

Community Sustainability Indicators

This appendix provides a list of indicators that are either being used by communities or have been proposed for use as sustainability indicators. However, it is important to realize that this list is intended only to provide examples of what some communities are measuring. This list is not intended to be used as a laundry list—don't assume that you can pick one from each category and be done. Indicators need to be selected because they fit the circumstance of the community, not because someone else is using them.

It is also important to realize that although the indicators listed here are all used or proposed for use as sustainability indicators, not all of them are good measures of sustainability. The idea of measuring sustainability is still quite new and the ways to measure it not always well understood. Some of the indicators listed here, although good measures of other issues, will not be very useful in measuring progress towards sustainability.

In order to assist you in thinking about what indicators to use, these indicators have been ranked using the checklist presented in Chapter 3. In general, an indicator with a score of less than 4 will not be very useful for measuring sustainability, although it might be a good indicator for other purposes. An indicator with a score of 4 to 6 is better but it may be possible to improve on it. An indicator with a score of 7 or higher is, in general, a good indicator of sustainability. The highest rank possible for an indicator is 13. However, because it is not possible

COMMUNITY SUSTAINABILITY INDICATORS

to have one indicator that measures the sustainability of all different aspects of a community, it is rare that an indicator will score more than 10 points.

This checklist is one tool for evaluating sustainable community indicators. It is designed to identify indicators that are, in general, good indicators of sustainability. However, it is difficult to evaluate indicators outside of the context of a specific community. As a result, an indicator may rank low in the list below, but be a good indicator for a particular community because of that community's specific circumstances. Conversely, just because an indicator scores high on the checklist does not mean it is right for every community. The number of riders is relevant in Seattle but not in Arizona. The number of subway nity must decide if a particular indicator is relevant to its own situation and whether there is reliable data for that indicator.

This checklist is not the only method for evaluating sustainability indicators. The Additional Resources section of Chapter 3 describes several others. You may find that one of these other methods works better for your community. You may decide to develop your own evaluation criteria. What is important is that the criteria you use help your community determine the best way to measure sustainability.

Economy

Business

- 7 Dollars spent in locally-owned businesses
- 5 Business participation in school and civic events
- 5 Percent of organizations that have adopted sustainable development goals
- 3 New products or services
- 3 Office vacancy rate
- 3 Retail sales per capita
- 3 State rank in telecommunications technology
- 2 Government subsidies as percent of gross income
- 2 New business starts
- 2 Number of building permits issued
- 2 Number of business establishments
- 2 Number of environmental services, products and technologies exported
- 2 Percent of GDP from secondary production and business services
- Manufacturing productivity
- 1 Retail sales as a percent of personal income

Children

- 6 Children living in poverty
- 4 AFDC recipients on more than 24 consecutive months
- 4 Children receiving AFDC
- 4 Student eligible for free or reduced price lunch

Diversity

- 6 Discrimination in the workplace
- 6 Number of commercial crop varieties
- 6 Occupational distribution of women and minorities
- 6 Unemployment rate by ethnicity
- 5 Employment by sector
- 5 Employment by top five employers

Economy

Employment

- Average age of commercial fish harvesters 6
- Percent of residents who want to work full time who actually work full time 5
- Long-term unemployment
- Manufacturing wage and salary jobs as a percent of total jobs 5 5
- Real unemployment
- 4 Agricultural employment
- Professional, technical and managerial occupations as percent of total 4 4
- Unemployment rate
- 3 Employment
- 3 Number of green jobs
- Total wage and salary jobs per employed resident 3
- 2 Job growth among new businesses
- 2 Net job growth
- 2 Number of jobs in value-added manufacturing
- 2 Total wage and salary jobs

Finance

- Index of Sustainable Economic Welfare
- Energy and machinery expenses as percent of gross farm income 7 7
- Number and value of business loans in low income area 7
- Percent of products and services where price reflects life-cycle cost 6
- Environmentally adjusted Net Domestic Product
- GDP per capita adjusted for natural resource depletion 6
- 6 Per capita debt
- Percent of GDP spent on research and development 4 3
- Market value of environmental permits traded or sold 2
- Annual capital dollars invested in municipal infrastructure
- Agriculture value added as a percent of gross sales

