

Step 7

Monitoring and Evaluation: Keeping the Plan On Track

For monitoring and evaluation, we need to develop some indicators to enable communities to measure progress towards or away from becoming an Environmentally Concerned Community. What direction is a particular community moving? Is the economy improving, is Biodiversity declining, and is exposure to pollution decreasing? All these benchmarks can be measured with indicators.

It is important to connect people with the ecosystems that support them. As a society, we can either live with nature or make nature live with us. For generations we have consumed more than our share of the natural resources. In the process we have cut down much of our virgin forests and filled or drained significant acreage of wetlands. It is time for communities to utilize the knowledge, technology and resources available to live sustainably. Until we are aware of and understand how our actions force nature to adapt, we will not change our actions and habits. Indicators are needed to show trends and to measure progress towards goals.

Communities need some order to the chaotic possibilities of indicators. Several frameworks are being used by communities to help develop sustainable indicators: **domain-based, goal-based, sectoral, issue, causal, and combination**. Frameworks not only sort indicators but they also help balance the many issues facing communities. Gaps and duplications in collection efforts can be identified. Most community data collection efforts use either domain-based and goal-based frameworks. A summary of domain-based and goal-based indicators with examples of each are presented below for the understanding of the field workers.

1. DOMAIN-BASED FRAMEWORK

Domain-based frameworks organize indicators into the three key dimensions of sustainability: environmental, economic and social. A domain-based framework allows for and accentuates the linkages among the three dimensions.

a. Environmental Indicators

Environmental indicators look at the effects of human activities on the environment as well as the implications of those actions on human health, quality of life and the integrity of ecosystems. Environmental indicators are usually scientifically-based information that describes environmental

conditions and trends. Reliable information about the current state of the environment and the factors that stress it, is essential for making appropriate future commitments of time, energy, and resources to meet environmental challenges.

b. Economic Indicators

How can an Environmentally concerned Community create a sustainable economy? The field workers need to look at the current economic conditions and learn how they are linked to social and environmental issues. We have been programmed to perceive development and growth as necessary for a prosperous community. We are learning that the outcome of improper development has caused a huge economic burden for our communities. We need to learn how to properly channel our resources so that we create a prosperous community without creating further problems in the future. Use economic indicators to provide information on current conditions, trends and movements towards targets.

D. Social Indicators

We need to be responsible for our own destiny. The demographics measured in our community starts to tell us how the population is distributed. But social indicators also measure our social well-being and quality-of-life. Does the community respect the rights and feeling of others, enjoy diversity in cultures, values, wants and opinions? The social structure of a community is linked to the ability of its residents to take a stewardship approach. Whether our concerns are racial tensions, law and order, good schools, social and recreational resources -- we need to empower strong public participation and control over decisions. Environmentally concerned communities offer equal opportunity, social harmony, and mutual respect for a diverse community.

Integrated Approach to Protecting Environment

INDICATOR	PURPOSE	LINKAGES
<i>Ratio of Affordable living Cost</i>	To evaluate affordable living in the community. Which is necessary to foster economic sustainability.	Linkages to social well-being, economic stability, health and poverty.
<i>Percentage with economic access to Health Care</i>	How much of our financial resources go towards caring for or preventing illness.	<ul style="list-style-type: none"> ● Health and self sufficiency ● Increased costs to community ● Decline in education spending ● Decline in environmental spending
<i>Percentage of Families Living Below Poverty Line</i>	Equal distribution of wealth	<ul style="list-style-type: none"> ● Child poverty ● Poor health ● Juvenile crime ● Low civic participation
<i>Percentage of Total Employment by Industry</i>	Resilience of the job market. Diversified job market is less susceptible to changing market demands	<ul style="list-style-type: none"> ● Environmental protection ● Poverty ● Homelessness ● Consumer spending ● Crime rate

Integrated Approach to Protecting Environment

INDICATOR	PURPOSE	LINKAGES
<i>Community emmbers Participation</i>	Participate fully in decisions about the way their community is governed.	<ul style="list-style-type: none"> ● Poverty Levels ● Crime ● Political Awareness ● Improved government ● Environmental health ● Enhance Economic health
<i>Babies Health</i>	Adequate nurturing of future generations	<ul style="list-style-type: none"> ● Literacy ● Low income ● Poor health ● Inequity of ethnic groups ● Economic imbalance
<i>Crime rate</i>	To address the mental health of community and underlying social issues: age-, race-, and ethnic-inequity.	<ul style="list-style-type: none"> ● Economic imbalance
<i>Demographics (population, race, age)</i>	Future sustainability must take in account the projected population. Ensure population does not grow beyond environmental resources.	<ul style="list-style-type: none"> ● Land use patterns ● Biodiversity ● Water and air quality ● Housing affordability

