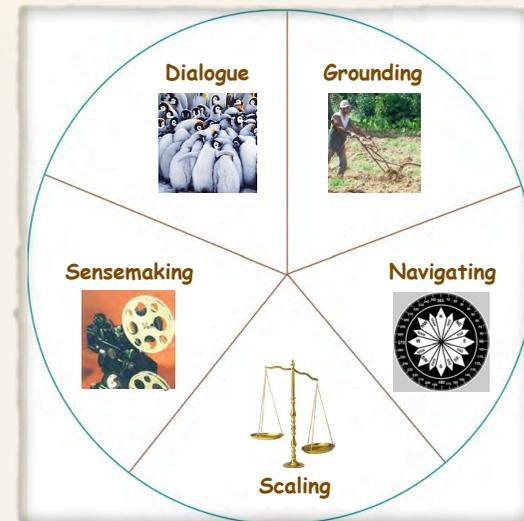


Handbook for Participatory Action Research, Planning and Evaluation

SAS2 Dialogue, Ottawa, March 2013



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For a complete presentation of all tools, detailed case studies and theoretical foundations, see Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK.



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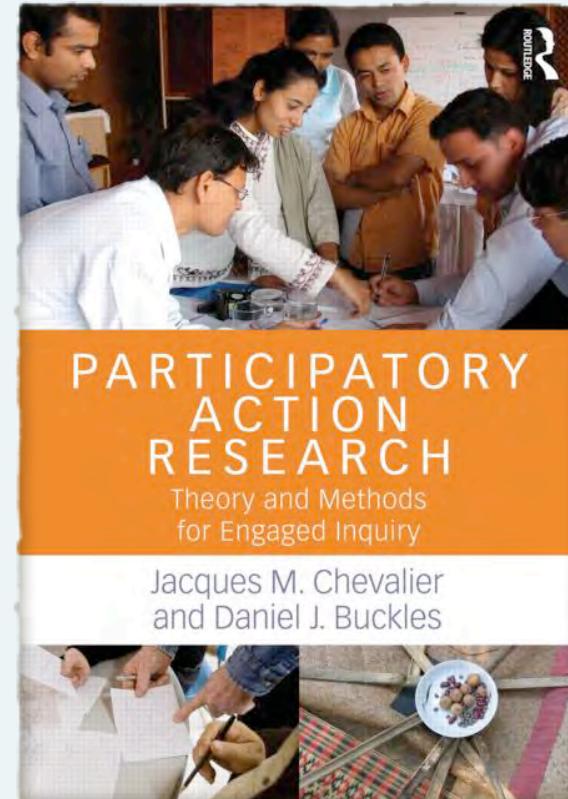
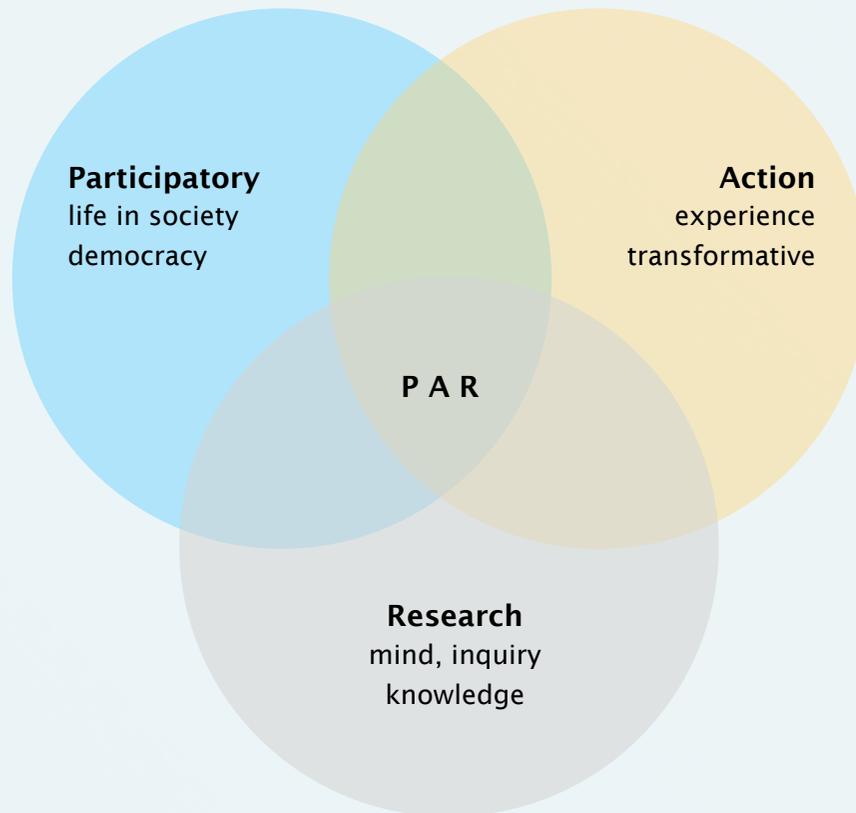
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Introduction

Weaving is an interlacing of yarn of different colors and textures to create a tapestry. The art of **participatory research, planning and evaluation** is a similar endeavor. It mobilizes the living knowledge of people connected to each other and their environment and weaves a collective understanding of ways to act for the common good. It is a practical engagement of mind with the world that invites us to reason carefully, with rigor, while caring for others and the world we live in.



This handbook is an integrated collection of adapted and new tools and processes to **engage people** and **mobilize evidence** in complex settings involving multiple stakeholders. They draw inspiration from different disciplines, theoretical perspectives and methodological approaches. Fully participatory and flexible, the tools and underlying ideas are accessible to beginners and will provide experienced researchers and facilitators with a new approach to **educational, workplace, community and public engagement**. People in the voluntary, academic, private and government sectors are using them for community-based action-research, project or program planning and evaluation, organizational learning, problem solving and social engagement.

Handbook for Participatory Action Research, Planning and Evaluation is divided into six modules. Module 1 is about the full tapestry, not the threads. The focus is on creating an **action learning system** and developing skills to mix, balance and integrate tools, dialogue and careful reasoning. Skilful means build on the experience and creativity of the people involved and the use of appropriate tools. Four techniques are key to designing processes that integrate authentic learning (answering the ‘So What?’ question) and decision-making (answering the ‘Now what?’ question). The first two techniques support systems that learn how to balance and integrate action, research and training (**ART**) or planning, inquiry and evaluation (**PIE**). **Order and Chaos**, a pivotal tool informed by chaos and complexity theory, helps craft the planning process. Plans may be blueprints for orderly action when key factors are easy to predict or control. Or they may be working hypotheses developed in complex settings, to be tested against experience and changing circumstances and needs. **Process Mapping** is a visual planning tool that helps ground the inquiry, including **monitoring and evaluation**, in ongoing activities and broader plans. Gaps and flexibility built into plans using *Process Mapping* allows inquiry and action to evolve over time and adjust to unforeseen events and new information.

Introduction

Module 1 ends with **Process Design** guidelines and tips for inquiry in different settings (see **Skills in Means**). **Process Design** is the thought process that shuttles back and forth between tools and context to weave a meaningful fabric out of diverse events, methods and moments of inquiry. It is the key to planning a collaborative inquiry at the right time and to selecting and adapting tools for real settings. Examples are provided of simple combinations and sequences of tools designed for typical tasks (see **Combos**).

Three modules in the middle reflect basic questions applicable to any situation: what are the **problems** people face and must explore (Module 3), who are the **actors** or stakeholders affected by a situation or with the capacity to intervene (Module 4), and what **options** or alternatives for action should be assessed (Module 5)? These techniques are supported by all-purpose tools for **fact-finding and active listening** described in Module 2.

Module 6 offers tools for **understanding systems** in a complex world. **Domain Analysis** is our social adaptation of Personal Construct Psychology developed by George Kelly. It shows how stakeholders view a domain or topic area by creating and organizing elements and their characteristics. The method uncovers ways people make sense of reality in context and helps create opportunities for problem solving and learning. **System Dynamics** is our adaptation of input-output reasoning used in economics. It helps identify entry points into a system based on an assessment of how elements interact to create specific behaviors and situations.

Detailed presentations and illustrations of these tools used, adjusted and combined in real settings can be found in Chevalier, J. M. and Buckles, D. J. (2103) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK.



For more information on the initiative, the people involved and examples of results in different fields from around the world, see also www.participatoryactionresearch.net.

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Systems that Learn



Planning, Inquiry, Evaluation (PIE)

Purpose To create a learning system that balances and integrates planning, evaluation and inquiry.

Planning (P) creates logical schemes for doing things to achieve goals with appropriate inputs. **Inquiry** (I) examines and explains facts and situations, using the appropriate tools. **Evaluation** (E) assesses results or outcomes against goals, using well-defined criteria and indicators of progress. A **learning system** combines all three processes. It also **grounds** them in meaningful action, mobilizes stakeholder **engagement** and applies a wide range of **tools** at the proper **time** and **scaled** to the right level of detail.

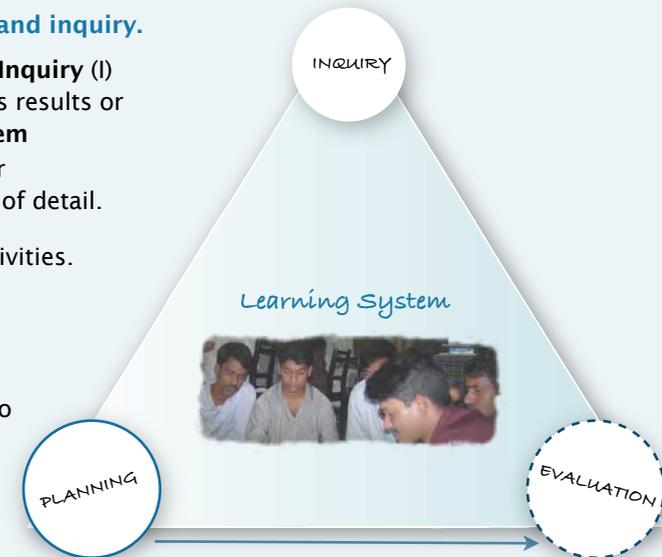
Step 1 Define a key project or program and list **major** planning, evaluation and inquiry activities.

Step 2 Assess and compare the relative **weight** or **importance** given to planning, evaluation and inquiry over a specified time. Draw a triangle to represent PIE components in each corner, and add **circles** to indicate components that play a significant role in the project or program. Adjust the size and density of the circle to reflect the relative weight or level of effort dedicated to each component.

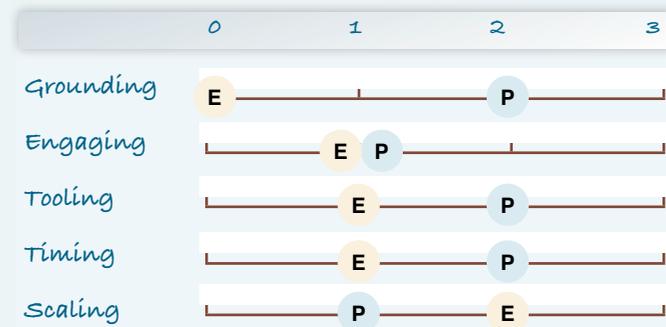
Step 3 If more than one component plays a significant role, assess the extent to which each component **contributes** to the other(s). Does the planning (P) build on the collection and examination of relevant facts (I) and lessons learned about results or outcomes of the past (E)? Is the evaluation (E) well integrated into ongoing plans (P) and reflect an adequate understanding of relevant facts and experience (I)? Is the inquiry (I) well informed by existing plans and evaluation findings (P, E)? Draw **arrows** to indicate which component contributes to another. Adjust the thickness of the arrow to reflect the importance of the contribution.

Step 4 Rate each component on five criteria, starting with the extent to which each component is **grounded** in meaningful action. A rating of 3 would indicate that the component strongly informs action and is strongly informed by actions meaningful in the life of the organization. A rating of 0 indicates that the component has little or no impact or significance. Also rate the extent to which each component **engages** stakeholders and mediates differences through dialogue, using a scale of 0 to 3 (where 3 represents the highest rating). Using the same scale, rate three other criteria: the extent to which each component uses a range of **tools**, at the right **time** and **scaled** to the right level of detail.

Step 5 Review the PIE profile and discuss how satisfactory it is. Decide where **more effort** is needed and why. A flexible learning system that continuously balances and integrates PIE may be particularly important in complex situations.



This organization pays attention to planning (in detail) and evaluating its work but does not give time to inquiry or stakeholder involvement. The planning is well grounded and uses a variety of the right tools at the right time. Evaluation makes a weak contribution to the system as a whole.



Action, Research, Training (ART)

Purpose To assess the current and desired balance and integration of three components within a learning system: 1) actions, including deciding, planning and doing things to achieve concrete goals; 2) research or inquiry, consisting of data collection and analysis; and 3) training or teaching, involving capacity-building events and strategies.

Step 1 Define a key project, program or institution and list **major** actions, research and/or training activities of the previous six months to a year.

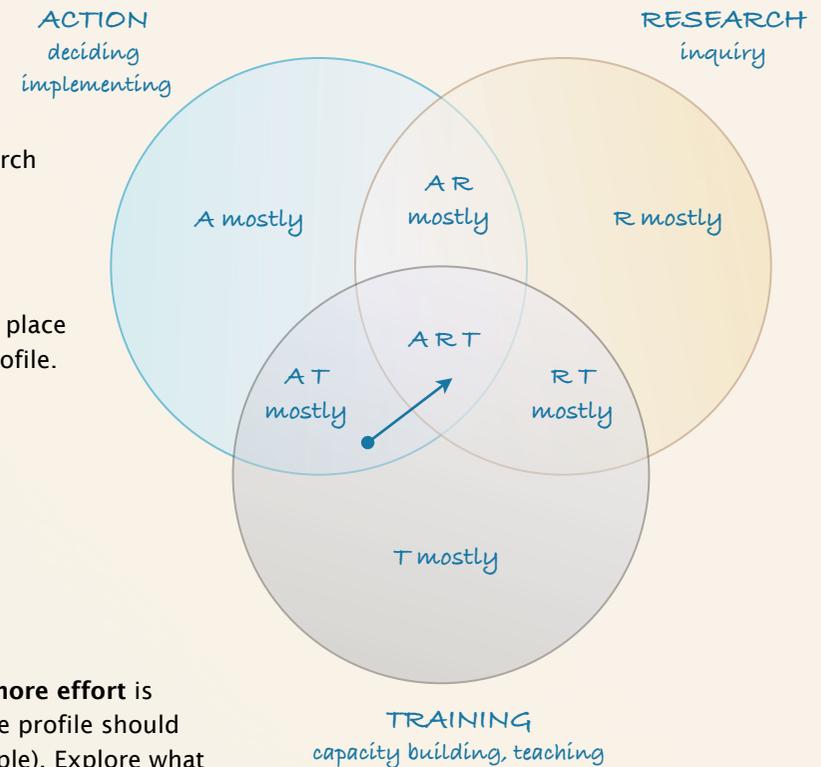
Step 2 Assess and compare the relative **weight** or **importance** given to action, research and training over the specified time. Draw a **Venn Diagram** representing the three ART components (Action, Research, Training) and place one mark in the intersecting circles that best reflects the existing ART profile.

Step 3 If the profile includes more than one component, assess the extent to which each component **contributes** to the other(s). For instance, if the profile combines R and T mostly, are the results of the research used in the teaching activities, and is the teaching useful to the research? Use a code or symbol between each component (one way, thin or or thick arrows, for instance) to indicate the **level of interaction** among the components of the resulting ART profile.

Step 4 Review the ART profile and discuss how satisfactory it is. Decide where **more effort** is needed and why, and place a mark in the Venn Diagram to show what the profile should be. Draw an arrow from the current profile to the ideal profile (see example). Explore what can be done to achieve this **profile**, and define the first steps in the desired direction.

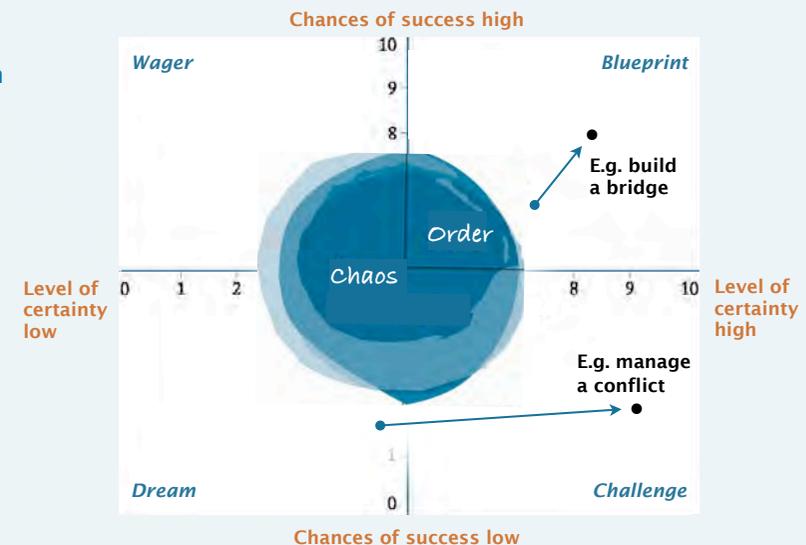
TIPS

- Use the ART Venn Diagram to survey and **compare** the views that different participants have of the same project, program or institution, and what the profile should look like.
- Use *Activity Dynamics* (p. 147) to measure the **level of interaction** among the components in the ART profile and strengthen their overall integration.



Purpose To decide on the planning approach needed by answering two questions: what are the chances of achieving project or program goals, and how certain or confident are people that the information and knowledge they have (about the conditions and factors affecting the project or program) is complete and reliable?

- Step 1** Define the project or program and review **goals and plans** to achieve them.
- Step 2** Prepare a graph (on the wall or the floor) by drawing a vertical line that crosses a horizontal line of equal length. Discuss and plot on the vertical line the chances of achieving the project or program goals, using a scale of 0 to 10. A value of 10 would indicate that the current conditions are very favorable and the chances of achieving the goals very high. A value of 0 would show the opposite (the **chances of success** are very low).
- Step 3** Discuss and plot on the horizontal line the level of confidence that people have in the information and knowledge they possess about the current conditions and factors affecting the project or program. How **certain** are they that this information and knowledge is complete and reliable? A value of 10 would indicate that knowledge about the conditions and factors affecting the project or program is detailed or informed by extensive experience. A value of 0 would show the opposite.
- Step 4** **Mark** where the values from the two lines meet and label or place a drawing representing the project or program at this intersection.
- Step 5** Use the same graph to plot the chances of success and the level of certainty needed and that should be **aimed for** before going on with the project or program. Mark the place where the two plotted values meet and draw an **arrow** from the mark showing the current situation to the mark showing the situation aimed for. Discuss ways to **increase your knowledge** about the conditions and factors affecting the project or program or to modify the current conditions and **improve chances for achieving goals**.



ADAPT

- The same graph can be used to **survey and compare** different views of the same project or program. Another option is to identify **several objectives or activities** that are part of the project or program, and then use the graph to plot the chances of success and the level of certainty for each objective or activity. Different planning approaches may be needed, depending on their location in the graph.
- Review the four quadrants and discuss how these call for different ways to develop a project or program plan (for example, as a **blueprint** that calls for Result-Based Management, or as a **challenge**, a **wager** or a **dream** — a plan defined as a working hypothesis, to be tested using *Process Design*, p. 11). Projects or programs in the 'Chaos' quadrants may benefit from planning approaches that incorporate working hypotheses, further inquiry and continuous planning as ways to accommodate uncertainty and complexity.

Process Mapping

Purpose To plan action and inquiry at the right time and at the appropriate level of detail, and to adjust the two in light of unforeseen events and new knowledge.

Step 1 Define the project and discuss the overall **goals** and expected results. **List** all current and/or proposed project **activities** on cards using keywords (one activity per card). Use concrete action verbs to describe an activity or set of activities, instead of words for objectives or topics. For example, use 'raise funds' instead of 'resources', or 'lobby' instead of 'policy impact'. To clarify the distinction between activities and goals, use one side of each card to describe the activity and the other side to describe the corresponding goal.

Step 2 Organize the activity cards into **sets and subsets** based on principles of similarity among activities (see *Free List and Pile Sort*, p. 39). Create a label or **title** for each set and for each subset.

Step 3 Create a process map, beginning with a title card, drawing or object representing the project placed in the center or in the upper left corner of the map. Then add the **sets and subsets of activity cards to the map**, creating branches and sub-branches as in a tree or a shrub.



Step 4 Decide which activity or set of activities is ready to plan in some detail and whether this can be done immediately. Focus detailed planning on **immediate activities** (four months and sonner, for instance).

Some activities may not require formal planning or can be **planned at al later date** (as in medical practice), where **more information** is available about the results of prior activities, the actions of stakeholders, or key conditions that need to be met. Discuss these information gaps and add new inquiry or **fact-finding** activities to the process map, as needed.

Step 5 Write the details on the back of those activity cards that require immediate planning, including the start and finish **dates, people** involved (and their roles), material **resources** needed (equipment, budget), the **information** required, **methods** to be used and the expected **results** or outcomes. Create and use a visual code to highlight in the map some of theses details or any other aspect such as levels of **priority** or the **stage** of completion for each activity. Provide the optimal level of planning detail, and decide whether further planning is needed. Use tape to fasten cards in place, thereby creating an overall picture of the process map.

Process Mapping

Step 6 If needed, compile the planning details from sets and subsets of activity cards to produce a **table**. In Column 1, list project activities (some or all of all of them). Use other columns to record information for each activity on **who does what, why, when and how**. Alternatively, use 'mind-mapping' software to arrange and track the data.

