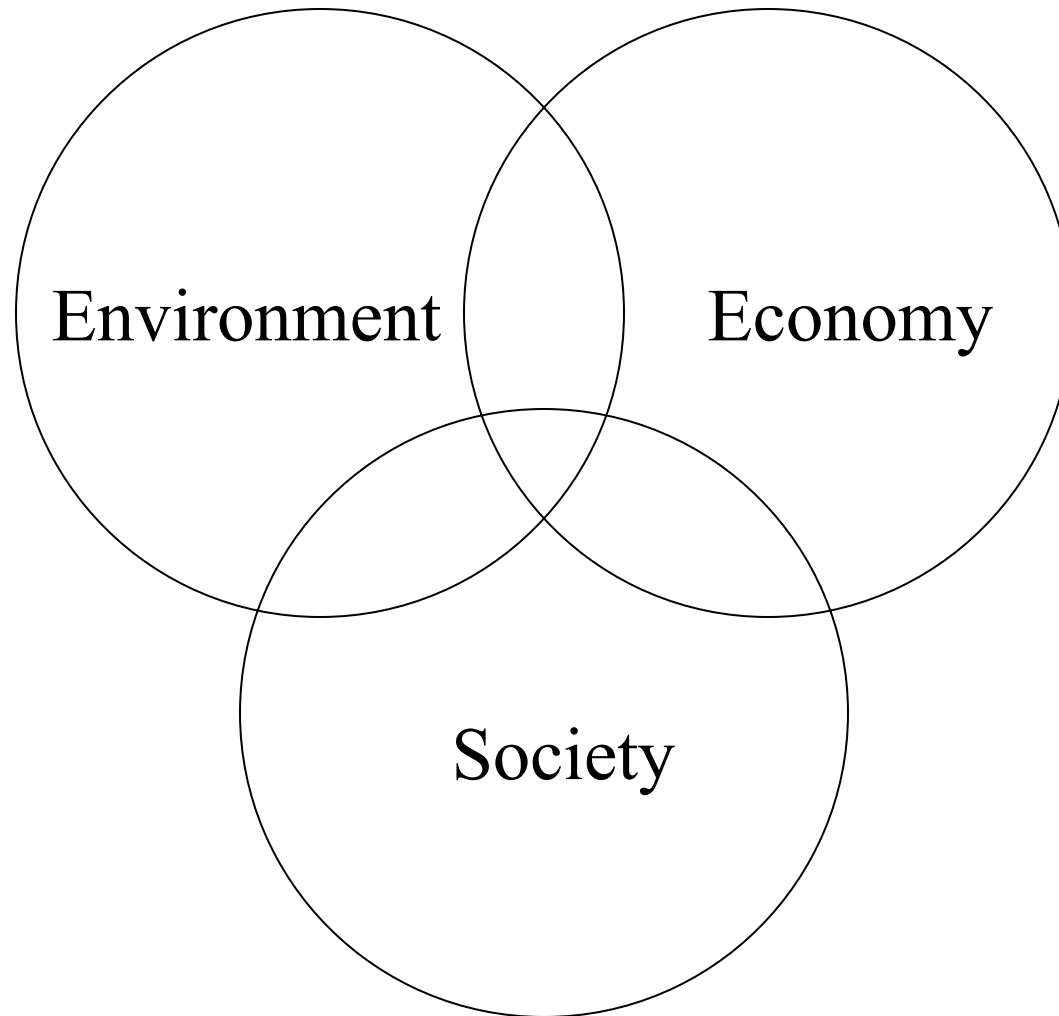# Appendix H: PRESENTATION MATERIALS

This appendix contains copies of presentation materials that can be used as is or tailored to meet the needs of communities working on indicators for sustainable forest management.

The overheads are organized in the following sections:

Introduction to Sustainability

Traditional View of Community

Environment

Economy

Society

Sustainable Measures

Sustainable View of Community

Economy

Society
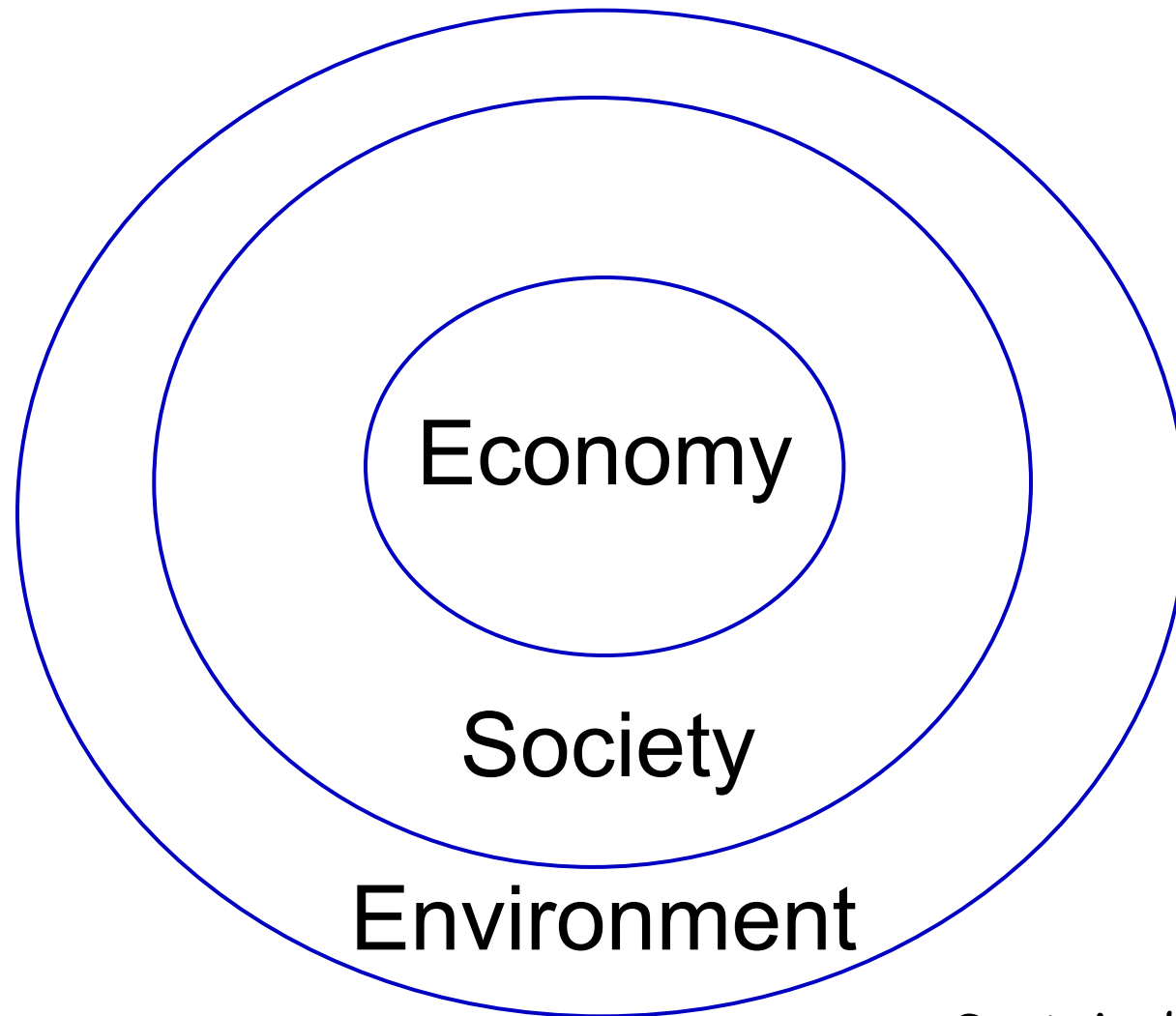
Environment

Sustainable Measures

Traditional Thinking

Environment	Economy	Society
Water Quality	Stockholder Profits	Education
Air Quality	Materials for Production	Health
Natural Resources	Jobs	Poverty
		Crime