Finance, cont'd

- 2 Gross state product/full-time worker
- 2 Growth in value added in forest products industry (paper and lumber)
- 2 Value of business personal property per worker
- 1 Assessed value of real estate per capita, inflation adjusted
- 1 Per capita gross state product as percent of US GNP
- 1 Value of building permits
- 1 Value of goods exported internationally
- 1 Value of industrial and commercial property
- 1 Value of residential and business properties
- 1 Gross State Product rate of increase vs. N.E. GSP rate of increase

Income

- 7 Average income of the bottom and top 20 percent
- 7 Corporate executive to production worker wages (ratio)
- 7 Distribution of wealth
- 7 Income distribution
- 7 Percent of disposable personal income that is being saved
- 7 Percent of jobs that did not pay a self-sufficiency wage
- 7 Percent of jobs that pay a liveable wage for a family of two
- 6 Hours of labor required to meet basic needs
- 6 Population areas with poverty more than 1.5 times state rate
- 5 Food stamp recipients
- 5 Length of time on welfare
- 5 Manufacturing wage and salary earnings as a percent of total income
- 5 People living below the poverty line
- 4 Households with incomes more than 200 percent above poverty line
- 4 Income disparity among counties
- 4 Number or percent of residents receiving welfare assistance
- 4 Population in areas with per capita income less than 70 percent of US

Economy

Income, cont'd

- 2 Effective buying income per capita
- 1 Average earnings per job
- 1 Cost of living index
- 1 Median family income as percent of US median
- 1 Per capita income as percent of state average
- 1 Per capita income in non metropolitan areas
- 1 Personal income per capita

Resource Use

- 8 Percent of harvested forest successfully restocked
- 8 Sales of locally produced food at farmers market
- 6 Affordable warmth
- 6 Annual acreage in field crops
- 6 Feed production and use balance
- 5 Farm acreage
- 5 Industrial use of toxic chemicals
- 4 Fish landings
- 4 Key natural resource harvests
- 4 Volume of large sawtimber trees
- 3 Values of key natural resources
- 2 Cost of 1,000 kWh of electricity

Tourism

- 1 Employment in hotel and lodging industry
- 1 Tourism/bed-tax revenues
- 1 Value added in hotel and lodging industry

Transportation

- 3 Percent of all manufacturing freight transported by rail, air, or water
- 2 Containers transported through seaport (TEU's)

Economy

Transportation, cont'd

2 Freight shipping availability in nonmetro areas

Education

Adult

- 8 Literacy rate
- 6 Adult education enrollment
- 4 Percentage of adults with associate's, bachelor's or graduate degre
- 4 Percentage of persons retrainable with existing funds
- 4 Percentage of population with high school diploma
- 3 Waiting time for adult ESL courses

Children '

- 5 Number of child care spaces needed in each age group
- 5 Number of children on subsidized childcare waiting list
- 4 Nursery education

Post-secondary

- 5 Rate of college graduation (five year rate)
- 5 Students entering postsecondary education
- 5 Technical school graduates employed in field
- 5 Tuition net cost as percent of disposable income
- 4 Degrees awarded from county universities and community colleges
- 4 High school graduates pursuing advanced training
- 3 Number of pupils completing college entrance requirement

Schools

1 Operating expenditure per student

Skills

- 8 Numeracy
- 8 Literacy rate

Education

Skills, cont'd

- High school graduates needing remediation in community colleges or state
- 3 Achievement Test Scores
- Percent of districts with graduation rate above state average 2
- Percent of districts with mean test scores equal/above state average

Sustainability

- Frequency of sustainable development in K-12 curricula 6 5
- Number of schools in sustainable school program
- 5 Sustainable development literacy of the public

Teacher

- 5 Ethnic diversity of teaching staff
- 4 Education level of faculty
- 4 Student/teacher ratio
- Average teacher salary 2

Training

- Employer-sponsored training for front-line employees 6
- Number of residents in job training programs
- Number of residents in vocational programs 6
- 6 Number of students in job prep programs
- Percent of postsecondary graduates finding employment in their field 5

Volunteers

- Volunteer involvement in schools 6
- Number of community volunteer programs to support schools 5

Youth

- 5 High school graduation rates
- 4 School dropout rate
- Schools with 12th grade dropout rate over 10 percent

