The ISIS Method

A Handbook for Sustainability Practitioners

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Developed by

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Table of Contents

The ISIS Method: A General Overview

The ISIS Method was created in the 1990s, originally to support sustainable development efforts in city and regional planning. Today, the Method is applied in a wide variety of sectors, around the world, as a framework for sustainability planning, training, and stakeholder facilitation.

"ISIS" stands for "Indicators > Systems > Innovation > Strategy." These are the four critical steps in a sequenced, iterative process of assessment, analysis, initiative development, and program or project planning, in a sustainable development context.

I = Indicators = The development of data, metrics, and information signals relevant to a bounded unit of analysis, or "system" (e.g. city, watershed, organization). The focus on "Indicators" emphasizes that the information signals must translated into graphic formats that can be understood by a wide variety of users and decision-makers, from many different disciplines and backgrounds.

S = Systems = Using the available data and indicators as inputs to create system analyses. These systems analyses are used to explain the observed historic and current behavior, and to support forecasting and scenario development. They are also used to help in the identification of key points of intervention in the system ("Leverage Points"). Systems analyses can be of varying levels of sophistication, depending on the capacity of a working group or stakeholder audience. Most often, the ISIS Method uses simple system dynamics models, called "System Maps."

I = Innovation = Identifying the kinds of interventions, to be applied at the Leverage Points, that are of highest benefit to the system as a whole and necessary for its long-term sustainability. These "Innovations" may be of any kind, from "hard" changes in technology, investment, and infrastructure changes, to "soft" changes in awareness, attitude, and values. Other kinds of interventions might include policies, regulations, training initiatives, adjustments in goal sets, and the introduction of new feedback mechanisms.

S = Strategy = Careful planning for successful introduction and implementation of prioritized Innovations. The "Strategy" phase of the ISIS Method includes the analysis of cultural roles and dynamics that may affect acceptance of the Innovation, in a detailed and holistic way, in addition to traditional strategic planning processes of setting goals and objectives, specific strategic approaches and tactics, and performance metrics.

Use of the ISIS Method consists of following this general sequence of actions in an integrated planning or training context. As a methodology, the ISIS approach allows for maximum flexibility in terms of the unit of analysis (system) to which it is being applied, and in terms of the specific tools and processes that are used along the way.

How to Prepare, and How to Conclude

The ISIS Method covers the planning and analysis steps in a sustainable development process, but it is preceded and concluded by two additional critical steps, the "bookends" of the process.

"Preparing the Ground" involves (1) gathering an appropriately diverse group of stakeholders or members of a multi-disciplinary working group, and (2) developing

a common definition or vision of sustainability appropriate to the target system or unit of analysis.

On the first point, diversity of participation is an axiom of collaborative planning in sustainable development. However, the ISIS Method can also be successfully applied as a planning, thinking, or learning process, by a sole practitioner or by small team. Implicit in theses smaller-scale applications of the Method is the expectation that one will draw on the knowledge and expertise of people in other sectors.

On the second point, formal definitions of sustainability can often vary depending on the perspective of different stakeholders or disciplines. Hence, the use of visioning (describing hoped-for future outcomes) often provides an adequate starting point for the framing of Indicators. Focusing on idealized future visions, rather than technical definitions of sustainability, can avoid early obstacles to cross-sector and multi-disciplinary collaboration. Formal definitions of sustainability can emerge and crystallize during the course of dialogues on system status (Indicators), intervention points (Systems), and possible intervention types (Innovation).

The closing step in the ISIS Method is "Agreement and Action." To be more than a training exercise, the process of developing a sustainability initiative must lead to firm agreements to implement. The ISIS Method is used both in training and planning contexts, and the arrival at a commitment to implement is what differentiates the two. The design of the Method, and the tools that have been developed to support its use in practice, is intended to greatly increase the chances of arrival at robust agreements that will hold together during the implementation phase, across differences in culture, discipline, and interest.

A Highly Flexible Approach

Like most variations on the planning cycle, the ISIS Method assumes that the process of sustainable development is cyclic and iterative. Implementation generates results, which are reflected in Indicators, which become new inputs to a round of System analysis, Innovation, and Strategic planning, on whatever time scale is appropriate to that system.

Moreover, the ISIS Method also assumes that the process is not strictly linear: Indicators may be revised based on an evolving Systems analysis; System Maps are revised based on emerging insights and experience; new ideas for Innovations may begin appearing at any point in the process, etc. The sequencing of the Method supports the forward flow of progress toward completion of a round of interventions and changes, but it is not intended to restrict thinking in a strictly linear way, either for individuals involved or for the working group as a whole.

A key feature of the ISIS Method is its flexibility. It can be used in a great variety of organizational and geographic contexts, from corporate sustainability planning, to regional economic development, to river basin management, to education for sustainable development. This flexibility allows for a unified approach to be applied in different contexts: for example, a regional planning initiative may also promote use of the Method by sub-regional entities, for their training and planning. The method can also be calibrated for different levels of complexity and sophistication, depending on the purpose of the initiative.

Table 1 (on the following page) summarizes the various ways that the ISIS Method can be applied at a Beginning, Intermediate, or Advanced/Professional level. There are common or universal features at each level which, in practice, can be calibrated in

terms of their complexity to the specific needs of an initiative and/or the capabilities of the target group engaged to work on it.

Use of Complementary Tools

The ISIS Method maps out a sequence of activities in general terms. In practice, many different specific tools can be used to perform the indicator-based assessment, system analysis, innovation identification, and strategic planning tasks that are necessary to bring sustainable development initiative to fruition.

The AtKisson Group, which developed the ISIS Method as a by-product of its extensive work on sustainable development initiatives around the world, has produced a set of tools to support use of the ISIS Method in practice. These tools, grouped into a suite called the ISIS Accelerator, are described in the next chapter.

However, the ISIS Method supports (and the AtKisson Group encourages) the use of many other tools as well. For example:

- In developing or interpreting **Indicators** of sustainability, there are many ways to approach the task, from highly disaggregated detailed metrics (specific measures of individual parameters, with their specific methodologies) to highly aggregated indices (such as the Ecological Footprint, the Human Development Index, or the Compass Index of Sustainability which is included in the ISIS Accelerator). Other, non-quantitative assessment schemes -- interview techniques, expert consultation, etc. -- can (and often should) also be accommodated at the Indicator level.

- In doing **Systems** analysis, there are many techniques to apply, from educationally-designed games and simple exercises to identify critical cause-and-effect linkages, to advanced, computer-based dynamic modeling tools. As noted in Table 1, choice of tool at this level is very dependent on the capabilities of the users or stakeholder groups, and on the variable needs for precision in the context of initiative planning.

- In working with the **Innovation** level, many tools and processes are available to generate collaborative brainstorming, survey catalogues of best practice, or facilitate multi-disciplinary design processes.

- At the **Strategy** level, the full array of management tools comes into play, from traditional "SWOT" analyses (Strengths, Weaknesses, Opportunities, Threats) and strategic planning processes to multi-criteria decision-support tools.

Table 1. THE ISIS METHOD: A PLANNING MATRIX FOR SUSTAINABILITY

Use this table to identify which level of complexity and capacity is appropriate to the system *and/or* to the group with whom you are working

	Universal	*Beginner*	*Intermediate*	*Advanced*
I **Indicators**	*Assemble and analyze information about what is happening*	Look for important issues and trends, and evaluate them as improving, worsening, or staying the same	Develop measurements with data, look for trends and patterns, analyze causes and effects, assess against sustainability criteria	Build comprehensive, robust indicator and reporting systems with performance indices scaled to reflect sustainable conditions, optimal states, and collapse thresholds
S **Systems**	*Explore key linkages among elements and find the most effective leverage points for change*	Simple sketching and mapping to link issues and indicators in cause-and-effect relationships, identify patterns (understand chains of causality, some basic feedback loops)	Basic modeling of stocks, flows, control/feedback mechanisms, causal loops, and overall dynamics (understand system structures, and change in system behavior over time)	Quantitative modeling, usually computer-assisted, using real or simulated data inputs to explore past system behavior and future scenarios (using system dynamics modeling and/or scenarios)
I **Innovation**	*Identify specific interventions, changes, techniques and new ideas to be introduced at the leverage points*	Brainstorming of new projects, or adopting and adapting existing initiatives, that can improve a key issue and have beneficial side effects throughout the system	Inventory new initiatives, policies, technologies etc. that are appropriate to a prioritized problem set, and feasible to implement at the identified points of leverage	Comprehensive reviews of best and emerging practice, research and development into new options, testing the effects of implementation in a dynamic systems model and/or scenario
S **Strategy**	*Plan for implementation, transition, and long-term success*	Identify needed resources, generate sequenced to-do lists, assign tasks to people	Use of "strategy mapping," "SWOT" analyses, "backcasting," "Amoeba mapping" and other techniques to determine best paths forward	Develop a "theory of change" or "logic model," derive goals and objectives, create comprehensive strategic plan with performance metrics, monitor progress
Agreement	*Commit to action*	Create inter-personal commitments: promises, volunteerism, future scheduled events, etc.	Create formal institutional and organizational commitments: task teams, work assignments, budget allocations, timelines, etc.	Create binding commitments: regulations, official policies, funded departments and programs, etc.