Sustainable Measures

Interconnected Thinking

Stockholder Profits · Water Quality · Education · Air Quality · Health · Materials for Production · Poverty · Natural Resources · Jobs · Crime
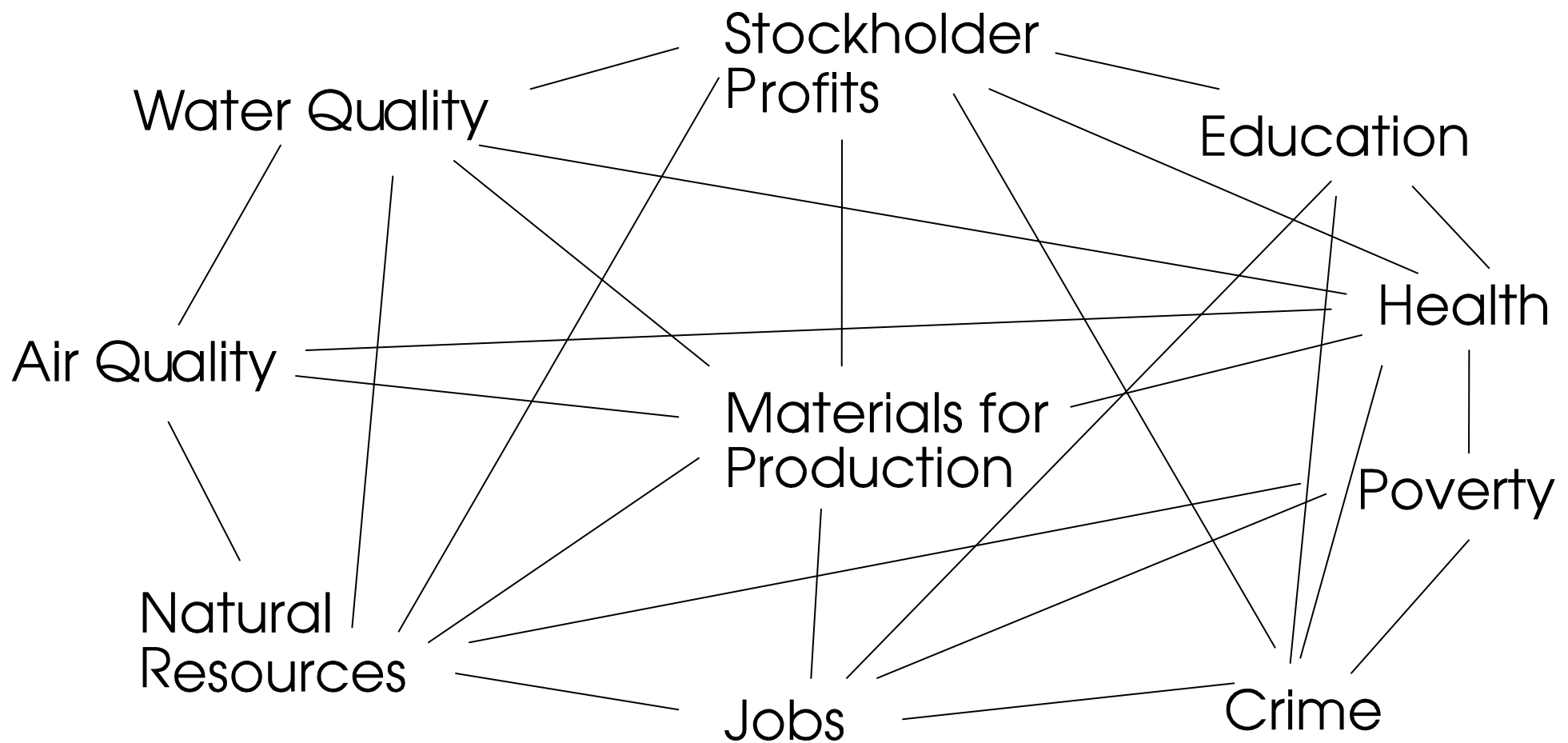
Sustainable Measures

Basic Definitions

- **Sustain** - to keep in existence without diminishing, to provide sustenance and nourishment

- **Develop** - to bring out the capabilities or possibilities of, to bring to a more advanced or effective state

- **Community** - a group of any size whose members reside in a specific locality and share resources needed to survive

Sustainable Measures

Carrying Capacity

Carrying capacity - the population that can be supported indefinitely by the resources of its surrounding ecosystem without degrading or destroying that ecosystem

f(population, resource use, technology)

Sustainability is:

"..development that meets the needs of the present without compromising the ability of future generations to meet their own needs"

Brundtland Commission

Sustainability is:

"A way of life that safeguards and enhances our resources, prevents harm to the natural environment and human health, and sustains and benefits the community and local economy – for the sake of current and future generations."

Santa Monica Sustainable City Program

Sustainability:

"...farmers in sustainable agriculture are concerned about feeding their families and paying their bills, but those are not their only goals in life. They set out to protect the land, improve their quality of life, and enhance the communities in which they live. Their day-to-day decisions are not guided by a single minded search for profit, but by a delicate balancing act among many goals"

Dick Levins, Land Stewardship Program, White Bear Lake, Minnesota

Sustainability Concepts

- Long-term balance between economic, social and environmental goals *(look ahead 20-50 years, understand the connections)*

- Limits to natural, social, and built systems *(live off the interest of community capital, don't degrade or use it up)*

- Inter- and intra- generational equity *(share with future generations and current inhabitants, local sustainability in harmony with global sustainability rather than at expense of others)*

Sustainable Measures

Goals and Indicators

Goals, Principles, Criteria, and Indicators

- **Goal** – a description of future condition community members wish to achieve

- **Principle** – a rule of conduct, esp. of right conduct

- **Criterion** – a means of judging; a test by which something can be judged

- **Indicator** – a numeric measure that provides key information about a system's condition
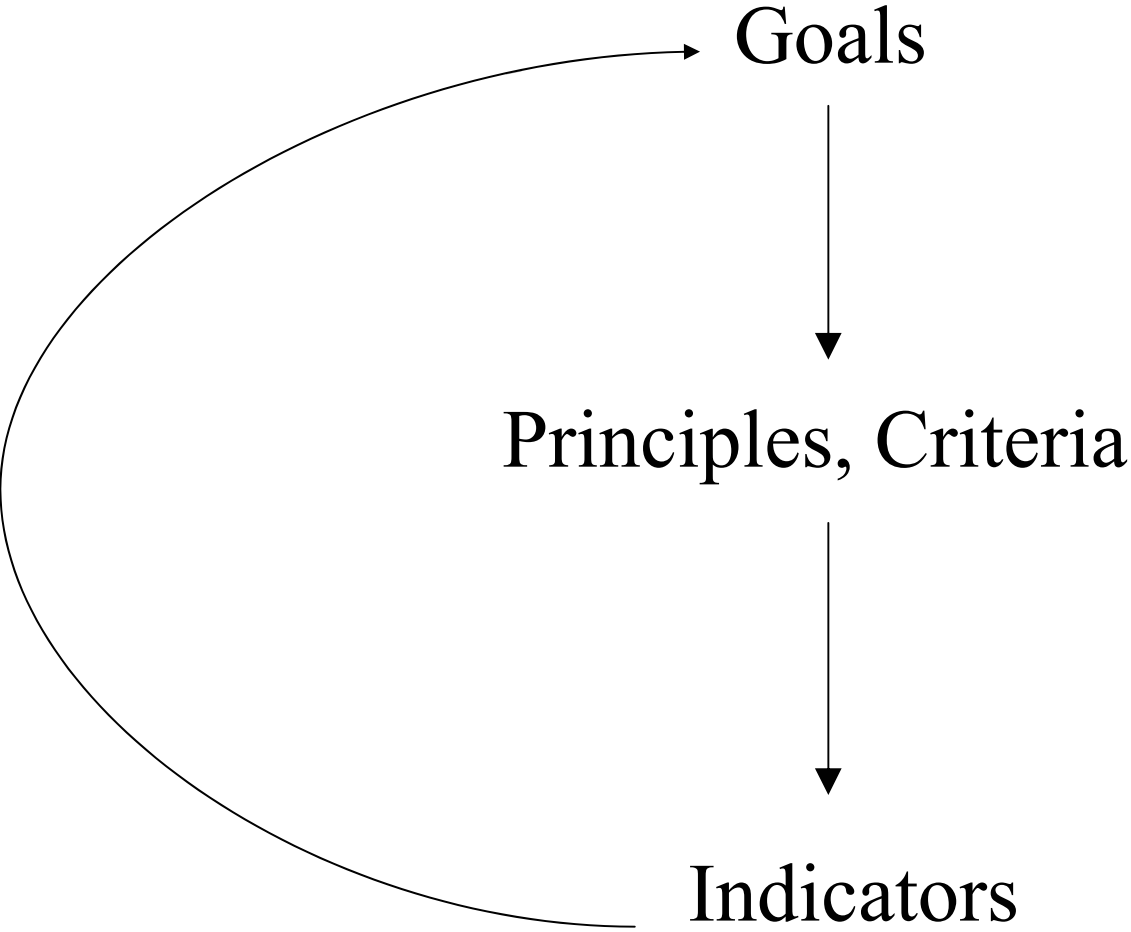
Goals or Indicators
Which Comes First?

