

Executive Summary

The paradigm governing national and international competitiveness has shifted in the last several decades. Competitiveness can no longer be evaluated solely on its economic elements, such as natural resources, access to labor, economies of scale and historical market position. Today, competitiveness is multi-dimensional. What determines competitiveness is the potential for a region to achieve sustained success in three broad areas: the Economy, the Environment and Equity.

After all, most residents would agree that livability or quality of life is the glue that holds this region together. Livability is a composite of the quality of the natural environment, the working environment, and the cultural, educational, recreational and other opportunities that are available to citizens to enhance their working and leisure time. These elements interact synergistically to make a region livable.

Helping local leaders evaluate our competitiveness and whether it is sustainable is what this study is all about. The San Diego Association of Governments and the Regional Economic Development Corporation, working together with the Competitiveness Index Advisory Committee, produced this study to provide a reliable and timely source of information that evaluates and monitors our regional progress in many areas that help to determine our region's livability.

To accomplish this task, the Indicators study uses a variety of regional indicators to chart our progress, or lack of it, in three main areas: the Economy, the Environment and Equity. In charting our progress, the Indicators study provides information that San Diego residents can use to bring about positive change in their communities and our region. In this way, the Indicators study provides a powerful catalyst for forward thinking and collaborative action.

The Indicators of Sustainable Competitiveness study is organized into three main sections:

- **Sustainable Competitiveness Index**—benchmarks our performance against 20 regional competitors and the nation in three broad areas – the economy, the environment and equity. The Index uses a focused set of indicators to determine if our competitive position is sustainable.
- **Monitoring Our Progress**—broader than the Index, this section provides an in-depth analysis of all indicators in the Index *plus* other indicators to provide greater insights into the San Diego region. In order to benchmark our performance against 20 regional competitors and the nation in three broad areas [the economy, the environment, and equity] three questions are asked: How are we doing? How do we compare? and, Have we improved?
- **Technological Innovation** – employs the use of data on patents to identify the sources and capacity of innovation in our economy that are responsible for helping sustain our competitiveness, improve our productivity, and provide opportunities for prosperity.

Sustainable Competitiveness Index

Sustainable Competitiveness measures a region's ability to maintain the human resources necessary to sustain economic prosperity *balanced* with improved social equity and the preservation of environmental quality.

One fundamental role of the Sustainable Competitiveness Index is to develop a consensus on the essential elements of a sustainable and competitive region. A second role of the Index is to help us move beyond the misconception that there is an internal conflict between our economic, environmental and social equity goals. . All these work synergistically to improve the region. And a third role is to act as a spark, igniting the political will and momentum necessary to move forward with initiatives to improve the region.

The Index has three essential elements – one for the economy, one for the environment and one for equity. Each element has between three and five components where each component has one to three indicators. Many indicators are available for the Index; however, the 18 indicators listed in Figure 1 are selected because they provide the key information for each of the three elements. Adding more indicators would dilute the results of the Index without adding additional value.

Figure 1
Sustainable Competitiveness Index Elements

Economic Element	Environment Element	Equity Element
1. Standard of Living	1. Air Quality	1. Income Distribution
<ul style="list-style-type: none"> Real Per Capita Income 	<ul style="list-style-type: none"> Number of days not meeting EPA standards 	<ul style="list-style-type: none"> Ratio of average to median household income
2. Business Investment	2. Water Quality	2. Housing Affordability
<ul style="list-style-type: none"> Venture Capital Share of GMP IPO funds as a share of GMP 	<ul style="list-style-type: none"> US EPA Index of Watershed Indicators 	<ul style="list-style-type: none"> Housing Opportunity Index
3. Capital Facilities Investment	3. Capital Facilities Investment	3. Capital Facilities Investment
<ul style="list-style-type: none"> Capital Outlays on Air Transport Capital Outlays on Sea & Inland Ports Capital Outlays on Highways 	<ul style="list-style-type: none"> Capital Outlays on Sewerage Capital Outlays on Solid Waste Capital Outlays on Water Utilities 	<ul style="list-style-type: none"> Capital Outlays on Mass Transit
4. Innovation		4. Transportation
<ul style="list-style-type: none"> Patents per million population 		<ul style="list-style-type: none"> Average Commute Time
5. Education		5. Education
<ul style="list-style-type: none"> Level of Educational Attainment for those 25 years of age and older 		<ul style="list-style-type: none"> Percent of children aged 3-4 enrolled in preschool or nursery school