Education and Training v. Planning and Decision-Making

As noted earlier, the ISIS Method is designed for use in *both* education and training situations, *and* planning and decision-making processes. Training programs, from upper secondary school to university to senior professional level, have been built around it. Senior officials also use it for developing new strategies and policies at the local, national or inter-governmental level. Other users of the Method in planning and decision-making include corporate executives, funding agencies, military installations, and non-governmental organizations.

Best results are often achieved when the training and planning aspects of sustainable development work are integrated – for sustainable development almost always requires some additional training for those practicing it, especially in their capacity for systems thinking and for collaboration across different boundaries of difference.

The practitioner is encouraged to experiment with the ISIS Method first in a training or capacity-building (practice) context, in order to build familiarity with the thinking processes, and to gain experience in the application of appropriate tools at the various stages.

The next Chapter describes one such set of tools that can be helpful in this regard.

The ISIS Accelerator: Tools to Support Use of the ISIS Method

The *ISIS Accelerator* is a suite of four toolsets, provided in the form of handbooks, worksheets, presentation slides, and document templates. It is not computer-mediated: the tools are provided in Microsoft Office format. The user follows the directions in the handbooks, and adapts these directions, and the relevant document templates, to his or her specific needs. Nothing is automated: the actual work of filling in details and adjusting templates is done manually. This supports the tailored thinking processes that each unique sustainable development initiative usually requires, while ensuring that the Accelerator tools can be used in the widest diversity of settings. The tools can be successfully applied with nothing more than a laptop computer, or even with nothing more than paper printouts.

ISIS Accelerator can most easily be described using the metaphor of a physical tool chest. When you opened the chest, here is what you see: four separate smaller toolkits of different sizes and shapes, each with a name and a small symbol on it. Each of these toolkits is primarily assigned to one of the four steps in the ISIS Method: indicator development, systems analysis, innovation, and strategy.

Here is a summary description of what you would then find inside each of those component sets of tools:

Compass
"Compass" is used for framing, defining, assessing, and measuring progress towards sustainability with indicators. Compass is named for its core image and framework, a compass with the four North-East-South-West directional points replaced by four key dimensions of sustainability: Nature, Economy, Society, and Well-Being. With Compass, you can create indicators of sustainability for a company, city, region, watershed, or organization; assess the sustainability performance of a specific unit or project; identify and gather stakeholders to manage their input to assessment and planning; and communicate the basics of sustainability to people in terms they can easily understand.
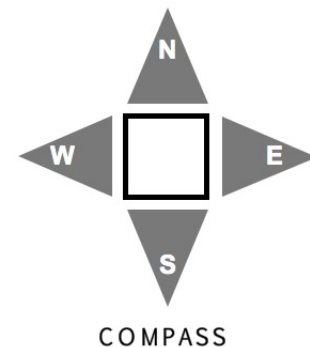
The Compass tools consist of:

- A handbook in indicator development
- Spreadsheet template for developing indicators
- Reporting template for communicating indicators
- Overview presentation slides on Compass framework
- Instructions for developing a Compass Index (aggregate sustainability measure)

Pyramid

"Pyramid" is a versatile group-process tool that supports collaborative systems thinking, learning and planning for sustainable development. Pyramid is essentially a workshop process that can be used in a variety of different ways: as an introduction to sustainable development; as a planning exercise for creating new initiatives, projects, visions, or strategies; or as a multi-stakeholder process for building consensus around a course of action. (When appropriate, the Pyramid process can be used to do all three of these things at the same time.)
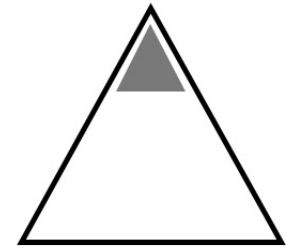
Pyramid is named for the three-dimensional pyramid model that is built during the course of the workshop. The model can be a real, physical object, or a "virtual", imaginary object. The Pyramid model is used to capture and reflect the results of the group discussion and thinking process, and to symbolize the group's conclusions and resulting commitments to future action.

Pyramid includes:

- A facilitator's manual for the full Pyramid workshop (takes 1-2 days to run)
- A manual for "Pyramid Lite," a shorter version of the workshop that requires less time and less technical background (takes 3-6 hours to run)
- Presentation slides
- Worksheet templates for workshops
- Electronic files for creating large, reusable wall charts
- Instructions for building the three-dimensional Pyramid model

Amoeba

"Amoeba" is a simulation exercise and set of analysis tools to support the introduction of innovations and the cultural change processes that innovations usually require. Amoeba is named for the Amoeba model, a methodology for understanding and mapping the different roles played by different actors in cultural change and innovation diffusion processes. The categories and mapping tools in Amoeba support the introduction of new ideas into cultural and organizational systems. They help speed up the process of introducing change, by empowering "Change Agents" to build momentum, avoid social obstacles, and more effectively navigate through a cultural system.
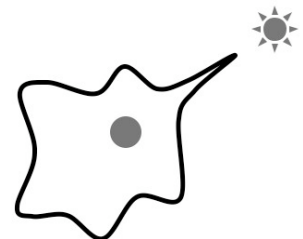
Amoeba includes:

- A handbook for a short simulation game, useful for introducing the Amoeba model and training Change Agents
- Presentation slides
- Decision-support mapping templates

StrateSphere

"StrateSphere" is a set of planning templates and evaluation frameworks for creating and monitoring a comprehensive strategic plan. The "sphere" metaphor is used because the tools attempt to give planners a holistic, 360-degree picture of the strategic "lay of the land" in which they are operating. This includes traditional goal-setting and performance metrics, but also assessments of internal strategic capacity, and surveys of the strategic actions being taken by other actors in the same sphere of influence.
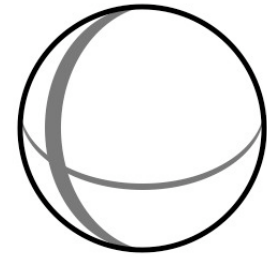
STRATESPHERE

StrateSphere includes:

- A strategic plan document template (which guides development of goals, theory of change, strategies, objectives, tactics, and performance metrics)
- A strategic capacity evaluation tool or organizations, departments, etc.
- Methodology and templates for conducting a Relevant Strategic Activity survey

For more information, see *The ISIS Accelerator Guidebook*, which provides a detailed review of these tools and their uses.

Generic Planning Framework, Guideline, and Worksheets

This section presents a set of template worksheets, with explanatory text and instructions, for applying the ISIS Method as a framework for sustainable development planning. More developed templates are often available in the ISIS Accelerator toolkits; use these guidelines to (1) get a clearer understanding of the ISIS Method (which is distinct from the Accelerator tools that support its application); and (2) to develop tailored approaches, starting from more generic templates, to support planning, decision-making, and training efforts.

The examples provided are sometimes generic, and sometimes drawn from regional planning or from the field of Integrated Water Resource Management planning, as these are among the broadest and most comprehensive uses of the Method. But the templates can be adapted to virtually any regional or organizational context, from very large to very small.

The ISIS Method, in application, is "expands or shrinks" to meet the scale of need to which it is being applied. This framework and these worksheets will support practitioners in doing the thinking and task-planning necessary at nearly every step of the process. But they do not impose an overly strict set of categories or linear sequence. Practitioners are expected to determine for themselves what the most appropriate timing, level of complexity, etc. should be for a particular initiative or project.

Notes on Using the Worksheets

- Electronic versions of these worksheets are provided so that the practitioner may copy them, adjust them, add or subtract elements, etc. as needs require.

- Some of these worksheets may refer to the use of other document templates, Excel spreadsheets, etc. These may be drawn from the ISIS Accelerator suite of tools, or from other toolsets. The purpose of templates provided here is to guide tailored / generic tool and worksheet development.

- It is perfectly fine to jump around in this worksheet set; one need not maintain a strict linear sequence. However, as will be apparent, ideas for (e.g.) interventions and projects (Innovations) that are logged early in the process may need to be adjusted, supplemented, or even dropped, depending on the outcome more thoroughly completing earlier steps in the methodology sequence.

- Going back to earlier steps in the sequence is always encouraged -- e.g., to add Indicators for issues that have emerged at later stages in the discussions and consultations.

- The ISIS Method and these worksheets can be combined with other tools and methods. For example, the Indicator tools here (as well as the more developed Compass Toolkit in the ISIS Accelerator) can be used to support a Global Reporting Initiative indicator process; the Systems tools can be used to prepare for a more extensive system modeling exercise; etc.

Foundations: Initial Scoping and Stakeholder Identification

Before you begin, it is essential to do several preliminary things: (1) define clearly the boundaries of the system you are working with, as well as the general definition of sustainability / sustainable development that is operational for that system; (2) identify the overall vision or goal for your initiative; and (3) identify and recruit the stakeholders and / or experts who are going to support the process and give it credibility. The following simple worksheet templates will guide you in this process.