Step 7 When new or more detailed plans are made, **modify** the table and process map.

ADAPT

- Arrange the activities in the order or **sequence** of implementation (see *Critical Path*, p. 109). Place those activities that are ongoing throughout the project or not scheduled in a separate area of the process map.
- Include in the process map references to major **activities** carried out **before or following** the planning period. This encourages recognition that planning occurs 'in the middle' of complex situations involving other stakeholder contributions that have a prior history and no clear ending.
- When working on complex projects, you can divide participants into **groups**, ask each group to use *Process Mapping* to map out their own set of activities, and then adjust group plans through discussions and negotiations between all groups.



COMPARATIVE FEATURES

Process Mapping acknowledges the fact that some activities require formal, immediate and detailed planning while others don't. As a visual tool, it helps people discuss project plans and, while doing so, **see the forest** from the trees. These features are generally absent in planning methods that use mostly text, tables and spreadsheets. In addition, *Process Mapping* has the advantage of accommodating a **plurality of stakeholder interests** and potential outcomes around a common set of **actions**. To achieve this, the method uses program or project activities (**goal-oriented actions**) as the point of entry instead of the general and specific objectives (**action-oriented goals**) emphasized in conventional planning methods such as Result-Based Management. Action-oriented goals (such as promoting democratic governance in the management of forest resources in a certain region) tend to be abstract and overly ambitious compared to goal-oriented actions (for example, setting up a multi-stakeholder platform to co-manage a region's forest resources more fairly). Goal-oriented actions are more grounded and closer to the day-to-day language that people use to make plans and assess their progress. As in other methods, the goals built into the actions can still be defined and negotiated collaboratively.

Process Design

Process Design is a flexible systems approach to planning and managing an inquiry process grounded in action. It is the starting point leading to the selection of tools and methods deemed useful to the inquiry. The following guidelines help with the practical grounding of tools for collaborative inquiry in the context of an action-learning process. They show how to plan an inquiry at the right time and at the appropriate level of detail, and inform action plans in light of unforeseen events and new information.

Step 1 Consider the general context

Define the general context where the inquiry needs to be planned in detail.

Step 2 Define the planning situation

To ground the inquiry in a real setting, it is useful to distinguish three scenarios based on varying levels of uncertainty and complexity (see *Order and Chaos*, p. 8).



PARK EXAMPLE

Step 1 Context

The National Park receives 2.7 million visits per year. The Park has various means to identify client needs such as open house sessions for park users, suggestion boxes and logbooks, the Infocentre, the Visitor Centre, e-mails, contacts with park staff, volunteers and tourist guides, and attendance at community meetings. With the emergence of new media (e-mail, blogs, etc.), an increasing number of users are voicing complaints about the park's management methods and services delivered by a private contractor. Responding to complaints draws considerable time and scarce resources away from other park management activities. The Park team wishes to review its past responses to service-related complaints and reduce the volume. It also wants to shift its approach from a client service focus to building solid partnerships with park stakeholders.

Step 2 Planning situation

The Park team hopes to address the increasing volume of user complaints by analyzing the problem and designing solutions that reflect a good understanding of the situation. Given the many views and interests involved, the process should be planned progressively, in close collaboration with key stakeholders, starting with those concerned by recreational services. Once the key problem and objectives are clearly defined, a workshop will be held with team members and the Park contractor to assess the situation, identify priorities and develop a plan of action and process map. The plan should include the creation of a Park Dialogue platform, a process that will involve several steps, to be **planned in due time**. If successful, the same process should be extended to other Park services and stakeholder groups.

Process Design

SCENARIO 1: CONTINUOUS PLANNING

The first scenario involves complex, multi-stakeholder situations rife with **uncertainty**. Planning in this scenario recognizes that general and specific goals may **interact and evolve**, subject to negotiations, compromise and change over time. Planning needs to occur in the middle of an ongoing process where the results of prior activities, the performance of key factors and stakeholder interventions or responses cannot be fully predicted. Information and knowledge are incomplete, links between causes and effects are not linear or straightforward, and chains of actions, partners and results are complex.

For this kind of situation, characterized by some degree of chaos, use the tool **Process Mapping** to make project or program plans with varying and optimal levels of detail and time frames. Create and mobilize knowledge and engage people along the way by formulating working hypotheses and integrating multiple, flexible inquiries or diagnostic assessments into the plans, as needed to inform actions and the planning process. Keep in mind that some activities do not need a formal inquiry either because there is no pressing need, the results are clear, or they can be monitored through **day-to-day tracking** (using informal exchanges, for instance).

SCENARIO 2: PLAN FIRST, IMPLEMENT AFTER

Some situations are **predictable** enough to plan most activities in advance and with considerable detail, followed by implementation. Planning in this relatively orderly situation assumes that there is a coherent set of objectives shared by all stakeholders, and that these objectives are clearly achievable with a well defined set of inputs (time, resources, people). Under these conditions, use the tool **Process Mapping** and selected tools (from this handbook or from other sources) to do four things in sequence:

- 1 **assess** the initial situation;
- 2 make **detailed activity plans** based on assessments of the initial situation and the logical link between planned activities and expected results;
- 3 **monitor** the ongoing results of implementation against the initial set of observations or findings;
- 4 **evaluate** the final results against initial objectives using relevant criteria, indicators or progress markers (see *Scoring Tips*, p. 45). The initial situation can also be re-examined in hindsight, to produce effects of Socratic learning (such as 'Now we know we knew' or 'Now we know we didn't know'; see *The Socratic Wheel*, p. 47).

Results-Based Management may also be appropriate in this scenario. Planning in detail well in advance relies on high levels of information, consensus and confidence regarding the chances of achieving particular goals. As with complex scenarios, do not plan more inquiries than needed.

SCENARIO 3: SINGLE EVENT

Some situations are so short-lived, uncertain or pressing only immediate events can be planned. Comprehensive long-term planning tools are not really needed or useful. Use **Process Design** and the appropriate inquiry tools (from this handbook or other sources) to facilitate a **single or one-off event**, and plan follow-up actions in detail based on the results. If the focus is on a single event or activity, go immediately to Step 3.

Process Design

FOR EACH INQUIRY READY TO BE DESIGNED

1 Consider the general context

2 Consider the planning situation

- Continuous planning?
- Plan first, implement after?
- Plan at the right time?

See *Order and Chaos*, p. 8.

3 Identify prior decisions

- Who will participate and in what capacity?
- Profiles of participants?
- Time available?
- Prior knowledge and decisions?
- Role(s) of facilitator(s)?

Use PAR techniques to make these decisions and define the purpose of the inquiry, if necessary.

4 Define the purpose of the inquiry

- Type: upstream, midstream or downstream assessment?
- Goal: for learning-planning, accounting and/or storytelling?
- Scope: amount of information, analysis and participation needed? See *Validation*, p. 32.
- Results : expected output(s), outcome(s) and impact?

5 Plan the inquiry

- 5.1 Identify/clarify **main questions** and put them in sequential order
- 5.2 **Select and sequence tools**
- 5.3 Design **all steps** for each tool (PAR + other methods + facilitation)

Use input-output reasoning. See *Active Listening*, p. 35.

Use input-output reasoning. Vary the tools. Include pre-post testing, if needed. Combine PAR techniques with other methods and facilitation procedures.

DECIDE

- Instructions: detailed procedures?
- Level: how simple or advanced? SMART indicators required?
- Technology: hands-on or computer-based?
- Analysis and narration: right mix/sequence of formal analysis (tables, graphs), description and storytelling?
- Subgroups: based on what criteria? Homogeneous or mixed? Full or strategic and progressive participation?
- Explanation: brief or debrief people on the technique?

Based on prior decisions, event purpose, expected results, level of social and scientific validation needed and familiarity with the tool.

- 5.4 Identify **remaining decisions**

- Who will participate and in what capacity?
- Profiles of participants?
- Time available?
- Prior knowledge and decisions?
- Role(s) of facilitator(s)?

Use PAR techniques to make these decisions and define the purpose of the inquiry, if necessary.

6 Design the documentation, testing and capacity building process

GO BACK AND FORTH BETWEEN STEPS, UNTIL THE DESIGN MEETS ITS PURPOSE.

Step 3 Identify prior decisions

To design the inquiry, identify decisions that can be made upfront regarding: (a) **who** is to be involved in the inquiry; (b) the participants' **profiles** and **roles**; (c) how much **time** will be dedicated to the inquiry; (d) the available **inputs** from previous events (knowledge, other decisions); (e) the role(s) that the **facilitator(s)** should play.

When defining **roles**, decide whether the facilitator or facilitating team is expected to combine various roles, such as instructor, expert-consultant, researcher, note-taker, or stakeholder. Teamwork and a clear division of labor may be necessary when the facilitator(s) must combine several roles.

Use tools in this handbook to make these decisions, if needed.

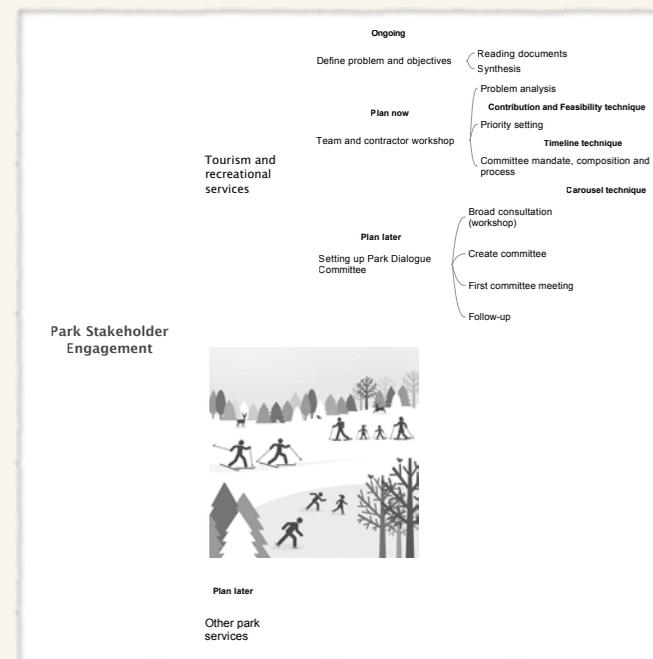
PARK EXAMPLE (CONTINUED)

Step 3 Prior decisions

The analysis of the problem at hand (increasing volume of park user complaints) is to be done with a group of about 12 people, including Park team members, four head office administrators and the Park contractor. The inquiry involves several tasks, including compiling and synthesizing all relevant documents, co-designing and holding a one-day workshop and writing up a final report. Completing these tasks requires about 7 days of work, to be done within a five-week period, with the assistance of a university-based consultant using a PAR approach to collaborative inquiry and stakeholder engagement.

Step 4 Inquiry purpose

The first workshop activity to be designed involves a short-term, midstream assessment of an existing problem, using available information and the existing knowledge and experience of key stakeholders to evaluate responses already in place and define priorities for planning purposes. Workshop discussions will also revolve around the creation of a multi-stakeholder platform and defining its mandate, composition and functioning.



Process Design

Step 4 Define the inquiry purpose

Define the type of inquiry needed, its goal, its scope and the expected results (see definitions, below). Make sure that the purpose is compatible with prior decisions reviewed in Step 3.

DEFINITIONS

TYPE

Is the assessment an upstream **inquiry** of an existing situation for planning purposes? Is it a midstream **monitoring** exercise to take stock of progress towards results? Is it a downstream **evaluation** of the results and outcomes of actions against goals or against initial observations?



GOAL

Is the intent of the inquiry mainly to **account** for resources and results, to learn and adjust plans for ongoing or future actions, and/or to tell the project or program story and **inspire** others with lessons learned? See *Planning, Inquiry, Evaluation (PIE)*, p. 6.

SCOPE

How much information, analysis and participation are needed to perform the inquiry? See *Validation*, p. 32.

RESULTS

What are the expected or desired results (outputs and outcomes) of the inquiry, who is the audience and what are they expected to do with the information and conclusions?

Monitoring and evaluation (M&E) is a midstream or downstream inquiry. It raises questions such as ‘What are the results or impacts of this program or project thus far?’, or ‘How well has the program or project used its resources?’ Common problems with M&E methods are twofold: they are often poorly **grounded** in ongoing action-oriented processes, and they do not support **collaborative thinking**. While some methods try to address these problems, efforts to create a single, comprehensive M&E method that applies to all situations are misplaced. M&E is not a special form of inquiry that requires unique concepts or special bundles of techniques. It is merely inquiry that assesses observed results against people’s expectations, plans and actions.

There are **no M&E frameworks or methods per se, only M&E questions**. Appropriate methods depend entirely on the questions people want to monitor and evaluate, which are as varied as the projects and programs they are involved in. So are the baseline conditions against which project and program activities are assessed. Each project and program must decide what to monitor or evaluate, how the results are going to be used, and which tools are needed to achieve this. Sometimes, all activities must be evaluated against their expected results and goals. In other cases, a set or subset of activities needs to be looked at, each with its own expected results. These are key decisions that determine the methods to be used. Any technique, whether it’s a soil test or collection of stories about struggles to end poverty, can be used to effectively monitor or evaluate relationships between planned actions and observed results, provided it is the right tool to answer the right question, at the right time, at the right level of detail, with the right people, and for the right audience. Every evaluation is a unique design for a particular purpose. See Chevalier, J. M. and Buckles, D. J. (2013) pp. 97-100.

Process Design

Step 5 Design the inquiry

- 5.1 Identify and clarify the main question(s)** the inquiry is expected to answer, using terms that are meaningful to the participants. To do this, identify and unpack the different questions that may seem relevant, and clarify each of them. Then identify the questions that are the most important and that reflect the purpose and prior decisions, as defined in Step 3 and 4. For tips on how to clarify the main question(s), see *Active Listening*, p. 35.

Organize the main questions in sequence using output-input reasoning (where the answer to one question serves as the input to the question that follows).

- 5.2 Select and sequence tools** in this handbook and from other sources needed to answer the main questions of the inquiry. Consult the Table of Contents and its legend (p. 1). Choose the **combination of tools and facilitation procedures** that suit the needs and culture of the people involved (see *Information GAS*, p. 53).



JUST DO IT

Include in the plans familiar and well-established ways of doing things that reflect **local culture, procedures and customs**. Judge when the established ways to gather and analyze information, create priorities, make plans, resolve problems, take action and interact with others in the process are working well enough, and just do it! Introducing new tools is never an end in itself, unless capacity-building for future assessments is a key goal of the inquiry.

- 5.3 Design all steps** and adjust all the procedures to be used in each tool. Choose the right level of depth and the kind of technology needed in the situation and adjust the relative weight of quantitative data gathering, formal analysis, description, narration and storytelling. Decide how explicit and detailed the instructions should be and how participants can effectively engage in the process. This is a process of **scaling** to fit the purpose and time available (see *Skills in means*, p. 19).
- 5.4 Identify remaining decisions** using the planning questions listed in Step 3. Make sure that the decisions are compatible with the purpose of the inquiry and all other decisions taken when designing it.

PARK EXAMPLE (CONTINUED)

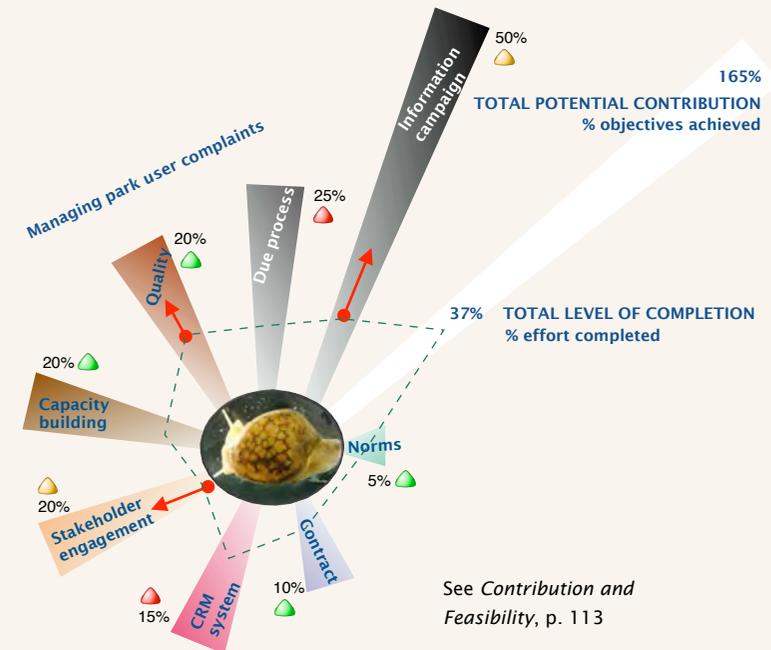
Step 5 Inquiry design

The initial inquiry focusses on three sets of questions and related exercises over the course of a day. The first, to be addressed in the morning, concerns actions already in place to manage park users' complaints, what remains to be done to implement them fully, how feasible this is, the amount of time dedicated to each action and their projected effectiveness if fully implemented.

The technique used to address these questions is *Contribution and Feasibility* (p. 113). To save time, the list of actions in place will be prepared by the consultant and the team director and supplied at the beginning of the exercise; no particular technique is used to complete this task. Workshop participants will be invited to divide themselves into small groups, evaluate two actions each using the tool, present their assessments in a plenary discussion and validate their views with other groups. The exercise ends with an invitation to prioritize some actions based on the compilation of results from *Contribution and Feasibility* assessments.

In the afternoon, the group will be invited to organize its priority actions in sequential order, using the *Timeline* technique (p. 59). This one-hour discussion may involve revising some of the decisions taken in the previous step regarding what actions should be prioritized.

The last exercise will focus on a new strategy that the Park management wishes to introduce as part of its approach to public relations: setting up a multi-stakeholder Park Dialogue roundtable. Two techniques, the *Carousel* (in *Ideal Scenario*, p. 97) and *Free List and Pile Sort* (p. 39), will be used to address three questions: the mandate, the composition and the functioning of the roundtable. Participants will form small groups, formulate a roundtable mandate, make a list of stakeholders (on cards) that should be part of it, and propose key rules on how the roundtable should function. To inform the discussion, the consultant will provide one or two examples of public advisory committees implemented in other parks. When ready, each group will present its suggestions to the whole group. Participants will be invited to identify similarities and differences between the views expressed (piling up similar stakeholder cards and identifying key words and ideas proposed by different groups), and progressively identify suggestions that meet their expectations and could be adopted as recommendations to the Park.



Process Design

PARK EXAMPLE (CONTINUED)

Step 6 Documentation, testing and capacity-building

The *Contribution and Feasibility* technique should be tested with the Park director, to make sure that the key questions are well grounded and meaningful. No capacity-building activity is needed before the event as the consultant will be facilitating. Notes prepared for the workshop and taken during the event will be used to write up a short report after the event. The consultant will ask workshop participants for permission to publish the results and share the experience with other audiences.

Step 6 Plan the documentation, testing and capacity building process

Decide how extensively to report on the group discussions, and determine the exact purpose or use to be made of the documentation. Define the activities needed to document the results during and after the inquiry and assign the related responsibilities.

Consider documenting the following elements: the **context** or situation in need of attention; the **purpose** of the inquiry; a summary of the **process**; a descriptive **analysis** of the results; an **interpretation** of the findings; **follow-up** actions identified by the participants; **observations** regarding what went well or difficulties met during the process.

Determine the need for prior testing and capacity-building activities to support the inquiry process, and make the corresponding plans.

TIP Far from being linear, the design process often requires **going back and forth** between steps in an iterative fashion, until a satisfactory understanding and plan is created. (See summary on p. 13.)

"To navigate in perilous times, we must learn rules of navigation, plan our journey, prepare ourselves to cope with uncertainty and tame the unknown. Still, when in troubled waters, only fools let rules and plans navigate the ship." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 77.



Skills in Means

A collaborative inquiry cannot be guided by a formula or science involving strict rules. Rather, collaborative inquiry is an **art** based on judgment, creativity and much practice. The *Process Mapping* and *Process Design* frameworks, along with the tools for inquiry and *Active Listening*, are intended to structure and support the design and facilitation of a collaborative inquiry. However, many other considerations come into play. To apply reasoning and dialogue to pressing matters involving multiple stakeholders and real-life choices requires the development of an essential set of 'skills in means' for creating and mobilizing knowledge in service of the common good. These bring **people-based inquiry** and **evidence-based thinking together** to support a meaningful action-learning process for all.

Following is an outline of the five skills and related tips that must be applied when designing and facilitating a collaborative inquiry.

MEDIATING. Engage people and knowledge from different perspectives by facilitating dialogue across social boundaries, cultural settings and modes of learning.