Education

Youth, cont'd

- 4 Students failing 1st grade
- 4 Television and video use by 6th graders

Environment

Air

- 9 CO2 emissions by source
- 9 CO2 emissions from transportation
- 8 CO2 emissions relative to 1990 levels
- 7 Air pollutants from stationary sources
- 7 Air quality: CO, SO2, SPM, and O3 measurements
- 7 CO2 emission per capita, relative to "fair earth share"
- 7 Emissions of carbon dioxide and other greenhouse gases
- 7 Exposure to substandard ambient air quality
- 7 Number of days air pollutants exceed healthful levels
- 7 Output to sink / capacity of sink to absorb or assimilate
- 6 Air quality index
- 6 Days per year that air quality standards are met
- 6 Production of acid-forming emissions
- 6 Ratio of SO2 and smoke levels to EC limits
- 5 Greenhouse gas emissions measured in metric tons of carbon equivalents
- 5 Particulate matter in air
- 3 Number of complaints about air quality per year

Awareness

- 5 Number of environmental education programs at elementary schools
- 5 Number of environmental education programs for community
- 5 Students passing environmental education test
- 3 Number participating in Environmental Farm Plan Program
- 3 Percent population perceive pollution a priority

Biodiversity

- Biodiversity amphibian
- Biodiversity plant 8
- Number of species at risk
- Song bird diversity or population
- 6 Acres of occupied grizzly habitat
- Proportion of species approaching target population size
- Tailed frog population
- Stream miles opened for migratory fish

Environment

Biodiversity, cont'd

Population of endemic species for which the region has key custodial role

Fish

- Commercial salmon catch in watershed 8
- Fish species with consumption restricted 8
- Overfished fisheries compared to fisheries not overfished 8 7
- Wild salmon returning to spawn
- 6 Acres of closed shellfish beds
- Oyster Condition Index

Groundwater

- Water level in aquifer wells
- Monitored wells showing groundwater contamination 7 5
- Groundwater quality index
- New septic tank permits 3

Human

- 5 Indoor air quality
- Noise complaints to local authorities

Land Use

- 11 Land use patterns
- 10 Acres of cropland that have been converted to developed land
- 10 Number of acres of major terrestrial ecosystems
- 10 Open land lost to development in square km
- 10 Rate of change of wilderness area
- 10 Total area in significant land-use categories
- 9 Acreage of land used for streets
- 9 Acres under integrated pest management
- 9 Impervious surfaces
- 9 Number of biogeographical regions with adequate protected areas
- 9 Percent of new residential lots within 1/4 mile of services
- 8 Area used for organic agriculture / area used for chemical intensive agriculture
- 8 Forest land acres
- 8 Land area in parks and wildlife refuges
- 8 Loss of primary forests / total primary forests remaining
- 8 Number of acres of public open space
- 8 Percent of significant natural areas protected
- 8 Proportion of original agricultural land reserve (ALR) still designated ALR
- 8 Trees lost and gained through multi-family development
- 7 Parks and playgrounds as percent of urban area
- 7 Land parcels greater than 80 acres, and greater than 160 acres
- 7 Number of trees in urban 'forest'
- 7 Open space in urban villages
- 7 Privately owned acres placed under conservation easement
- 6 Acres of environmentally sensitive areas
- 6 Area of lands under formal agreement for wildlife habitat
- 6 Index of land naturalness
- 6 Number of trees on public property
- 4 Length of heritage rivers

Environment

Soil

- Average soil erosion on cultivated cropland as a proportion of tolerable rate 8 8
- Soil erosion per acre of cropland
- Area of land affected by soil erosion and salinity 6
- Soil organic matter content

Surface Water

- Percentage of estuarine areas not suitable for shellfish harvesting
- Quality of river water entering country / quality leaving country 7
- Fishable and swimmable river miles and lake acres
- Number of days all beaches are open for swimming
- Percent of streams you can drink from
- Fecal coliform count in surface water 6
- Index of watershed naturalness
- Miles of rivers not suitable for fishing due to dioxin 6
- Percentage area of lakes fully suitable for swimming 6
- 5 Amount of road salt used on rural regional roads
- 5 Bay grasses recovering, in acres
- 5 Compliance with dissolved oxygen standards
- 5 River compliance with metals water standards
- Phosphorus concentration in county streams
- Biological oxygen demand of county streams 3