Step 1: Overarching definition of sustainability / sustainable development

What definition of long-term sustainability or sustainable development has been adopted for this exercise?

Step 2: System description

Describe the target system (unit of analysis) for this exercise in geographic or organizational terms (e.g. river basin, company, city). Where are the boundaries in management terms? Note other surrounding or neighboring systems which it impacts, or which have an impact on it.

Step 3: Vision or goal statement

Is there a future vision or set of overarching goals (e.g. Millennium Development Goals, Global Compact, Earth Charter, corporate vision statement for sustainability) that has been adopted for this system? Describe / summarize it here.

Step 4: Stakeholder identification

Use this matrix to identify sectors, organizations, or even specific individuals who may (1) be affected by this system, and/or (2) believe themselves entitled to participate in deliberations about its future. Using the electronic version of this document, you can make changes: add new columns, add or remove categories, create additional spaces as needed.

(Example from water management)	Government	Civil Society	Private Sector	Education & Research
Agriculture and Food				
Business & Industry (General)				
Eco-system Science				
Education				
Fishery				
Health				
Nature Conservation				
Recreation				
Religious				
Security / Peace				
Tourism				
Traditional Uses				
Wastewater				
Water Policy and Law				
Water Sector Institutions				
Water Supply				
Women/Gender Mainstreaming				

Box: Use of Compass for Stakeholder Identification and Management

The ISIS Accelerator tool called "Compass" includes a simple process for stakeholder identification and management.

Using the four "Compass Points of Sustainability" below, brainstorm the sectors, organizations, institutions etc. that have a perceived interest in the future of the system or resource. Alternatively, brainstorm freely first, then fit these into the Compass. Notice where the representation is weakest. Spend extra effort (or get extra help) to identify appropriate stakeholders from that "Compass Point."

Later, when developing Indicators, the assembled experts and stakeholders -- now appropriately and fully diverse -- will become important to the process of identifying issues and measures, finding appropriate data, interpreting it accurately, etc.

Example (from a water management context):

NATURE
Natural scientists, environment ministries or agencies, environmental NGOs, clubs or associations concerned with a relevant natural feature of the system (e.g. bird groups)

ECONOMY
Industry associations, farmers, agricultural planners and policy makers, economic development authorities, trade groups, workers organizations

SOCIETY
Institutions, policy makers, water governance experts, advocates for equitable access, water management agencies, traditional/indigenous users

WELL-BEING
Water-bourne disease prevention programs, water quality experts, sanitation, recreation programs, landscape architects (e.g. park designers)

Step 5: Stakeholder management

"Stakeholder management" means ensuring that all identified stakeholders are engaged and involved, in an appropriately balanced way.

This is a sample set of database categories for managing the individual representatives in a stakeholder and/or expert-based consultation process. Any spreadsheet, database, or contact management system can be adapted to this purpose.

Name

Title

Organization

Representing (i.e. which sector of society?)

Sector (i.e. Government, Private, Civil, Education, etc.)

Gender [create a gender-balanced stakeholder group to the fullest extent possible]

Areas of Interest / Expertise [create keywords or codes to help you quickly sort by interest area or expertise]

Meeting Attendance [keep track of who came to which meeting]

Survey Response [keep track of who responds when using surveys, and create master databases of their responses -- e.g. when reviewing draft indicators]

Other categories as necessary

Stage 1 - Indicators: Issue Identification and Metrics-Based Assessment

The process of indicator development -- also known as integrated assessment or metrics-based assessment -- can be very time-consuming and detailed. Indicator sets usually go through several iterations as issues are narrowed down, suitable metrics identified, data gathered and analyzed, consensus formed around data interpretation, etc. The investment of time is generally worthwhile, as it builds trust and shared understanding among the stakeholders. Preliminary indicator sets can also, however, be quickly developed and used as the basis for initial planning, when time is of the essence.

The following worksheets are general templates to support the process of identifying issues and measurable indicators, and then translating these into report-ready graphics and texts. For more detailed support in this process, see the ISIS Accelerator tool "Compass."

When time is short or data is hard to come by, it is possible to conduct a rapid, informal assessment and to create informal indicators as well. One method for producing a rapid, informal assessment is provided at the end of this section.

Definition of issues or system elements

Use your stakeholders and experts to develop an inventory of "Assets," "Concerns," and "Aspirations" relative to the system (organization, geographic region, etc.) you are working with. The Compass categories provide a ready framework for categorizing these Assets, Concerns, and Aspirations. This inventory should bring to light all known issues, current and future, that may impact the sustainable development of the system. It will serve as the basis for identifying measurable indicators, and ultimately for identifying system elements for the System Mapping analysis.

Use this example as a template for creating worksheets and spreadsheets, adding subcategories as appropriate.

	Assets	Concerns	Aspirations
Nature			
Economy			
Society			
Well-Being			

Development of indicators

Use the identified Assets, Concerns, and Aspirations to synthesize a set of issues for measurement. Final selection of the issues can be done by a working group, or by additional stakeholder dialogue to prioritize the issues.

For each issue, consider the possible measurable indicators, including reasonable proxies or qualitative (e.g. survey) measures. In some cases choice of indicator will be obvious; in others, it may require considering several different options, and selecting among them based on a combination of data availability, clarity of meaning, and understandability to non-specialists. The indicator must ultimately support assessment of current status, historical trend, and future scenarios for the issue it is measuring.

As your choice of indicators becomes clear, use this template to create spreadsheets where you can document your decisions and the information you gather. An electronic template in Excel format is available as part of the Compass toolkit.

Indicator Spreadsheet, Page 1 - Cover Sheet

Compass Point (or other Category)	*[The indicator will be clustered into this category for reporting purposes]*
Title	*[Give each indicator a title that reflects the issue it measures and makes it easier to remember.]*
Number	*[Create a numbering system that will survive multiple iterations and make it easier to find the indicator quickly in a list. For example, "N-3" could be the third indicator in the Nature cluster.]*
Indicator	*[What is actually being measured.]*
Data Source	*[E.g. a database, published study, direct measurement, or other data resource.]*
Organization/Institution Name	*[Where the data is housed.]*
Contact Person	*[A person who can provide information on the data.]*
Telephone Contact	
Email Address	
Web Sites	
Source Document Citation	*[The formal citation to be used in referencing the data.]*
Additional Source Notes	*[Notes to future project managers or researchers, to help them understand why this data was used, and what it means.]*
Data Quality Assessment	*[This can be qualitative -- "good, fair, poor" -- or quantitative, based on (e.g.) an informal confidence assessment on 0-100% reliability scale.]*
Data Availability (Time Series)	*[The years for which the data is available.]*
Update and Revision History	*[Keep track in the document whenever the data is updated, changed, etc.]*

Indicator Spreadsheet, Page 2 - Data

On the second page of the spreadsheet, record a copy of all actually available and relevant data for that indicator. Example:

Hazardous emissions to the river (in tonnes) per year

	2004	**2005**	**2006**	**2007**	**2008**
[Main]	160,631,650	142,663,739	146,943,640	121,220,941	21,393,292
[Tributary 1]	34,858	46,667	24,376	26,598	21,147
[Tributary 2]	840,159	618,283	686,521	562,882	1,493,264
[Tributary 3]	4,407,532	3,287,033	78,722	27,459	18,806
Totals	**165,916,203**	**146,617,727**	**147,735,265**	**121,839,887**	**22,928,517**

Note: Data sets for issues can often be large and cumbersome. For indicator development purposes, select the most relevant summary data, while maintaining transparency regarding the full data set.

Indicator Spreadsheet, Page 3 - Graph

On the third page of the spreadsheet, develop a chart, graph, or other graphic representation that presents the indicator in a summarized, understandable visual format. Example:
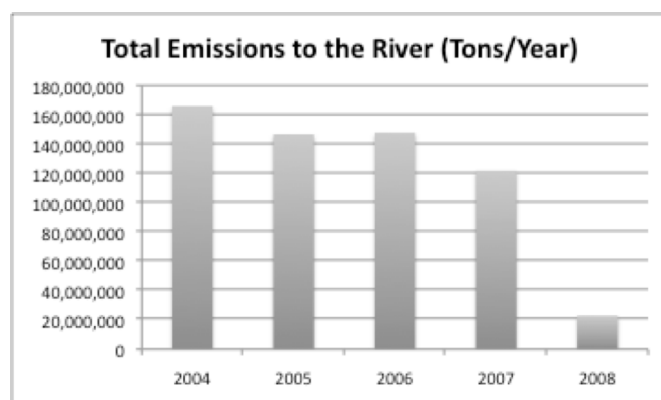
Indicator Spreadsheet, Page 4 - Additional Notes

Use additional pages in the same spreadsheet to record any technical notes on data interpretation or quality that may be important to recall, and to communicate to future researchers or project managers.