2. GOAL-BASED EXAMPLES

Some communities establish sustainable goals and then select goal-based indicators that directly link to these targets. This approach helps people move towards a new way of thinking. The strength of a goal-based framework is that it reduces the number of indicators that have to be considered to only those relating to specified sustainability goals.

a. Sustainability Indicators

Sustainability Indicators represent areas of concern which, if improving over time will lead to a more environmentally concerned community. Although these indicators could be categorized under many different topics, these indicators often can be translated into specific targets or goals. Here are some ideas.....what other sustainability indicators could you use in the community?

Integrated Approach to Protecting Environment

INDICATOR	PURPOSE	LINKAGES
<i>Percent of population w/in walking distance of public transportation</i>	To evaluate access to public transportation in an effort to reduce automobile use and dependency;	This links to livability issue, land use, air pollution, etc.
<i>Percent of native plant and animal species endangered vs. secure</i>	To evaluate natural resource diversity in the community; To help ascertain sustainability of natural resources and related functions.	Biodiversity provides links to natural resource protection, land use, recreational opportunities and economic benefits associated with open spaces, environmentally concernedways and natural areas.
<i>Percent and volume of waste converted back to beneficial uses</i>	To evaluate conservation and pollution prevention efforts of commercial and industrial sectors, as well as, households.	This indicator links to economic savings for the purchase and production of new materials, reduces toxic emissions to air, water and land. Ensures sustainable use of limited resources.
<i>Progress toward goal of 20% reduction in use of potable water</i>	To measure reduction in water use, conservation measures implemented. It focuses on solution not problem.	This links to sustainable use of limited resources resulting in cost savings for homes, business and industry.

b. Economic Prosperity.

Not until communities can meet their vital needs of shelter, food, clothing, etc will they become aware of the social and environmental problems. When most of the community cannot afford their basic living expenses, they usually do not address the associated social and environmental decline. Economic prosperity stabilizes families and enhances revenues to pay for public services

INDICATOR	PURPOSE	LINKAGES
<i>% employment in locally-owned and operated businesses</i>	To evaluate investment that stays within the community. A healthy economy results from "plugging the leaks."	Linkages to social well-being, civic participation, education.
<i>Distribution of personal income</i>	To evaluate the disparity between haves and have nots. Communities are weakened by concentrations of poverty and unequal opportunity.	Low incomes can be linked with child poverty, poor health, education levels, levels of civic participation, and inequitable distribution of services and opportunities.
<i>Percent of households paying 30% or less of income on rent</i>	To evaluate affordable housing in the community. Communities members have diverse needs; adequate affordable housing is necessary to foster economic sustainability.	Linkages to social well-being, economic stability, health and welfare issues, poverty.
<i>Income disparity between urban centers and outlying areas (suburbs)</i>	Indicates urban decay and suburban sprawl	Linkages to land use, resource consumption, education, poverty, crime and safety, environmental justice.

c. Healthy Community

The health of our community is measured by the physical and mental health of the people who live there. A communities health is vital to a good quality of life. The health of a community can be linked to economic, social and environmental conditions. Emotional

health is dependent on our recreation abilities, and our access to the natural environment and community activities.

INDICATOR	PURPOSE	LINKAGES
<i>Percentage living below poverty line</i>	A healthy community has economic equity. There should not be a disparity between the "haves" and the "have nots".	<ul style="list-style-type: none"> ● crime ● child abuse ● welfare
<i>Percentage who volunteer at least 50 hrs/year to civic, community or nonprofit activities.</i>	To seek to improve the Quality of Life in our communities.	<ul style="list-style-type: none"> ● Improved condition for poverty ● economic renewal
<i>Park & facility space (acres) per capita (1000 people) by district. Within a 14 Km radius.</i>	To reflect desired land use patterns. To provide well integrated public open spaces in urban districts.	<ul style="list-style-type: none"> ● increase liveability in high density residential and commercial areas ● urban Biodiversity ● urban wildlife habitat ● mental health ● tourism ● economic renewal ● social gathering ● air quality ● water quality by decreasing impervious surface ● reduce temperature ● community gardens for produce

d. Social Well-being

Community must be a safe place to live. We must have easy and safe access to work, stores and play. Our neighborhoods need to be safe from crime. We want neighborhoods that are equitable and clean. Until we feel safe with our basic needs of shelter and food, we cannot look forward to improving our environmental and economic health.