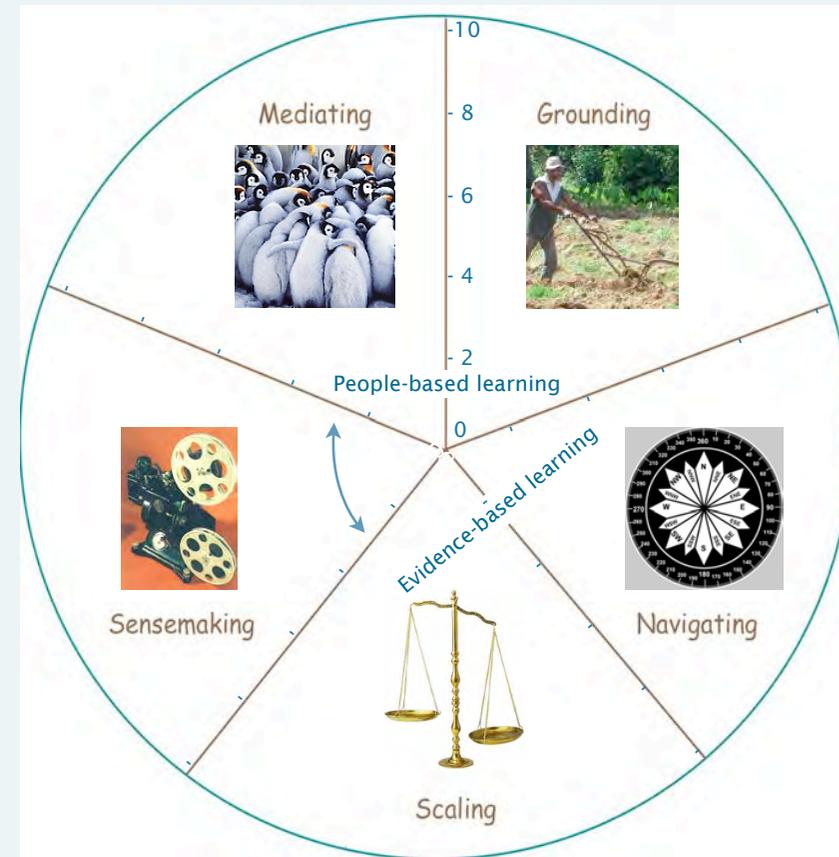
GROUNDING. Build inquiry and learning on felt needs and ongoing processes, towards meaningful actions and decisions appropriate to peoples' goals and available resources.

NAVIGATING. Select and combine the forms of inquiry, planning and participation that help people deal with complexity (the uncertain, the unknown) in a timely fashion.

SCALING. Adjust inquiry methods and actions to fit the depth of evidence, planning and participation needed to achieve meaningful results.

SENSEMAKING. Create meaning in complex situations by integrating information, analysis (quantitative, qualitative) and theoretical insights into stories and explanations that inspire and persuade.

ADAPT. Use *The Socratic Wheel* (p. 47) to assess individual or group abilities to mediate, ground, navigate, scale and produce meaning through collaborative inquiry and to set learning objectives.



Skills in Means

WHEN MEDIATING...



Consider local language and forms of inquiry, learning, planning and interaction

- Explore ways to accommodate differences in language, meaning and symbolism. Build on local forms of inquiry, learning, planning and interaction that are well established and work well in either literate or non-literate contexts.

Build on group and individual differences

- Determine whether participants should first address key questions **individually, in groups or both** (e.g. start with an individual rating exercise and then form subgroups that share similar views and prepare recommendations for plenary discussion).
- Decide whether **subgroups** should include a mix of people with different characteristics (heterogeneous groups) or participants that share a particular set of characteristics (homogeneous groups). Mixed groups are preferable if the exercise is intended to draw out views representative of the entire group.
- Each subgroup can be assigned the **same of a different task**, depending on whether all participants need to be involved in all parts of the inquiry.
- When forming groups pay special attention to **differences** in views and knowledge that may affect how people assess the same issues. Subgroups based on age, gender, marital status, ethnic origin, religion, education, their place of residence, the amount of time they have lived in a certain place, their occupation, or their role in an organization or project may be important in some contexts.
- If participants **disagree** about some issues, clarify the differences and discuss how important they are to the purpose of the inquiry.
- When differences arise regarding numbers and **measurements**, facilitate discussion of the reasons for particular ratings and go with the majority view rather than an average. One way to facilitate and mediate differences in ratings is to make them visual: place numbers on the floor for each point on the scale and invite participants to stand next to the number they think is correct for a particular criterion. Agreement and differences on ratings will be easy to see. The group can then focus on major differences only, the reasoning of participants, and adjustments needed to obtain a single rating (using a majority view rather than an average).



Skills in Means

WHEN MEDIATING (continued)...

Facilitate multi-site and interactive engagement

- If the chain of actions and partners has **multiple sites and organizational layers** (local, national and international, for instance), determine key inquiry questions that are specific to each site or organizational layer, those that concern the broader interaction of sites and layers, and those that apply to all sites and layers and that can be rolled up at the program level.
- Establish how **mutual accounting and learning** between partners can help answer key inquiry questions and address the concerns and contributions of each partner and what is attributable to their collaborative work (see *Attribution and Contribution*, p. 117).
- Define the responsibilities of each partner in the inquiry process. Design the inquiry to include measures of **interactive engagement**, conversations that may be combined with **self-evaluation** and **third party assistance**, when appropriate. Interactive engagement presupposes the use of tools other than self-reflective stories or data extracted through surveys, interviews or focus groups conceived and led by outside experts.

Define the role of facilitator(s)

- Normally, facilitators help create safe space for people to express their views and reach collective decisions. They can state their own opinions on the issues being raised if they have permission from the group to do so or if they are stakeholders or members of the group doing the exercise.
- Facilitation by a third party may be needed in a context where there is considerable tension or mistrust, parties take rigid positions, participants do not express themselves freely, or clear rules of order are needed.

WHEN GROUNDING...



Create a safe and inviting environment

- Safety is key to learning. It is based on trust in the convening body, the relevance of the inquiry topic, the questions guiding the inquiry and the skills of the facilitating team. It also requires a physical environment that is both comfortable and enabling. Whenever possible, use an open space large enough to accommodate about three times the number of participants, with moveable chairs and tables for small group work. Natural light will improve peoples' comfort as will periodic breaks and an absence of clutter.

Skills in Means

WHEN GROUNDING (continued)...

Encourage creative expression

- Use humor, games, physical movement and other forms of creative expression (floor mapping, drawing, mime, sculpting, stories) to build awareness, energize the group and connect to emotions. This will help facilitate teamwork, release tension and ground learning in real-life settings.



WHEN NAVIGATING...

Identify the point of entry



- What is the ideal point of entry into a collaborative inquiry process — analyzing the problem(s), knowing who the stakeholders are and how they interact, or assessing the options for immediate action? The question is rhetorical because the answer is a judgment call regarding what is the right thing to do at a particular time in a specific context. Choose an entry point in light of the main question(s) to be answered as well as the context, the purpose and the decisions made prior to the inquiry. Focus on what is more pressing or relevant and leave the other issues in the background until people are ready to explore them in detail. In complex and dynamic situations, going back and forth between a focus on **problems** (Module 3), **actors** (Module 4) and **options** (Module 5) is inevitable.

Describe characteristics or assess interactions

- The distinction between ‘domain characterization’ and ‘dynamic interaction’ is useful when selecting a tool for a particular inquiry. The *Domain Analysis* tools (in Module 6) are social adaptations of Personal Construct Psychology designed to describe or **characterize** how people see a particular domain or topic. They help assess the levels of similarity among elements of a domain, leading to an understanding of clusters and broader categories of elements in the domain. By contrast, *System Dynamics* tools (also in Module 6) build on the logic of input-output analysis used in economics. They focus on the **interaction** between elements in a system, leading to an understanding of system boundaries and levels of integration.

Be flexible

- **Plans often change** along the way. A tool may need to be adjusted or replaced with a different one on the fly. A clear understanding of where the group wants to go with an inquiry will help manage the transition.
- To avoid fatigue, **vary** the tools and the kinds of tables or diagrams designed to support collaborative thinking.

Skills in Means

WHEN NAVIGATING (continued)...

Choose the right technology and facilitation techniques

- Determine what **facilitation** techniques and **technology** should be used and how to gather and analyze information with the support of user-friendly and visual, kinesthetic tools (people moving in space) that help see and discuss patterns emerging from the findings.
- Make a list of the **supplies** and equipment needed for each inquiry, such as cards, post-its, masking tape, scissors, low-odor markers of different colors, sculpting wax, drawing paper, flip charts and stands for all groups, a laptop computer and video projector, etc.
- Decide whether to use **software**, flip chart, note-taking or floor mapping to facilitate data collection and analysis. *Social Analysis CLIP* and *Domain Analysis* are currently supported by specialized software (see www.participatoryactionresearch.net). Data from many other tools can be displayed graphically using commonly available software such as Excel.



WHEN SCALING...

Manage time



- Plan **enough time** to go through all the steps of an inquiry tool (about 2 to 4 hours per tool, on average), with breaks during the process as needed. The group may decide at any time to stop the exercise, find more information about the questions being raised and complete the exercise later.
- To **save time**, divide the group into smaller groups, and then ask each one to complete one part of the assessment (e.g. each group can assess a different option using the same criteria or use a different criterion to rate the same set of options).



Adjust the level of participation

- Plan realistic ways to help people participate in an inquiry process. This includes determining whether all the key actors should be present or not. In some cases it may be better to work only with stakeholders that are keen to cooperate. In other cases stakeholders may prefer to adopt a 'shuttle' approach: that is, a third party facilitates a multi-stakeholder inquiry by engaging with individuals or small groups separately and then presenting the results at a general meeting where all the parties are together.

Skills in Means

WHEN SCALING (continued)...

Aim for the right level of application

The steps involved in each inquiry and the number of tools used can be reduced or expanded. Decide how simple or advanced the application of a tool or process needs to be, considering the following factors:

- How much **time and resources** are available to dedicate to a particular inquiry?
- How complex are the issues? Summary **indicators** that are SMART — specific, measurable, applicable, realistic and timely — may provide sufficient understanding of an issue, and allow for fewer steps in an inquiry. Dividing a key variable into its component parts — looking at the various expressions of the power variable in *Social Analysis CLIP*, for instance — may be needed to **expand** the analysis.
- How **reliable** do the results need to be? If important decisions are expected to follow immediately from the inquiry, or they are irreversible if proven wrong, high levels of evidence and consensus may be needed. Tentative decisions and actions to be verified later or monitored closely can be made on less detailed information and a narrower base of stakeholder agreement.
- How **familiar** are the facilitators with the tools? It is usually safer to start with simpler applications of a tool and progress to more advanced applications and combinations of tools as experience is acquired. Facilitators should become familiar with a tool by testing their knowledge and design in a safe context.



There are two extremes to avoid when applying tools. The first consists in using tools to generate exhaustive data, analysis and text-heavy reports that make authentic stakeholder participation difficult and push actions out into a distant future, once all factors are fully analyzed. The other involves using tools hurriedly and superficially, without providing the details, nuances and analyses needed to make the inquiry meaningful, useful and reliable. The middle way is to aim for a level of detail and engagement that reflects existing constraints and goals and is 'good enough' in context. (See *Validation*, p. 32.)



Skills in Means

WHEN MAKING SENSE...

Combine formal analysis and narration



- Formal analysis supported by diagrams and tables helps to organize information and findings in ways that are clear, logical and succinct. Narration (whether oral or written) gives the context, the sequence of events, a sense of purpose and details that add richness and texture to our understanding of the situation. Mesh the two kinds of thinking and adjust the relative weight of each to suit the context. When relevant, convert the findings of one kind of thinking into the starting point for another kind of thinking (for example, use storytelling based on the *Most Significant Change* method to determine the criteria to be used in *The Socratic Wheel*).
- Consult instructions provided in the tools to ensure that the collection of data such is fully integrated with analysis and interpretation of the results through group discussion. Avoid separating the people and the timing of data collection, analysis and interpretation.

Elicit concepts or start with predefined terms

- Tools such as *Gaps and Conflicts*, *Social Analysis CLIP* and *Legitimacy* start with concepts adapted from the social sciences such as power, legitimacy, interests and values. While these are informed by social scientific theory, they may not be meaningful in some contexts. Tools that use *Domain Analysis* and *System Dynamics* as their base intentionally allow participants to elicit their own terms and concepts. Other tools such as *The Socratic Wheel* also lend themselves to elicitation techniques. Decide which approach is needed at what point in the inquiry.

Use numbers and measurements wisely

- When using a tool that includes ratings or ranking, keep in mind that numbers are not ends in themselves. Measurements are means to provide information, clarify people's views or knowledge about a topic, define priorities, focus the attention during a group discussion, structure the conversation and find patterns. Numbers and measurement may also reduce tensions by providing an external point of reference or bring out differences among stakeholders that were unspoken. How much attention is given to numbers and measurements depends in part on the weight given to different knowledge systems, such as science and local experience and know-how, and the importance of dialogue between knowledge systems.



Skills in Means

WHEN MAKING SENSE (continued)...

Explain tool instructions or not

- Explaining all the steps of a tool before using it can confuse and detract participants from the substance of a discussion. Instead, outline and seek agreement on the inquiry's expected results, and then proceed step-by-step.
- When moving from one tool to another, clearly state the main question that the tool will address and invite participants to reformulate the question if necessary.
- In some cases, explaining the technique can help a group focus on a task and reduce tension. In other cases, participants may want to get right into the substance, trusting in the expert judgment of the facilitator regarding what technique to use. In the latter case, the facilitator may use a technique discreetly to guide a group facilitation process and to organize the findings in the facilitator's mind, notebook or in a table (during or after the event). Participants can decide whether they want to learn more about the technique and begin to use it themselves independently.

"Carefulness and caring are the roots of reason and concern for the common good. This twofold disposition is embedded in our being, one that invites us to think carefully, with rigour, while authentically caring for others and the world we live in. The invitation calls for sound reasoning and genuine dialogue applied to problem solving and sensemaking in context. Acknowledging the invitation gives wisdom. Knowing how to respond procures invaluable skills." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 116.



There are different ways to skilfully combine and sequence tools in events or processes that support collaborative thinking. The following are examples of methodological designs that can be implemented in a one-day workshop (setting aside time for introductions) or in several meetings. These action-inquiry processes can extend over a few hours, weeks, months or even years. For examples, see Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK.

Many other designs for the same task are possible. The planning process varies as well. Tools brought together in the process of doing action-research can be planned in advance or may be developed along the way, according to circumstances. The amount of time, the level of planning and the number of meetings needed depend on how important and complex the issues are, the amount of information requires and the number of people that need to engage in the process (see *Validation*, p. 32).

Defining project goals and mission

- 1 *Ideal Scenario (True or False)*: share stories of great things already accomplished or dreamed about and that contribute to a successful project.
- 2 *Ideal Scenario (The Carrousel)*: develop and share statements toward a common vision of a successful project.
- 3 *Order and Chaos*: discuss ways to improve the likelihood of a project succeeding and the knowledge needed to make plans.



Developing a resource management proposal

- 1 *Resource Mapping*: draw a map of all the sites and local resources that can contribute to a project.
- 2 *Timeline and Stakeholder Identification*: trace back the events and changes affecting local resources over time and the key stakeholders involved.
- 3 *Contribution and Feasibility*: identify actions that would make the greatest contributions to the goals of the different stakeholders involved, and are feasible.
- 4 *Levels of Support*: determine if there is enough support from stakeholders to go ahead with a proposal or course of action (based on the conclusions reached in previous steps).



Setting priorities

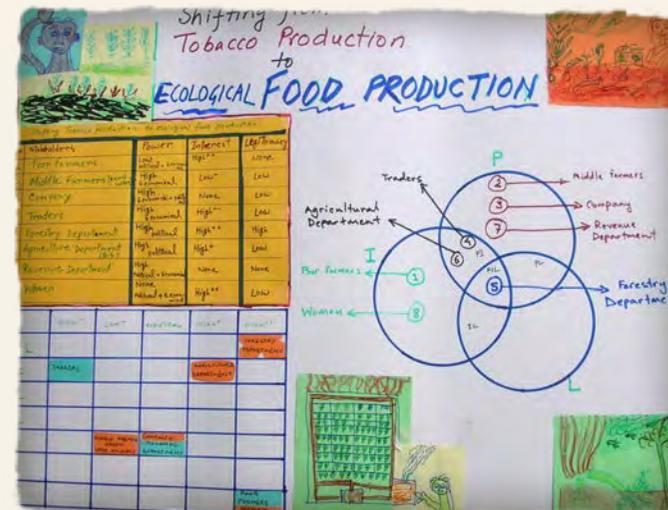
- 1 *Free List and Pile Sort*: identify the main options to resolve a problem or achieve project goals.
- 2 *Weighting*: assess the options against weighted criteria developed by the group.
- 3 *Values, Interests, Positions (VIP)*: discuss the extent to which the preferred options coincide with people's values and interests.

Monitoring and evaluating a project

- 1 *The Socratic Wheel*: define the criteria, indicators and information needed to measure current and expected progress in achieving project results.
- 2 *What If*: develop a plan to monitor risk factors and adjust activities accordingly.
- 3 *Process Mapping*: plan the activities needed to achieve and monitor progress towards project goals.

Solving a problem

- 1 *Stakeholder Rainbow* or *Social Analysis CLIP*: identify the key stakeholders who can influence or may be affected by a key problem or issue to be discussed.
- 2 *Force Field*: identify ways to act on the key factors that contribute to the problem and those that stop it from getting worse.
- 3 *Validation*: discuss the additional evidence and stakeholder involvement needed to better understand the problem and make plans.



Combos



Managing a conflict

- 1 *Timeline*: reconstruct the chronology of events that created or maintained the conflict.
- 2 *Values, Interests, Positions (VIP)*: discuss the extent to which the positions adopted by the parties coincide with their values and interests.
- 3 *Lessons and Values*: discuss the values held by the parties and apply the lessons learned from successful actions that are consistent with those values.
- 4 *Ideal Scenario*: imagine a scenario that describes what would happen if the conflict were resolved.



Creating a community of practice

- 1 *Action, Research, Planning (ART)*: assess the balance between action, research and training goals in current profiles.
- 2 *Social Domain*: describe and compare the skills and learning goals of members of the community of practice.
- 3 *Process Mapping*: plan the activities needed to achieve and monitor individual and collective progress towards learning goals.

Combos



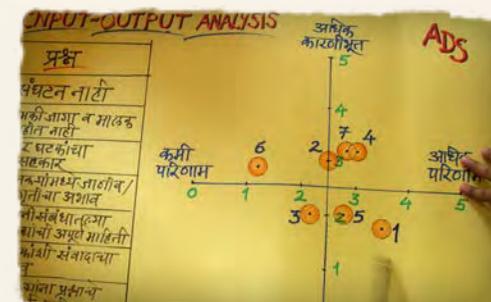
Manage change

- 1 *Sabotage*: identify and resolve to overcome behaviors that are barriers to success.
- 2 *Activity Dynamics*: examine how to strengthen the integration and synergy of ongoing activities.
- 3 *Ideal Scenario (The Carrousel)*: develop and share plans to implement change successfully.

Working together

- 1 *Force Field*: identify ways to act on the factors that contribute to a key problem and those that stop it from getting worse.
- 2 *Negotiation Fair*: discuss and plan concrete actions that stakeholders can take to meet their mutual expectations and resolve a key problem.

"With all its aspirations to scholarly diversity and haute intellectual cuisine, social scientific inquiry as currently practised keeps employing the same, relatively simple containers to capture social phenomenon — observation, survey questionnaires, interviews, content analysis and focus groups. It lacks novelty when it comes to the tools in the kitchen. Also, ironically, the means and measures of the social sciences are in many ways the least social of all, often serving to merely gobble up data. Good inquiry methods should be crucibles designed to process competing ideas and take social heat." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 149.



Fact-Finding and Listening



Handbook for Participatory Action Research, Planning and Evaluation, Module 2,
Chevalier, Jacques M. and Buckles, Daniel J., SAS2 Dialogue, Ottawa, 2013.

Purpose To validate the results of an inquiry and decide whether more evidence and/or consensus is needed before action can be taken based on the results.

Step 1 Review the overall results of an inquiry, including proposed actions.

Step 2 Prepare a **graph** (on the floor or a flip chart) by drawing a vertical line that crosses a horizontal line of equal length. Write 0 and 10 at the opposite ends of each line. Discuss and **plot** on the horizontal line the extent to which the inquiry is based on evidence (sound and sufficient information and analysis). A value of 10 would indicate that the inquiry is based on **strong evidence**. A value of 0 would show the opposite (the evidence is **sketchy** and **unreliable**).

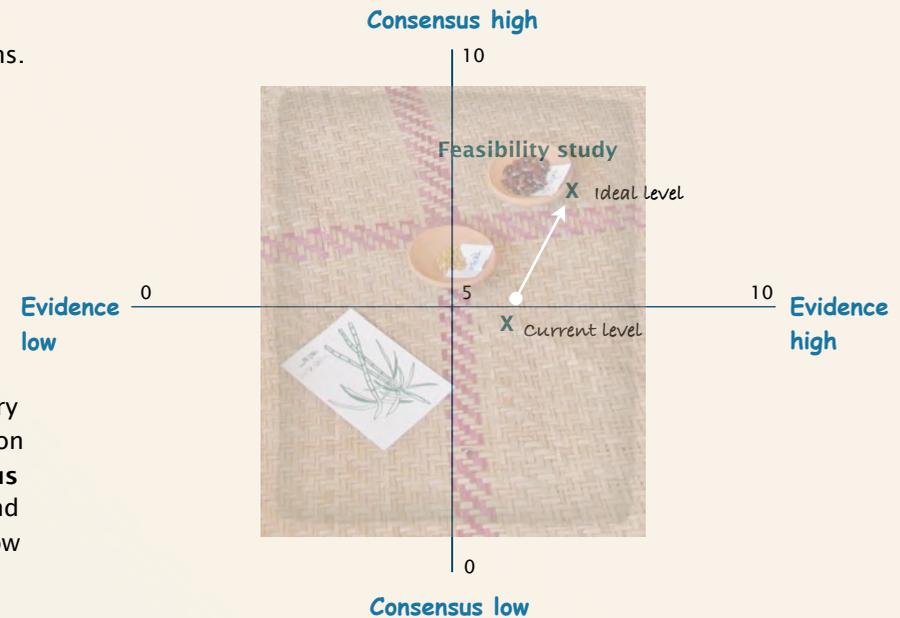
Step 3 Discuss and plot on the vertical line the extent to which the inquiry is based on stakeholder consensus (participation and agreement on the conclusions). A value of 10 would indicate a **strong consensus** achieved through active stakeholder involvement in the inquiry and complete agreement with the conclusions. A value of 0 would show the opposite (no stakeholder involvement and/or strong disagreement with the conclusions). Consider and include in the rating past consultations used to inform the inquiry.