Goals:

- provide a framework for developing indicators

- provide an impetus and context for tracking, reporting, and discussing the indicators

Indicators:

- clarify and specify what a goal means

- track movement towards or away from the goal

Goals

Principles, Criteria

Indicators

Aligning to sustainability

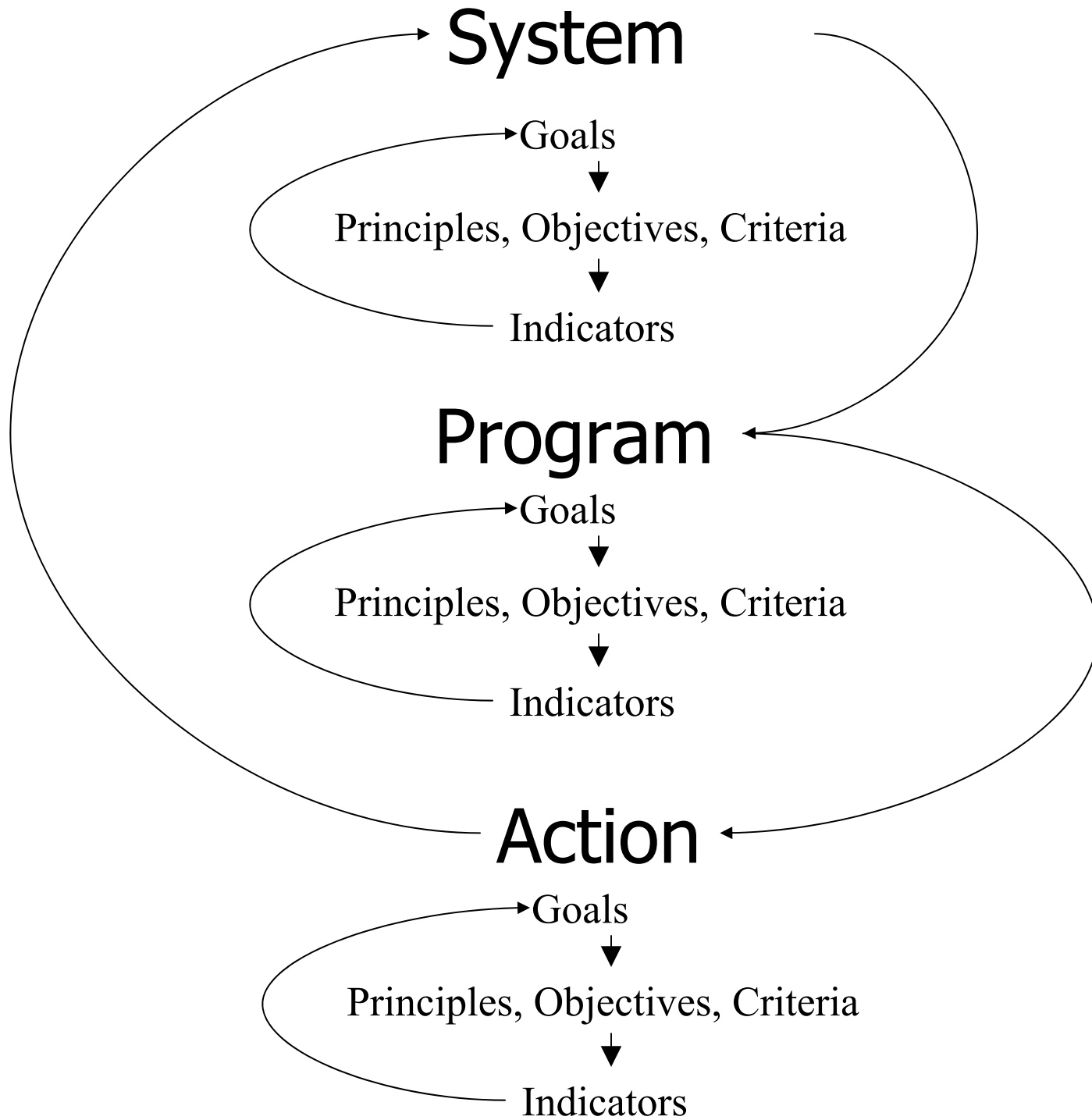Goals and indicators are like a compass:

If they aren't aligned with sustainability, there is no telling where you will end up

What Makes A "Good" Goal?

- Looks to the future

- Potentially measurable

- Potentially achievable, but not easily or automatically

- Reflects a broad understanding and agreement among community members of what is important to and valued by the community

- Represents desired *outcomes* or community *conditions*, not the specific actions or programs that may be necessary to achieve those conditions

Sustainable Measures

What Makes It A "Sustainability" Goal?

- Reflects a balance between economic, social, and environmental conditions

- Recognizes and accounts for long-term limits of natural, social, and built systems

- Promotes inter- and intra-generational equity

- Reflects a 'big picture' system view

System

Goals

↓

Principles, Objectives, Criteria

↓

Indicators

Program

Goals

↓

Principles, Objectives, Criteria

↓

Indicators

Action

Goals

↓

Principles, Objectives, Criteria

↓

Indicators

Different Levels

- **System** – long-term – desired conditions at the community level *(Selectboard/ Town Manager/ Community)*

- **Program** – medium term – changes that occur through the development and/or implementation of programs or sets of activities *(Town Committees/ Department Heads/ Local Organizations)*

- **Action** – short-term – desired effect of specific action or actions of individuals *(Committee members/ Town Staff/ Community Members)*