The indicators provide snapshots of essential items today [air quality, real per capita income, housing opportunity] as well as a “forward looking” perspective [patents, Venture Capital, Initial Public Offerings, Capital Facilities Investments by government]. The “forward looking” indicators will have their biggest impact in the future. For example, governmental capital outlays on air transport will impact the ability of the region to move people and material in and out of a region for decades to come. Thus, the Index incorporates dynamic aspects into its formulation as 61% of the indicators [11 of the 18] have a future impact. If the Index did not have forward looking indicators, it would provide a static evaluation which would overlook whether a region’s position is sustainable over time.

The method of compiling the index is based on rank ordering the data. For example, real per capita income for the 21 regions and the US are rank ordered from the highest income to the lowest income. The region with the highest per capita income is ranked 1st [best] and the region with the lowest income is ranked 22nd [worst]. This ranking is done for each component of an element. Since scores are based on rank, where lower rank numbers indicate better performance, the lowest overall score is best. In the Economic Element, the best possible score would be a 5 [rank 1st for all five components] and the worst score would be 110 [ranked 22nd for all five components]¹.

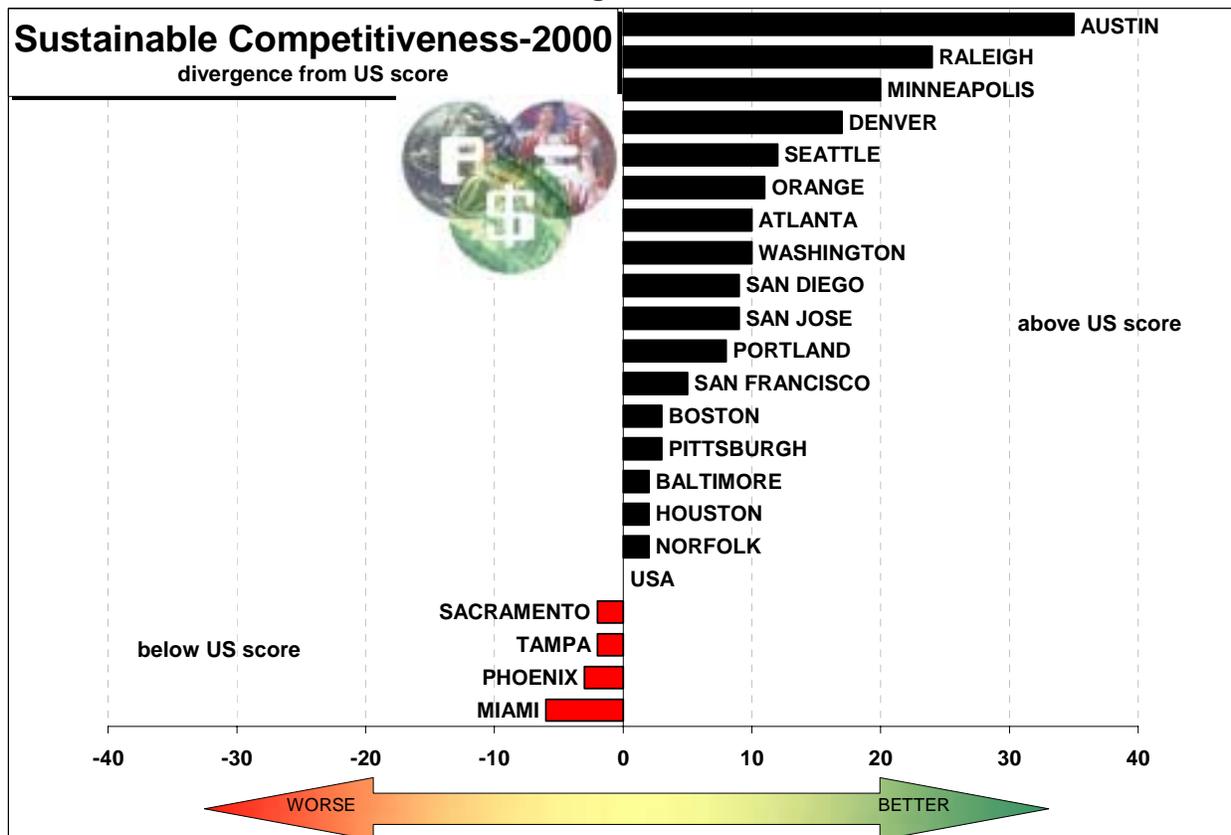
¹ The element scores are the sum of the rank ordering of the element’s components. For the Economic Element there are five components, for the Environment Element there are three components and for the Equity Element there are five components. Because each element has a different number of components, the element scores are multiplied by a factor to insure each element has the same weight].