Step 4 **Mark** where the values from the two lines meet and label or place a drawing representing the results of the inquiry at this intersection.

Step 5 Use the same graph to plot the level of **evidence and consensus needed** to reach a firm decision and begin to act on the conclusions. Mark the place where the two desired values meet, and draw an arrow from the first mark to the second.

Step 6 Use the results of this exercise to identify what people are ready to decide and act on now. Then, identify what can be done to **complete the inquiry** to their satisfaction through (1) further information gathering and analysis and/or (2) further stakeholder involvement and stronger agreement. Keep in mind that not every context requires the same level of evidence and consensus before action can be taken.

TIPS Before deciding how much evidence and consensus is needed to reach a firm decision, discuss the **factors** that should influence the decision, such as how well the stakeholders understand the issue being analyzed, how much time and information is available, the urgency to act, the impact the inquiry conclusions have on stakeholder activities, how much stakeholder approval and involvement is required, etc.



Participation

Purpose To determine the level of participation in an ongoing or proposed project and assess the extent to which existing conditions limit or enable it.

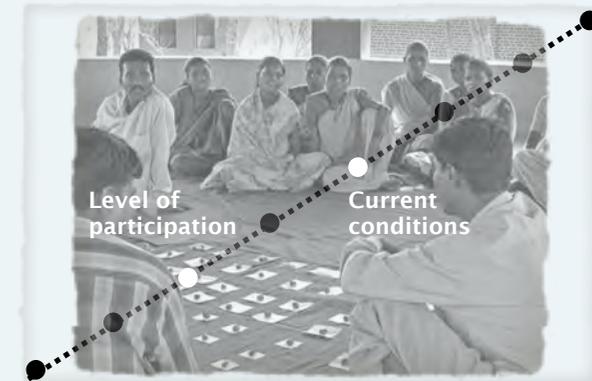
Step 1 Discuss and use the guidelines below to describe the existing **level of participation** in the project. Draw a **diagonal line** on a flip chart and mark the observed level of participation, using a scale of 0 to 7. Write 'Level of participation' above the mark.

Step 2 Discuss the **conditions** needed to achieve participation in project activities (see the list of conditions on p. 34). Mark the level at which these conditions are actually met, using a scale of 0 to 7. Write 'Current conditions' below the mark.

Step 3 Discuss **gaps** between levels of participation and existing conditions. Explore **ways to address those gaps**.

LEVELS OF PARTICIPATION

- 1 **Inform and educate:** gather and share the information needed to identify problems, make plans, promote awareness on a topic or change stakeholder attitudes and behavior.
- 2 **Consult:** present information, plans and results and invite stakeholders to communicate their views on an existing situation and what should be planned. Assess the impact of project or program activities, after implementation.
- 3 **Support participation:** offer resources or incentives to engage stakeholders in the implementation of project or program plans.
- 4 **Facilitate independent action:** encourage stakeholders to independently implement activities consistent with project or program goals.
- 5 **Seek group consent:** agree to go on with a plan of action only if there is informed consent from other key parties.
- 6 **Delegate authority:** transfer responsibilities to plan and carry out some activities to one or more parties, within a broader joint work plan or governance structure.
- 7 **Decide and act jointly:** engage with all stakeholders in assessing the situation, deciding what actions to take, and sharing or dividing responsibility for implementing tasks and accounting for the results achieved and the resources used.



The workshop organizing committee considers that participation in the project has been relatively weak (level 2) so far, despite favorable conditions (level 4). In the future, the committee will engage key stakeholders sooner to make sure project activities respond to local needs.

Participation

WHAT ARE THE CONDITIONS TO BE TAKEN INTO ACCOUNT?

- Local *culture* and customs
- The *time available* for the activity and the *urgency* of the issues to be addressed
- The *resources* that are available
- The *inequalities* that exist among participants (the ‘uneven playing field’)
- The *workload* implications for all parties concerned
- The *expectations* likely to be created and whether those expectations can be satisfied
- The desired level of *formality* (or informality)
- The need for *trust*
- The current level of *conflict or sensitivity* connected to the issues at hand
- The need for better communication or *consensus building*
- The importance of *discussing differences*
- The need for a *formal outcome* or binding decisions
- The need for *new ideas* and creative output
- The number of *options* (few, many) to be explored when addressing key issues
- The level of *clarity* and *complexity* connected to the issues at hand
- The level of *leadership and commitment* that can be applied to any plan
- The extent to which the expected *gains* will be greater than the expected losses
- The need for adequate levels of *stakeholder representation* and accountability
- The amount of reliable *information* (neither too little nor too much) that participants need to access or produce



“As with democracy, participation is both an end and a means to achieve it, among other ends.” Chevalier, J. M. and Buckles, D. J. (2013) Participatory Action research: Theory and Methods for Engaged Inquiry, Routledge UK, p. 177.

Active Listening

Purpose To engage people and help all participants listen and be heard.

Step 1 Review the purpose of the inquiry and become familiar with the diversity of people involved (see *Stakeholder Identification* and *Stakeholder Rainbow*, pp. 75–78).

Step 2 Use various forms of active listening (below) to engage all stakeholders, considering the culture and customs of the people involved.

THE VERBAL

Open questions

Pose open questions that do not lend themselves to ‘yes’ or ‘no’ answers, such as *Tell me about your experience...* or *What do you think would happen if...* Make sure the person or group understands the question. If not, restate it using other words.

Paraphrases

Restate what someone has said, using the speaker’s key words and starting the sentence with phrases such as *What I’m hearing is that...*, *I see that...*, *If I understand you well...* or *In other words what you’re saying is that...*

Summaries

Periodically summarize the main ideas expressed during a discussion, as needed. Use key words and begin the sentence with *To sum up this point...*

Note-taking

When facilitating a group discussion, gather ideas on flip charts by printing clearly and alternating colors for each idea. Decide whether to take notes on one, two or three flip charts. The first could be used to capture all the points that are made, the second to summarize and organize the main points, and the third to list issues that may have to wait until later to be discussed in detail. If possible, have one facilitator write on the flip charts while the other listens carefully to the participants and summarizes what should be written.

Synthesis and validation

End the discussion with a synthesis and validate the synthesis (*Can we conclude that...*, *Is it fair to say that...*).



Active Listening

THE NON-VERBAL

The implicit, body language, emotions

Reflect on and draw out the implicit meanings, feelings and non-verbal messages that people are expressing (without necessarily being aware of it). These may add meaning to what is being said (*If I hear you well, it seems that..., Perhaps we should talk about...*).

Rhythm, humor and silences

Welcome good humor, laughter and enjoyment of the process. Accept and welcome silence as well, either when people call for it, or when it arrives on its own. Avoid rapid speech and frequent interruptions; don't try to fill silence. Allow time for people to pause and reflect on the topic (possibly in writing) before the dialogue begins. Listen while others are speaking and let go of planning what you will say when it is your turn.

Self-awareness

Take time to reflect on your state of mind before beginning a discussion. While listening to what others have to say, be aware of and let go of immediate concerns, bias, feelings or immediate reactions that may affect your ability to listen actively. Observe non-verbal language, and adjust behavior if necessary. Acknowledge information held by others and invite them to share it. Recognize gaps in your own knowledge.

Empathy

Show empathy and appreciation while listening (*I understand..., I see/hear what you're saying..., I appreciate the fact that...*). Do not describe similar experiences you or another person had in the past. Encourage active listening and empathy toward third parties that are being talked about (*How would you state, in one sentence, what they are trying to tell you?*). Be aware of moments that are intense. Do not try to rush through them.

Suspended judgment

Avoid making positive or negative judgments (*Lucky you..., I envy you..., Poor you..., How awful...*). Don't start a sentence with *Yes but..., I believe that..., In my opinion....* At the start of a new discussion, begin with a brainstorming or free listing exercise where all ideas can be expressed freely, without being judged or interrupted by others.



Active Listening

ORIENTATION

Clarifying the goals

Discuss and clarify what people expect from a process (*What do you expect from this meeting? If I understand you well, you'd like to...*). Take into account how much time is needed and available to achieve these goals. Use various forms of active listening to make sure peoples' expectations are clearly understood.

Process observations

Welcome questions or comments about the process being used in a discussion. State what needs to change in a positive way, and adjust when possible. When unsure on how to proceed, share doubts and ask for help (*Are there suggestions on how we should proceed?*).

FRAMING

Unpacking

Keep track of and note different lines of thinking (*I'm hearing three topics being raised. They seem to be...*). When several issues are raised in a discussion, unpack them so that people can address each of them separately and establish priorities.

Sequencing

Identify the issue that should be addressed first and those to follow. Choose the right moment to end one topic and move on to the next (*Perhaps we could move on to the next topic concerning...*).

Parking

Identify topics that may need to be discussed later.

Prior information

Plan in advance so the documents, facts or evidence needed to have a well-informed discussion are on hand.



Active Listening

REFRAMING

Positive reframing

If needed, restate negative statements as positive statements (*If I understand you well, you'd like your team meetings to be short and to the point...*).

Congruency

When statements seem to contradict each other, try to clarify them, without expressing judgment (*On the one hand..., On the other...*). When needed, note areas of both disagreement and likely agreement (*Some people seem to be saying that..., Others think that...*).

SCALING

Laddering up or down

When statements seem too general or vague, use laddering down questions to make them more specific or concrete. (*For instance? Can you give an example? What makes you say that? What do you mean by this? Can you tell us about a situation that describes what you're saying?*). When statements seem too specific or concrete, use laddering up questions to make the meaning clearer. (*Why is it so? What have you learned from this? Why does this matter? What do these things have in common?*)

The good enough principle

Make sure that the information and analysis that are part of a discussion are 'good enough' to satisfy needs and expectations, without being either superficial or exhaustive and exhausting (see *Validation*, p. 32).



Free List and Pile Sort

Purpose To create and compare lists and categories of elements relevant to a particular topic.

Step 1 Define a **topic** and ask each participant or small group to identify two or more key examples of the topic. Give one to three cards to each participant or small group (depending on the number of participants and available time) and ask them to write one example or meaningful **element on each card**. They should use key words, and add details on the reverse side of the card. The elements should be **concrete**, distinct in some way and relevant to the topic. If they are vague, use the *Laddering Down* method (p. 38) to make them more specific and meaningful.

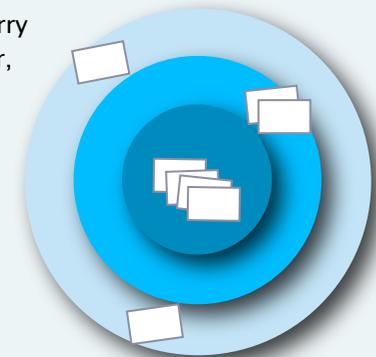
Step 2 Ask a participant to present one element and then group other cards that mean the same thing. Participants can place cards under each other when they are the same, and below each other when they represent variations or shades of meaning. Continue sharing examples, one card at a time, until all cards are **sorted into piles**. Give a label or create a drawing to identify each pile or column of cards.

Step 3 Identify what may be important but **missing** from the list of elements organized into piles. If need be, **reduce** the number of piles and columns by combining them into broader categories, or by recognizing some as less urgent or less important and deciding not to include them in subsequent steps of the exercise.

Review in detail the *Scoring Tips* (p. 45). These are critical to a proper application of *Free List and Pile Sort*.

ADAPT

- Use **drawing, pictures, objects, description or storytelling** to explore the topic (for example, by describing cases of success and failure), and then use this information to identify the elements relevant to a particular topic.
- Use **brainstorming** to make a list on a flip chart, without pile sorting. Start by defining a topic and a time frame not exceeding 20 minutes. Invite people to offer elements for the list using short phrases without lengthy explanations. Ask people to agree to suspend judgment or criticism of their own ideas and the ideas of others during the brainstorming session. Mirror what people say, write down all ideas and encourage people to take turns. End the session by reviewing the list of elements and deciding which ones to carry forward for further discussion. For information on the theory and technique of suspended judgment see S. Kaner, *Facilitator's Guide to Participatory Decision-Making* (1996) New Society Publisher, Gabriola Island, Canada.
- Participants may put the piles or elements of each pile in a **Timeline sequence** that makes sense to them, especially when planning or doing a step-by-step presentation of the elements and piles.
- **Rank** each pile based on the number of cards (piles with elements that people mention most often may be the most important). Visualize the ranking by placing piles in three **concentric circles**. In the inner circle, place the core piles that have the most cards; in the middle circle, the average-size piles; in the outer circle, the piles that have the fewest cards. Discuss why some piles have more cards than others.



Free List and Pile Sort

COMPARE

Determine how **familiar** a participant or sub-group is with a topic by counting the number of core elements appearing in their list and the number of core elements appearing in a list created by all participants (see circles on p. 39). Also count the number of peripheral elements in each list.

Evaluate the level of **agreement** between two individual or group lists that *contain the same elements* by counting the number of times the elements are placed in the same circles (see p. 39) and divide this number by the total number of elements.

Evaluate the level of **compatibility** between two individual or group lists by counting the number of times the same elements are mentioned in both lists and divide this number by the total number of elements.

Compare two different lists and **negotiate a common list**. Start by creating a table (see example) where the rows represent one party's elements or piles of elements, and the columns represent the other party's elements or piles. Identify the row and the column elements or piles that have the **same meaning**. Rearrange the rows and the columns so that the elements or piles that have the same meaning appear at the beginning of each party's list and in the same order. Mark an 'x' in the cells with the same meaning and insert the cards representing these elements or piles in the corresponding cell.

Calculate the level of **agreement** between the two lists by counting the number of elements or piles that are placed in the marked cells, and divide the result by the total number of elements or piles in the table. Discuss the elements or piles that appear only in one list until parties reach a **common understanding** of most elements or piles. Redefine the elements, create new ones or change the way elements are grouped into piles, as needed. Verify the revised list by asking each party to organize the elements into piles again, and compare the results using the same table.

TREE MAPPING

Create a **map of elements and categories** using a tree-trunk and branch metaphor. **Sort all elements** into two piles of any size, according to what participants think is the **most important difference** between all the elements provided. Give a label to each branch leading out from the tree trunk. Sort each pile again into two smaller piles reflecting the most important difference between the remaining elements in the pile, and label each branch. **Repeat** the process until each element is placed at the end of a branch.

Compare individual or group tree maps involving the **same elements** by exchanging trees showing the branch labels only. Each individual or group can then locate the elements on the map according to the differences already labelled on the tree. Calculate the **level of agreement** between the resulting tree maps by counting the number of similar element cards placed at the same branch level, and then divide the number by the total number of element cards.

Compare different interpretations of tree maps by exchanging the branch labels written on cards and trees showing the elements only. Participants can then assign the labels to the differences they see between piles of elements placed on the branches. Calculate levels of agreement in the interpretation of tree maps by counting the number of labels assigned to the same branches and divide the number by the total number of labels.

Comparing and negotiating *Free Lists and Pile Sorts*

Party 1	Party 2					
	Equity	Conservation	Peace	Development	Identity	Spirituality
Fairness	x					
Sustainability		x				
Peace			x			
Progress				x		
Education						



Ranking

Purpose To develop order within a hierarchy, from first to last, using one or several criteria.

RANKING USING ONE CRITERION

- Step 1** Define the **topic** and create a list of relevant **elements** to be ranked from first to last (see *Free List and Pile Sort*, p. 39, and *Information GAS*, p. 53). The elements should be **concrete**, distinct and clearly defined. If they are **vague**, use the *Laddering Down* method in *Active Listening* to make them more specific and meaningful. Write key words or draw each element on its own card, with details on the reverse side.
- Step 2** Identify a **criterion** on which to rank the elements. Define the criterion using **positive terms** (see examples in the table).
- Step 3** Individually or as a group, **rank** each element in the list from first to last based on the criterion. Keep track of the **reason(s)** given for each score. If ranking is done as a group, discuss the rank until participants agree based on consensus or a majority vote. Alternatively, calculate the **average ranking** for each element by adding all scores (or each score multiplied by the number of times it is given to an element) and divide the result by the number of scores received by that element. If using one criterion only, go to Step 8.

RANKING USING TWO OR MORE CRITERIA

- Step 4** If necessary, define **other criteria** relevant to the topic. Write the criteria on cards using positive terms, or create a drawing to represent each criterion.
- Step 5** Create a large **table** (on the floor using masking tape, for instance) with the cards for the list of elements in the top row and the cards for ranking criteria in the first column. Add a **final row** to record the average ranking for each column element. Ensure that the elements and the ranking criteria are clear to everyone.

CRITERIA	OPTIONS			
	Clinic	Sewage	Road	Electricity
Cost effectiveness	4	2	1	3
Sustainability	3	2	4	1
Buy-in	4	2	3	1
Gender equity	3	2	4	1
Average ranking	3.5	2	3	1.5

- Step 6** Under each criterion, **rank** the elements from first to last. If the ranking is done as a group, discuss each rank until participants agree based on consensus or a majority vote. Alternatively, use the method of average calculations, pile sorting or paired comparisons (p. 42).

Record the scores on separate cards and place them in the corresponding cells. Keep track of the **reason(s)** given for each score on the back of the corresponding card.

Ranking

- Step 7** Record the **average ranking** for each column element in the final row, by adding all column scores (or each score multiplied by the number of times it is given to an element) and dividing the result by the number of scores received by that element.
- Step 8** **Review** the results and reasoning that went into the ranking process. Discuss the implications of the ranking for people's understanding of the topic and decisions to be made. Participants can **compare** the tables and final ranking by different individuals or groups using the same ranking criteria, or compare final rankings based on different criteria.

Be sure to review in detail the *Scoring Tips* (p. 45). They are critical to a proper application of *Ranking*.

ADAPT

Paired comparisons is another ranking procedure. Start by making a ranking choice (first and second) between two elements chosen at random. Then, choose one other element at a time and find the most similar among those already ranked. Where there are many elements to compare, use a table with all the elements in both the top row and repeated in the first column (see example). Then, make **one-to-one ranking choices** (first and second) and enter the results in the cells along the top diagonal of the chart (see example). The bottom diagonal consist of cells that represent false pairs (A by A) or pairs that appear for a second time (B by A is the same as A by B). Use the last two columns to record the number of times each row element is preferred *in all cells* and the **final rank** for each element based on these numbers. If there is a tie between two elements, decide which of the two should be ranked above the other.

PAIRED COMPARISON TABLE

Options	Fisheries	Grain Bank	Road	Children's nursery	Total	Rank
Fisheries	x	Grain bank	Road	Fisheries	1	3
Grain bank	x	x	Road	Grain bank	2	2
Road	x	x	x	Road	3	1
Children's nursery	x	x	x	x	0	4



COMBINE

To calculate levels of disagreement and misunderstanding between the ranking tables of two individuals or groups, see *Disagreements and Misunderstandings*, p. 101.

Purpose To grade elements using one or several criteria. Rating differs from ranking in that it creates scores that may be the same for several elements in a list.

RATING USING ONE CRITERION

- Step 1** Define the **topic** and create a list of **relevant elements** to be rated (see *Free List and Pile Sort*, p. 39 and *Information GAS*, p. 53). The elements should be **concrete**, distinct and clearly defined. If they are vague, use *Laddering Down* (p. 37) to make them more specific and meaningful. Write key words or draw each element on its own card, with details on the reverse side.
- Step 2** Identify a **criterion** on which to rate the **elements** (see sample criteria in the table below). Define the criterion using **positive terms**.
- Step 3** Establish a **rating scale** and assign a value of 1 to one end of the scale and a value of between 5 and 10 to the other end of the scale. To be more precise, identify **indicators** or progress markers that define the meaning of each number on the scale. For instance, a score of 2 out of 10 on the criterion 'community support' could mean that about 20% of the community is expected to support a particular action.
- Step 4** Individually or as a group, **rate** each element in the list on the criterion. In a rating exercise, several elements may receive the same score or value. Keep track of the **reason(s)** given for each score on a flip chart. If rating is done as a group, discuss each rating until participants agree based on consensus or a majority vote. Alternatively, calculate the **sum of ratings** for each element. If using one rating criterion only, go to Step 9.



RATING USING TWO OR MORE CRITERIA

- Step 5** If necessary, define **other criteria** relevant to the topic. Write the criteria on cards using positive terms, or create a drawing to represent each criterion.

Rating

Step 6 Create a large **table** (on the floor using masking tape, for instance) with the cards for the list of elements in the top row and the cards for rating criteria in Column 1. Add a bottom row to record the total score for each column element. Ensure that the elements, the rating criteria and the rating scale are clear to everyone.

Criteria	Arts and crafts	Fishing	Hunting	Historical route
High impact				
Cost efficient				
Skills available				
Benefits the community				
Environmentally friendly				
Total rating				

To weight scores according to the importance the group assigns to

each criterion, add a column for the **maximum score** allowed for each criterion. (See *Weighting*, p. 51)

Step 7 **Rate** each element on the criteria. When rating, the same score can be assigned to two or several elements. Discuss each score until participants agree based on consensus or a majority vote. Alternatively, calculate the total score for each element. Record the scores on separate cards and place them in the corresponding cells. Keep track of the **reason(s)** given for each score on the back of the corresponding card.