Preparation of indicator reports

When data gathering is complete -- and sometimes, before it is fully complete -- indicators must be presented in a report format that is appropriate to the needs of the stakeholders to whom you are reporting. It is often the case that reports include reference to indicators for which there does not yet exist reliable data. The inclusion of these "unfinished" or indicators signals a need for additional data gathering.

Use the following templates to guide the design and structure of your indicator report, making additions and adjustments as needed.

Indicator reports can, and usually should, be summarized into shorter summary brochures, websites, or oral presentations (this depends on the technology that is available to your target audience). The full report serves as a foundational reference document for the remainder of the planning process, and as an educational resource for professional training and classroom use.

Indicator report outline / table of contents

The most effective way to develop an indicator report is to review several examples and adapt them to your specific needs. The following standard outline shows one common way of organizing a report: Executive Summary, introductory text, individual indicators gathered into thematic clusters, technical appendices and data sources.

Executive Summary	*[Highlights the most critical trends.]*
Introduction	*[Puts the report in context: explains its purpose, the guiding definitions and principles, and the process by which the indicators were selected.]*
Compass Index (or other aggregate index)	*[Optional. Presents an overall aggregated index of the trends, in their cluster groups. See Compass Toolkit in the ISIS Accelerator.]*
Nature Indicators (or other cluster name)	*[Cluster groups should harmonized with the categories adopted for use throughout the initiative. This example uses the Compass format.]*
Economy Indicators	
Society or Social Indicators	
Well-Being Indicators	
Technical Appendices	*[Detailed explanations of indicator selection process and criteria, if necessary, as well as indexing formula and other technical matters.]*
Data Sources and Notes	*[Details of regarding data sources and quality assessments.]*

Indicator report template - individual indicators

Reporting formats for indicators can vary widely. The following represents a very general, and comprehensive, approach to the task of writing up an individual indicator for presentation. This approach can be simplified to a level appropriate to the target audience

Name of Indicator	*[A short, descriptive name for the indicator. Examples: "Annual water consumption," "Greenhouse gas emissions," etc.]*
Overall Status and Trend	*[A symbol or short text that summarizes whether the status is good, fair, bad, etc.; and whether the trend is improving, worsening, or staying the same in recent years. This status signal can optionally include an evaluation of risk or urgency -- for example, a "Green / Yellow / Red" warning lamp.]*
Graph, Chart, or Table	*[A graphic image that reflects the data in a credible yet understandable way. Illustrative photographs can also be used to increase visual interest and reader comprehension.]*
Description - "What is Being Measured"	*[A short description of what is being measured and presented in this indicator.]*
Rationale - "Why This Indicator"	*[Explains why this is a good indicator; links to the issues identified by stakeholders.]*
Interpretation - "What is Happening"	*[A textual interpretation of the data and image. Example: "Diversion of river water into irrigation systems has been increasing in recent years."]*
Explanation or Discussion - "Why This is Happening"	*[Expert understanding of primary causes of the recent status and trend, translated into terms suitable for a general readership. Example: "As global demand for cotton has increased, and as local rainfall has decreased, regional farmers are more and more dependent on river water and ground water for crop irrigation."]*
Linkages - "What this Indicator Connects To"	*[Other indicators that are in cause/effect relationship with this indicator, or that reflect similar dynamics. Example: "See Groundwater Extraction, Climate Change, Agricultural Production." This initial identification of critical linkages will support more comprehensive systems analysis later.]*

Box: Use of Compass for Indicator Development and Reporting

The Compass Toolkit in the ISIS Accelerator suite of tools includes a more detailed handbook in indicator development as well as electronic templates for running stakeholder meetings, managing data, and developing indicator reports. These templates can then be adapted, through the use of graphic design, into a tailored indicator report.

The Compass Toolkit also includes technical instructions for creating a Compass Index of Sustainability, an aggregate measure that translates every indicator into a 0-100 performance index (where 100 = perfect or ideal conditions, and 0 = system collapse conditions). Individual indicators can then be ranked; clusters can be aggregated to gain an overall score for the "Compass Points" (e.g. a "Nature Index"); and a super-aggregated "Overall Sustainability Index" can provide a sense of overall status and direction over time.

Note that the use of such indices is primarily a communication device to attract attention to the indicator sets and to start discussions about the details. They should not be presented as definitive indicators in themselves.

Rapid Indicators - A method for producing informal measures quickly

When time is short, or data is scarce, the following method can be used to develop a set of informal visual indicators based on stakeholder input.

The method is best done as a group process, with small groups focused on different clusters and topics.

For each issue identified as a priority, provide the groups with a worksheet or template/example like the one below, and instruct them to do the following steps:

IDEAL

MEDIUM

STEP 1

STEP 2

STEP 3

TERRIBLE

-10 Years   *Now*   *+10 Years*
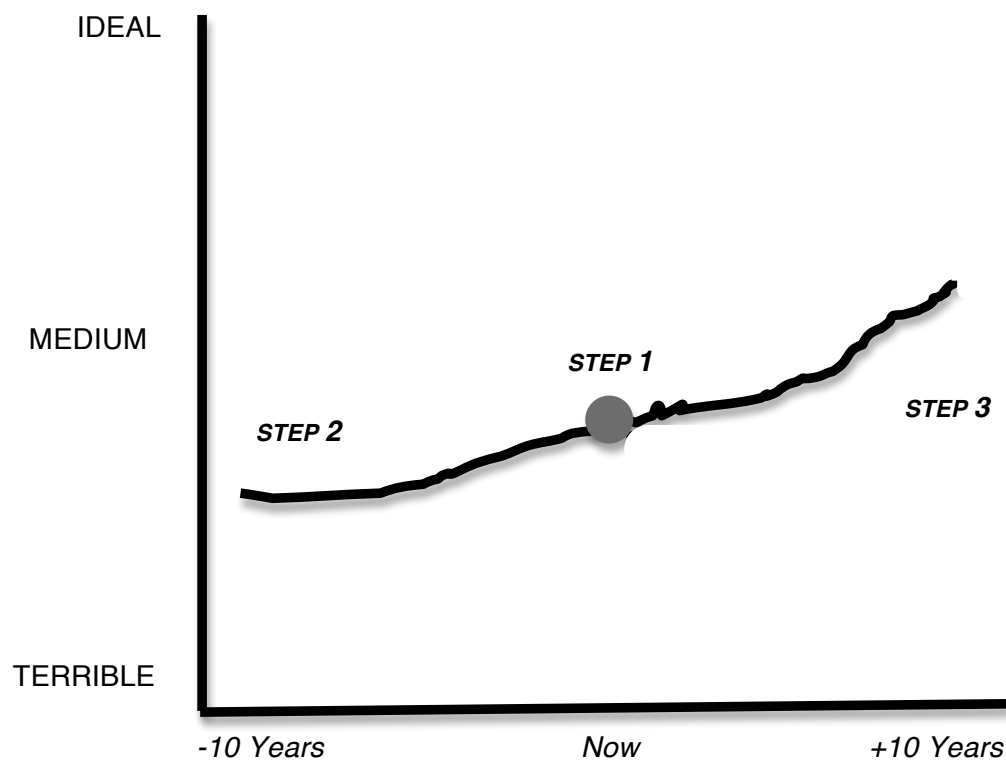
Step 1: Consider conditions for that issue (Asset, Concern, Aspiration) today. How do you assess them, on a scale ranging from "Ideal" (the best one can imagine) to "Terrible" (the worst)? Make a mark in the center of the graph, over the word "Now", corresponding to your assessment. Note: If the group is not in agreement on the assessment, show the range of disagreement.

Step 2: Consider the conditions for that issue ten years ago. Were they better, worse, or the same? To what extent? Draw a trend line showing how the assessment has changed over time, from ten years ago, until now.

Step 3: Now consider the likely conditions for this issue in the future -- assuming no further direct or indirect action is taken to affect the current trend. Are conditions expected to improve, decline, or remain the same? How fast will the change occur?

Notes: The results of this exercise can be recorded on large-format paper and used in a group workshop process, or even gathered into an informal report. They can also provide an input into a more formal assessment and indicator process: how would these perceived trends be verified by data?

Also, the results of this exercise can also be used as inputs to an informal systems analysis process, as described in the next section; or into a formal "Rapid Assessment" (as in some World Bank projects).

Stage 2 - Systems: Analyzing Critical Linkages and Causal Loops

The process of analyzing the cause-and-effect linkages among system elements in a sustainability management context is perhaps the most important part of the planning process. It is also, however, often skipped over.

The primary reason for this is simple: systems thinking, analysis, and modeling is challenging. Practitioners and decision-makers are often concerned that it will be too difficult, expensive, or time-consuming to conduct a systems analysis. However, the cost of not doing such an analysis can also be high, for planning decisions may be taken that treat symptoms instead of causes, or even that exacerbate counter-intuitive dynamics and make the situation worse in the long run.

In recent years a variety of methods have been developed to simplify the process of systems thinking and to make it more accessible to non-technical audiences. These methods also facilitate greater participation and collaboration with stakeholders.