Integrated Approach to Protecting Environment

INDICATOR	PURPOSE	LINKAGES a.
<i>Rate of reported violent crimes (against person) per 1000 people during calendar year.</i>	To measure the public safety of our community. To make our communities a safe place to live. To live peaceably together	<ul style="list-style-type: none"> ● economic decline by discouraging economic investment ● environmental justice ● Child poverty ● social diversity ● Health care cost ● Increase tax burden ● Distabilizes communities
<i>Percent of population within walking distance of public transportation</i>	To increase the amount of pedestrian friendly streets. To limit the dependence on car to provide transportation to work and shopping.	<ul style="list-style-type: none"> ● improved health ● promotes social interactions ● recreational opportunity ● expand mobility ● air quality ● economic renewal
<i>Distribution of affordable living throughout the community</i>	To provide affordable living for everyone. To increase community stability and self sufficiency.	<ul style="list-style-type: none"> ● distribution of wealth ● impact on biodiversity ● child poverty ● crime rates ● reduced mental health ● homelessness

HOW TO SELECT INDICATORS

The indicators a field worker decide to collect depend on the direction a particular community is currently heading and deciding on the direction you want to take.

1. Define goals

The Visioning process in "Where does the community want to be?" will reveal the goals or issues that are important to the community. "If we are to move towards sustainability in our village and region, we must decide what we value, find indicators to measure those values, and keep track of our progress."

2. Identify the audience

The amount and complexity of the data will depend whether the audience is the public, policy makers or scientist.

3. Evaluate indicators

Both multi-voting and selection grid techniques have been used by communities

to narrow their list of potential indicators. Multi-voting is quite simple. After generating a list of possible indicators, each stakeholder has an allotted number of votes to select what indicator they feel is their priority. The indicators chosen by a community are the ones that received the most votes.

Selection grids establish objective scoring systems to evaluate potential indicators. Should the community decide to use a Selection Grid in narrowing the list of indicators needed, the following steps are recommended.

Choose Criteria: The community must reach consensus on the meaning of the final criteria or the process is likely to fail.

Listed below are some criteria that may be used for evaluating potential indicators.

- A. Reflects stakeholder's concerns: is important or relevant to the lives of its audience.
- B. Measurable: accurately measures the issue or goal in a scientifically defensible way
- C. Understandable: can be transformed into a format appropriate to its audience
- D. Comparability/Meaningful: can be compared to existing and past measures to define trends
- E. Data Availability: is relatively easy to gather and interpret; generally at modest cost
- F. Targetable/Interpretable: measures movement towards or away from a specified target or goal (a.k.a. benchmark or threshold).
- G. Geographic/Temporal Scale: measures an appropriate geographic area and/or an appropriate interval of time (e.g., one, two, five years)
- H. Timely/Anticipatory: provides early warning of changes
- I. Results-oriented: focuses on measuring achievements (e.g., percentage of adults who are literate) instead of efforts (e.g.,

money spent on a literacy education) or expenditures.

- J. Long-range reliability: are reliable for up to two decades or more. (This is a typical time frame for strategic planning).**
- K. Flexibility: are flexible enough to incorporate new scientific information and changing public perceptions**

Determining how each criteria will be weighted. The selection grid should have a scoring system for ranking the indicators. The weighted voting can be a simple YES/NO to a numerical rating system. Many numerical systems are possible, such as (1-5), (1-10) or even (0.1, 0.2, 1, 5, 10). The larger number (or "YES") must always represent a desirable rating. In some cases this may mean "less", e.g.; cost.

Scoring: Request every stakeholder to score each indicator against the criteria. Make a grid with the criteria across the top and the indicators on the left side. Every stakeholder completes the grid to evaluate how well the indicators satisfy each criterion.

Total and Average the score. Each stakeholder should total their score for each indicator. The score from each indicator is then averaged.

HOW TO USE AND REPORT INDICATORS

Collect data and results for each indicator. The results can reveal a trend (Where is the community Now?) or show if you are moving to a set target (Where does the community want to be?). How results are reported can vary depending on audience.

- Describe each indicator and why it is important.
- Provide historical trends and anticipated changes.
- Evaluate whether results progress towards or away from sustainability.
- Discuss linkages to other indicators
- provide recommendations, such as, improving data collection or changing policy.