Step 8 Calculate and record the **total rating** for each column element in the final row.

Step 9 Review the results and reasoning that went into the rating process and **discuss** the priorities based on the bottom row totals. Also discuss ways to modify the elements to make them more feasible, achieve greater impact, etc. Participants can compare the tables and final ratings by different individuals or groups using the same rating criteria or compare final ratings based on different criteria.

Be sure to review in detail the *Scoring Tips* (p. 45). These are critical to a proper application of *Rating*.

COMBINE

- Use *The Socratic Wheel* (p. 47), using one for each element, to create a visual representation of the rating results.
- To calculate levels of disagreement and misunderstanding between the rating tables of two individuals or groups, see *Disagreements and Misunderstandings* (p. 101).

Scoring Tips

IDENTIFYING ELEMENTS AND CRITERIA

- Elements and criteria to evaluate them should be distinct and **clearly defined**. If they are **vague**, use the *Laddering Down* method in *Active Listening* to make them more specific and meaningful.
- Decide whether measurements should be based on **observation** (e.g. of behavior) or **reported views** and perceptions (e.g. levels of agreement with a statement).
- Determine whether you should use **progress markers** (what people ‘expect to see’, ‘would like to see’ and ‘would love to see’) as proposed in *Outcome Mapping* or SMART **indicators** (specific, measurable, applicable, realistic and timely).
- Determine if the facilitator should **supply** or **negotiate** some or all the elements and the criteria, invite participants to **generate them**, or identify them through a **combination** of methods (supplying general categories and generating specific criteria, for instance).
- A simple procedure to identify several criteria is the **catchall question**: ‘Can you think of some relevant criteria to assess the elements?’ Another option is the **full context** procedure: review all elements and find two that have a positive characteristic in common, and then the element that is the most different from these, and why. Use the discussion to identify one or more criteria.
- Use **description and storytelling** to explore the topic (for example, by describing examples of success and failure, observed or imagined), and then use this information to identify the elements or criteria relevant to a particular topic.



RATING SCALES

- To be more precise, identify **indicators** or progress markers that define the meaning of numbers on each scale. Keep in mind that while criteria are concepts that may be divided into subcriteria if too general (e.g. ‘gender equity in governance’ is a subcategory of the ‘gender equity’ criterion), indicators are concrete **observables** (e.g. the number and proportion of women on the board of governors).
- Decide if the **rating scale** should be the same for all criteria (e.g. 0 to 5) or vary according to the importance of each criterion (as in *Weighting*, p. 51).
- Make sure that the highest value for each element has a **positive meaning**. This usually makes more sense intuitively and is key to interpreting the sum of ratings in rating tables.
- **Middle scores** in a rating scale may have ambiguous meanings. Results may be easier to interpret if middle scores are avoided, using a rating scale with an even number of points (such as 1 to 4 or 1 to 6).
- If numbers are a barrier, use simple **phrases** first and then convert the phrases into measurable objects (from 1 to 5 stones, for example). Another option is to score each element with the help of a grey scale: white (value 1), light grey (value 2), medium grey (value 3), dark grey (value 4) and black (value 5). A grey scale makes it easier to see patterns in a table.

Scoring Tips

RATING PROCESS

- Determine if the rating should be done **individually**, by **subgroups** or by the **group** as a whole. ù
- **Pile sorting** is a simple ranking or rating procedure. Start by dividing all the elements into **3 piles**: those with high scores, those with middle scores and those with low scores. Repeat the process with each pile until a distinct ranking or rating is identified for each element.
- Another option is to place cards showing the **two polar value cards** (0 and 5, for instance) at a distance from each other. Then ask participants to rank or rate and locate each element somewhere along the **continuum**.
- **Multiple flip charts** are an alternative to creating a table. On separate flip charts, post all the information for each element: the description, the ranking or rating criteria, the actual scores and the reasons for each score.
- When differences arise regarding scores, facilitate discussion of the reasons for particular ratings or rankings and go with the **majority view** rather than an average.

SAVING TIME WHEN RATING

- To do ratings in **less time**, divide all participants into **subgroups** that are representative of the larger group. Then, ask each group to choose one criterion (or two) to rate all the elements or one element (or two) to be rated against all criteria. Use this technique only if the participants don't need to be involved in making all the ratings.
- Place **numbers on the floor** for each point on the scale and ask participants to stand next to the number they think is correct for a particular criterion. Agreement and differences on ratings will be easy to see. The group can then focus on major differences only, discuss them and adjust positions until a single rating is obtained.

WORKING WITH LARGE GROUPS

- When working with larger groups using rating or ranking, write each element and its description on its own flip chart (e.g. each contributing factor in *Causal Dynamics* or each rating criterion in *Domain Analysis*). Place each flip chart in a separate part of the assembly room. Create a **jury** responsible for each flip chart element. Select jury members according to purpose (e.g. a mix of people that are representative of the larger group). Make sure that each jury and all participants understand the scoring process and instructions. Organize formal rounds of small group discussions or set a time frame during which all participants can visit any jury to express how they assess the corresponding element, their reasons and views already expressed by others. Once the discussions and visits are completed, each jury deliberates on the final score(s) and the arguments that justify them. When designing the process, decide what evidence or prior inputs are needed to inform the deliberations, whether external experts or observers should be involved and how each jury can contribute to the other juries' deliberations, if time permits. When working with a wider public, consider using a web-based platform to support these deliberations.

The Socratic Wheel

Measuring and mobilizing evidence

Purpose To evaluate and rate one or several elements or alternatives (project goals, options to choose from, individual skills, leadership styles, products, activities, etc.) on multiple criteria.

Step 1 Define the element or situation and identify **criteria** useful to evaluating it. **Elicit** the criteria from the group (by putting the question directly to the group or with the help of *Free List and Pile Sort* (p. 39), storytelling, photography, etc.), **supply** predefined criteria based on established or agreed upon goals or characteristics or **negotiate** some or all the criteria, depending on the purpose of the inquiry and time available. The criteria should be **concrete**, distinct and clearly defined.

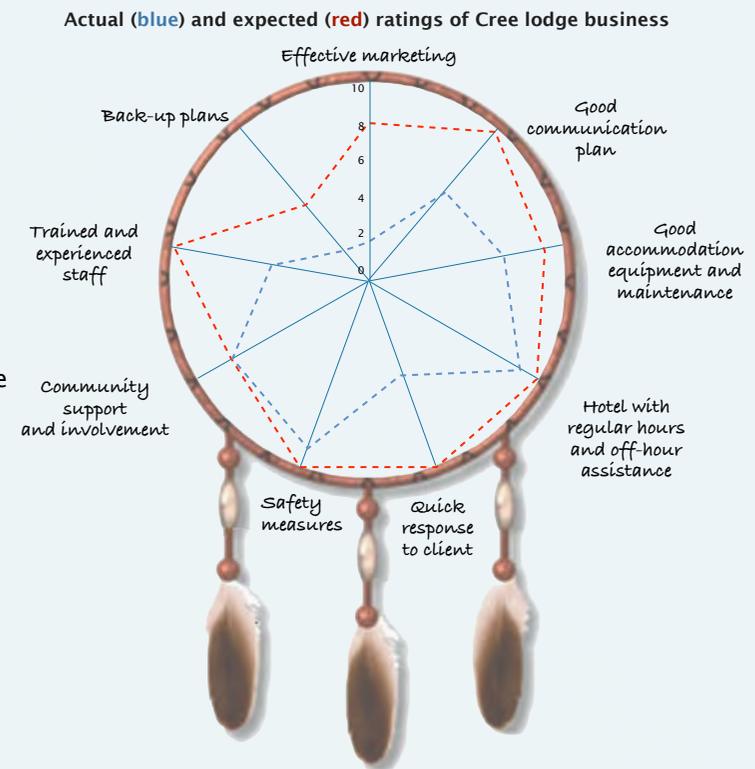
Example criteria if rating alternative actions: cost and time efficiency, net impact, feasibility, gender equity, environmental sustainability, fit with local culture, local skills available, expected buy-in, etc.

Step 2 Decide on a **rating scale** (0 to 3, 0 to 5, or 0 to 10), and give the highest value for each criterion a **positive meaning**. For more precision, use **indicators** or progress markers to define the meaning of each number on the scale. For instance, a score of 4 out of 5 on the criterion 'community support' could mean there is strong majority support for the proposed action.

Step 3 **Create a wheel** on paper, a flip chart or on the floor and assign a criterion to each spoke in the wheel. Mark the scale on each spoke, from the center (0) to the outer edge of the wheel (the highest value). **Label** each spoke with a title card, or use a drawing, an object or a person to represent the criterion. A relevant metaphor (see the dream catcher example) can be identified to represent the purpose of the exercise.

Step 4 **Rate** the element or situation on each criterion, using the scale from Step 2. Discuss ratings and the reasoning behind the ratings until all participants agree. If agreement is not possible, use the majority rating. Record each rating on the corresponding spoke and draw **straight lines between the marks** to create a shape that defines the overall profile for the situation defined in Step 1.

Review in detail the *Scoring Tips* (p. 45). They are critical to a proper application of *The Socratic Wheel*.



The Socratic Wheel

Step 5 Use *The Socratic Wheel* to **plan** ways to achieve goals. Start by defining a time frame and rating both **current and desired levels** on each criterion. Then identify and plan the actions needed to move from one level to the other. Incorporate these actions into work plans. (See *Process Mapping and Process Design*, pp. 9-18)

Monitor or evaluate **progress over time** using three ratings for each criterion: (a) the **initial rating or baseline**, (b) the **rating aimed** for within a defined time frame, and (c) the **final rating** obtained once the time is reached. The ratings for a) and b) can be recorded at the beginning of a process, followed in due time by the ratings for c). Use different colors to indicate the profile shape at each stage in the process.

SOCRATIC LEARNING

To capture Socratic Learning, add a fourth set of ratings to the monitoring and evaluation wheel: the **initial ratings revised**. The starting point on each criterion is assessed again, after a final rating is obtained at

Rating criteria	Initial rating	Expected rating	Expected progress	Initial rating revised	Final rating	Real progress
	A	B	B - A	C	D	D - C
Effective marketing	2	8	6	1	6	5
Trained, experienced staff	5	10	5	6	8	2

the end of a process. People may discover that what they knew or had already achieved at the beginning was either greater or lesser than what they had thought. To evaluate the **real progress** over time, compare the 'final rating' with the 'initial rating revised' (see column D - C in table). The Socratic learning may inspire learners to seek the knowledge they lack, or appreciate more the knowledge they already have.

COMPARE

Participants can **compare** the wheels made by different individuals or groups. To do so, cluster wheels with similar overall profiles and assess their distance from other clusters by comparing the shapes on each wheel (created after rating on the various criteria). To do this clustering dynamically, ask participants to move around with their wheel figures looking for other wheels that resemble their own, forming twins, triplets and then **families of wheels** with a very similar overall profile. Each family (including small families or orphan participants) can then prepare and present to the whole group a brief description of what their wheels have in common. When a family of wheels presents their similarities, other groups (forming a larger circle) move away if they feel their family wheel profile is very different in several ways, or come closer if the similarities are more important than the differences. At the end of the exercise, participants can plan strategies that draw on different but complementary family wheel profiles (to create well balanced work teams that draw on different leadership styles, for instance).



The Socratic Wheel

DESIGN OPTIONS: QUESTIONS TO CONSIDER

Purpose

- Should the tool serve to assess profiles (e.g. leadership skills), set priorities, monitor progress, or evaluate final results?
- Should the assessment involve several wheels to represent and compare projects, activities or individual profiles? Or should it focus on a single project wheel generated by the entire group? If a single wheel, should the spokes stand for criteria or for the activities to be assessed (against one or two criteria)?
- Should the wheel(s) express individual, subgroup or collective assessments of the topic at hand?

Criteria

- Should some or all of the criteria be generated, negotiated or supplied?
- Should participants start with storytelling or *Free List and Pile Sort* to generate meaningful criteria?
- How many criteria should appear in the wheel? Are sub-wheels needed to represent more precise sub-criteria for each spoke?
- Would the exercise gain from using objects, drawings, pictures or people to represent each spoke on the wheel?

Ratings

- Should the ratings involve indicators or progress markers (see *Scoring Tips*, p. 45)?
- What rating scale (short or long) should be used?
- Should the scale vary according to the importance of each criterion (see *Weighting*, p. 51)?
- Should the ratings be negotiated, averaged or determined by the majority?
- Should ratings be done in subgroups (mixed or homogeneous), divided by spoke or wheel, to save time?
- When should the ratings be done: before, during or after goals are implemented? Should initial ratings be revised at a later point in time?
- Should prior fact-finding inform the exercise?



The Socratic Wheel

DESIGN OPTIONS: QUESTIONS TO CONSIDER (continued)

Reporting

- Should the wheel be drawn with flip charts, masking tape on the floor or software (such as Excel or RepGrid)?
- How should the exercise be documented?

Combinations

The Socratic Wheel is a multi-purpose rating tool than can be combined with a wide range of techniques to answer multiple questions, depending on the purpose of the inquiry. Here are some examples of possible combinations:



- When using *The Socratic Wheel* to determine priority actions, use *The Carrousel* (p. 97) to compare and discuss the views of different groups.
- Combine *The Socratic Wheel* with *Force Field* (p. 69) to monitor and evaluate ongoing activities and to assess factors that help or limit the achievement of each goal represented in the wheel.
- Use *The Socratic Wheel* to assess differences between stakeholders (individuals, groups) and then *Negotiation Fair* (p. 103) to discuss what stakeholders can expect of each other.
- Use *Social Domain* (p. 135) and the RepGrid software to analyze the ratings of individual or group profiles obtained from *The Socratic Wheel*.

"The Socratic Wheel is essentially an exercise in rating, a bar chart adapted to a circular frame. As with other graphs in this handbook, its appeal does not rest in its technical features but rather in the intent that sets the technique in motion: in this case, reflective dialogue and action in a meaningful context. This is the intent of any whole brain exercise, analytic and visual, cognitive and evocative, the kind that allows views and data to be discussed and organized synthetically, to support collective thinking and action in complex settings. Unlike a table, a wheel figure drawn by a circle of people can launch a discussion of what should be measured (the spokes) and what has been achieved (the ratings)." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 129.

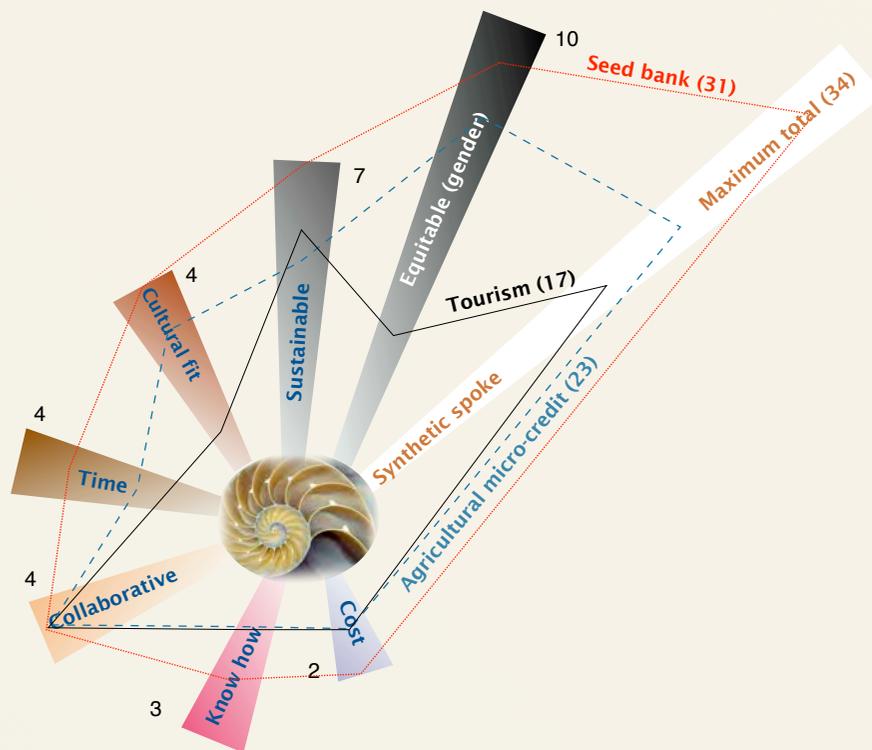
Weighting

Purpose To rate and compare elements in a list using multiple criteria and scores weighted according to the importance that people assign to each criterion.

Step 1 Define the **situation** and create a list of **relevant elements** to be rated, such as options for action (see *Free List and Pile Sort*, p. 39).

Step 2 Define the **criteria** on which to rate the elements using **positive terms**. **Elicit** the criteria from the group (by putting the question directly to the group or with the help of *Free List and Pile Sort*, storytelling, photography, etc.), **supply** predefined criteria based on established or agreed upon goals or **negotiate** some or all the criteria, depending on the purpose of the inquiry and time available. The criteria should be **concrete**, distinct and clearly defined. See examples in Step 2 of *The Socratic Wheel* (p. 47).

Step 3 Decide on a **rating scale** or maximum score for each criterion according to the importance that the criterion has for the group. For more precision, use **indicators** or progress markers to define the meaning of each number on the scale.



Summary: the community must choose between three possible local development strategies, using six criteria of different weights. The two most important criteria are the degree to which each option is equitable, especially when based on gender, and how sustainable it is. Considering the ratings discussed and assigned by the group, the seed bank is by far the best strategy, and tourism, the least attractive.

Rating criteria	Weight, from 1 to 10	Tourism	Seed bank	Agricultural micro-credit
Equitable (gender)	10	3	9	7
Sustainable	7	6	7	5
Cultural fit	4	1	4	3
Time efficient	4	1	3	2
Collaborative	4	4	4	4
Local skills	3	1	2	1
Cost efficient	2	1	2	1
Total	max. 34	17	31	23

Weighting

- Step 4** Create a **table**. Insert the elements in the first row. Record the rating criteria and their maximum scores in the left column, in descending order. Calculate the **maximum total** rating for any element, and record it at the bottom of the left column (see example).
- Step 5** Create a **graph** on paper or a flip chart using spokes (or ribbons on the floor) to represent the different rating criteria established in Step 2. Adjust the **length** of each spoke to reflect its maximum score, and organize the spokes in descending order. Mark the scale on each spoke, from the starting point (0) to the other end of each spoke (representing the highest value). **Label** each spoke with a title card, a drawing or an object representing the criterion. A relevant metaphor can be identified to represent the purpose of the exercise (e.g. the nautilus shell in the example).
- Step 6** Individually or as a group, **rate** each element in the list on each criterion (several elements may receive the same rating). Record the ratings in the table and on the graph, on the corresponding spokes. Keep track of the **reason(s)** given for each score on cards or a flip chart. If rating is done as a group, discuss each rating until participants agree based on consensus or a majority vote. Alternatively, calculate the average ratings for each element.
- Review in detail the *Scoring Tips* (p. 45). They are critical to proper application of *Weighting*.
- Step 7** Add another longer spoke to the graph. Record the **maximum total** rating at the end of this **synthetic spoke**. Calculate the total rating for each element. Record it in the table and on the graph, with a mark on the synthetic spoke.
- Step 8** For each element, draw **straight lines** between all the corresponding marks to create a shape that defines the element's overall profile.
- Step 9** Review the results and reasoning that went into the rating process and **discuss** the priorities based on the scores. Also discuss ways to modify the elements to make them more feasible, achieve greater impact, etc.



COMBINE

See *Design options* under *The Socratic Wheel* (p. 49). To compare the weighted ratings of two individuals or groups, see *Disagreements and Misunderstandings* (p. 101).

PLANNING, MONITORING AND EVALUATION

Use *Weighting* to plan ways to achieve goals. Start by defining a time frame and rating both **current and desired levels** on each criterion. Then identify and plan the actions needed to move from one level to the other. Incorporate these actions into work plans. Monitor or evaluate **progress over time** using three ratings for each criterion: (a) the **initial rating or baseline**, (b) the **rating aimed** for within a defined time frame and (c) the **final rating** obtained once the time is reached. (See *The Socratic Wheel*, p. 47 and *Process Design*, p. 11.)

Information GAS (Gathering, Analysis, Sharing)

Purpose To select methods for gathering, analyzing or sharing information best suited to the needs and culture of the people involved.

Step 1 Discuss how information is likely to be used in a project or program, for what purpose and by whom.

Step 2 Select and combine methods for information gathering, analysis and sharing appropriate to the context. Consider the culture and customs of the people involved and how formal and methodical information needs to be and the importance of storytelling as part of the process of gathering, analyzing and sharing information.

GENERAL LINKS

Detailed explanations and databases of research methods and tools are available at:

- The Cornell University Web Centre for Social Research Methods, www.socialresearchmethods.net/kb/index.php
- The University of Essex website on qualitative and mixed methods, www.esds.ac.uk/qualidata/support/interviews/introduction.asp
- The Socioeconomic and Gender Analysis Programme (SEAGA) sponsored by the FAO, www.fao.org/waicent/faoinfo/sustdev/seaga
- The Social Science Research Network, www.ssrn.com



QUALITATIVE INTERVIEWS use a semi-structured or informal framework to gather information from individuals or focus groups. They usually start with general questions on a particular topic and then probe for details. A focussed, two-way conversation can emerge that covers both pre-defined topics and emerging issues as interviewees expand their answers and share experiences and feelings about a situation or topic.

Strengths: Supports the collection of detailed information about people, behaviors and perspectives on issues. Comments from interviewees and new lines of questioning can be incorporated into the framework. The privacy and flexibility of an individual interview may make it easier to discuss sensitive topics and to deeply probe for underlying issues and detailed explanations.