The following worksheets will support the practitioner in (1) determining the systems capacity of your target audience, and (2) conducting a simple, initial, collaborative systems analysis, using indicators as a starting point and input.

More extensive systems analysis tools, such computer modeling software, are available for those with sufficient mathematical and technical training. Also, a variety of systems games are available for teaching and professional training situations; these can increase a group's capacity to understand basic system features such as causal loops and feedback mechanisms, and even to construct model sketches. See the "Additional Sources and Resources" section of this handbook.

Assessing systems thinking capacity

Before beginning the systems analysis phase of an ISIS process, it is useful to take stock of the systems thinking capacity of the group that will be performing the analysis. If the group is less experienced with systems thinking and systems analysis is too complicated, the group will lose interest and the process will be unsatisfying. If the group is highly trained and experienced, and the analysis is too simple, the process will lose credibility.

Refer to Table 1 earlier in the handbook for a description of the different levels.

Step 1: Describe the Group

Who will be performing the analysis? What is their educational and professional background? Write a general description. Use, for example, your Stakeholder Management database to review who will be participating, and to begin gauging their expected level of experience with sustainable development and systems thinking.

Step 2: Assess their overall experience level

What percentage of the group has done the following sorts of exercises or analyses previously? You may want to informally survey your target group, if you do not have a good sense of familiarity with them already.

_____   *No exposure* to systems thinking or modeling (Level 0)

_____   *Some exposure* to systems thinking, e.g. in simulation games or teaching situations (Level 1)

_____   *Reviewing the outputs* of systems modeling exercise; visual recognition of a systems diagram (Level 2)

_____   *Creating simple system sketches and maps* to link issues and indicators in cause-and-effect relationships (Level 3)

_____   *Identifying patterns* such as chains of cause-and-effect, closed causal loops, and feedback (information/control) loops (Level 4)

_____   *Basic systems structure modeling* that differentiates between sources, sinks, stocks, flows, and control/feedback mechanisms, to reveal causal loops, and overall dynamics (but does not use mathematics) (Level 5)

_____   *Quantitative mathematical modeling*, using real or simulated data inputs in a computer environment (Level 6)

Step 3: Choose the systems analysis method (or methods) you will use

Review the results of your assessment. Select among the following options based on the distribution of capacity and experience in your target group of stakeholders, co-workers etc. Note that you may divide up a group and pursue multiple options.

Levels 0-2: Use the Linkage Analysis below.

Levels 3-4: Use the System Map exercise below. You may want to also provide some preliminary training (more or less depending on the overall balance of capacities); and you may choose to use the Linkage Analysis as well, as a prelude to System Mapping.

Levels 5-6: Use a more sophisticated systems modeling technique or even program (such as VenSim). Take the group through multiple iterations of model building (with or without mathematically defined parameters, depending on your level of capacity and ambition.)

Preparation for system analysis using issues and indicators

In preparing for systems analysis, review the issues and indicators developed to this point. You may need to:

- Prioritize the set of issues, and select a limited number of the most important ones, on which to focus the analysis

- Simplify them further and put them into a format that can be most easily used by the target group of participating stakeholders or experts

- Augment the list with missing issues, known to you (or other experts) to be critical elements of the system as a whole

Linkage Analysis

A Linkage Analysis is a good alternative for groups that are less familiar with, or comfortable with, systems thinking and modeling. It consists of a matrix-based discovery process, using the Indicators, and searching for individual couplings among them. Doing this exercise with a group facilitates building their understanding of critical cause-and-effect linkages, which will help focus attention on higher-priority points of intervention in the system.

Step 1: Develop the matrix

Create a matrix with (1) the highest priority issues/indicators down the left side (you may of course use all of them), and (2) the complete list of issues / indicators across the top. If the lists are too long, the matrix can be broken up into several subsections.

The following is a simplified example from a regional/water management setting to use as a template:

ISSUES EXPERIECING EFFECTS	ISSUES HAVING A CAUSAL INFLUENCE ON OTHER ISSUES							
	Annual rainfall	Water consumption	Price of irrigation water	Price of energy	People applying for food aid	Incidence of conflict	Incidence of malaria	Visitors to river park areas
Nature								
Annual rainfall	░							
Water consumption		░						
Economy								
Price of irrigation water			░					
Price of energy				░				
Society								
People applying for food aid					░			
Incidence of conflict						░		
Well-Being								
Incidence of malaria							░	
Visitors to river park areas								░

Note that the issues listed across the top are to be considered in terms of whether exert any causal influence on the other issues. The issues down the left are to be considered in terms of whether they experience the effects of that influence. This needs to be carefully explained to the stakeholders performing the exercise.

Step 2: Linkage Discovery Exercise

Working in small groups, stakeholders note the existence and relative strength (in their subjective opinion) of linkages between the issues. For example, they might place marks in each matrix square to show the linkage -- 1 mark indicating a weak link, 2 moderately important, and 3 very strong. Here is an example:

	ISSUES HAVING A CAUSAL INFLUENCE ON OTHER ISSUES							
ISSUES EXPERIECING EFFECTS	Annual rainfall	Water consumption	Price of irrigation water	Price of energy	People applying for food aid	Incidence of conflict	Incidence of malaria	Visitors to river park areas
Nature								
Annual rainfall								
Water consumption	*		* *	*		*		*
Economy								
Price of irrigation water	* * *	* *		*		*		
Price of energy	* *					*		
Society								
People applying for food aid	* * *	*	* * *			* * *	* *	
Incidence of conflict	* *		* * *	*	*		*	
Well-Being								
Incidence of malaria	* *							
Visitors to river park areas	*					* * *	* *	

Note: Groups can also do this asynchronously, with participants doing their contribution on their own time and sending a worksheet in to a central coordinator.

Step 3: Tabulating the results

Using the worksheets, identify the strongest cause-effect linkages perceived by the stakeholder and/or expert group. You can also use this opportunity to note any differences of perspective about these linkages -- that is, people from some sectors may not see the strong linkages perceived by others. Results like this can, if facilitated carefully, lead to constructive dialogues that improve mutual understanding of why people from different sectors see tings differently.

Here is an example of results tabulated from the example given above:

Strongest Linkages
Annual rainfall >>> Price of irrigation water
Annual rainfall >>> People applying for food aid
Price of irrigation water >>> People applying for food aid
Price of irrigation water >>> Incidence of conflict
Incidence of conflict >>> People applying for food aid
Incidence of conflict >>> Visitors to river park areas

Medium Strong Linkages
Annual rainfall >> Price of energy
Annual rainfall >> Incidence of conflict
Annual rainfall >> Incidence of malaria
Water consumption >> Price of irrigation water
Price of irrigation water >> Water consumption
Incidence of malaria >> People applying for food aid
Incidence of malaria >> Visitors to river park areas

Weak Linkages
Annual rainfall >> Water consumption
Annual rainfall > Visitors to river park areas
Water consumption > People applying for food aid
Price of energy > Water consumption
Price of energy > Price of irrigation water
Price of energy > Incidence of conflict
People applying for food aid > Incidence of conflict
Incidence of conflict > Water consumption
Incidence of conflict > Price of irrigation water
Incidence of conflict > Price of energy
Incidence of malaria > Incidence of conflict
Visitors to river park areas > water consumption

Step 4: Analyzing the results

Review the results and draw conclusions. Look to see which binary linkages between issues were assessed to be most important or strongest. Search for identified chains of cause and effect, including causal loops. Note that the more stakeholders or experts who agreed on a linkage, and its relatively strength, the higher priority attention should that linkage receive in subsequent stages of the ISIS Method process.

Here are some sample conclusions resulting from an analysis of the above example:

- Annual Rainfall, the Price of Irrigation Water, and Incidence of Conflict appear to have the strongest driving influences in this system.

- All three of these factors affect People Applying for Food Aid, both directly and indirectly.

- A chain of cause-and-affect exists linking Annual Rainfall to Price of Irrigation Water to Incidence of Conflict to numerous other issues. Some of these issues feed back onto the Price of Irrigation Water in a vicious circle.

- Water Consumption and the Price of Irrigation Water are tightly coupled and mutually affect one another, while also being influenced by other issues.

Note that this is a partial sample analysis; other linkages would clearly emerge from this exercise, such as the economic impact of fewer tourist visitors, driving forces on annual rainfall such as local deforestation or global climate change, etc.

Results like these can either (1) provide a useful foundation for identifying appropriate leverage points for intervention; or (2) provide an input into a more developed System Mapping or modeling exercise. See next sections.

System Mapping

System Mapping is a simplified model-building exercise, using Indicators as a starting point. It consists of drawing schematic diagrams showing the cause-and-effect relationships among Indicators (i.e. the issues they represent). In the course of the mapping exercise, addition Indicators, as well as control and feedback mechanisms, are usually identified. Doing this exercise with a group facilitates building their understanding of critical cause-and-effect linkages, and results in the identification of higher-priority points of intervention in the system, the so-called "Leverage Points."