This process is duplicated for each element. It is possible that a region could perform quite well in two elements but poorly in the third element. This unbalanced condition would likely not be sustainable and we add the Balance Element² to account for the interdependence of all three elements. However, further research needs to be undertaken to verify our hypothesis of balance and sustainability.

To compute a region's Sustainable Index score, the rank order for each of the four elements is added. All 21 of the region's summed Index scores and the US scores are then rank ordered from the lowest total [best] to the highest total [worst] to obtain the overall leader for the Sustainable Competitiveness Index. All of these computations are found in the appendix.

Ranked 1st in the Sustainable Competitiveness Index is Austin followed by Raleigh and Minneapolis. San Diego is ranked 9th tied with San Jose. Four regions are ranked below the US and they are Sacramento, Tampa, Phoenix and Miami with Miami ranked last [see Figure 2]. The figure presents the data in terms that are above or below the U.S. data in order to get a sense of how each region performs relative to the nation.

Figure 2



² To specifically address this issue, the variance for each region is calculated and titled the Balance Element. The variance is a statistical term and represents the degree of spread of a data set.

San Diego's weak element is equity and the indicators in equity that are ranked lowest are housing affordability [20th] and the percent of children aged 3-4 enrolled in early education programs [19th]. The reason San Diego's is ranked 12th for the Balance Element is because its ranking in Equity is not in line with its rankings in Economy and Environment. *In short, equity issues are San Diego's problem areas and may reduce future competitiveness.* With a ranking as low as San Diego's equity ranking, the Index is suggesting that San Diego's policy makers need to address the equity issues.

People are the cornerstone of the San Diego region. They are the ones that do research, innovate, form businesses and maintain our environment. If the region's equity issues cannot be addressed, some residents may choose to leave, in which case, San Diego will lose its most valuable asset.

Monitoring Our Progress

Livability and quality of life are the bottom line; they are the glue that holds our region together. In order to maintain and expand the San Diego region's economic vitality, we need to continue to retain the best and brightest people to live and work here.

Livability is a composite of the three main areas of focus—the economy, the environment and equity. These three elements interact synergistically to make our region livable. Analysis in the monitoring section reviews these three areas in depth, detailing more than twice as many variables as are contained in the Sustainable Competitiveness Index. Not only are more indicators reviewed, additional in-depth analysis is undertaken to provide insights on key topics.

How are we doing? The regional indicators from our three broad areas point to a mixed performance picture for the San Diego region. Major strengths of the region include its ability to launch new companies via initial public offerings, attract venture capital, innovate, and retain businesses that are leaders in technological innovation. The region also shows strengths in water quality, and capital outlays for certain environmental facilities. Weaknesses include housing affordability, growth in our standard of living, income distribution, traffic congestion and capital expenditures on public transit.

How do we compare? When compared to 20 other regions the response to this question is based on pre-determined terminology. If San Diego is ranked 1st through 4th, the answer is "Excellent", if ranked 5th through 8th, the response is "Above Average", if ranked 9th through 13th the response is "Average", if ranked 14th through 17th, the response is "Below Average" and if ranked 18th through 21st the response is "Poor". Figure 3 is a summary table of the comparisons of all the indicators in each category.

Our environmental indicators show that we are well ahead of most of our competitors as we rank above average or excellent in most categories. Both our ranking in air quality and unemployment, although below average, have shown significant improvement. Our economic indicators are slightly less positive, but still rank above a majority of our competitors. One disconcerting trend is that our standard of living, as measured by real per capita income, is below average, when compared to our competitors. Our worst comparison is in the equity area where housing, health care and transportation measures of equity, in most cases, show us below our competitors.

