: fostering public goals while also serving self-interests.
- Central Strategy Integration: open-ended, crosscutting strategies (ECG, Methodology What is a cluster?)

Figure 2: Clusters (ECG, Methodology Collaborative Strategy)

3.4 Economic Gardening

Economic Gardening recognizes that most long term local job creation is generated by mid-sized companies and yet traditionally most support is provided for start-ups. The initiative focuses on "Second Stage Companies… that have grown past the start-up phase but have not grown to full maturity. A business is defined as second stage when it has 10-99 employees and revenue from $500,000 to $25 million." (ICMA, Economic Gardening)

Economic Gardening provides access to competitive intelligence such as sophisticated market research tools, data mining and GIS that would be financially inaccessible otherwise. With these, the companies can better understand their market, customers, competition and new trends and developments in their sectors. It also provides peer learning activities and roundtables for CEOs that help to form an entrepreneurial spirit in the community or region. Within clusters this can also translate to mentoring, cooperation and to coordinated transitions to new technologies and industries. Currently there are 32 programs in the US 12 of which are run at the state level. (National Center for Economic Gardening)

Economic Gardening is an example of reassessing the opportunities for competitiveness and sustainable growth and structuring solutions to impediments that prevent municipalities and regions from efficient economies.

3.5 Consumption

"Economies have traditionally been based on the concept of one time consumption. While the general population growth was effectively projected and is expected now to level out by 2050, the impacts of the significant rise in an economic middle class in emerging countries were not. Changing economic demographics are having a far greater impact on consumption than had been anticipated. Global population is expected to increase by over 1 billion by 2020 but the "middle class" is expected to increase by 2 billion expanding the consumption of all goods beyond the simple population increase. They seek the higher quality of life of developed countries such as the United States which consumes roughly 32 times the energy per capita of developing countries." (Friedman, 2008) BRICS (Brazil, Russia, India, China and South Africa) represent huge markets of new middle class consumption. If consumption patterns are not changed, they will deplete the global resources.

3.6 Circular Economy

"As a compelling response to these challenges, the report advocates the adoption of the circular economy…the research also highlights immediate and relatively easy-to-implement opportunities. On the basis of current technologies and trends, it derives an estimate of the net material cost saving benefits of adopting a more restorative approach—more than USD 600 billion p.a. by 2025, net of material costs incurred during reverse-cycle activities. The corresponding shift towards buying and selling 'performance' and designing products for regeneration should also spur positive secondary effects such as a wave of innovations and employment in growth sectors of the economy... Many business leaders believe the innovation challenge of the century will be to foster prosperity in a world of finite resources. Coming up with answers to this challenge will create competitive advantage." (Ellen MacArthur Foundation, 2013)