Weaknesses: The views of the people who are interviewed may not represent the views held by a majority of community members or vulnerable groups. Unless the interview is done in a focus group, the information cannot be easily compared or verified by others.

NARRATIVE INTERVIEW, LIFE HISTORY, STORYTELLING AND DIARIES generate stories about real or hypothetical events and situations. The methods can gather broad personal or community knowledge, either in writing or orally.

Strengths: Supports the reconstruction of a series of events or situations from particular points of view. Allows researchers to probe deeply into the importance and interests of stakeholders, the relationships among them, their beliefs, the management of time, possible ways to manage problems, and the roots and scope of a problem (relating to ethnicity, religion, kinship, politics, laws, etc.).

Weaknesses: These methods can be emotionally challenging for all parties. The information may be difficult to organize and analyze.

Information GAS (Gathering, Analysis, Sharing)

IMPROVISATIONAL THEATRE, ROLE PLAY AND SIMULATION connect theatre to research. Short, structured games may be used to create an experience that enhances creativity, teamwork, leadership and learning. Participants may be asked to put themselves in a story or a pretend situation or to respond to guided imagery by acting out a scene from their point of view or the point of view of a particular stakeholder. Debriefing questions help share observations, feelings and learning from the activity.

Strengths: These methods help people step out of a given reality and empathize with the position of others (including role reversals), making it possible to express views and ideas in ways that are not limited by present circumstances or personal interests. This may be important when the group's ability to analyze a situation is limited or empathy is lacking. New understanding and ideas are experienced through the body and emotions as well as the intellect, potentially deepening the personal impact. The methods may use humor and other forms of creative expression, thereby building energy and releasing tension.

Weaknesses: Simulation and role-play may differ too much from reality to be compelling. If not grounded in a topic or task, the methods can seem trivial or superfluous. Skilful debriefing is needed to ground the activity.

AUDIO-VISUAL PRESENTATIONS share information, tell stories and stimulate multi-stakeholder discussions in an organized way. Text, images, video and audio can be combined in various formats including presentation software such as PowerPoint, DVDs or Websites.

Strengths: A readily accessible way to reach large numbers of people with particular messages, information and statements on outcomes. Can stimulate response and discussion among multiple stakeholders and across language barriers.

Weaknesses: Effective audio-visual presentations require the careful selection of high quality visual inputs, and can be both costly and time consuming.

STILL VISUALS such as photography, drawings, cartoons, murals, posters and flannel boards offer ways to engage community members and professional artists in the co-creation of visual information. It may include calendars, maps and other visual material to raise awareness, provoke discussion, gain feedback for analysis and monitor issues.

Strengths: Still visuals cross cultural boundaries as well as language and literacy barriers. They are inexpensive to produce and provide creative ways to engage various kinds of stakeholders, including youth and children.

Weaknesses: Still visuals present information selectively and can oversimplify issues. Effectiveness as conveyors of information depends a lot on the selection and quality of the images and may require professional assistance.



Information GAS (Gathering, Analysis, Sharing)

GRAPHICS include tables, graphs, charts, maps and various kinds of pictograms that present and summarize large quantities of information in a visual form.

Strengths: Graphics provide a sharp focus for discussion of the underlying data supporting main findings and conclusions.

Weaknesses: Interpreting graphics may require specialized technical knowledge. Graphics can be misleading.

POPULAR PERFORMANCE includes mime, dance, song, jokes, verse and theater. They provide creative and emotionally engaging ways to create awareness and communicate key messages directly and simply.

Strengths: Large numbers of people who speak different languages or have different literacy levels can be reached. Popular performance can draw on local culture and customs. It can be both educational and engaging, and combines well with other *Information GAS* methods.

Weaknesses: Popular performance can oversimplify complex information.

THE INTERNET provides a wide range of options for gathering, analyzing and sharing information including chat rooms, electronic mailing lists, blogs, forums and networking sites. These allow participants from different places to discuss issues instantly during virtual meetings. Participants can also exchange and post information before, during, or after the virtual meeting.

Strengths: The Internet and its various spaces for chat rooms and forums make collaborative work possible when physical meetings cannot be arranged or are too costly. These spaces involve an anonymous or controlled sharing of information. They allow large quantities of information to be stored and easily retrieved through search engines.

Weaknesses: Effective use of the Internet requires some technical knowledge and good Internet connections among all participants. To avoid frivolous or inappropriate messages, clear protocols are needed regarding who can be involved, the purpose of the discussion and boundaries regarding how information is to be shared. Organizers may not be able to confirm the identity of participants and therefore the validity of their information.



"Qualitative and quantitative methods can be used alone or in combinations (...) In the end, fit determines the choice between mix and fix. The rule is simple: work with tools that work." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 153.

Information GAS (Gathering, Analysis, Sharing)

SURVEYS involve the use of standardized questions designed to gather information about people and their opinions and behaviors. Many surveys are designed for in-depth statistical analysis of the responses by ensuring an appropriate and randomized sample size and by using scales or indexes to measure the same idea in different ways (for example, several questions may be combined to help measure the idea of 'occupational stress'). A number of procedures can be used to collect the information in a questionnaire including face-to-face interviews, telephone interviews, the post, etc.

Strengths: Surveys allow researchers to see how a wide range of people living in different circumstances answer the same questions on a particular topic. Objective information about individuals and households such as income, age, profession, etc. can be combined with subjective information on opinions and behaviors. It allows researchers to track changes by asking the same questions at different times, and comparing responses.

Weaknesses: Interviewing an appropriate sample of a population can be a challenge as updated lists of names from which to draw a sample may be hard to come by. Questionnaires typically require a considerable amount of time from both respondents and interviewers. Because survey questions are often simple and responses may be given out of context and without discussion, results can be superficial, difficult to explain or undermined by low response rates. All the key decisions about survey design must be made before the survey begins and cannot be changed once the survey has started. Use of appropriate statistical techniques for analysis requires specialized knowledge.

PARTICIPANT OBSERVATION involves becoming a member of the community being researched, with a distinct and accepted role as an observer. Information is gathered over an extended time using a variety of methods.

Strengths: An insider's view of an organization, group or community can be created. Makes use of well-developed rules for observing, taking field notes and analysing observations.

Weaknesses: Gatekeepers can block access to certain individuals and topics. Training is needed to protect sources and maintain researcher neutrality. Information is collected, analysed and interpreted by the participant observer who controls the inquiry process.



ANALYSIS OF SECONDARY DATA involves the use of information that has already been gathered by another researcher, perhaps for another purpose. Sources include published books, databases and public documents collected by governments, libraries and museums.

Strengths: A wide range of information on a topic can be collected and contrasted. This may be particularly useful at the beginning of a research process when little is known about a topic. Secondary sources may contain detailed interpretations of information and links to theory.

Weaknesses: Secondary sources can be biased, out-dated or unreliable, and should be selected critically.

Exploring problems



Handbook for Participatory Action Research, Planning and Evaluation, Module 3,
Chevalier, Jacques M. and Buckles, Daniel J., SAS2 Dialogue, Ottawa, 2013.

Module 3



"Science is a beautiful paradox. It is faith in the existence of causal interconnections — in order in things that are, or regularity in the world as we know it. But it also rebels against prison-like causation — against laws that rule out freedom of the mind, the exercise of doubt and the possibility of things being otherwise, if only through the responsible work of science. Good science is a worthy cause that postulates both the presence and absence of iron-fisted order and efficient causality. Careful inquiry based on systems thinking and involvement in the world is built on the same paradox, the same dialectical reasoning. It involves getting to know the world by changing it, and vice-versa." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 372.



Timeline

Purpose To tell a story of changes over time, significant events of the past or the chronology of steps in a current or planned activity.

Step 1 Define the **topic** and **time frame** for the analysis, and create a timeline on the floor or on a flip chart with the 'starting point' at one end and the most distant reference for the time frame at the other end. Invite participants to add one or two milestones in-between that can stand as additional reference points on the timeline, if needed.

Step 2 Invite each participant to think of a **key moment** relevant to the topic (a change, historical event or a step in a current or planned activity). Write (or draw) it on its own card. Add closely related **facts** to the back of the card or on a flip chart, such as the date, the positive and negative aspects associated with the key moment, the key parties involved, what they did, etc.

Step 3 Discuss each moment card and place it in the appropriate place on the timeline. Continue until the group has **reviewed** all the key changes, historical events or steps relevant to the topic and arranged them in chronological order on the timeline. To simplify the story, place minor moments in the timeline under the cards for the major moments occurring in the same time period.

Step 4 Review the result by looking for **trends** or **patterns** in the story. Identify actions relevant to the situation today based on **lessons** of the past.



STEPS IN A TYPICAL TOUR: NEMASKA, THE LAND OF PLENTIFUL FISH



1. Visits the COTA and community websites
2. Calls the tourism officer by phone
3. Drives to Nemaska, refills at the gas station
4. Sees posters (welcome, fishing) along the road
5. Enters the community and goes to the restaurant
6. Checks in at the Nemaska lodge
7. Looks for information, goes to Band Office
8. Plans expedition with local outfitter and tourism officer
9. Visits old Nemaska, goes shopping
10. Goes fishing, sees wildlife with local guide
11. Shops for local crafts and souvenirs
12. Visits the Hydro-Québec dams
13. Drives back home...

Timeline

COMBINE *Timeline with Stakeholder identification.* Draw or write on separate cards the key people or groups involved in each change, historical event or step. On the back of each card, record information about each stakeholder involved, such as how they contributed to the event, change or step, how they are affected by it, and the gains or losses incurred in each case.

Timeline with Force Field. Another option is to create columns on one side of the timeline for each major **factor** that **contributed** to a particular change or event. Create columns on the other side for major factors that **counteracted** or limited the impact a particular change or event. Show the weight or intensity of each factor by varying their height of the column.

ADAPT *Past and future.* Events along the timeline can be divided into two parts: to the left, those that occurred in the past and, to the right, those that will result if events follow their current course or if things happen according to new plans.

Ups and downs. Events along the timeline can go up or down depending on their positive or negative contribution to a situation evolving over time, as perceived by participants.

Before and after. Instead of a timeline, create a 'Before-and-after' table with 5 columns that describe the areas of change (Column 1), what used to be (Column 2) and the present situation (Column 3) for each change area, how important these changes are (Column 4), and then the causes or reasons (Column 5) behind each change. In the last row, describe the overall difference between the past situation and the present.

Areas of change	Before (20 years ago)	Now	Importance (from 1 to 3)	Causes
Jobs				
Environment				
Family life				
Religion				
Overall				

Previous Responses

Purpose To assess the ways that key stakeholders have managed core problems in the past.

Step 1 Define the **core problem** and create a drawing or identify an object to represent it. Then identify the key **stakeholders** involved (see *Stakeholder Identification*, p. 75).

Step 2 Identify the typical response of each stakeholder to the core problem during a defined period. Write the **stakeholder response** on its own card, using a short sentence or key words that are concrete and clear to everyone. If the stakeholder responded to the core problem in different ways at different times, select one period and the most typical response during that period.

Step 3 Create a **table** (see example). In Column 1, insert the typical response of each key stakeholder.

Step 4 Assess whether each stakeholder response involved **local customs, legal-administrative** measures, or other strategies such as **Alternative Dispute Resolution** (involving negotiation, mediation or arbitration). Record your assessment in Column A.

Responses By stakeholder	A Type of response Customary, legal-administrative, alternative	B Overall strategy Force, concession, accommodation, negotiation, consensus
		

Step 5 Rate the extent to which each stakeholder has generally emphasized the importance of getting the **task done** ('Task-oriented responses'). Use a scale of low, medium or high.

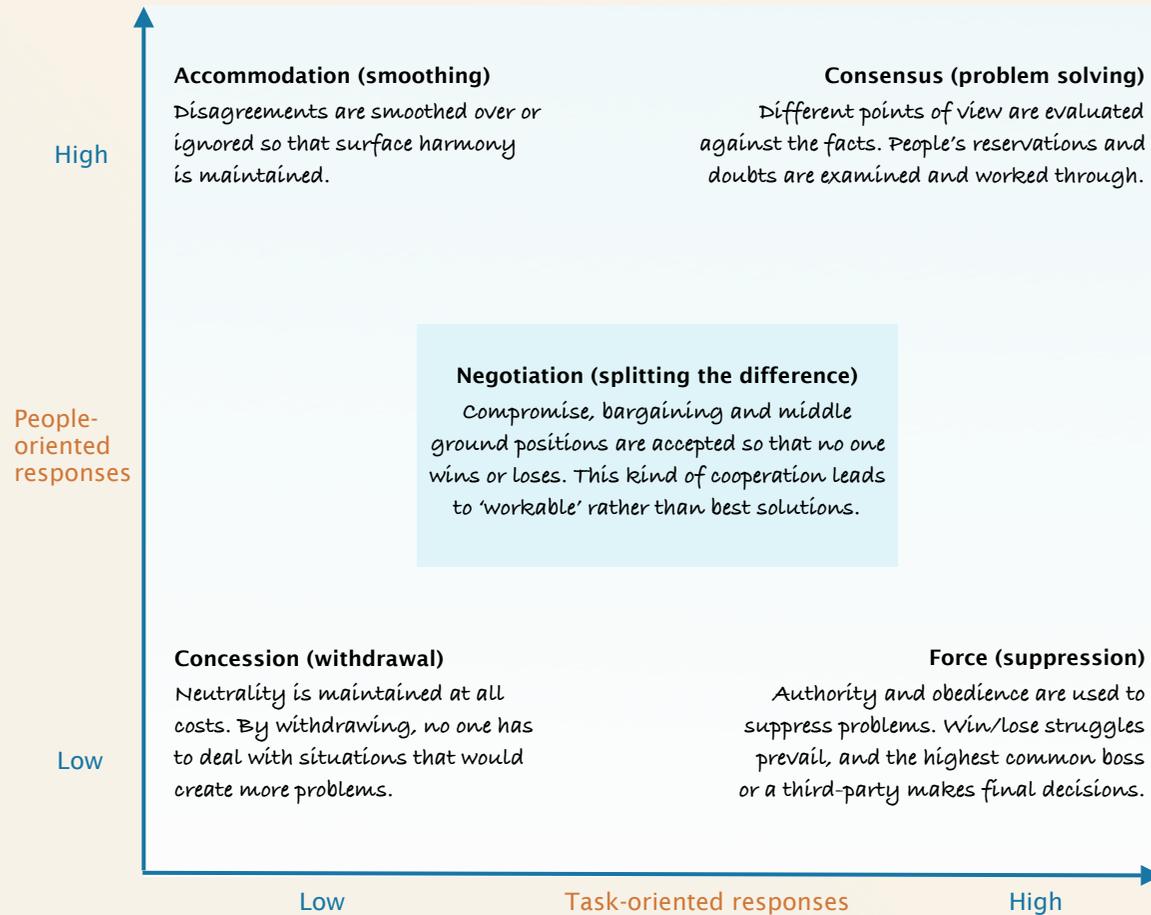
Step 6 Rate the extent to which each stakeholder has generally emphasized the importance of **meeting the expectations** of other stakeholders ('People-oriented responses'). Use a scale of low, medium or high.

Step 7 Locate each stakeholder in the **diagram** that combines the two kinds of responses (task-oriented on the horizontal axis, people-oriented on the vertical axis) established in Steps 5 and 6. The diagram below (p. 62) helps determine whether the main stakeholder strategies have been characterized by **force, concession, accommodation, negotiation, or consensus**. Record the results in Column B.

Previous Responses

Step 8 Discuss strategies with **positive effects** on the core problem (and how to reinforce them) as well as strategies that produced **negative effects** (and how to break from them).

Source Graph adapted from M. Warner et al., *Tools and Training*, Natural Resources Cluster Secretariat, Business Partners for Development, Module 5, Consensus Building (p. 12). See also Stephen Worchel and William G. Austin (eds.), *Psychology of Intergroup Relations*, Nelson-Hall, Chicago, 1986, p. 76.



Resource Mapping

Purpose To visualize and acknowledge the land-related resources of communities.

Step 1 Define the topic and the boundaries of the community involved. Invite participants to draw an outline of the area on the ground using chalk, on the floor using masking tape or on large sheets of kraft paper. Alternatively, use **existing maps** of the area covered with transparent plastic people can write or draw on. Add landmarks that can act as reference points.

Step 2 Locate and mark places of activity, interests or concern relevant to the topic. Encourage the use of color and objects to represent resources and their spatial relationships.

Step 3 Review the result by asking people to describe what they have included in the map and why. Add new information to the map that emerges from the discussion, and photograph the result. Conclude by inviting observations about the scope and importance of resources held by different community members and the community as a whole, and opportunities they offer to address problems.



Strings of different colors are used to identify thematic routes that bring together different sites.

COMBINE

- *Resource Mapping with Storytelling.* The mapping exercise can include individual **stories** about sites that bring back vivid memories of personal experiences.
- *Resource Mapping with Timeline.* When reviewing the resource map, ask people to comment on major changes in the resources compared to the past and create a **timeline** of these changes. Alternatively, use a Venn diagram to map resources of the present, resources of the past and resources the group wants to develop in the future.
- *Advanced Participatory Resource Mapping (PRM).* If scaling up is needed, participants may produce maps using a 3-D modelling method (using sheets of cardboard, pushpins, coloured string and paint) combined with more detailed information obtained from transect walks, videos, aerial and satellite images and from printed maps as well (covered with clear plastic sheets to capture local knowledge). More advanced applications combine PRM with GPS (Global Positioning Systems), GIS (Geographic Information Systems) and other digital computer or Internet based technologies.

Problem Tree

Getting to the root

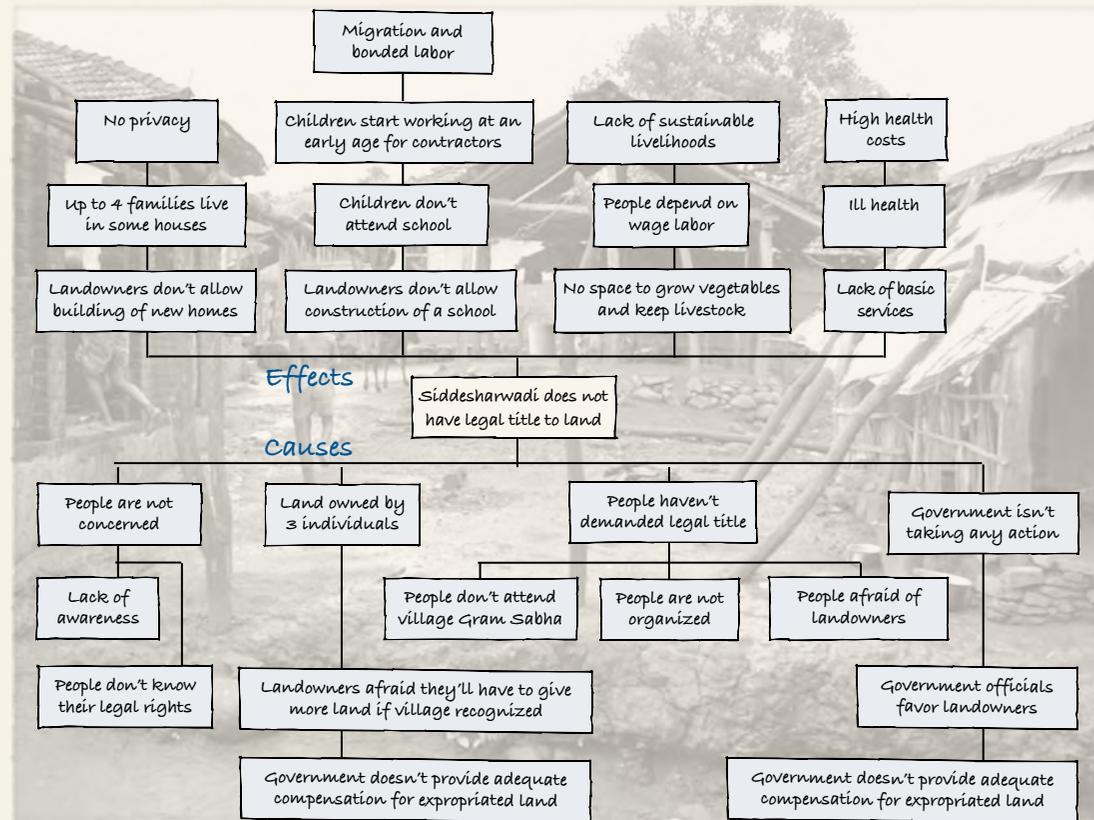
Purpose To understand the causes and the effects of a problem.

Step 1 Define the **core problem** and place a card with key words, a drawing or an object representing the core problem in the middle of the workspace. This corresponds to the trunk of the problem tree.

Step 2 Ask ‘Why has this problem occurred?’ Identify 4 or 5 causes directly responsible for the core problem. These are the **first-level causes** (or thickest roots) of the core problem. Describe each first-level cause on its own card using a drawing or a few key words, and add details as needed to the back of the card or on a flip chart. Place all the cards that show first-level causes in a row below the trunk showing the core problem.

Step 3 For each first-level cause, ask ‘Why has this occurred?’ The reasons are the **second-level causes** directly responsible for each first-level cause. Write (or draw) each second-level cause on its own card using a few key words, and add details as needed to the back of the card or on a flip chart. Place the new cards in a row below the corresponding first-level causes.

Step 4 Use the same method (Step 3) to determine the causes directly responsible for each second-level cause. Place these **third-level causes** in a row below the corresponding second-level causes. Connect the first, second and third level causes with lines representing the thickest surface roots and the finer deeper roots of the core problem.