The more sophisticated the group doing this analysis, the more detailed it can be, in terms of how much technical knowledge from systems theory is put to use. The following exercise assumes very low levels of exposure to systems theory (which is the norm). It can be augmented and made more sophisticated by drawing on some of the other resources named in the Sources and Resources section.

Step 1: Select one or more Indicators as a starting point

Simple systems mapping begins with the identification of one indicator, or a cluster of issues, as the starting point for the mapping exercise. These are placed at the center of a large piece of paper (e.g. on movable Post-it notes).

Step 2: Diagram the cause-and-effect linkages among the Indicators

Arrows are drawn from one issue to another, to indicate a causal influence relationship. Additional Indicators from the full array of clusters are added. The group continues to work with the Indicators -- and with other issues or control mechanisms they identify as critical and missing from the Indicator set -- until all the most important linkages are reflected in the diagram. Here is an example of the first step in the process (note that text labels can be used rather than line graphs):
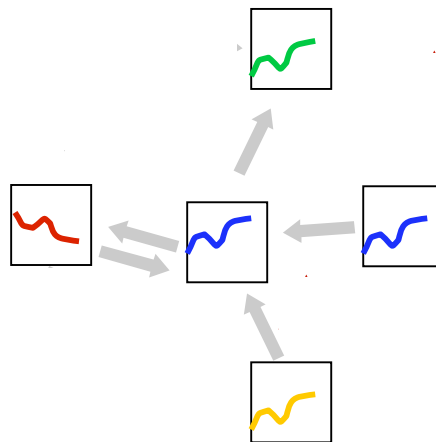
Step 3: Find the leverage points

At later stages, the working group(s) may discover loops within the linkages they have identified -- closed, circular chains of cause and effect, which indicate the potential for runaway trends, "vicious" or "virtuous cycles" that feed on themselves. Often these are the key to finding the most effective points of intervention in the system.

In any event, the final stage involves marking those places on the Map where an intervention would appear to have the largest potential for the broadest possible, positive influence on the system. These are the "Leverage Points" (marked as triangles in the sample diagram below).
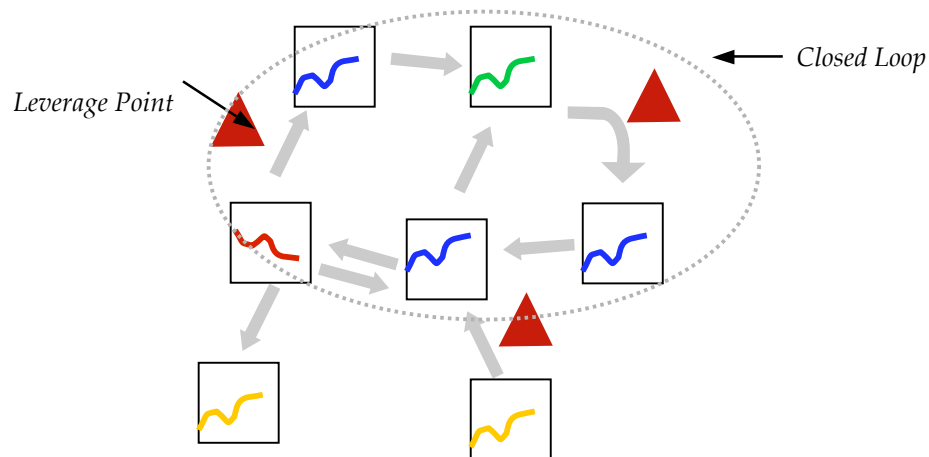
Leverage Points are then documented and described, and often prioritized, creating the input to the next level of the ISIS Method, Innovation.

Documentation of the results of a System Map, including the identification of the Leverage Points, usually takes the form of a short report with the original System Maps as illustrations.

Box: Use of Pyramid and Other Tools to Build Systems Capacity

The Pyramid toolkit included in the ISIS Accelerator includes a detailed workshop manual for taking groups through the entire ISIS Method, in either a training or planning context.

The workshop places special emphasis on collaborative systems thinking and makes use of some of the methods described in this handbook.

Using Pyramid is a good way to facilitate collaborative systems thinking, and to build the overall systems thinking capacity of a stakeholder or working group.

For more information on Pyramid, see The ISIS Accelerator Guidebook.

Also recommended is the new textbook *Thinking in Systems: A Primer* by Donella H. Meadows (Chelsea Green, 2008). This textbook is an excellent source of building more advanced competence in systems thinking and basic system modeling structures.

Finally, informal systems thinking skills can be developed using a variety of games and exercises, many of which are documented in *The Systems Thinking Playbook*, written by Dennis Meadows and Linda Booth Sweeney, and published by the Laboratory of Interactive Learning.

Stage 3 - Innovation: Identification of Critical Interventions

The third stage in applying the ISIS Method builds on the previous stages. Development of Indicators characterizes the system in broad and comprehensive terms. Development of System Maps and related analyses reveals the inner workings of the system and supports the prioritization of points of intervention. Now, at the Innovation stage, types of actions are identified. This stage is a critical prelude to formalization of actions in a strategic or master plan.

The actual practices involved at the Innovation stage are far less technical than in previous stages, and generally take far less time as well. The following worksheet templates will help guide this process.

Note that taking time to fully catalogue both the points of intervention in a system, and the types of intervention to be applied there -- Stages 2 and 3 in the ISIS Method -- is extremely important. Many traditional strategic planning models jump directly from issue identification to strategy, hopping over more thorough system analyses and consideration of the many possible initiatives that can be taken. This can, in turn, lead to wasted efforts, as when strategies are simply copied from one place to another without regard for the specific local circumstances that make their allocation inappropriate and ineffective in the new context.

Step 1: Analysis of leverage points

Leverage Points come in a number of different "shapes and sizes." For example, some are most appropriately addressed with a policy change, as when an existing policy is causing a "perverse incentive" driving industries to use water in excess of their actual need. Others are best approached with a change in technology or management practice, as when excessive water is being lost to evaporation due to out-of-date irrigation methods. Still others may require a change in attitude or simple habit, perhaps in conjunction with a technology change, so that actors in a system begin thinking differently and making different decisions at the user level on a daily basis.

As a first step in the Innovation stage, consider the kinds of Leverage Points identified at the Systems level. Which were considered most powerful? Why? What kinds of interventions are possible there? How easy or difficult will it be to access that Leverage Point?

The following simple matrix format will help you characterize the Leverage Points and guide the search for appropriate interventions. As usual, adjust and adapt the template to fit your specific situation.

	Law, Rule, Policy	Technology	Economic Signal	User Habit or Attitude	Flow of Information	*Easy or Hard?*
[Lev Pt 1]	✓			✓		**Hard**
[Lev Pt 2]					✓	**Easy**
[Lev Pt 3]		✓	✓			**Medium**

Step 2: Cataloguing of relevant good / best practice

Leverage Points can now be matched up against the known practices applied in similar systems. Practitioners may already be familiar with these, through study trips, benchmarking reports, professional training sessions, web-based research, etc.

Note that it is commonly the case that many good or best practices are already known, before beginning the kind of analysis and planning exercise that the ISIS Method is intended to support. These can now be matched against the Leverage Points to see if they are still seen as appropriate best practice (or even just as good ideas in general terms). The foregoing analyses will either strengthen the rationale for applying these best practices, or provide cautionary reasons why such previously known alternatives may not, in fact, be the best solution or worth prioritizing highly.

No worksheet template is provided here; the practitioner can easily devise an appropriate cataloguing and analysis format.

Both the cataloguing of existing best practice, and the brainstorming of new ideas (see below), can be speedily done in a stakeholder or expert group process. Such exercises are usually inspirational to such groups, in addition to being a useful way to quickly harvest their information resources.

Step 3: Brainstorming of new ideas and intervention strategies

Usually, the family of known intervention strategies and initiative types does not exhaust the possibilities for a specific system. Every system is unique, owing to geography, culture, economics, and many other factors, including the institutions and even individuals involved. For this reason, it is nearly always worthwhile to spend time in a brainstorming mode, engaging stakeholders in the process of thinking creatively about new potential solutions and ways forward.

The following process can be used in either large or small group settings to quickly generate a set of ideas, and prioritize them.

First, *have the group review the System Maps (or Linkage Analyses) and the resulting Leverage Points. It is often a good idea to have them review the underlying Indicators as well, to refresh their minds about what is happening in the system.*

Second, *describe the kinds of interventions that are possible in this system (see the Leverage Point Analysis), and perhaps review a few new, innovative solutions being applied in other similar systems. The purpose of this is to inspire the group's thinking.*

Third, *provide adequate time for both individual and group brainstorming. Have groups pool their best ideas, and prioritize them based on a set of criteria you provide. These criteria might include:*

- *Level of certainty that implementation will produce the expected/desired outcome*
- *Level of expected impact*
- *Feasibility of implementation*

... and other factors.