Of the 31 rankings that are analyzed, 13 or 42% are ranked excellent or above average while 12 or 39% are ranked below average or poor. Of the 13 indicators that receive a ranking of excellent or above average, 7 or 54% are economic indicators, 4 or 31% are environmental indicators, and 2 or 15% are equity indicators. Of the 12 indicators that receive a ranking of below average or poor, 7 or 58% are equity indicators, 3 or 25% are economic indicators and 2 or 17% are environmental indicators.

Figure 3

How Does San Diego Compare?					
To 20 Other Metropolitan Regions					
Indicator	Excellent	Above Average	Average	Below Average	Poor
ECONOMY					
Per Capita Income				✓	
Unemployment Rate				✓	
Inflation			✓		
Venture Capital [2 indicators]		✓	✓		
Initial Public Offerings [2 indicators]	✓✓				
Exports		✓			
Capital Outlays on Air Transport		✓			
Capital Outlays on Sea and Inland Ports		✓			
Capital Outlays on Highways			✓		
Patenting		✓			
Education				✓	
<i>SUM OF ECONOMY INDICATORS</i>	2	5	3	3	0
ENVIRONMENT					
Air Quality				✓	
Water Quality	✓				
Crime		✓			
Capital Outlays on Sewerage	✓				
Capital Outlays on Solid Waste				✓	
Capital Outlays on Water Utilities	✓				
<i>SUM OF ENVIRONMENT INDICATORS</i>	3	1	0	2	0
EQUITY					
Income Distribution			✓		
Housing [3 indicators]				✓	✓✓
Health Care				✓	
Education [3 indicators]		✓	✓		✓
Transportation [3 indicators]	✓		✓	✓	
Capital Outlays on Mass Transit				✓	
<i>SUM OF EQUITY INDICATORS</i>	1	1	3	4	3
SUM ACROSS CATEGORIES	6	7	6	9	3
Distribution	19.4%	22.6%	19.4%	29.0%	9.7%

Have we improved? Yes - especially in the economic and environmental areas [see Figure 4]. The area where there is the least improvement is equity.

In the economic area, real per capita income began increasing in 1994 after declining for five consecutive years. Also, San Diego's unemployment rate fell from a high of more than 7% to less than 3% during the decade. However, on a cautionary note, San Diego is still creating far too many low paying jobs. We have not yet replaced all the high paying jobs we lost during the 1990 to 1994 recession.

In the environmental area, San Diego had substantial improvements in the last decade in air quality as the number of days not meeting U.S. Environmental Protection Agency standards declined from 96 days in 1990 to 14 days in 2000. Another area in which San Diego had substantial improvement was crime – between 1990 and 1999 the violent crime rate per thousand population declined 39% while the property crime rate declined 53%.

In the equity area there are mixed results for most indicators. Housing is one area where San Diego did not improve as the price of the median home continues to spiral upward, rising 36% from \$220,000 in January 2000 to \$300,000 in February 2002. These high prices are not offset by a proportionate increase in wages; therefore, housing is becoming less affordable. While income distribution deteriorated slightly during the previous decade, a positive note can be found from the fact that the number of individuals reporting an adjusted gross income of less than \$10,000 per year declined by about 39% between 1990 and 1999.

On balance, San Diego appears poised to improve its well being in the new millennium. However, a note of caution is in order with respect to equity issues. People are San Diego's most vital asset and the housing and income distribution issues can affect our region's ability to maintain our vital asset.