Sustainable Measures

System-Program-Action

```
                         ┌──────────┐
                         │  System  │
                         └──────────┘

┌─────────┐      ┌─────────┐      ┌─────────┐      ┌─────────┐
│ Program │◄────►│ Program │◄────►│ Program │◄────►│ Program │
└─────────┘      └─────────┘      └─────────┘      └─────────┘

┌────────┐ ┌────────┐ ┌────────┐ ┌────────┐ ┌────────┐ ┌────────┐
│ Action │ │ Action │ │ Action │ │ Action │ │ Action │ │ Action │
└────────┘ └────────┘ └────────┘ └────────┘ └────────┘ └────────┘
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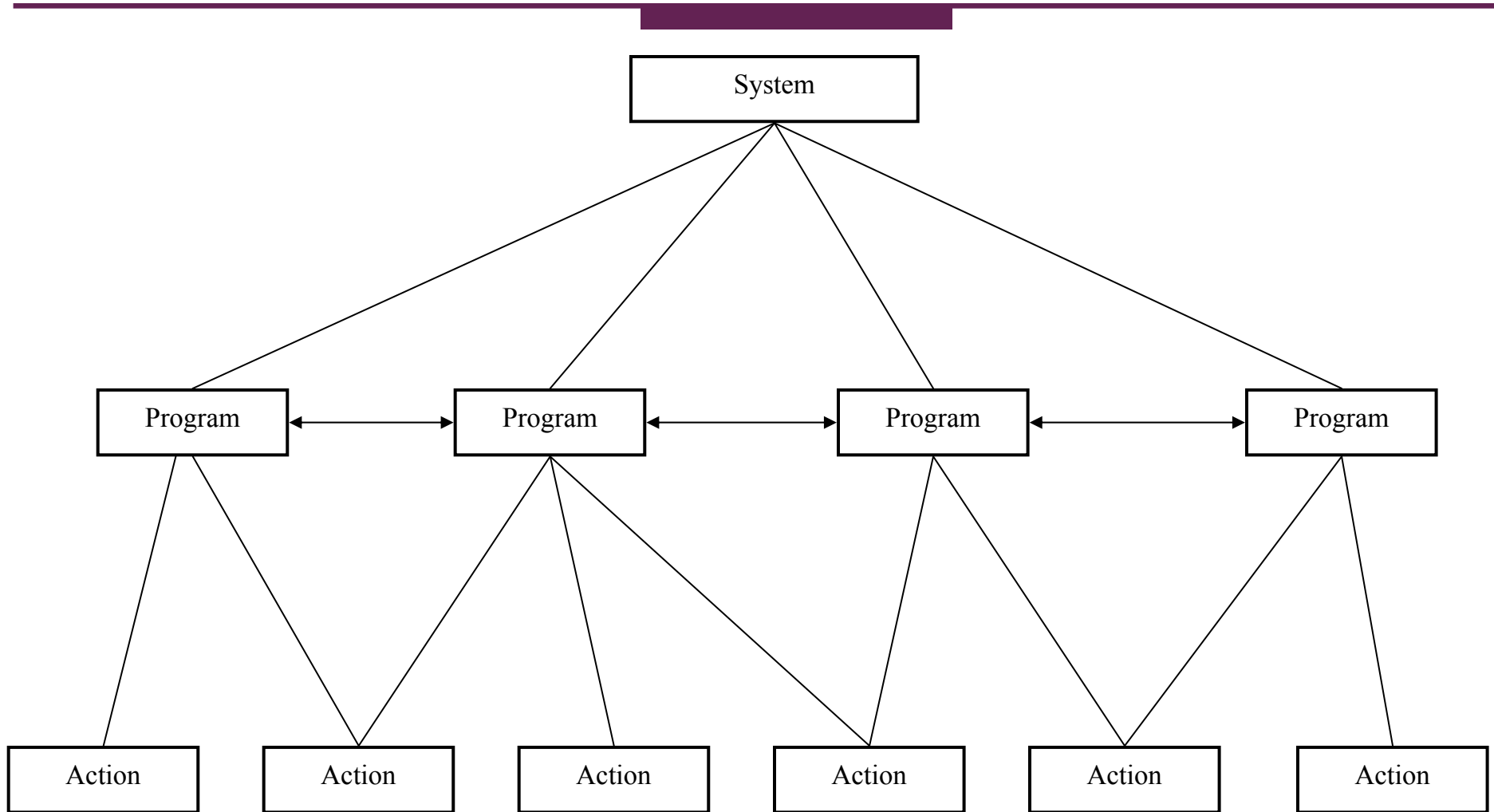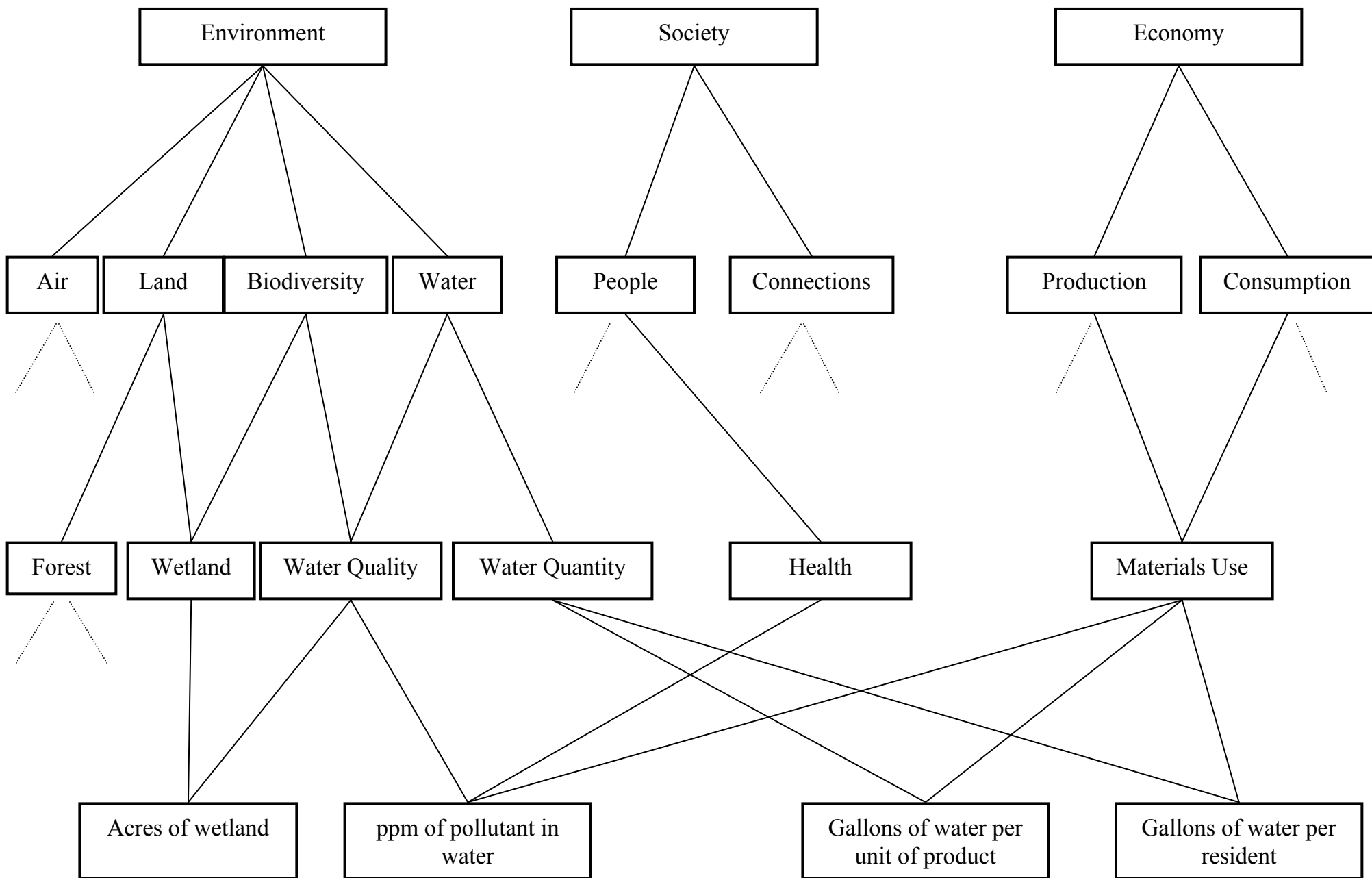
Sustainable Measures

Examples of Goals at Different Levels

- **System**: Maximize utilization of alternative forms of transportation (walking, bicycling, public transit, and carpools/rideshare).

  Program: Develop traffic policies to reduce negative impacts from vehicles and limit pavement area to the minimum necessary.

- **Action**: Implement work schedules which reduce the number of employee commute days.

Sustainable System Components

Environment	Society	Economy
Air Land Water Habitat	Health Education Cooperation	Production Consumption

Sustainable Measures

What is an indicator?

- A way to measure, point out, or point to with more or less exactness

- Something that is a sign, symptom or index of the condition of a system

- A measure, typically numeric, that provides key information about a system's condition

Indicators

- Numerical measures that provide key information about a physical, social or economic system

- Indicators are variables; data are the actual measurements or observations; targets are expected or desired indicators values

Indicators are for:

- Raising Awareness

- Informing Decisions

- Measuring Progress

A Good Sustainability Indicator
Is a Valid Indicator That:

- Measures a key sustainability issue:
  - Carrying capacity of community capital
  - Equity (inter- and intra-generational)
  - Long-term balance between economic, social, and environmental goals
- Is relevant, understandable and useful to the community decision-making process
- Generally focuses on system level rather than program or action level

Sustainable Measures
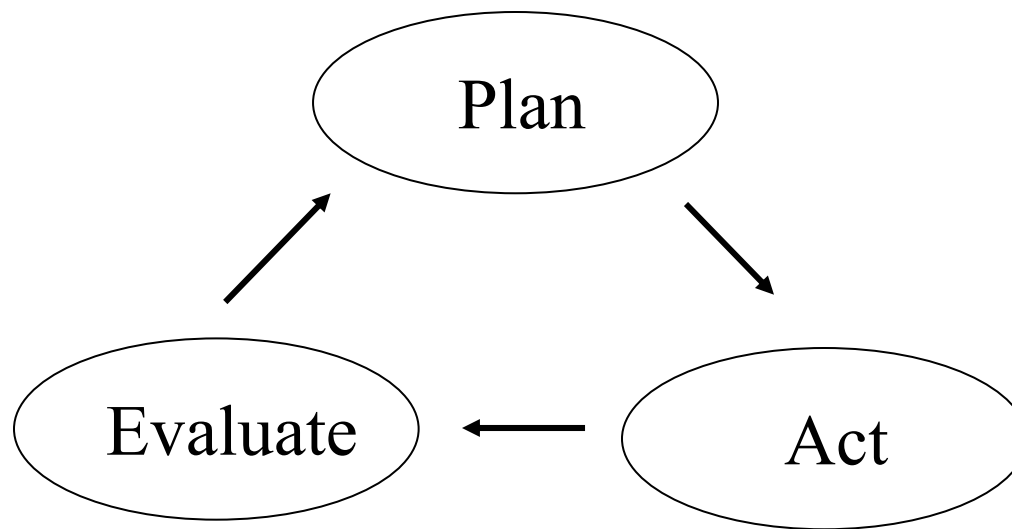
Sustainable System Indicators Examples:

- Number of days per year that federal standards are met for ozone, carbon monoxide and particulate matter
- Volume of water in key water bodies compared to historic levels
- Percent of watershed that is impervious
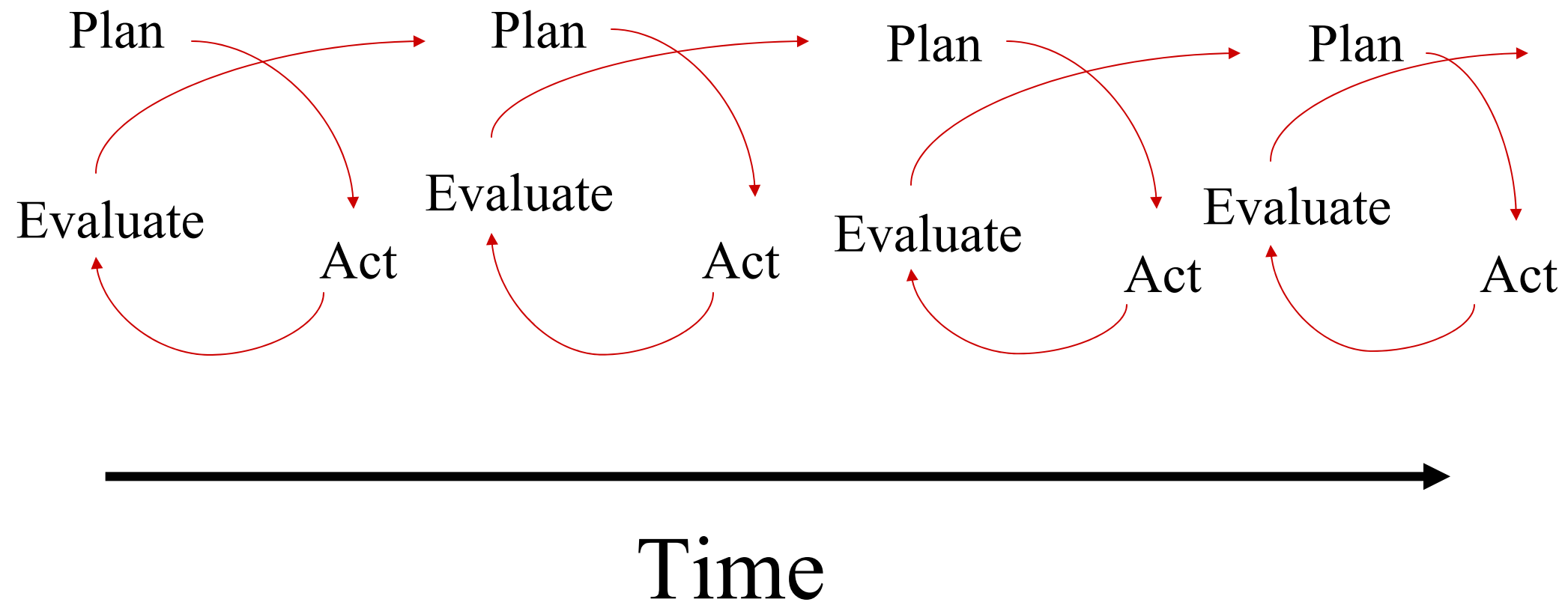- Percent of critical resource lands still available
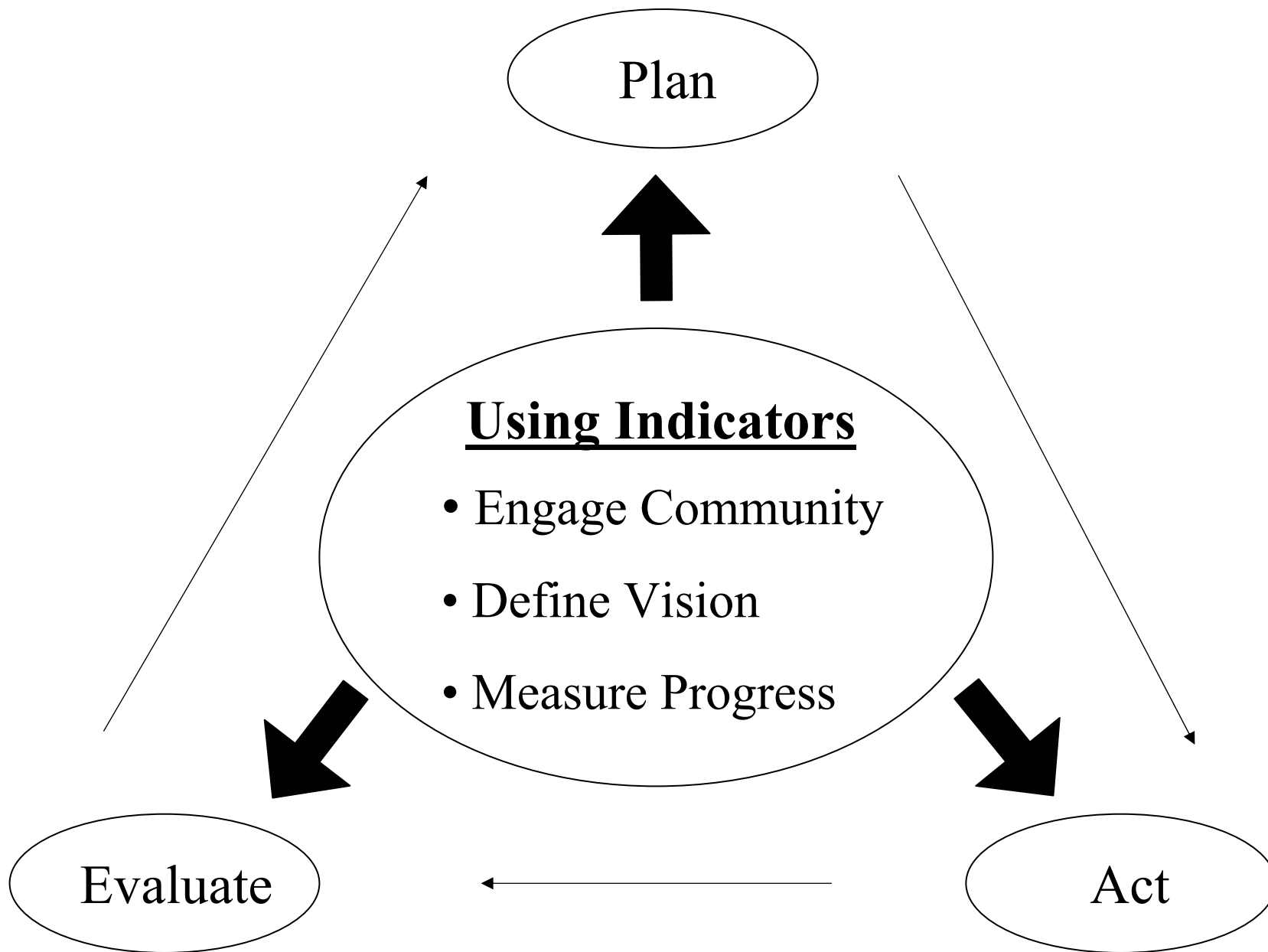
Criteria for Selecting Indicators

- Is the indicator relevant to your community's vision, issues and goals?

- Is it a *system* indicator that reflects sustainability concepts?

- Is it clear and easy to measure?

- Is there data to track it?

Developing Sustainability Indicators