Fourth, *review the resulting prioritized list, and combine it with the previously identified best practices. Discuss whether the combined list accurately reflects the thinking of the group and whether it seems like a reasonable set of potential approaches. This is the list that moves forward to the Strategy stage.*

Stage 4 - Strategy: Planning for Successful Implementation

As noted earlier in this Handbook, when arriving at the Strategy stage of the ISIS Method, a great many approaches and tools can be applied, including many existing strategic planning formats in business, organizational, regional, city, or resource management.

This section focuses primarily on those aspects of strategic planning process that are often overlooked, and on tools and analyses to support addressing those aspects.

These include:

The assessment of implementation capacity. Many times strategic plans are created without careful attention to the actual people and institutions that must carry out those plans, and their relevant capacities. Do they (you) have adequate skills? Resources? Leadership? These are essential questions that determine success or failure, quite apart from the quality of the foregoing analyses and resulting ideas for development and intervention.

The adoption and diffusion potential of the selected intervention or development strategies. Sometimes excellent ideas meet concerted resistance in the form of cultural obstacles, resistance to change, or even power dynamics related to individuals with influence in the system (ranging from "turf" issues to actual corruption). Understanding these issues can make the difference between the successful adoption and implementation of a strategy, or its failure to progress through the channels of decision required to support it.

The development of the overall Theory of Change. The phrase "Theory of Change" refers to the overall analysis of how the introduction of new ideas and initiatives will lead to the expected outcomes. Note that constructing a "Theory of Change" is less formal than the construction of a Logical Framework, a the structure of a Balanced Scorecard, or other management tool. But the Theory of Change can often be an important precursor to developing more formal planning documents. (Note that the ISIS Accelerator tool "StrateSphere" includes a generic, comprehensive strategic planning document template.)

The following worksheets focus on addressing these important steps in the formation of a successful strategy, followed by guidelines for streaming the overall results into a formal strategic or master plan.

Assessment of implementation capacity

The following is a simplified template for assessing an organization's, department's, or other unit's capacity to implement successfully a specific initiative or set of initiatives. Add other parameters that you identify as essential. The assessment uses a simple 0-5 scale, where 5 means you have 100% confidence in the organization's capacity in this regard, and 0 means no evidence of capacity.

If an organization's capacities do not rank a 3 or higher on all the relevant capacities you believe to be necessary, additional capacity building or adjustments to the strategy or management plan may be required.

	0	1	2	3	4	5
1. Skillbase						
Information management						
Political/legal skills						
Relevant technical knowledge						
Project management ability						
Administrative skills/capacities						
2. Leadership & Management						
Inspirational & motivational						
Recruitment and retainment						
Ability to delegate / empower						
Timely completion of projects						
Communication skills						
3. Access to Resources						
Financial resources						
Human resources						
Information resources						
Other necessary resources						
4. Resource Management						
Financial management						
Human resource management						
5. Networking & Collaboration						
Strategic links to other actors						
Capacity to form partnerships						
6. Other Category						
Capacity 1						
Capacity 2						

Assessment of adoption & diffusion potential

Many planning processes result in a large array of management strategies and planned interventions, ranging from policy changes to changes in economic signals, that require the active support and participation of many different actors. In order to increase the chances that these efforts will succeed, it can be useful to review the factors that make them more or less appealing and acceptable to those actors.

The assessment tool is based on elements of Innovation Diffusion Theory (see "Diffusion of Innovations," Everett R. Rogers, first published 1962 and revised five times, most recently in 2005, Free Press). Use of this tool will help practitioners in the development of a viable Theory of Change, by focusing their attention on those aspects of an intervention or initiative (Innovation) that are most likely to face difficulties. The assessment is adapted from on Rogers' "Five Critical Characteristics of an Innovation."

This version of the tool uses a simple 0-5 scale, where 5 connotes an idea in excellent alignment with the criterion described, and 0 connotes the worst case. High scores indicate an idea or change that should have little trouble getting adopted and spread; low scores indicate trouble in this regard. Low scores on specific characteristics signal a need to focus attention and thought on ways to improve perceptions of the idea in this regard -- for example, an idea that rates low on Observability suggests that ways should be found to make its successful implementation more visible to others (e.g., using media messages).

1. Relative Advantage
Extent to which the new idea will be perceived as providing an improvement over the current status or existing ways of doing things. (5 = perceived as an amazing improvement; 0 = perceived as making things worse)

       1   2   3   4   5

2. Relative Simplicity
Extent to which the new idea will be perceived as simple to understand and to adopt. (5 = perceived as simple, easy; 0 = perceived as impossibly complicated and difficult)

       1   2   3   4   5

3. Observability
Extent to which the new idea, once adopted, will result in visible changes that will attract attention and that can be seen by all. (5 = highly visible; 0 = invisible.)

       1   2   3   4   5

4. Trialability
Extent to which the idea can be experimented with, before a large or irreversible commitment must be made to its implementation. (5 = easy to try, with no commitment beyond the trial, and no negative consequences if the trial does not succeed; 0 = not possible to try without making a large commitment; irreversible consequences if the trial adoption does not succeed)

       1   2   3   4   5

5. Compatibility
Extent to which the idea fits with other existing practices and values, and with the stakeholder's perceived sense of identity. (5 = easy to adopt without requiring other changes in usual practice or perceived identity; 0 = adoption would require other major changes or disruptions to existing practice, and/or require a significant shift in the adopter's perceived sense of values and identity)

       1   2   3   4   5

Development of Theory of Change

A "Theory of Change" is a logically constructed narrative that describes how a proposed set of initiatives and interventions is expected to produce an intended set of outcomes. It identifies key assumptions about how relevant elements of a system work, and how a planned program of action is expected to interact with those system elements to produce a desired set of conditions or changes. To be viable, a Theory of Change cannot be restricted to mechanistic "A will lead to B will lead to C" descriptions of policy or technology change. It must, whenever appropriate, include reference to the social-cultural dynamics and other human contingencies, and describe how the proposed approach is expected to successfully negotiate these.

A "Theory of Change" provides a way of integrating most of the key insights developed during the course of an ISIS Method planning process. As such, it also serves as a useful summarizing preamble to the construction of a formal strategic or management plan.

The following is a generic outline for the development of Theory of Change; obviously, this can be adapted and adjusted. The length of the text can vary from 1-2 pages to 10-15 pages, depending on the scale and complexity of the system in which the practitioner is operating.

1. Overall purpose of the initiative

2. Definition of the system you are working with

3. Key issues and trends identified at the Indicators stage

4. Key linkages, dynamics, and leverage points identified at the Systems stage

5. Interventions and strategies (Innovations) selected to be applied at the Leverage Points; rationale for their selection

6. Key variables affecting the successful implementation of those Innovations and how they will be addressed strategically

7. Central actors involved in the implementation and their capacities

8. Monitoring and course-correction routines: how will an observer know whether the initiative is succeeding? If it is not succeeding, to what extent will it be possible to determine the reasons, and make adjustments to strategy or implementation?

Box: Use of ISIS Accelerator Tools in Strategic Planning

The ISIS Accelerator toolkits Pyramid, Amoeba, and StrateSphere contain many elements that can be applied to various aspects of a strategic planning process.

As noted earlier, Pyramid can be used to develop collaborative systems thinking capacity, familiarity with indicators, etc. But it may also be used to support a complete ISIS Method planning process, leading to a consensus on strategy and a commitment to implementation. Many of the foregoing exercises are either already included in a typical Pyramid workshop process, or can be integrated into one.

Amoeba provides a much more thorough introduction to the concepts of Innovation Diffusion Theory, and includes additional tools to support analysis of the human dynamics involved in attempting to introduce change into cultural (organizational, geographic, traditional) systems. Amoeba is designed specifically to train "Change Agents" in techniques for successfully promoting sustainability innovations, but it can be used more broadly as a planning and training tool for organizations and institutions involved in large-scale innovation processes.

StrateSphere includes more advanced applications of several exercises included in this handbook in addition to a comprehensive strategic planning template. The template guides the user in the translation of a Theory of Change into appropriate goals, objectives, strategies, tactics, and performance metrics.

StrateSphere also includes a methodology called the "Relevant Strategic Activity Analysis," or "RESA Analysis," for surveying the other actors seeking to have impact and influence in a system, what kinds of actions they are already pursuing, and to what extent that activity is contributing, or countering, the aims and objectives of your program. This kind of analysis can be enormously useful in situations where resources are very limited, and investments in programmatic initiatives must be carefully prioritized to avoid duplication and find novel, effective niches.

Finally, it should be noted again that the ISIS Method and ISIS Accelerator tools are not specifically designed for any specific geographic or organizational context; rather they are for sustainable development work generally. This increases the possibility for cross-fertilizing an initiative with other sustainable development programs sharing broadly similar aims and open to using similar tools and methods.

Conclusion: Agreement and Action

The "last three steps" in this process are, on the surface, enormous: (1) securing an agreement to implement the proposed strategy; (2) preparing a strategic plan for the initiative, an overall management plan, or a master plan; and (3) implementing that plan and monitoring its performance.