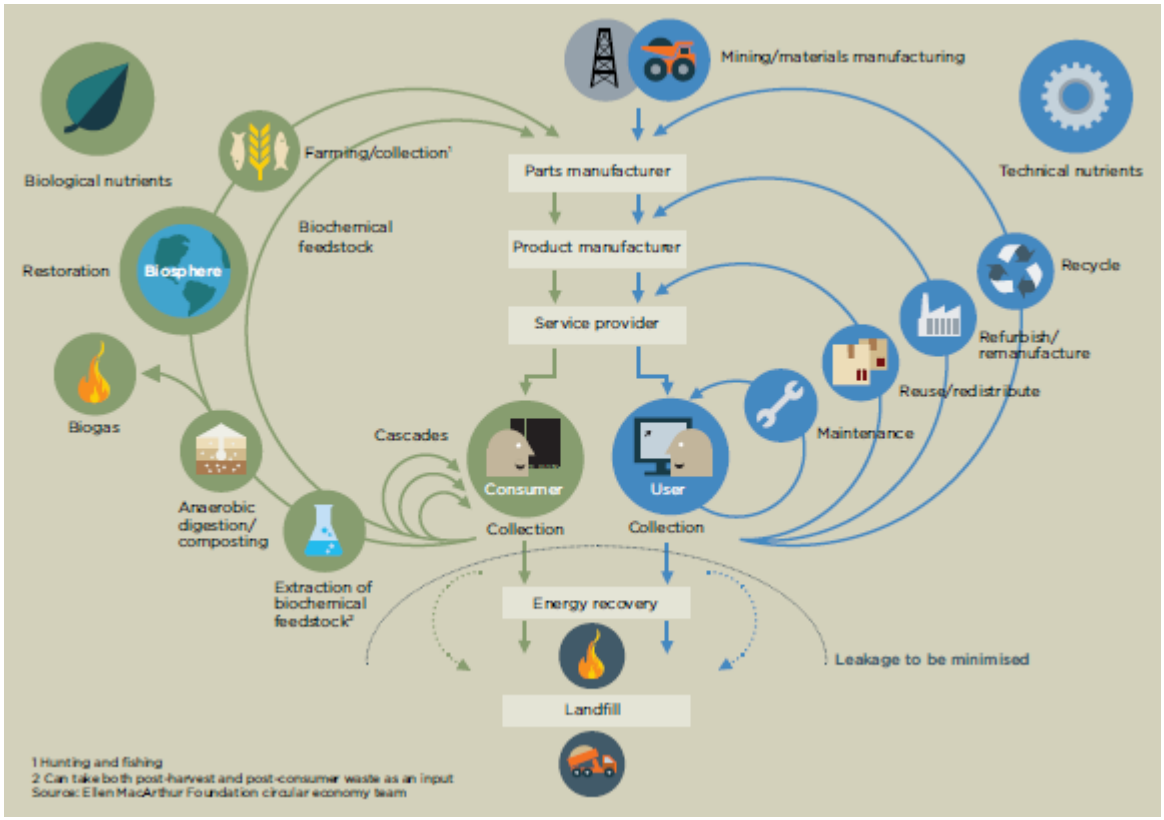

Figure 2.1: The circular economy-an industrial system that is restorative by design (Ellen MacArthur Foundation, 2013)

"The Circular Economy is a blueprint for a new sustainable economy, one that has innovation and efficiency at its heart and addresses the business challenges presented by continued economic unpredictability, exponential population growth and our escalating demand for the world's natural resources. Cisco Chris Dedicoat, President, EMEA" (Ellen MacArthur Foundation, 2013) The circular economy approach significantly reduces the need for new resources by keeping the existing resources in the production loop, it reduces the energy inputs for production because the reuse requires less effort and it reduces logistical costs by reducing initial resource provision efforts, and waste stream efforts. To implement this process the McArthur foundation proposes a rebalancing of approaches.

20th century	21st century
Problem solving	Problem appreciation and reframing
Analysis	Synthesis
Reductionism	Whole system emphasis
Closed and immediate cause and effect	Multiple influences through time and space
Individual learning	Team or group learning
Being competitive	Competitive and collaborative
Emphasis on teacher transmitting pre-determined knowledge to the student	Learning through enquiry
Rooted in subjects or disciplines	Meta-learning[164]

Figure 3: Re-balancing (Ellen MacArthur Foundation, 2013)

3.7 Sustainable Degrowth

Sustainable degrowth is "an equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term…Degrowth theorists and practitioners support an extension of human relations instead of market relations, demand a deepening of democracy, defend ecosystems, and propose a more equal distribution of wealth. " (Schneider, Kallis, & Martinez-Alier, 2010)

April 2008 conference in Paris-unsustainable growth patterns

- Cultural-development model of US and Europe isn't appropriate to southern countries
- Equitable -disconnect economic interests and social, political, information systems
- Ecological-defend ecosystems and living beings
- Spiritual-non-violence, art, voluntary simplicity
- Bio-economical/ecological economics-concerns on resource depletion and waste disposal

3.8 Natural Lands

New studies are being done to document the economic value of natural lands. The Value of NJ's Ecosystems Services reviewed over 100 studies to document significant economic value for wetlands, marine ecosystems, forests, urban green spaces, beaches, agricultural lands and open fresh water and riparian buffers. While these are primarily environmental benefits such as natural water filtration and waste treatment, they also include recreation and aesthetic benefits. (Costanza, Wilson, Troy, Voinov, Liu, & D"Agostino, 2006)