- Part of the decision-making process
- Continuous-loop process to relate indicators to mission, goals and targets
- Need to involve everyone in the process
- Aim is to promote continuous improvement in overall system

Plan → Act → Plan → Act → Plan → Act → Plan → Act

Evaluate → Act → Evaluate → Act → Evaluate → Act → Evaluate → Act

Time

Developing an Indicator System: Key Tasks

- Decide on purpose, audience, and scope of indicators
- Identify and review for relevance
  - Existing indicator projects and products
  - Available data sets
  - Potential indicator users and data owners
- Generate set of potential indicators (ideal)
- Evaluate relative to purpose, audience and scope
- Select proposed set
- Develop indicators (gather data, develop graphic and text)
- Implement, evaluate effectiveness and redo as needed

Key Questions to Consider:

- What is the purpose of the indicator system (raise awareness, inform decisions, monitor progress)?
- Who is the audience and how will they use the indicators?
- Who needs to be involved (including intended audience and keepers of the data)?
- What will be the scope and boundaries of the indicator system (geographic area, topic areas)?
- What will the balance be between ideal and do-able?

The Process Matters!

- The <u>process</u> by which indicators are developed is as important as the final product
- Collaboration is the key because indicators must:
  - measure something that is publicly valued
  - be understood by those who will use them
  - be seen as credible and meaningful
  - be linked (conceptually and practically) to policies and actions
- Process must include the decision makers and the data managers
  - There must be a common expectation that the indicators will be reported, discussed and linked to action on a regular basis

Montreal Process
Criteria and Indicators

Montreal Process
Background

- Evolved from meeting in Montreal, (hence the name, *Montreal* Process)

- Working group of twelve nations – Argentina, Australia, Canada, Chile, China, Japan, Mexico, New Zealand, the Republic of Korea, Russian Federation, the United States, and Uruguay.

- Account for
  - 90% of the world's temperate and boreal forests and
  - 60% of all forests on the globe

Montreal Process
Santiago Declaration (1995)

- Forests are essential to the long-term well being of local populations, national economies, and the earth's biosphere as a whole.

- Criteria and indicators needed for:
  - Common understanding of sustainable forest management
  - Framework for evaluating progress
  - Informing decision-makers and public

- Criteria and indicators must reflect
  - Changes over time
  - Different contexts in different places
  - Qualitative as well as quantitative

Sustainable Measures

Montreal Process Criteria & Indicators

- Developed for assessment of sustainable management of forests at the national level

  - Includes 7 criteria (categories) and 67 indicators