Wetlands

- Acres of natural and restored wetlands
- Size and distribution of significant wetlands

Government

Diversity

- 7 Racial and ethnic representation in Legislature
- 7 Racial/gender diversity of city council members
- 7 Women who are legislators or officers

Effectiveness

- 3 Citizen satisfaction with state government services
- 3 Taxpayer satisfaction with services
- 2 Number of stated goals and established measures for local or state budget
- 2 Percent who believe that most or all of every tax dollar paid is wasted by government
- 2 Percent who trust local government vs federal government

Participation

- 5 Campaign contributions from small contributors
- 5 Community representation on health boards
- 5 Visibility of local government
- 5 Visibility of local issues
- 4 Households participating in residents or ratepayer associations
- 4 Voter participation in primary elections
- 4 Voter turnout for municipal elections
- 4 Voting rate of registered voters
- 3 Percent of eligible voters registered

Regulations/Services/Taxes

- 6 Percent of sustainable development compatible legislation
- 5 Fiscal stability and balanced revenue
- 2 City human services expenditures per capita
- 1 State and local tax burden

Volunteerism

4 Citizen volunteer advisors to government who felt their contributions were respected

Health

Access to Care

- 6 Emergency room use for nonemergency purposes
- 4 Percentage of people identifying obstacles to obtaining health care

Children

- 6 Asthma hospitalization rate for children
- 3 Infant mortality

Cost

- 4 Health care as percent of income
- 2 Health care cost relative to total state/local expenditure
- 1 Total health care expenditures

Disease

- 4 Death from stroke per 100,000 population
- 4 Deaths from lung cancer per 100,000 population
- 4 Deaths from stress and immune system failures
- 4 Health limitations on school/work/activity
- 3 AIDS cases per 100,000
- 3 Breast cancer deaths per 100,000 women
- 3 Deaths from all cancers per 100,000 population
- 3 Deaths from heart disease per 100,000 population
- 3 Syphilis cases per 100,000
- 3 Tuberculosis cases reported/100,000 population

Drug Use

- 6 Density of alcohol outlets in certain areas
- 5 Number of alcohol outlets per capita

Health

Drug Use, cont'd

- 3 Alcohol and drug use reported by youths
- 3 Cigarette use by youth at grades 5, 7, 9, 12
- 3 Cocaine use by youth at grades 5, 7, 9, 12
- 3 Death rate per 100,000 related to tobacco and alcohol
- 3 Percent of population who smoke
- 3 Percent of population who use illicit drugs
- 3 Police incidents related to alcohol & other drugs

Fitness

- 9 Healthy diets for children
- . 5 Life expectancy
- 5 Perceived quality of life
- 5 Percent of population who are physically active
- 5 Student fitness test scores
- 3 Deaths per 100,000 population ages 0-64

Insurance

- 5 Number of children without health insurance
- 5 Number of households with at least 1 uninsured member
- 5 Percent of population covered by health insurance

Pregnancy/Birth

- 7 Percent of women receiving adequate prenatal care
- 4 Low birthweight infants

Housing

Availability

- 8 House price to income ratio
- 7 Distribution of affordable housing throughout city
- 7 Number of homeless people

Housing

Availability, cont'd

- 6 Home ownership rate
- 5 Annual applicants for affordable housing
- 5 Number of people using homeless shelters
- 5 Share of new housing units going into incorporated parts of county
- 5 Single family housing growth compared to population growth
- 5 Waiting time for subsidized housing
- 4 Number of houses versus population
- 4 Yearly percentage increase in number of dwelling units
- 3 Average annual vacancy rate
- 3 New multi-family units as percent of total new residential units
- 3 Number of rehabilitated affordable housing units
- 2 New housing starts
- 2 New privately-owned housing units

Condition

- 9 Floor area per person in housing
- 5 Low-income housing with severe physical problem
- 5 Percent of dwellings in need of major repair

Cost

- 7 Affordability of single family home
- 7 Renters who cannot afford to live in the city
- 6 Home ownership rate
- 6 Low-income renters paying more than 30 percent of income on rent
- 6 Number of new homes that are energy-efficient
- 5 Housing affordability ratio rent prices
- Median family income as percent of annual single family house mortgage payment
- 5 Median family income as percent of average rent on two-bedroom apartment