Another report for the Delaware Valley Regional Planning Commission found broader economic benefits as follows:

- the effects of protected open space on residential property values
- the value associated with environmental services provided by southeastern Pennsylvania's protected open spaces,
- the value of recreational activity on protected open space and associated avoided
- health care costs
- jobs and revenue created as a result of activity on and connected to protected open space

The economic benefits generated by protected open space accrue in different ways – some are direct revenue streams to individuals or governments, some represent asset appreciation value, some accrue in the form of avoided costs. Individually they range in hundreds of millions of dollars per year for the region studied. (Economy League of Greater Philadelphia; Econsult Corporation; Keystone Conservation Trust, 2011)

3.9 Alternatives to the Gross Domestic Product Indicator

New directions away from GDP as an indication of community/state/nation's success, viability and sustainability are being proposed and discussed by major countries and the European Union.

"We need to move beyond gross domestic product as our main measure of progress, and fashion a sustainable development index that puts people first" UN Secretary-General Ban Ki-moon (Remarks to the High-level Delegation of Mayors and Regional Authorities, New York, USA, 23 April 2012) (Beyond GDP)

"GDP tells you nothing about sustainability" Nobel Prize-winning economist Joseph Stiglitz proposes alternatives to Gross Domestic Product as a measurement of national economic success, 2008 (publ. 2010) (Beyond GDP)

"GDP - Gross Domestic Product - measures the monetary value of all goods and services that are produced within a nation during a given period and sold to consumers, government, investors or are exported. GDP does not cover goods and services that cannot or have not been put a value on by the statistical authorities - i.e. so-called non-market goods and services, (nor) well-being that goes beyond GDP, and does not reveal inequality concerns - e.g. the consumption possibilities of the poor compared with those of the rich… Adequate indicators are needed to address global challenges of the 21st century such as climate change, poverty, resource depletion, health and quality of life. (Beyond GDP)

Alternate Indicators:

- *Enlarged GDP indicators* start from GDP (or other figures from the System of National Accounts) but adjust for some of its shortcomings to deliver a more comprehensive overview of a country's wealth or well-being.
- *Social indicators* give insights into a broad range of social issues, concerns and trends such as life expectancy, poverty rates, unemployment rates, disposable income, and education levels, etc. They are also used to give insights into broader notions of social progress.
- *Environmental indicators* cast light over the state and development of issues such as natural resources, environmental pollution and waste, as well as related issues such as human health.
- *Well-being indicators* are used to broadly illustrate people's general satisfaction with life, or give a more nuanced picture of quality of life in relation to their jobs, family life, health conditions, and standards of living.

"The role of measures that go beyond GDP in policy-making is at least twofold. On the one hand, they can be used by politicians to better monitor and evaluate progress in our society, taking into account environmental sustainability and social inclusion, which are not covered by GDP. On the other hand, these measures can be used to better communicate in a clear way that a given policy may target or affect many other elements of the society than economic activity." (Beyond GDP)

"… GPI account trends for the 1950 – 2004 period… are alarming. While per capita GDP has risen dramatically – from $11,672 in 1950 to $36,595 today, per capita GPI has stagnated in the $14,000-$15,000

range since the late 1970s. This implies that since the late 1970s, the benefits of economic growth have been entirely offset by rising inequality, deteriorating environmental conditions, and a decline in the quality of our lives". (Talberth, 2012)

3.10 Redirect concepts of market, manufacturing and consumption

3.10.1 "She finished by offering a list of potential solutions to overcoming some of these barriers, including taxing carbon, better infrastructure finance, more individual producer responsibility, the public sector leading on procurement and some regulation." (Ellen MacArthur Foundation, 2013)

4 Implications

The rate of change in markets is making it increasingly difficult to compete locally, regionally and globally from both the knowledge side and the goods side. The internet and the availability and impacts of constant personal and market connectivity have also changed the way people consume everything from music to durable goods. The impacts of historical consumption and the potential for a massive middle class market require an entire re-consideration of our use of resources. The implication is that governments and businesses must entirely rethink their approach to the economic market and their assessment of success in broader terms that encompass the critical aspects of the limits of our world and the need for a sustainable market and patterns of consumption.