In practice, however, a *general* agreement on the need to develop an initiatives or plan, and to implement it, often exists in principle before the development of the plan even begins. Of course, the *specifics* regarding what initiatives are to be taken, and at what level of political support or investment, are never a foregone conclusion.

Part of the purpose of the ISIS Method and supporting tools is to build an ever-broader base of understanding and consensus, so that by the time specific conclusions are reached about the best path forward, a strong sense of agreement and commitment is supporting those conclusions.

This last section provides practitioner notes about how to conclude an ISIS Method process and integrate its results into these crucial final steps in the planning cycle.

Step 1: Securing agreements / consensus on implementation

Agreement to proceed with the initiatives is usually dependent on two very different processes: one public, one private. The public process involves decision-making bodies (usually governmental bodies) reviewing the results; assessing the costs, benefits, and risks; and issuing formal approvals or authorizations to proceed. The public process is usually, however, dependent on a more private process of familiarization and support building. (Note: the results of the "Assessment of Adoption and Diffusion Potential" are particularly useful here.)

Here are three ways to help ensure that all the hard work of developing initiative ideas and proposals is not halted at the public review process, because of lack of sufficient attention to the private support-building process.

1. Involve forward-thinking opinion-leaders as stakeholders from the outset.
If publicly visible leaders within the system are involved in the process, then they will develop a sense of ownership in the products and will help to promote their adoption in both private and publicly visible settings.

2. Test the final results and descriptions of your proposals in private meetings.
Get feedback on your results from critics as well as friends, e.g., through the use of requests to "review a rough draft" of a report or strategic proposal. Use the feedback to alter formulations and descriptions or, if some significant problem or opposition is identified, to go back to your stakeholder and experts and rethink those elements that are not likely to be accepted.

3. Reframe "costs" as "investments".
In describing the budgetary implications of initiatives, be sure to present the expected returns on investment, or avoided future costs and liabilities, that are likely to result from the financing of the program.

Step 2: Develop a strategic plan / master plan / management plan

There are many ways to write a planning document. Planning documents for large-scale initiatives are usually large-scale undertakings in themselves, incorporating many aspects of the analysis process described above, together with many more descriptive details about the issues, indicators, and initiatives to be taken. Such documents are usually given official (governmental, corporate) standing or are referenced by official policy and action decisions.

Practitioners tasked with preparing such a document are advised to review existing examples from similar systems, and adopt a template approach that (1) takes the best of those examples, and (2) incorporates elements from the ISIS Method processes described here.

For example, many planning documents do not include a discussion of systems analysis and leverage points for intervention; ensure that these dimensions are included in any document you are asked to help develop. Embedding such elements in the official report will help ensure that a systems perspective is applied in future revisions.

The planning document can also make reference to the products of the ISIS Method analysis, such as an Indicators report or a report on relevant best practices and Innovations.

Step 3: Implementation and monitoring

The ISIS Method is designed to support continuous improvement through monitoring performance and impact -- and by maintaining the distinctions between them. Performance Indicators or Metrics determine whether what was planned to do, gets done. Indicators of the system's overall sustainability show whether or not system conditions are improving, declining, or staying the same.

In smaller-scale, clearly bounded systems, there can be a tightly coupled relationship between performance and impact; that is, effective performance (reflected in performance measures) is followed by noticeable improvements in system condition (reflected in the Indicators). If no improvement occurs, this points to a possible defect in strategy or in implementation.

However, in larger-scale systems, the link between effective implementation and ultimate system impact may be impossible to determine with any precision. Too many other factors may be at play, determining whether the system improves or declines overall. In these cases, it is important to establish a number of mid-scale "impact indicators," which make the translation from performance to envisioned, long-term result.

For example, an initiative designed to help farmers convert to more efficient watering methods may be affected changes in the global market that drive changes in crop selection ... all factors that may be out of the sphere of influence of the sustainability practitioner. The performance measure might be whether or not trainings occurred and were positively evaluated. The system sustainability indicator might be water consumption. The latter may go up, driven by the switch to a thirstier crop, despite the successful transmission of efficiency methods. In this case it would be important to survey farmers to find out how many actually made the switch, as a measure of impact, so as not to misinterpret the lack of decline in water consumption as a failure in implementation (though it may signal an inadequate strategy).

Revisiting initial steps -- Indicator development, System analysis -- should occur once every 1-2 years to see if these analyses are still sufficiently robust. Full revisions of Indicator sets and Systems analyses are probably necessary approximately once every 3-5 years, depending on the pace of change in the system (and globally). This ensures that both existing programs and new Innovations are being evaluated against an updated understanding of critical trends and dynamics.

Case Studies for Reference

New Orleans, "Top 10 by 2010": Use of ISIS for Regional Sustainable Development Planning

The "Top 10 by 2010" initiative was a multi-year, large-scale economic development program sponsored by the Chamber of Commerce for the 10-county region of Southeast Louisiana in the United States. The program lasted from 2001-2005 (when Hurricane Katrina caused catastrophic flooding in the region).

Prior to the Katrina disaster, this regional initiative was making excellent forward strides -- including a noticeable rise in national rankings of livability -- using the ISIS Method to frame a sustainable development approach. The elements of the approach included:

- Use of the Compass to structure stakeholder engagement, and to guide the identification of 100 civic leaders (stakeholders) and 60 topic experts to participate in the process

- Development of a comprehensive set of Regional Indicators, clustered by Compass point and used as the basis for decision-maker engagement and regional initiative planning

- Use of an intensive stakeholder-and-expert consultation process, augmented by public polling, to develop the Indicators

- Use of systems thinking, in the form of a Linkage Analysis (described in this handbook), to identify critical points of leverage

- Application of facilitated stakeholder processes to identify thematic areas for innovative programming, focused on the leverage points

- Use of the Regional Indicators as the basis for a concerted media and public education campaign

- Revision of the Regional Indicators to establish changes in trend and to attempt to assess the impact of regional initiatives on the Indicators

Unfortunately, the program was suspended in the aftermath of the Katrina disaster and not resumed.

Baltic 21: Use of ISIS for Developing Inter-Governmental Strategic Guidelines around a Common Resource

The Baltic 21 program is a collaborative, inter-governmental, sustainable development initiative focused on the management of the Baltic Sea, and mandated by the prime ministers of the eleven nations surrounding the Sea (including Russia).

In 2004, Baltic 21 used the ISIS Method to frame a strategic review of its previous five years of activity, and to support the development of new strategic initiatives and guidelines.

Elements of this process included:

- Updating and analyzing an existing Indicators Report for the Baltic Sea Region

- Using those Indicators as the starting point for a System Mapping exercise, involving 30 senior officials from around the region

- Identifying Leverage Points through a review of the System Maps

- Identifying and brainstorming new Innovations and strategic approaches (and eliminating older, ineffective approaches) in relation to the Leverage Points

- Analyzing proposed new approaches through a variety of strategic lenses, including SWOT analyses, feasibility assessments, and adoption/diffusion potential

- Formulating an agreement on a proposed new set of Strategy Guidelines, based on the foregoing, and forwarding that proposal to the Prime Ministers for review (it was approved)

The final Guidelines steered strategy and monitoring over the 2004-2009 time period and were considered successful and a significant improvement over the previous strategic framework.

Nile Basin Initiative: Use of ISIS Method in Scenario and Capacity Development in a River Basin Context

The Nile Basin Initiative is a 9-country (plus one observer country) collaborative process aiming toward the establishment of a permanent river basin organization. Integrated Water Resource Management is a core function of the Initiative.

In October 2008, elements of the ISIS Method were used to frame a capacity building and scenario-planning workshop for members of the Technical Advisory Committee (a steering body comprised of senior government officials from the participating countries), executive staff, and development partners.

The exercise resulted in a set of informal assessment indicators and advisory guidelines to staff on priority setting during a transitional period in the organization.

More specifically:

- The Rapid Indicator Assessment process described in this handbook was used to develop a set of subjective measures assessing progress on a number of key variables in the region. Progress was projected out into the future along two lines, to create two scenarios, dependent on key decisions to be taken in the near term. The exercise created two very clear and distinct scenarios.

- The indicators and scenarios were then used as reference for a systemic prioritization process, to identify key issues in the transitional period.

- The result was a set of guidelines to staff, instructing them on how to set priorities in the near term.

Additional Sources and Resources

Books and Articles

AtKisson, Alan. *The ISIS Agreement: How sustainability can improve organizational performance and transform the world*, London, Earthscan, 2008.

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Meadows, Dennis, and Linda Booth Sweeney. *The Systems Thinking Playbook*. Laboratory for Interactive Learning, 2002.

Websites and Organizations

AtKisson, Inc. (originator of the ISIS Method):   http://www.AtKisson.com

Pegasus Communications (resources on systems thinking and modeling): http://www.pegasuscom.com

Logical Framework Approach: http://en.wikipedia.org/wiki/Logical_framework_approach

Sustainability Institute (source of information on sustainability and systems thinking): http://www.sustainer.org

Ventana Systems (producers of VenSim system modeling software): http://www.vensim.com