  - Addresses ecological, economic, social and institutional factors

- Ultimately success depends on sustainable local management of natural resources

Montreal Process
Criteria & Indicators

- **Criterion:** A category of conditions or processes by which sustainable forest management may be assessed. A criterion is characterized by a set of related indicators which are monitored periodically to assess change.

- **Indicator:** A measure (measurement) of an aspect of the criterion. A quantitative or qualitative variable which can be measured or described and which when observed periodically demonstrates trends.

Montreal Process
Criteria (Condition or Process to Assess)

1. Conservation of biological diversity
2. Maintenance of productive capacity of forest ecosystems
3. Maintenance of forest ecosystem health and vitality
4. Conservation and maintenance of soil and water resources
5. Maintenance of forest contribution to global carbon cycle
6. Maintenance and enhancement of long-term multiple socio-economic benefits to meet the needs of societies
7. Legal, institutional and economic framework for forest conservation and sustainable management.

Montreal Process
Criterion 1 Indicator Examples

Criterion 1: Conservation of biological diversity

Ecological diversity indicators:
- Percent of forest by forest type

Species diversity indicators:
- Number of forest dependent species
- Status of forest-dependent species at risk of not maintaining viable breeding populations

Montreal Process
Criterion 2 Indicator Examples

Criterion 2: Maintenance of Productive Capacity of Forest Ecosystems

Indicators:

- Area and growing stock of plantations of native and exotic species
- Annual removal of wood products compared to the volume determined to be sustainable
- Annual removal of non-timber forest products (e.g. fur bearers, berries, mushrooms, game), compared to the level determined to be sustainable

Montreal Process
Criterion 3 Indicator Examples

Criterion 3: Maintenance of Forest Ecosystem Health and Vitality

Indicators:

- Area and percent of forest affected by processes or agents beyond the range of historic variation, e.g. by insects, disease, competition from exotic species, fire, storm, land clearance, permanent flooding, salinisation, and domestic animals
- Area and percent of forest land subjected to levels of specific air pollutants (e.g. sulfates, nitrate, ozone) or ultraviolet B that may cause negative impacts on the forest ecosystem

Montreal Process
Criterion 4 Indicator Examples

Criterion 4: Conservation and maintenance of soil and water resources

Indicators:

- Area and percent of forest land with significant soil erosion
- Percent of water bodies in forest areas (e.g., stream kilometers, lake hectares) with significant variance of biological diversity from the historic range or variation
- Area and percent of forest land experiencing an accumulation of persistent toxic substances

Sustainable Measures

Montreal Process
Criterion 5 Indicator Examples