Figure 4

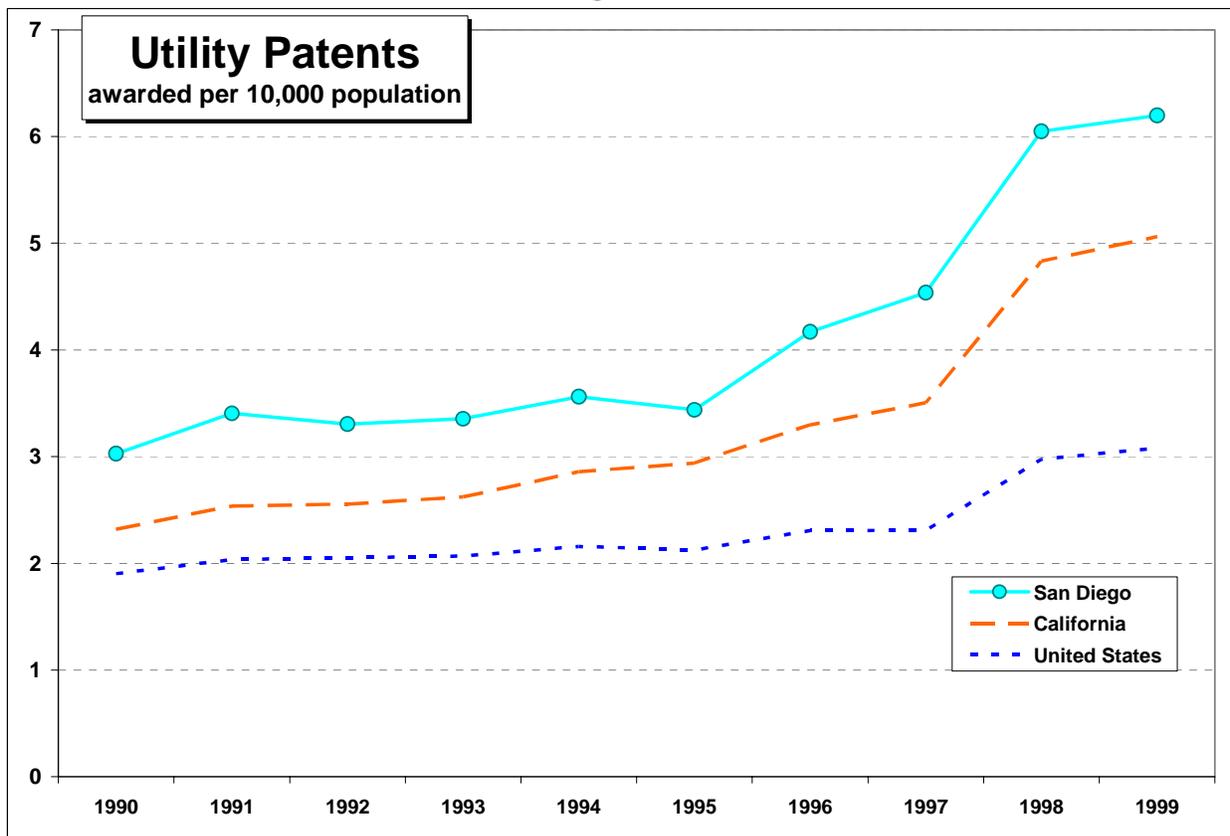
Has San Diego Improved?			
Compared to historical San Diego data			
Indicator	Yes	No	Mixed Results
ECONOMY			
Per Capita Income	↑		
Unemployment Rate	↑		
Inflation		↓	
Venture Capital	↑		
Initial Public Offerings	↑		
Exports	↑		
Capital Outlays on Air Transport	↑		
Capital Outlays on Sea and Inland Ports			↔
Capital Outlays on Highways	↑		
Patenting	↑		
Education	↑		
<i>SUM OF ECONOMY INDICATORS</i>	9	1	1
ENVIRONMENT			
Air Quality	↑		
Water Quality	↑		
Crime	↑		
Capital Outlays on Sewerage	↑		
Capital Outlays on Solid Waste			↔
Capital Outlays on Water Utilities			↔
<i>SUM OF ENVIRONMENT INDICATORS</i>	4	0	2
EQUITY			
Income Distribution			↔
Housing		↓	
Health Care			↔
Education			↔
Transportation			↔
Capital Outlays on Mass Transit		↓	
<i>SUM OF EQUITY INDICATORS</i>	0	2	4
SUM ACROSS CATEGORIES			
	13	3	7
Distribution	56.5%	13.0%	30.4%

Measuring Technological Innovation

The most successful businesses in today's marketplace are repeatedly creating and improving products and services, inventing more efficient production systems and technologies, and collaborating both nationally and internationally for mutual benefit. Increasingly, efficient management of well-developed local resources has become the determinant of a region's economic, social and environmental well being. Thus a region's competitive advantage today is driven by the ability of firms to continuously innovate and upgrade. Furthermore, innovation is the driving force behind improvements in productivity, a key component of regional prosperity.