Housing

Cost, cont'd

- 5 Median family income as percent of median single family house price
- 5 Percent of households able to afford buying median single family house
- 4 Median family income as a percent of average property tax

Population

Growth

- 8 Population growth
- 8 Population density
- 6 Net migration gain and loss
- 5 Total population
- 2 Age trends in population

Public Safety

Accidents

- 4 Percent traffic injuries to cyclists/pedestrians
- 4 Safety for pedestrians and pedal cyclists
- 3 Deaths from all accidents per 100,000 population
- 3 Traffic accident deaths per capita

Crime

- 5 Crime victims as percent of population
- 5 People feeling safe walking alone at night
- 4 Crime rate
- 4 Percentage who decreased park use due to fear
- 4 Property crimes
- 3 Juvenile crime rate
- 2 Number of Neighborhood Watch groups
- 2 Number of sworn police officers per 1,000 people

Public Safety

Services

- Average rescue call response time
- 3 Emergency calls per capita

Violence

- Number of violent crimes on public transit 5
- Domestic assault reported per 100,000 population 4
- Violent crime rate
- 3 Calls to Rape Crisis Centre
- 3 Homicide rate per 100,000
- Rapes reported per 10,000 population 3

Recreation

Accessibility/Participation

- Attendance at Mt. Ranier per mile of trail 5
- Number of people served by museums and arts events 5
- Number of people using recreation facilities each month 5
- Opportunities to participate in art (theater, etc.) 4
- Community centers per person
- 4 Event/days of bookings at city facilities
- Attendance at major arts events or cultural facilities 3
- Public participation in the arts 3

Cost

- City parks/recreation expenditures per capita 3 2
- City financial support of arts organizations per capita 2
- Funding amounts and sources for recreation facilities 1
- Major arts expenditures

Recreation

Land Use

- 8 Acres of park lands per person
- 6 Acres of conservation land intended for public use.
- 6 Public access sites on lakes and rivers
- 6 Recreational trail miles
- 5 Number and size of recreational, cultural and spiritual sites

Resource Use

Energy

- 8 Electricity consumption from nonrenewables
- 8 Average annual residential electricity consumption
- 8 Percent of energy supplied from renewable sources within the state
- 8 Proportion of energy from fossil and non-fossil fuel sources
- 8 Renewable energy use
- 8 Residential natural gas therms consumed per household
- 8 Total energy consumption
- 7 Commercial/industrial natural gas therms consumed per total employment
- 7 Commercial energy consumption per year
- 7 Electricity and natural gas use per person per year
- 7 Electricity consumption
- 7 Energy use (non mobile sources)
- 7 Fuel consumption
- 7 Gasoline consumption per capita
- 7 Heat loss of residential buildings
- 7 Households per residential MWH consumed
- 7 Nonrenewable energy use
- 7 Per capita consumption of fossil fuel by motor vehicle transport

Resource Use

Energy, cont'd

- 5 Total employment per industrial and commercial MWH consumed
- 4 Per capita gasoline sales
- 3 Number of counties with access to all major energy sources
- 1 Cost of energy

Hazardous Material

- 7 Manufacturing workers per pound of toxic chemicals released into the air
- 6 Purchase of ozone depleting substances
- 7 Manufacturing workers per pound of toxic chemicals released into the water
- 7 Quantity of spent nuclear fuel generated each year
- 6 Consumption of pesticides
- 6 Hazardous waste generated
- 6 Hazardous waste generated by city operations
- 6 Number of pounds of toxic materials released into the environment
- 6 Pesticide useage
- 6 Total area of contaminated sites
- 6 Toxic chemicals released or transferred
- 5 City purchases of hazardous materials
- 5 Compliance with UST standards for all underground storage tanks
- 5 Number of underground storage tanks requiring cleanup

Materials

- 8 Accumulated depreciation of natural resources
- 8 Materials consumption per capita
- 7 Renewable resources used/total natural resources used
- 7 Resource (material and energy) throughput/ end use output

Recycling

- 8 Percent of recyclable products actually recycled
- 8 Percentage of solid waste recycled