Criterion 5: Maintenance of Forest Contribution to Global Carbon Cycles

Indicator:

- Total forest ecosystem biomass and carbon pool, and if appropriate, by forest type, age class, and successional stages
- Contribution of forest ecosystem to the global carbon budget; including absorption and release of carbon (standing biomass, coarse woody debris, peat and soil carbon)

Montreal Process
Criterion 6 Indicator Examples

Criterion 6: Maintenance and enhancement of long-term multiple socio-economic benefits to meet the needs of societies

Production indicators:
- Volume of wood and wood products production
- Volume of nonwood forest products

Recreation indicators:
- Percent of forest managed for recreation/tourism

Employment indicators:
- Direct and indirect employment in forest sector
- Average wage rates within the forest sector

Montreal Process
Criterion 7 Indicator Examples

Criterion 7: Legal, institutional and economic framework for forest conservation and sustainable management

Indicators:

- Extent to which legal framework encourages best practice codes for forest management
- Extent to which institutional framework develops and maintains human resource skills across relevant disciplines
- Availability and extent of up-to-date data, statistics and other information important to measuring or describing indicators associated with criteria 1-7

Sustainable Measures

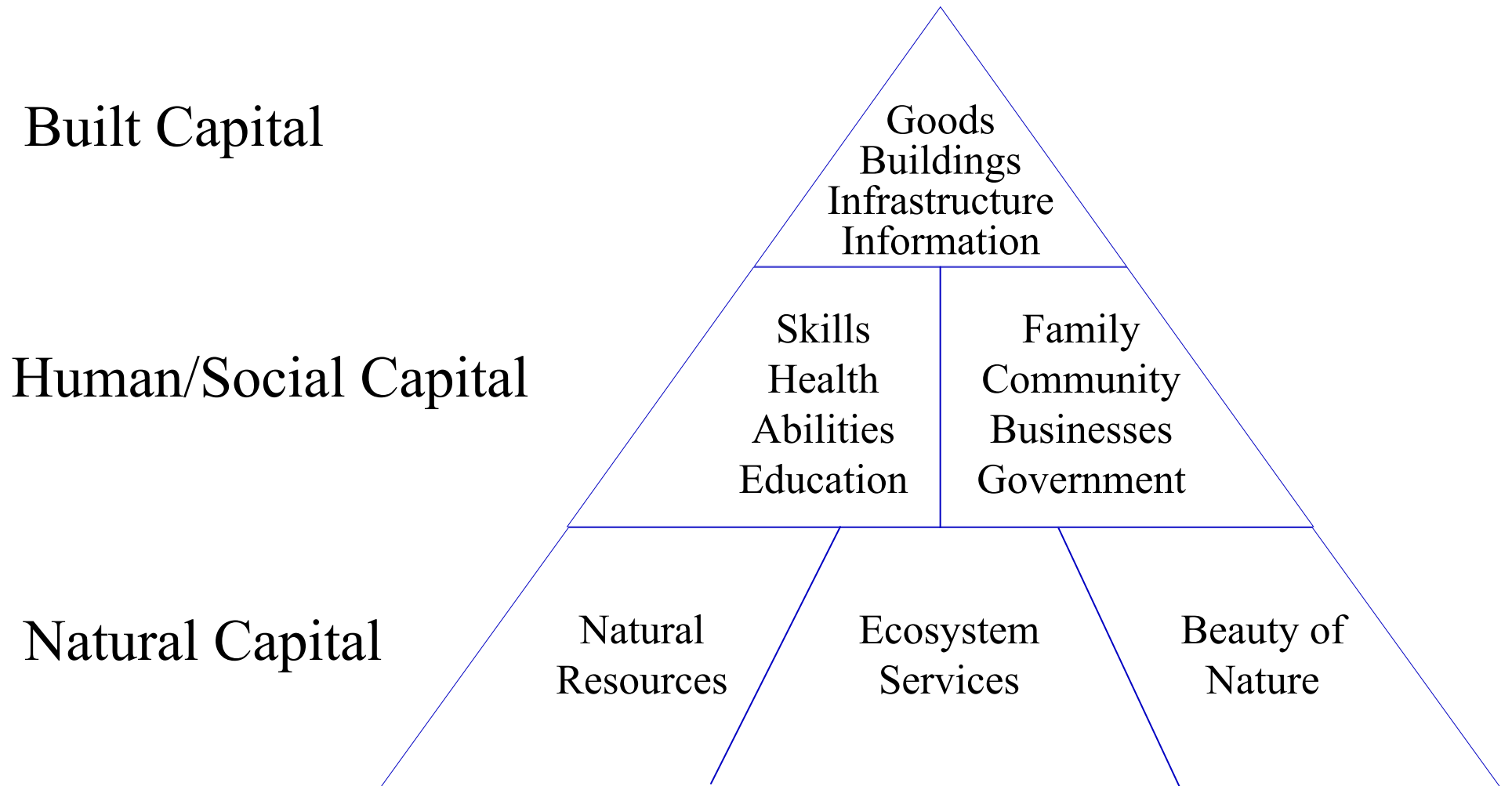# Montreal Process - Indicators Examples from Communities

- Number of board feet harvested per year (Gogebic County, MI)
- Percent or acres of forest area by forest type (Gogebic County, MI)
- Percent of wetlands, agricultural land, and forests in 1990 still preserved (Gogebic County, MI)
- Total acres burned in fire (Great Lakes Forest Association)
- Wood products average employee earning in dollars/year (Great Lakes Forest Association)

Indicator Frameworks

Indicator Frameworks

- Montreal Process Criteria and Indicators
- Community Capital
- Driving force-State-Response
- Input-Output-Outcome-Impact
- Lowell Center Indicator Hierarchy
- Local Unit Criteria and Indicator Development (LUCID)

Community Capital

Built Capital

Human/Social Capital

Natural Capital

Goods
Buildings
Infrastructure
Information

Skills
Health
Abilities
Education

Family
Community
Businesses
Government

Natural
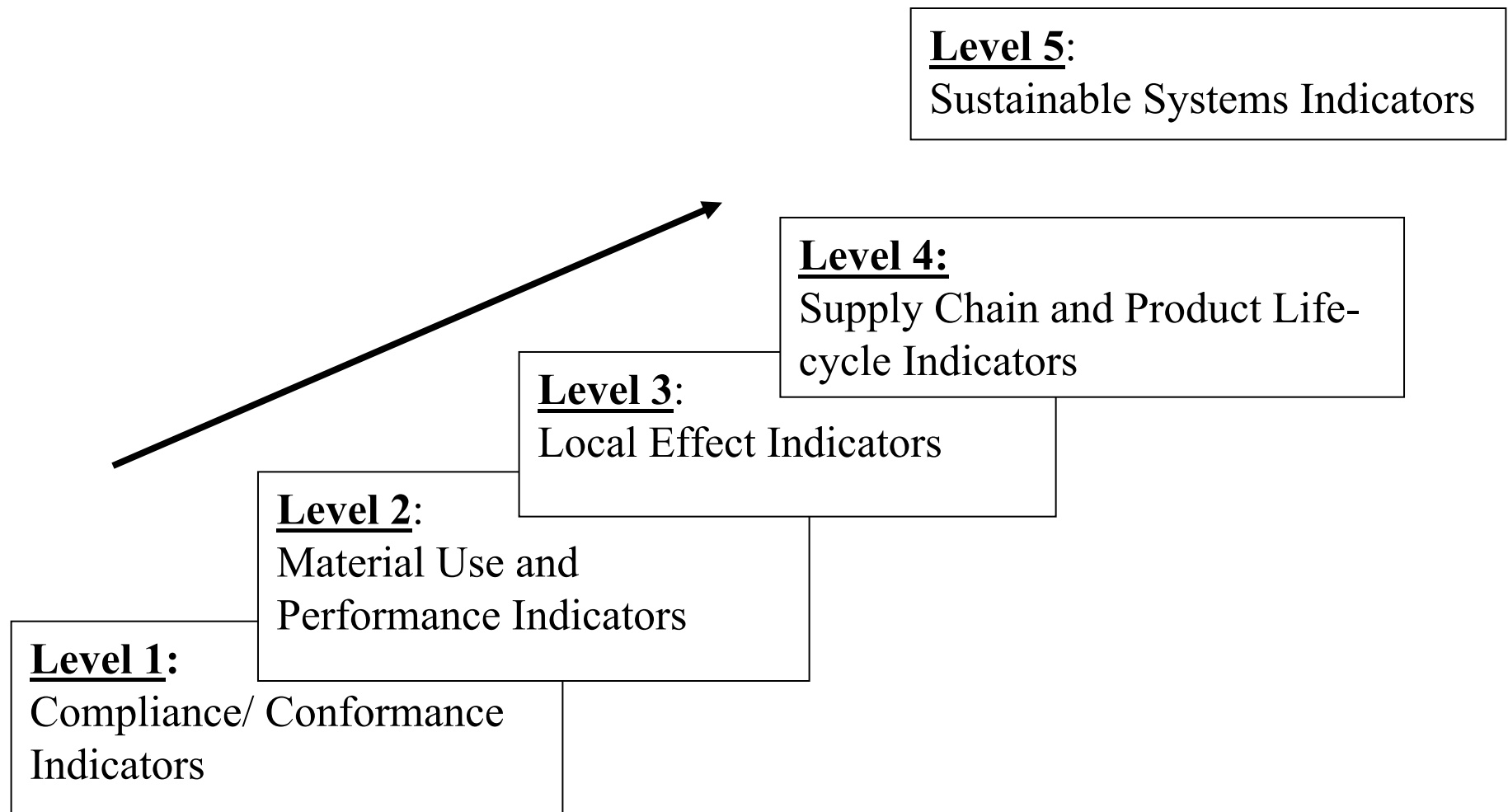Resources

Ecosystem
Services

Beauty of
Nature

Driving Force/State/Response

- **Driving force** (pressure, source) - activity that is causing a certain state or condition to exist

- **State** (condition) - the condition that exists

- **Response** (strategy, activities) - what is being done about it

State
(condition or status)

Driving Force
(pressure or cause)

Response
(strategy or action)
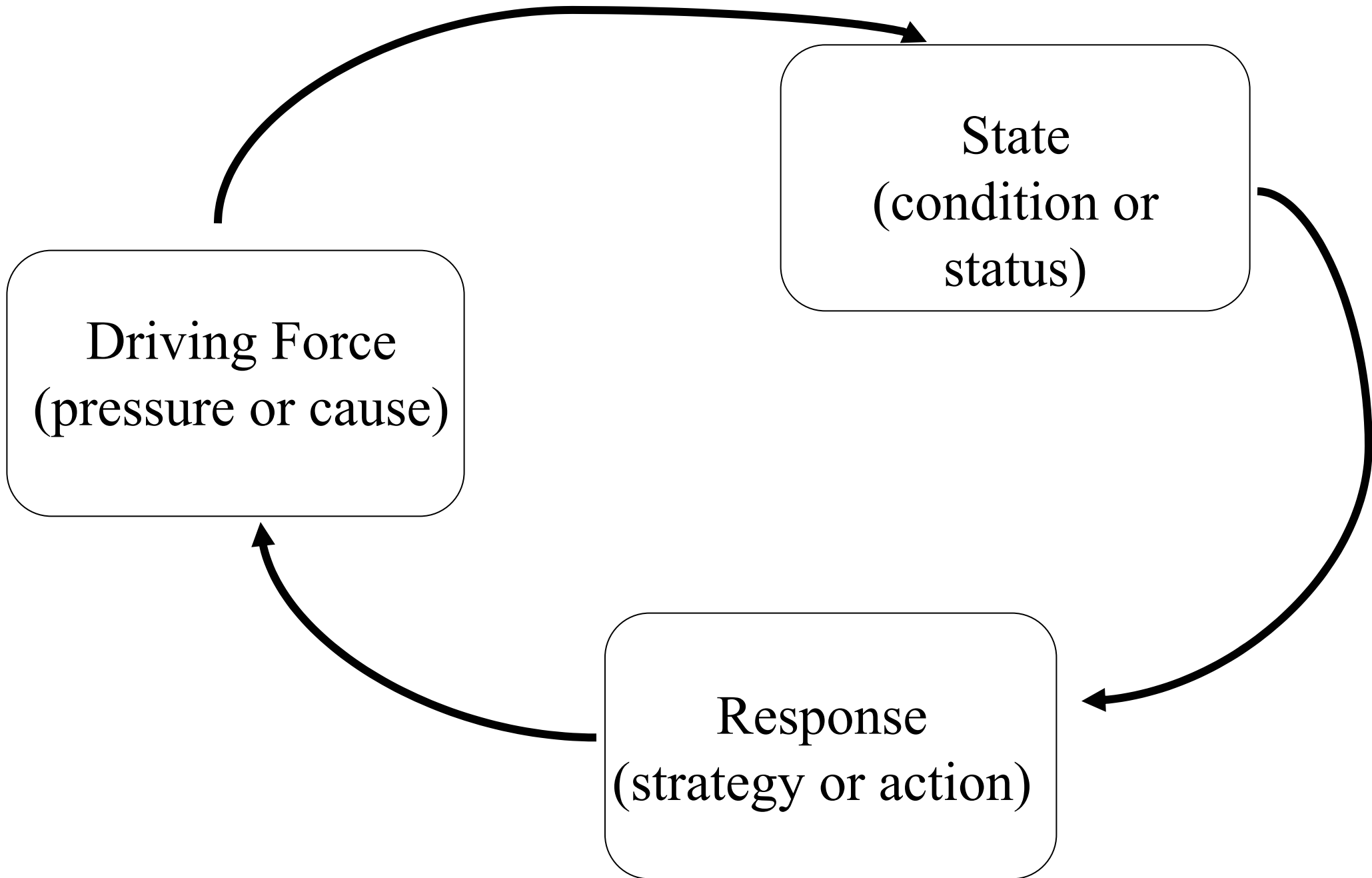
Driving Force	State	Response
Number of vehicle miles driven	NOx concentration in mg/m^3	Percent inspected cars with high NOx emissions