Problem Tree

Step 5 Go through the same steps (Steps 2 to 4) to determine the **first-level, second-level and third-level effects** or implications (branches and fruit) of the core problem. Ask participants ‘What is the result or consequence of this problem (or this effect)?’ Keep in mind that effects of a core problem may include **actions** people are already taking in response to the situation, whether successful or not. Write each effect on its own card, and place the new cards in layered rows above the core problem. When noting an effect, avoid using words that emphasize the **lack** of a particular solution to the problem; describe instead the **consequences** of what is lacking.

Step 6 **Review** the result and look for causes and/or effects that fit into both the roots and the branches of the problem tree. These may point to **loops** or ‘vicious circles’ that reinforce each other through direct or indirect connections to the various levels of causes and effects.

Step 7 Identify the most important, the most pressing or the least difficult causes to handle. These may be **priorities** for action. Identify the effects that are most troubling to the people involved in the exercise, or that point to new opportunities. These may help to motivate and focus attention on the core problem and its causes.



TIPS

- When identifying the causes and effects, participants sometimes write the cause and its effect(s) together on the same card or create cards that describe the same cause or effect using different words or sentences. Failing to drill down into deeper causes of causes is another common problem.
- Other **metaphors** such as parents and ancestors (for the roots) and children and grandchildren (for the branches and fruit) may help identify the various levels of the *Problem Tree*.
- To convert a *Problem Tree* into a **Tree of Means and Ends**, see *Ideal Scenario* (p. 97). This involves restating the core problem as though it had already been resolved. The problem is converted into a positive scenario, the causes into **means** to achieve it, and the effects into **ends** that are realized when the positive scenario is in place.

Gaps and Conflicts

Purpose To identify the issues underlying the core problem and find out if these issues are mostly about gaps or conflicts in power, interests (gains and losses), moral values, or information and communication.

Step 1 Define the **core problem** and create a drawing or identify an object to represent it. Then identify the **main causes** of the core problem. *Free List and Pile Sort* (p. 39) or *Timeline* (p. 59) may help identify these causes. Write each cause on its own card, using a short sentence or key words that are concrete and clear to everyone.

Step 2 On each card that describes a different cause, write the **kind of issue** it represents. Is the issue one of **power**, **interests** (gains and losses), moral **values**, or **information** and ways of communicating (see definitions, below)? Discuss and clarify the kinds of issues, using local examples and terms. Create a label or identify an object to represent each issue. If the cause raises more than one issue (such as power *and* interests), write the same cause on two or more cards and record a different kind of issue on each card.

Step 3 Create a *Gaps and Conflicts* table. Place labels for the four kinds of issues in the first column. Place Gaps, Conflicts, and Ranking labels in the top row.

Step 4 Take each cause of the core problem and decide whether it involves a **gap** that needs to be filled or a **conflict** that needs to be resolved (see definitions below, p. 68). Record and explain each assessment on the back of the corresponding card or on a flip chart. Place the cards in the corresponding cells of the table.

Step 5 Use the last column to **rank** the **combined weight** of row issues according to the number and importance of the cards that appear in each row. Use a ranking scale of 1 for the greatest combined weight to 4 for the least combined weight.

Step 6 **Review** the result of the analysis. Consider whether the issues with the greatest combined weight are mostly about gaps that need to be filled or conflicts that need to be resolved. Discuss **priorities** for action. Keep in mind that the act of filling a *gap* (such as getting information on land ownership) can sometimes lead to a *conflict* between parties.



Gaps and Conflicts

POWER is your ability to achieve what you want by influencing others and using resources you control. These resources include economic wealth, political authority (an office, position or role recognized by an institution or by local customs), the ability to use force or the threat of force and control over information (including knowledge and skills) and the means to communicate.

INTERESTS are the gains and losses that you will experience based on the results of ongoing or proposed actions. Gains and losses affect the resources you control such as economic wealth, political authority, prestige, the ability to use force, information, means to communicate, legitimacy or social ties.

VALUES are beliefs, judgments, norms or principles about what is important, or the degree to which something is viewed as morally right or wrong.

INFORMATION is what you know 'for a fact' and consider to be true.

COMMUNICATION is how you exchange information and make your views known to others.

A GAP involves a **lack** of power or control over resources; the absence of incentive or interest (gains or losses); a failure to appreciate the moral worth or value of something; a shortage of information and effective means of communication.

A CONFLICT is a **struggle** over how decisions are made and who makes them; how gains and losses are distributed; the values that people believe in; the information that is given out and the ways that people communicate.

GAPS AND CONFLICTS TABLE

Issues	Gaps	Conflicts	Rank
Power	Hiring new park staff to deal with complaints is impossible due to financial constraints.	There is little public consultation when park management plans are made.	2
Interests (gains and losses)	Park managers are overworked and morale is low.		4
Moral values	Par users are seen and see themselves as clients rather than potential partners.		3
Information and communication	Commmunications are slow and time-consuming.	Some unsatisfied park users can be aggressive.	1



Force Field

Purpose To understand the factors that contribute to a problem, a situation or a project and those that counteract it.

Step 1 Define the **topic** and place a card with key words, a drawing or an object representing the topic inside a long horizontal **bar** created on the floor, the wall or on a large sheet of paper.

Step 2 Identify the **factors that contribute** to or drive the problem, situation or project. *Free List and Pile Sort* (p. 39) may help identify these factors. Create **labels** to represent each factor and place them above the horizontal bar. Write descriptions of the factors on the back of the labels or on a flip chart.

Step 3 Identify the **factors that counteract** the problem or play against the situation or project. Create labels to represent the factors and place them below the horizontal bar. Write descriptions of these counteracting factors on the back of the labels or on a flip chart.

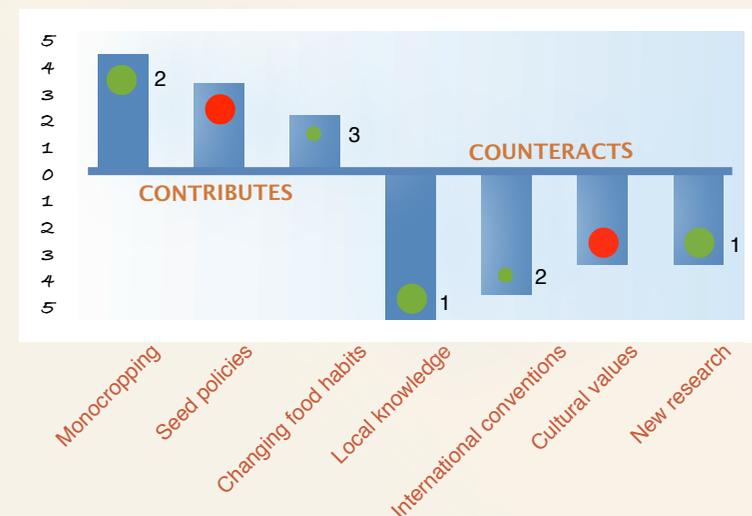
Step 4 **Rate** each factor using scores from 1 (weak) to 5 (strong). To be more precise, identify indicators that define the meaning of each number on the scale. **Record** the reasons participants provide for each score. Create **columns** for each factor and show the score by varying the height of the columns.

Step 5 Use **green dots** to identify the factors that people have some control over. Increase the size of the dot when people have greater control over the factor. Use **red dots** for those over which people have little or no control. Use **numbers** from 1 (short term) to 3 (long term) to indicate how long it would take to act on a factor.

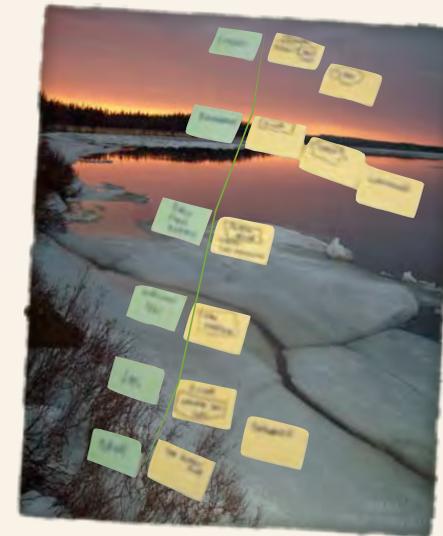
Step 6 Discuss ways to achieve key objectives by **strengthening or reducing** the factors at play. Consider starting with the factors that people have some control over or can be addressed in the short term.



SITUATION: LOSS OF BIODIVERSITY



Force Field



COMBINE

Force Field with SWOT Analysis

Identify the factors in the *Force Field* that are existing strengths (S) and those that are external opportunities (O). Identify as well the factors that are existing weaknesses (W) and external threats (T). USE a color code to distinguish these four kinds of factors.

Force Field with Paradox

See Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, pp. 238-242.

Force Field with Timeline

Convert the horizontal bar into a chronology of key changes or events in the history of the problem, situation or project. Then, rate each as either a driving or a counteracting change or event using a scale of 1 to 5. Create columns for each change or event and show the score by varying the height of the columns.

Paradox

Purpose To acknowledge efforts and practices to handle an existing problem and at the same time explore individual and collective behavior that maintain the problem, is difficult to comprehend and draws little attention.

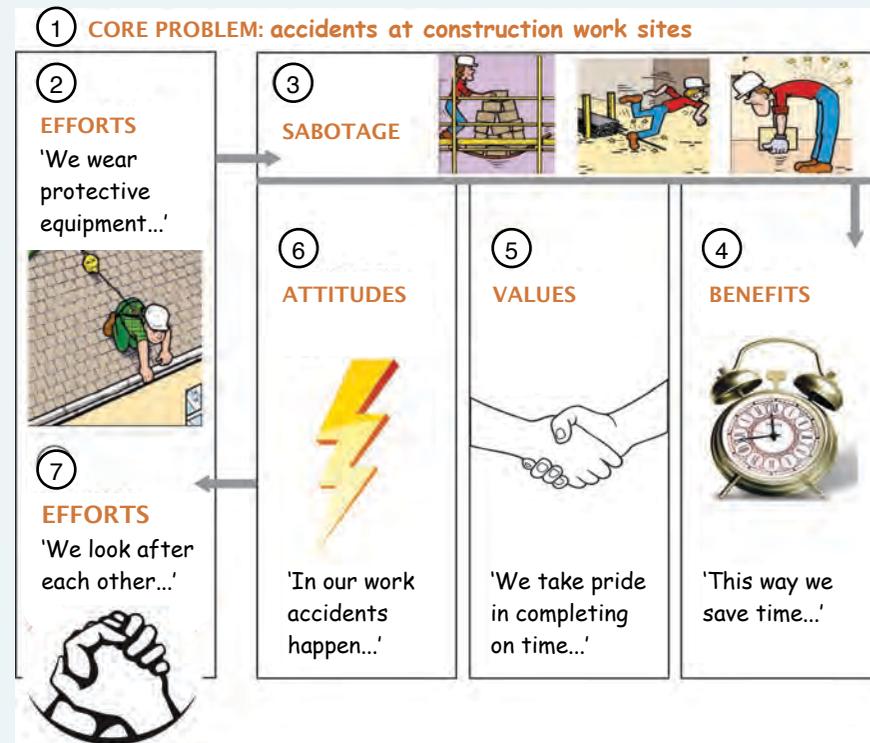
People often know what they must do to address a key problem and recognize at the same time that they are not taking action for reasons that remain obscure and little discussed. These tacit reasons may be of three types:

- the **benefits** incurred from maintaining the problem;
- the principles or **values** that, in some situations, may justify behavior that maintains the problem; and
- **attitudes** towards aspects of the problem that seem **unpredictable** or **inevitable**.

Step 1 Define the **core problem** briefly (e.g. construction worksite accidents). Create a **diagram** with a column to the left, a top row to the right and three columns below the row. Write the problem identified in Step 1 above the diagram.

Step 2 Examine what each group member and the group as a whole **actually do** to address or reduce the problem at hand (e.g. 'wearing personal protection equipment'). Draw or write the key words representing each **individual and group effort** to address the problem on its own card. Place the cards in the column to the left entitled *Efforts* (see example). Discuss how real the problem is despite individual and collective efforts to address it and what group members feel when the problem is evoked.

Step 3 Identify what each participant and the group as a whole can **possibly do** to make sure that the problem is **maintained or reinforced** (e.g. 'climbing without safety straps'). Draw or write the key words representing each response on its own card. Place the cards in the top row entitled *Sabotage* (see example).



Paradox

Step 4 Discuss what you would stand to gain individually or collectively from doing everything to maintain or reinforce the problem at hand (e.g. 'saving time'). Draw or write the key words representing each **benefit** on its own card. Place the cards in the column to the right entitled *Benefits*.

Advanced version: to assess the relative importance of each benefit, identify the benefits you would be willing to **sacrifice** in order to secure those that matter the most to you individually or collectively. For a more in-depth discussion, explore why these benefits matter in the first place and the **basic need(s)** they express.

Step 5 Identify some principles or **values** you hold individually or collectively and that, in some situations, may justify the benefits sought by maintaining the problem (e.g. 'taking pride in work well done completed on time'). Draw or write the key words representing each value or principle on its own card. Place the cards in the middle column entitled *Values*.

You can identify these values indirectly, by asking why each benefit from maintaining the problem matters in the first place (e.g. 'saving time allows us to meet the employer's expectations') or by exploring why these benefits do not matter to some people (e.g. 'they don't take pride in their work').

Advanced version: to assess the relative importance of each value, identify the values that you would be willing to **sacrifice** in order to secure those that matter the most to you individually or collectively. For a more in-depth discussion, explore why these values matter in the first place and the **fundamental value(s)** they express. Discuss the limits of each value and tensions between them (e.g. 'it is important to complete work on time but the job has to be well done'). Unlike rules and norms that leave little room for interpretation, values call for the exercise of judgment in context and a balancing of end and means to achieve them. (See *Lessons and Values* and also *Values, Interests, Positions*, pp. 91–94).

Step 6 Discuss the extent to which there would still be a problem even if all measures were taken to address it (e.g. 'accidents are bound to happen') and why. Identify concrete examples of hazards that are unpredictable or inevitable (e.g. working at height is always dangerous'), and discuss the individual or group reaction to them (e.g. 'we don't think about it...'). Draw or write the key words expressing each unavoidable hazard and the **reaction** to them on its own card. Place the cards in the column entitled *Attitudes*.

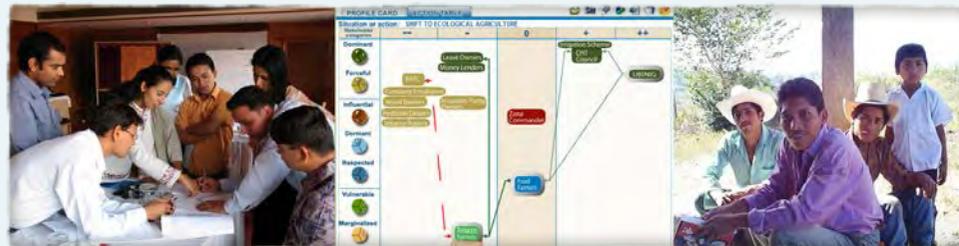
Step 7 Discuss individual or group measures that could be **introduced or reinforced** in order to better handle the problem at hand (e.g. 'looking after each other's safety'). Draw or write the key words expressing each measure on its own card. Add the cards to those already placed in the column entitled *Efforts*. Discuss how these measures **negate** or **reinforce** the benefits, the values and the attitudes discussed in previous steps (e.g. 'mutual help is essential to doing good work and completing it on time').

Step 8 **Discuss** the overall analysis, the method used and the findings.

Module 4



Knowing the Actors



Handbook for Participatory Action Research, Planning and Evaluation, Module 4,
Chevalier, Jacques M. and Buckles, Daniel J., SAS2 Dialogue, Ottawa, 2013.

Module 4



"The world about us is never just about us. It is also the milieu all around us, the myriad sites ('mille lieux') existing in our nearness, in the middle of self and otherness." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 262.

"The global age is in urgent need of democratic engagement in the making and sharing of living knowledge and the exercise of reason, for the common good. Failing this, our future will soon be a thing of the past." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 256.

Stakeholder Identification

Purpose To identify the stakeholders involved in a situation or proposed action.

Step 1 From the list below choose the method(s) needed to identify stakeholders involved in the proposed action or situation under analysis. Modify or combine the methods as needed.

Step 2 Review the result of the exercise after some time so that stakeholders initially left out or not involved at earlier stages can be identified.

BY EXPERTS. Use staff, key agencies (such as non-governmental organizations), local people or academics that know the situation well enough to identify stakeholders.

BY SELF-SELECTION. Use announcements at meetings, in newspapers, on local radio or other media to invite stakeholders to come forward. This will attract those who believe they will gain from communicating their views and wish to contribute to the process.

BY OTHER STAKEHOLDERS. Identify one or two key stakeholders. Ask them to suggest other key stakeholders who share their views and interests, as well as those who may have a different way of looking at the issues.

USING WRITTEN RECORDS AND POPULATION DATA. Census and population data may provide useful information about the numbers of people by age, gender, religion, residence, etc. Obtain stakeholder information from directories, organizational charts, surveys, reports or written records issued by local authorities, donor agencies, government bodies, experts, academics, non-governmental organizations, business and industry, etc.

USING ORAL OR WRITTEN ACCOUNTS OF MAJOR EVENTS. Identify key stakeholders through oral or written descriptions of major events in the history of a problem and the people who were involved in these events (see *Timeline*, p. 59).



TIPS

- ❑ Use appropriate **sampling** procedures to develop a sample of stakeholders that need to be consulted or surveyed because they are part of larger stakeholder populations and may have no other way to represent themselves as a distinct group.
- ❑ Consider when to **combine** groups into a single stakeholder category and when to **separate** broad categories into smaller groups (broad categories of stakeholders such as a geographic community or a large organization may mask significant differences within the group).
- ❑ Decide whether to include the **community of all stakeholders** as a group with its own profile.
- ❑ The **representatives** of a group may be defined as a stakeholder distinct from those they represent.
- ❑ When identifying stakeholders, remember that some people may accept ancestors, future generations, spirits and non-human species as legitimate parties to the situation.
- ❑ **Flag** in the list of stakeholders those doing or convening the analysis.

Stakeholder Identification

"When applied to PAR, stakeholder analysis often ignores the question of who should conduct the inquiry and for what purpose — who is affected by the inquiry itself and who should be involved in that process. The analysis may be done in a top-down fashion, with a neo-corporatist view that seeks to promote 'dialogue' without challenging relations of domination operating at many levels. In an effort to avoid questions of appropriate representation, all stakeholders (the entire community, for instance) may be invited to participate in the analysis, irrespective of whether there is enough good will or practical means to do so. Given the complexity of real life settings, stakeholder engagement often requires a strategic and progressive approach, with a focus on parties that can and should contribute to the inquiry and measures to empower marginal or voiceless groups that may otherwise be excluded from collective thinking and action.

While a strength, the site-specific character of stakeholder analysis and involvement also limits engagement with notions of democracy and citizenship on a global scale." Chevalier, J. M. and Buckles, D. J. (2013) Participatory Action Research: Theory and Methods for Engaged Inquiry, Routledge UK, p. 256.

	OPPOSITION, NET LOSSES			SUPPORT, NET GAINS	
	--	-	0	+	++
Dominant 			x		
Powerful 			x		
Influential 	x	x			
Dormant 	x	x			
Respected 	x	x			
Vulnerable 			x		
Marginal 			x		



Stakeholder Rainbow

Charting the playing field

Purpose To visualize the differences between stakeholders involved in a situation or proposed action.

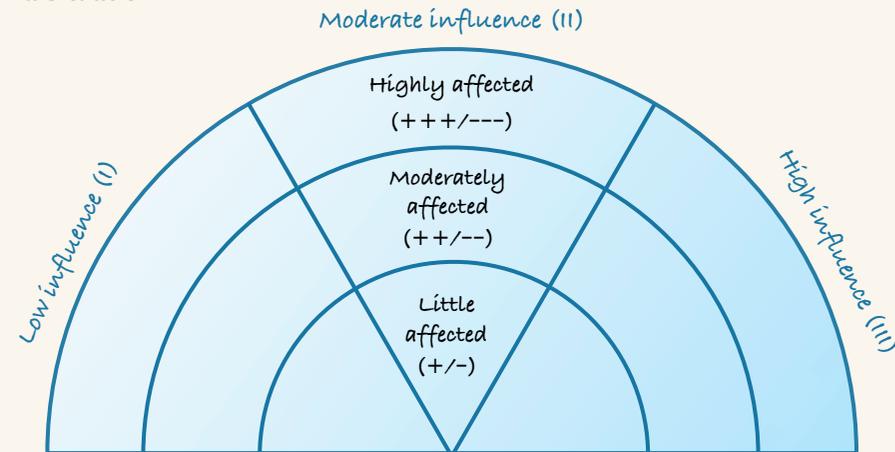
Step 1 Define the situation or proposed action and make a list of the **stakeholders** (individuals, roles or groups) who can influence or may be affected by it. Write the name of each stakeholder on its own **card**.

Flag the cards of stakeholders who are doing the analysis. Consider when to **combine** groups into a single stakeholder category and when to **separate** broad categories into smaller groups (broad categories of stakeholders such as a geographic community or a large organization may mask significant differences within the group). Decide whether to include the **community of all stakeholders** as a group with its own profile. The **representatives** of a group may be defined as a stakeholder distinct from those they represent. Also, when identifying stakeholders, remember that some people may accept ancestors, future generations, spirits and non-human species as legitimate parties to the situation.