Resource Use

Recycling, cont'd

- 6 Average post-consumer recycled content of city office paper purchases
- 4 Number of people involved in recycling initiative

Renewable

8 The growth rate of timber compared to the rate of harvest

Solid Waste

- 8 Solid waste generation
- 8 Space used at landfill sites annually
- 6 Percent reduction in landfilled solid waste volumes
- 3 Highway litter bags collected per mile
- 1 Average monthly residential solid waste charge

Waste Water

- 7 Percent reduction in wastewater flows
- 2 Gallons of waste water processed as percent of permitted capacity
- 1 Real household monthly service charge for waste water treatment

Water

- 9 Commercial water consumption
- 9 Gallons of water used daily per person
- 9 Reduce potable water use 20 percent
- 9 Residential water consumption
- 9 Total water consumption
- 9 Water consumption versus total annual precipitation
- 9 Water demand and supply
- 9 Water resource depletion rates
- 9 Water use per capita

Society

Children

- Childcare arrangement satisfaction
- 5 Children involved in divorce per 1,000 children
- 5 Abuse and neglect of children
- 5 Divorces involving children
- 5 Students who move more than once a year
- Percent of family groups with only one parent living with a child under age 18 4 3
- Number of children receiving protective services for abuse/neglect
- Runaways per 1,000 children 2

Connectedness

- Number of community gardens
- Percent of people who say they have "enough"
- 5 Average distance between residences of extended family members
- 4 Citizen participation in community projects
- Neighborhood livability as rated by residents 3
- 3 Neighborliness
- Percent who say most people can be trusted 3

Culture

Number of arts events/performances at public sites 3

Diversity

- Discrimination complaints filed 4
- 3 Racism perception

Literacy

- 8 Literacy rate
- Public library items circulated per person
- Public library materials per capita

Society

Mental Health

- 3 Suicide attempts of 12th grade students
- 3 Suicide rate per 100,000

Pregnancy/Birth

- 5 Births to females under 18 per 1,000 live births
- 4 Births to mothers without 12 years of education
- 4 Births to unwed mothers
- 4 Substance-exposed newborns per 1,000 live births

Volunteerism

- 5 Percent of people who volunteer at least 50 hours per year
- 5 Volunteer rate
- 4 Youth involvement in community service
- 3 Charitable contributions

Transportation

Air

- 2 Destinations with direct flights in/out of airport
- 2 Weekday commercial flights in/out of airport

Alternate

- 7 Pedestrian friendly streets
- 6 Percent of street miles designated bike route miles
- 6 Ratio of bike paths to streets
- 4 Total length of bicycle routes

Commute

- 7 Percent of population taking each mode of transportation to work
- 5 Automobile occupancy rate
- 5 Average commuting distance to work
- 5 Average vehicle ridership for companies with 50+ employees

Transportation

Commute, cont'd

- 5 Commuters driving alone
- 5 People with commute time 25 minutes or less
- 5 Percent of people who live and work in city
- 4 Number of businesses cooperating with Park/Ride program

Infrastructure

- 3 Condition of bridges
- 3 Condition of roads
- 3 Waiting time at intersections with traffic signals
- 1 Public expenditure on private transportation

Public Transit

- 5 Percentage of people choosing transit over car
- 5 Ridership on fixed routes transit buses
- 4 Annual transit ridership per capita
- 4 Miles of fixed-route bus service
- 4 Number of minutes between buses on scheduled routes
- 3 Number of transit-rider trips per capita
- 3 Percent of transit service miles to total street miles
- 3 Percent who perceive public transit unsafe
- Transit revenues per transit-rider trip, inflation adjusted
 Cost per transit.
- 1 Cost per transit-rider trip, inflation adjusted
- 1 Public expenditure on public transit

Vehicle

- 7 Population versus vehicle miles traveled
- 7 Vehicle miles traveled
- 7 Vehicles per household
- 6 Percent of city fleet converted to reduced emission fuels

Transportation

Vehicle, cont'd

- Ratio of fuel-efficient/fuel-inefficient vehicles
- 5 Modal split in vehicle type
- 5 Number of persons per registered passenger car
- 4 Vehicles entering central area by mode
- 3 Motor vehicle registration