Number of single use/disposable goods purchased	Acres of land for waste disposal/ landfill.	Tons municipal solid waste recycled.
Percent of watershed that is impervious	Level of metals and organics in water supply reservoirs	Number of storm water permits issued
Pounds of toxics used	Contaminant level of shellfish	Number of shellfish beds closed

Lowell Center for Sustainable Production Indicator Hierarchy

Level 5:
Sustainable Systems Indicators

Level 4:
Supply Chain and Product Life-cycle Indicators

Level 3:
Local Effect Indicators

Level 2:
Material Use and Performance Indicators

Level 1:
Compliance/ Conformance Indicators

Sustainability Hierarchy
Water Use Examples

- Level of water in stream compared to historic levels

- Annual water use by residents and industry

- Gallons of water used to take a shower

Sustainability Hierarchy
Housing Examples

- Number of building sites with permits
- Number of housing starts
- Number of units by type (single/multifamily) and price range
- Percent of community land by usage type (residential, commercial, industrial, wetlands, working forest, agriculture, wilderness)

Sustainable Measures

Material Developed and Used by Gogebic County FACT

Gogebic County
Forest Advisory Coordinating Team (FACT)
Project Objectives

- Common understanding of sustainable forestry in the context of community-based needs, desires, and economic well-being in Gogebic County

- Criteria and indicators of sustainable forest management and overall community sustainability in Gogebic County :
    - condition of and pressures on economic, environmental, and social systems
    - outcomes of sustainable forest management and sustainable community development strategies and initiatives
    - extent to which activities are being carried out as planned

- Process to:
    - collect and maintain necessary data,
    - report and use criteria & indicators, and
    - involve stakeholders in reviewing and learning from results

A definition of "SUSTAINABLE FORESTRY" for Gogebic County.

"Sustainable Forestry is [forest management] that contributes to the [economic health] of Gogebic County while maintaining the [ecological and social/cultural values] for the benefit of present and future generations in Gogebic County."

The words and concepts in red need to be defined in order to give meaning to the statement.

Present the definition to communities, agencies, and organizations.

Decided which tools to use? Are there tools not already mentioned that can be used?

If the tools aren't available, work to develop them . . . and how much it will cost.

Is a tool a standard or an index?

The Easy Stuff

With community support, decide where to go and how to get there!

Learn the facts about an issue. Maintain your objectivity before forming your opinion.

Effectively advocate the facts, and your opinions on the issues.

Take the time and patience to maintain this group as a grassroots representative of Gogebic County interests.

The Hard Stuff