One measure of technological innovation that drives competitiveness is the level of patenting in a region³. Patents are a way of registering an entirely new product, a new way of producing, or an innovative improvement on an established process. A patent protects the economic rights or value of the innovative idea.

Figure 5



Innovation is linked to the patenting process and patents serve as the primary method for identifying business and industry that are innovative and collectively act as the primary drivers of economic activity in the region. Our research shows that these firms are typically located in San Diego's technology clusters. The technologically innovative clusters in San Diego are identified as Biomedical Products, Biotechnology and Pharmaceuticals, Communications, Computer and Electronics Manufacturing, Defense and Transportation Manufacturing, Environmental Technology, Horticulture, Recreational Goods Manufacturing, and Software and Computer Services.

³ "Clusters of Innovation: Regional Foundations of U.S. Competitiveness", Council on Competitiveness, October 2001.

The impact on the San Diego region from the firms in these innovative clusters has been substantial as new firms were established in them at about six times the rate of new firms established outside the innovative clusters. Further, wages increase two and one-half times faster in the innovative clusters when compared to wage increases outside of them.

The innovative clusters in San Diego are vibrant and will likely lead the regional economy toward improved prosperity. The recession in the early 1990's saw the Defense and Transportation cluster shrink dramatically, leaving the innovative clusters poised to grow in a more balanced fashion than in the early 1990's when the defense cluster accounted for about 34% of all technology sector employment. Today there are five innovative clusters each having between 14% and 18% of the innovative cluster employment. Well-established research capabilities, a fully developed network to *incubate* new businesses, and an ability to attract Small Business Innovation Research funds and venture capital from investors all point to an opportunity for future prosperity.

If there is a challenge, it is that future growth in employee compensation in the innovative clusters may not be as fast as that experienced in the previous decade. A significant portion of employee compensation in the 1990s in the innovative clusters [especially in the Communications cluster] was derived from stock options and not through the commercialization of products that result in new middle income jobs that support product production. Although, wage growth in the innovative clusters are likely to out pace the average for the regional economy, our challenge will be to retain our emerging growth companies and encourage them to open product production facilities in our region, as well as maintaining and expanding their research and development activities.

Future Actions

This report responds to a shift in the way regions evaluate their competitiveness. Competitiveness is multi-dimensional, and is determined by the ability of a region to achieve sustained success in three broad areas of the Economy, the Environment and Equity.

Although improvements can and should be made in all three "E" areas, for San Diego this report shows that we have our work cut out for us in the area of equity. Our research shows that our region is at a competitive disadvantage in the areas that define equity, including housing affordability, income distribution, traffic congestion and early childhood education. In addition, the outlook for these equity areas is not good, suggesting we likely will not see any near term improvement if we continue with a business as usual attitude.

Our research shows that these three broad areas are inextricably linked and work synergistically to improve or worsen the quality of life in a region. How long before our competitive disadvantages in equity spill over and effect our economic and environmental competitiveness? For example, most residents support retaining businesses that create good paying middle-income jobs, but where will these workers live? Isn't some of the growth in southern Riverside County a reflection of our competitive disadvantage in housing? Isn't one of this region's most poignant examples of a competitive disadvantage the young worker with a family who must drive an hour or two each day to find affordable housing? Isn't the work commute from southern Riverside into San Diego partially responsible for our poor performance in traffic congestion?

As stated earlier, one of the three primary goals of the Index is to act as a spark, igniting the political will and momentum necessary to move forward with initiatives to improve the region. To accomplish this task, the Index needs to be expanded and updated annually.

We propose to expand the number of indicators in each of the three areas to include ones that represent goals and objectives that we set just for our region. External benchmarking is important, but evaluating internal goals and objectives is equally as important. We propose to add additional indicators as part of our work on the SANDAG Regional Comprehensive Plan.

We have learned that highlighting problems and putting the region on notice is not enough to sustain the will and momentum necessary to implement change. What is needed – and what the Sustainable Competitiveness Index provides – is a way of measuring our progress, or lack of progress being made to solve problems on a broad front. The Index can be used as a tool to keep the region’s focus balanced and moving forward on a broad range of issues effecting our economy, environment and equity.