Economic competitiveness will be defined by the results of new approaches to the patterns of consumption.

5 Defining & Tracking Sustainability

Based on the issues and responses presented above, the following statement is offered to define sustainability for this area:

Our economy is competitive and sustainable when:

- Local economies are strong and able to compete in the global marketplace
- Local, regional and global markets are able to compete and respond to increasing demand while reducing their need for limited resources as inputs to production
- Economies are able to support workforces and workforces are able respond to changing needs for goods and services
- Economies incorporate social and environmental parameters in the measure of competitiveness
- Economies balance the need to compete globally with the need to be resilient to global system shocks by having local capacity

See Table 1 for preliminary indicators and targets.

6 Conclusions

In order to remain competitive in the increasingly changeable market at any level-local, regional and global-new approaches to the understanding of assets and opportunities must be made. Most importantly the

difficult transition to a new form of consumerism of services rather than ownership of goods must be developed. The use of new resources must be significantly reduced and the reuse of all goods must be incorporated into the understanding of economic competitiveness. Measures of economic success must be expanded to include social and environmental aspects in order to achieve a sustainable economy.

Table 1: Preliminary Economic Competitiveness Sustainability Indicators and Targets

Sustainability Definition	Preliminary Sustainability Indicators	Preliminary Targets	Scale of Analysis	Availability and Period of Data
Local economies are strong and able to compete in the global marketplace	GDP	Ranking in regional economies Ranking in global economies	Municipal, county and state, regional-northern, central and southern, industry cluster	Department of Labor and Workforce Development http://lwd.state.nj.us/labor/lpa/LMI_index.html annual NJ Data tools http://lwd.state.nj.us/labor/lpa/tools/datatools_index.html US Census-NJ data, Industry projections , employment data
Local, regional and global markets are able to respond to increasing demand while reducing their need for limited resources	Increased production Redesign of production to facilitate reuse Minimization of waste	Percentage of new resources per product Percentage of reused materials and products Percentage of waste per product	Municipal, county and state, regional-northern, central and southern, industry cluster	Department of Labor and Workforce Development http://lwd.state.nj.us/labor/lpa/LMI_index.html annual NJ Data tools http://lwd.state.nj.us/labor/lpa/tools/datatools_index.html US Census-NJ data, Industry projections , employment data
Economies are able to support workforces and workforces are able respond to changing needs for goods and services	Unemployment rate overall and by sector Availability of skilled workers to fill vacant positions	New jobs creation outpaces job losses Workforce training matched to employment opportunities	Municipal, county and state, regional-northern, central and southern, industry cluster	Department of Labor and Workforce Development http://lwd.state.nj.us/labor/lpa/LMI_index.html annual NJ Data tools http://lwd.state.nj.us/labor/lpa/tools/datatools_index.html US Census-NJ data, Industry projections , employment data

Sustainability Definition	Preliminary Sustainability Indicators	Preliminary Targets	Scale of Analysis	Availability and Period of Data
Economies incorporate social and environmental parameters in the measure of competitiveness	GDP is replaced by more comprehensive targets: HDI or GPI Achieve growth of GDP while improving educational levels and life expectancy	Achieve growth of GDP while improving educational levels and life expectancy	Municipal, county and state, regional-northern, central and southern, industry cluster	Department of Labor and Workforce Development http://lwd.state.nj.us/labor/lpa/LMI_index.html annual NJ Data tools http://lwd.state.nj.us/labor/lpa/tools/datatools_index.html US Census-NJ data, Industry projections , employment data
Economies balance the need to compete globally with the need to be resilient to global system shocks by having local capacity	Industry clusters responsive to changing markets and developing new sub industries	Economic diversity aligned with NJ's core assets and capacities	State, regional-northern, central and southern, industry cluster	•Depart of Labor & Workforce Dev. http://lwd.state.nj.us/labor/lpa/LMI_index.html , annual NJ Data tools http://lwd.state.nj.us/labor/lpa/tools/datatools_index.html

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