Step 2 On each card, use one, two or three plus (+) or minus signs (-) to indicate whether the stakeholder is highly, moderately or little **affected** by the situation or proposed action. Plus signs indicate **net gains** resulting from the situation or proposed action. Minus signs indicate **net losses**.

Step 3 On each card use one, two or three 'I' signs to indicate whether the stakeholder has high (III), moderate (II) or little (I) **influence** on the situation or proposed action.

Step 4 Create a **rainbow diagram** with three bands on a flip chart or with masking tape on the floor. In the smaller band, **insert the cards** of stakeholders little affected (+ or -). Insert the cards of stakeholders moderately affected (++ or --) in the middle band, and those of stakeholders highly affected (+++ or ---), in the larger band.

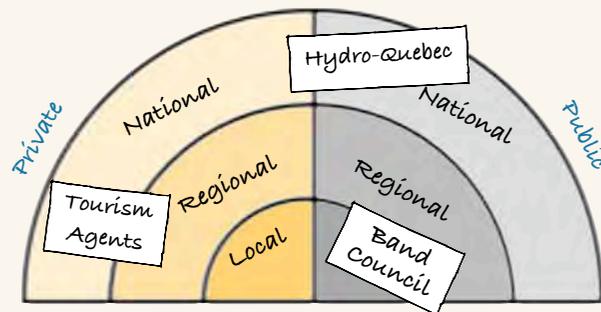
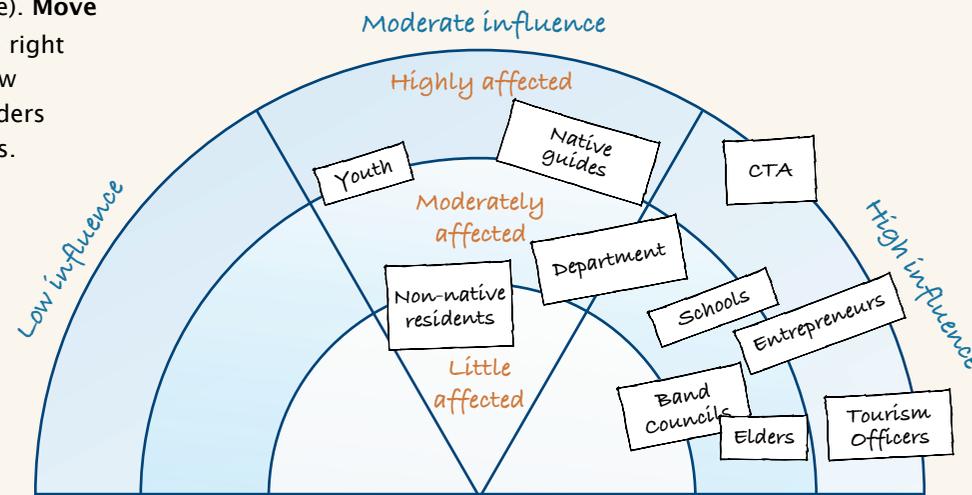


Stakeholder Rainbow

Step 5 Divide the rainbow bands into three equal parts: one part to the left, one in the middle and one to the right (see example). **Move the cards** of stakeholders with high influence (III) to the right side of the diagram. Move those of stakeholders with low influence (I) to the left side. Leave the cards of stakeholders with moderate influence (II) the middle part of the bands.

Step 6 Discuss the resulting picture and effective ways to get important stakeholders **involved** in follow-up actions. Also discuss ways to adjust the **gains or losses** experienced by each stakeholder and the **level of influence** that some stakeholders have on the situation or proposed action.

COMBINE Make a list of stakeholders by describing the major events of the past or planned activities and identifying the key people or groups involved (see *Timeline*, p. 59). Storytelling can also help identify and gain a better understanding of stakeholders that are easily stereotyped or have no way to represent themselves in a situation. Use this list as the first step in a *Stakeholder Rainbow* diagram.



ADAPT

- Instead of using a rainbow diagram, locate each stakeholder in a Cartesian graph where the vertical line represents different levels of influence (from 0 to 10), and the horizontal line, the extent to which stakeholders are affected (from -10 to 10).
- Adapt the rainbow diagram by using other characteristics that describe the main differences between stakeholders. For instance, use the three bands to identify stakeholders working at the local, the regional and the national levels. Use a single vertical line dividing the bands to separate private sector from public sector stakeholders.

Social Analysis CLIP

Purpose To describe the characteristics and relationships of key stakeholders and to explore ways to resolve social problems and engage people strategically. (CLIP stands for Collaboration/Conflict, Legitimacy, Interests and Power.)

Step 1 Define the **situation or proposed action** clearly and precisely. Make a list of the stakeholders (individuals, roles or groups) who can influence or may be affected by it, including those that are doing the analysis (see *Stakeholder Identification* and *The Stakeholder Rainbow*, pp. 75–78). Draw or write the name of each stakeholder on its own stakeholder profile **card** (see example).

Flag the cards of stakeholders who are doing the analysis. Consider when to **combine** groups into a single stakeholder category and when to **separate** broad categories into smaller groups (broad categories of stakeholders such as a geographic community or a large organization may mask significant differences within the group). Decide whether to include the **community of all stakeholders** as a group with its own profile. The **representatives** of a group may be also defined as a stakeholder distinct from those they represent.

Step 2 Discuss examples of power, interests and legitimacy that are relevant to the situation or proposed action, and discuss the definitions below. Clarify the ideas and modify them using the participants’ own definitions and terms, if they prefer. Use symbols or drawings to represent each idea, such as raising a fist or finger for power, holding out the hands for interests, or clapping hands for legitimacy.

Step 3 Discuss and describe the **power or resources that each stakeholder can use** to oppose or promote the situation or proposed action defined in Step 1. Exclude forms of power (e.g. force) that stakeholders would not realistically apply to the situation or proposed action being discussed. Rate the level of power on each stakeholder card using one of three values: **high, middle or low/no power**. On the same card, record a description of the power or resources discussed.

Situation or proposed action:			
Stakeholder (individual or group):			
P OWER	High <input type="checkbox"/>	Middle <input type="checkbox"/>	Low/None <input type="checkbox"/>
Description:			
I NTERESTS	High + <input type="checkbox"/>	Middle + <input type="checkbox"/>	Low/None <input type="checkbox"/>
	High - <input type="checkbox"/>	Middle - <input type="checkbox"/>	
Description:			
L EGITIMACY	High <input type="checkbox"/>	Middle <input type="checkbox"/>	Low/None <input type="checkbox"/>
Description:			

Step 4 Discuss and describe the **interests** of each stakeholder — the gains that each makes from the situation or proposed action and the estimated losses. Pay special attention to stakeholders’ estimation of their own gains and losses. Rate the **net interests** (gains minus the losses) on each stakeholder card using one of five values: high net gains (++), middle net gains (+), low/no interests (0), middle net losses (-), or high net losses (--). On the same card, record the description of the interests discussed.

Social Analysis CLIP

Step 5 Discuss and describe the **legitimacy** of each stakeholder — that is, the recognition by law or by local customs of rights and responsibilities **relevant** to the situation or proposed action and exercised with resolve. Rate the level of legitimacy on each stakeholder card using one of three values: **high, middle or low/no legitimacy**. If a stakeholder's legitimacy is highly disputed, assign the 'middle' value and note the dispute along with the description of legitimacy on the card.

POWER (P) is the ability to influence others and use resources controlled to achieve goals. Resources may include economic wealth, political authority (an office, position or role recognized by an institution or by local customs), the ability to use force or threats of force, access to information (knowledge and skills) or the means to communicate. (See *Power*, p. 83.)

INTERESTS (I) are the gains and losses experienced as a result of an existing situation or proposed action. These gains and losses affect the various forms of power and uses of resources. Make sure that participants do not confuse this idea of interests with 'taking an interest in' or 'being interested in something'. (See *Interests*, p. 85.)

LEGITIMACY (L) is when the rights and responsibilities of a stakeholder are recognized by other parties through law or local customs, and are exercised by the stakeholder involved with resolve. (See *Legitimacy*, p. 87.)

SOCIAL RELATIONS involve existing ties of collaboration and conflict (**C**), including group memberships, that affect stakeholders in a certain situation and that they can use to influence the situation or a course of action.

Step 6 Create a **table** listing categories of gains and losses in the top row and stakeholder categories in the first column (grouped into upper, middle and lower blocks in the table on p. 81). **Place** each stakeholder card in the column that corresponds to its **interests** (high, middle or low/no net gains or losses) and in the row that corresponds to its **PIL profile**; apply each letter to a stakeholder only when the corresponding score is 'high' or 'middle'.



Don't place cards in the cells that combine contradictory attributes (such as 'dominant' stakeholders with 'low/no' interests). These cells are marked with the letter 'x' in the example (p. 81). Use bold letters (or any other code) to identify the stakeholders who are participating directly in the analysis.

Step 7 Discuss the **history of collaboration or conflict** among particular stakeholders and use a visual code (such as lines and colors in the example) to identify these social relations and their relative strength. Include all relevant ties, even if they are unrelated to the situation or proposed action identified in Step 1. Note that stakeholders may collaborate in some areas and be in conflict in other areas.

Step 8 Discuss the resulting **stakeholder structure** showing the distribution of power, interests, legitimacy and social relations involved in the situation or proposed action. Pay particular attention to conflicts of interests, differences in power and perceptions of low legitimacy. Assess how existing ties of **collaboration or conflict** make the situation easier or more difficult to manage.

Step 9 Identify the **actions** and the **steps** that stakeholders can take to achieve their goals while dealing strategically with existing stakeholder tensions. Consider ways to modify existing social relations of power, interests and legitimacy that can produce greater fairness and more effective responses to the situation or proposed action identified in Step 1. Develop **strategies** to manage conflict, make use of neutral parties or draw on existing or potential alliances among stakeholders. If the exercise concerns a proposed action, decide whether the proposal should be modified to better reflect existing or possible stakeholder scenarios (See *Tips* below, p. 82.)



	OPPOSITION, NET LOSSES			SUPPORT, NET GAINS	
	--	-	0	+	++
Dominant 	Local authorities		x	State oil company	
Powerful 	Ranchers		x	Federal State	
Influential 	Merchants				
Dormant 	x	x		x	x
Respected 	x	x		x	x
Vulnerable 	x	x	NGO	x	x
Marginal 	Small farmers		x		
	Landless women		x		Local workers

Summary: The federal government wants to privatize the communal lands. New landowners would then be allowed to sell their land to a state-owned oil industry that needs land and labor. Local workers that do not own land could be hired if communal lands were sold to the State. But the local ranchers, some of whom are also merchants holding key positions in local politics, would lose a lot. So would the small farmers and landless women. The regional non-governmental organization (NGO) facilitating this analysis is defending the interests of the small farmers by fighting the proposal. But they are aware that ties between themselves and the local authorities and ranchers and also between small farmers and ranchers are not particularly good. New alliances are needed to negotiate changes in the federal government's plans.

TIPS

- If **power differences** are an issue, find ways to increase the resources available to vulnerable or marginalized stakeholders (or measures to empower them); involve these stakeholders in decisions regarding proposed actions; strengthen organizations and alliances between powerful and weaker organizations; create opportunities for shared leadership and broader participation.
- If **conflicting interests** is an issue, find ways to modify the situation or proposed action to reduce losses; develop a common vision of shared goals and explore underlying interests; share a detailed analysis of the costs and benefits of the situation or proposed action; create new incentives or mechanisms for the redistribution of gain.
- If low **legitimacy** is an issue, find ways to use the legal system to demonstrate rights and responsibilities; uphold the importance of local norms; inform people about their rights and responsibilities; increase public awareness; organize demonstrations of stakeholder resolve.
- All key stakeholders may benefit from a situation or proposed action (thereby appearing on the right side of the table) but have a **history of poor or limited collaboration** or open conflict. If this is the case, discuss actions and steps to develop or strengthen coalitions or reduce conflict by seeking third party mediation or building trust. For a more detailed analysis of trust, use *Network Dynamics* (p. 150).
- Some of the stakeholders identified in Step 1 will not appear in the table if they have no/low interests at stake and little power or legitimacy in relation to the situation or proposed action. In these cases, leave these **non-stakeholders** out of the analysis or find ways to engage them.
- *Social Analysis CLIP* and the **software CLIP** (www.participatoryactionresearch.net) can incorporate two other factors: the actual positions and the values that stakeholders express in real situations and that may or may not coincide with their individual or group interests (see *Position and Interests* as well as *Values, Interests, Positions*, pp. 89–92).



	H ⁻⁻	L ⁻	None	L ⁺	H ⁺⁺
P/L					DONOR
P/L					ADS
P/L	AGENTS PRESENT OWNERS			REVENUE DEPT.	
P					
L				GRAN-PANCHAYAT	
L					
L				EARLIER OWNERS	KATEARI FAMILIES

Purpose To understand and evaluate the sources and levels of power that stakeholders hold in a certain situation.

Step 1 Define the situation and discuss the **sources of power that people can use** in the situation. Ask for examples of power relevant to the situation, and discuss the definitions of sources of power, below (p. 84). Clarify the ideas and modify them using the stakeholder’s social categories and terms, if necessary.

Step 2 Create a table. In the top row, insert the sources of power. In the first column, list all the stakeholders involved in the situation identified in Step 1. Indicate in the list those who are doing the analysis. Consider when to **combine** groups into a single stakeholder category and when to **separate** broad categories into smaller groups (broad categories of stakeholders such as a geographic community or large organization may mask significant differences within the group). Decide whether to include the **community of all stakeholders** as a group with its own profile. The **representatives** of a group may be also defined as a stakeholder distinct from those they represent.

Step 3 Rate the **level of power** that each stakeholder has for each source of power using a scale of 0 to 5. Record the scores in the corresponding cells. Add an **explanation** for each score to the table or on a flip chart.

Stakeholders	Wealth (max. 9)	Authority (max. 5)	Force (max. 3)	Information and communication (max. 7)	Sum (max. 24)	Rank

SOURCES OF POWER

ECONOMIC WEALTH includes access to or use of natural resources, the possession of material goods, property in kind, equipment, income and savings, financial capital, etc.

POLITICAL AUTHORITY is an office, position or role that is recognized by an institution or by local customs and that gives someone the ability to reach decisions and pass or implement rules and regulations.

The ability to use **FORCE** or **THREATS OF FORCE** is the power to exercise physical strength or threaten to inflict bodily harm on others.

Access to **INFORMATION** and the **MEANS TO COMMUNICATE** involves access to and control over facts, documents, knowledge, skills (technical expertise, experience) and the media (such as radio, television, the Internet, newspapers, publications, public demonstrations, etc.) to make one’s knowledge or views known to others.

SOCIAL TIES (group memberships, alliances, histories of collaboration) and **LEGITIMACY** (recognized rights and obligations and the resolve to exercise them) are other sources of power. Use *Social Analysis CLIP* or *Legitimacy* to assess these, if necessary.

- Step 4** **Total the scores** for each stakeholder in a summary column. Use the total scores to identify the stakeholders that have relatively high levels of power, those that have middle levels of power and those have little or no power. Record this summary conclusion in the final column.
- Step 5** Review the result and discuss how the **distribution of power** may affect the stakeholders' ability to influence the situation identified in Step 1. If tables are done separately by different individuals or stakeholder groups, compare the results and negotiate a common understanding of the actual and the ideal distribution of power in the situation.

ADAPT

To obtain stakeholder profiles that reflect the relative **weight** of each source of power, create a table and insert the sources of power in Column 1. Then set a maximum possible score allowed for each source of power. This maximum possible score provides a weight to the different sources of power in the situation (see *Weighting*, p. 51). For more precision, discuss what each level of power means for each source and write (or draw) these descriptions in the corresponding cells. Post the table as a reference for the discussion to follow.

Then create a new table and insert the sources of power and the highest possible score for each source (9 in the example table on p. 83) in the top row. Rate the level of power that each stakeholder has for each source of power and total the scores for each stakeholder in the summary column. Use these total scores to determine the overall level of power held by each stakeholder.

Sources of power	Levels of power				
	Low 1	3	5	7	High 9
Wealth	Description	Description	Description	Description	
Authority	Description	Description			
Force	Description				
Information and communication	Description	Description	Description		

"Full democracy depends on institutions, laws and procedures that support effective representation, public deliberations and rational thinking. This is critical hardware. To work, however, it also requires flexible software processes — skilful means to facilitate authentic dialogue and well-informed reasoning at work, at school, in community life and in the public domain. Unfortunately, democracy is often sold piecemeal, without attention to the integration of hardware institutions and software processes. Governance by the people is chunked and hacked to artificial bits and bytes. The end result is a subtle programming of fraud and tyranny." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 290.

Purpose To evaluate the net gains and losses that may result for different stakeholders or a single stakeholder involved in a situation or proposed action.

Step 1 Define the situation or proposed action and identify the key **stakeholders** involved. Consider whether to include the representatives of a group as a stakeholder apart from the group they represent, or the community of all stakeholders as a group with its own profile (see *Stakeholder Identification* and *Stakeholder Rainbow*, pp. 75–78). The exercise can be done separately by all stakeholders or by a particular stakeholder group, as needed.



Step 2 Make a list of the **major categories of gains and losses** that may result from the situation or proposed action for any of the stakeholders. Include in the list gains or losses of any valued source of power or resource relevant to the situation or proposed action such as economic wealth, political authority, the ability to use force, information, the means to communicate, legitimacy and social ties (see definitions in *Social Analysis CLIP*, p. 80, and *Power*, p. 83). Divide these resources into smaller categories, as needed. For instance, divide economic wealth into monetary returns, food security, levels of consumption, possessions (such as land, equipment), etc. Add other things of value, such as a clean environment or physical security, if they are directly relevant to the situation or proposed action.

Step 3 Create a **table** with the categories of gains and losses in Column 1. In Column 2, write indicators of each category and the **information** needed to evaluate or measure the gain or loss.

Step 4 Set and record in Column 3 the **highest and lowest possible values** allowed for each gain and loss. The highest and lowest values should fall somewhere between +100 for gains and –100 for losses. The range in values shows the relative importance and weight of each category of gain or loss in the situation or proposed action identified in Step 1 (see *Weighting*, p. 51). Gains or losses in social ties may be a lot more important than gains or losses in time, for instance. Different stakeholders may want to establish a different scale from their perspective.

Step 5 Total the **maximum possible gains** allowed when evaluating the situation or proposed action. Then, total the **maximum possible losses**. Indicate the overall scale of maximum gains and losses at the bottom of Column 3.

Step 6 Complete the remaining steps for each stakeholder (using separate tables) or for a single stakeholder. Estimate the **gain or loss for each category** that may result from the situation or proposed action, using the range of values set in Step 4. Then, total the net possible losses or gains. Record the total in the last row.

Interests

Step 7 **Review the results** and discuss the kind and level of gains and losses estimated by the stakeholders involved and the overall impact of the situation or proposed action on their interests. If different individuals or groups calculate their own gains and losses, **compare** the results. Discuss how the distribution of interests may affect the stakeholder’s ability to respond to the situation or proposed action identified in Step 1.

ADAPT To obtain a **risk-adjusted value for gains and losses** for a single stakeholder, estimate **how likely** it is that expectations about gains and losses in each category will be met. This is a measure of risk. Choose a percentage likelihood and record it in Column B. Multiply the net gain or loss (recorded in Column A) by the probability (recorded in Column B) across each row. Record the results in the final column (A x B). To calculate the **net gain or loss** that may result from the situation or proposed action, total the adjusted values in the final column and record it in the last row.

Categories of gains and losses	Graduated indicators	Scale (highest and lowest values)	Net gain or loss A	Probability B	Overall value A x B
Food security		-100 to +100	-40	90%	-36
Monetary returns		-80 to +80	+50	50%	+25
Social ties		-40 to +40	+30	40%	+12
Time		-20 to +20	-20	80%	-16
Clean environment		-20 to +20	+30	80%	+8
Overall		-260 to +260			-7

“An alternative to rights or power contests is interest-based negotiation. The focus is on discussing underlying goals, assessing key gains and losses to each party, and negotiating a win-win solution to the dispute. This kind of rational bargaining is effective in some situations, i.e. when the right conditions exist. It works when interests can be effectively reconciled, by ‘enlarging the pie’, for instance, and also when basic needs or core values do not have to be traded or deeply compromised. Addressing individual or group interests without first attending to the non-negotiables of life – without clearly saying ‘no’ when ‘no’ is clearly called for – is a solution looking for trouble. It is also profoundly objectionable. Food to the needy comes before money to the greedy.” Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 306.

Purpose To gain a better understanding of stakeholder legitimacy using the three 'R' factors, i.e. rights, responsibilities and resolve. Use this technique to investigate how the 'R' factors are distributed, and how this affects the ability of key stakeholders to handle a situation or proposed action.

Step 1 Define the situation or proposed action and list all the **stakeholders** involved (see *Stakeholder Identification* and *Stakeholder Rainbow*, pp. 75-78). Indicate those who are doing the analysis in the list. Consider whether to include representatives of a group as a stakeholder different from those they represent and the community of all stakeholders as a group with its own profile.

Step 2 Discuss examples of the rights and the responsibilities of stakeholders in relation to the situation or proposed action identified in Step 1, and how important these are. Also discuss examples showing their resolve in exercising these rights and responsibilities. Use other terms to discuss these ideas, if necessary.

Step 3 Draw a **Venn diagram** where the circles represent the three 'Rs'. Identify the stakeholders who have high levels of rights, responsibilities and resolve. Locate these 'leaders' in the middle of the diagram. Locate the other stakeholders in the diagram according to their levels of rights, responsibilities and resolve.

Step 4 Review the results Venn diagram and discuss how the **distribution** of rights, responsibilities and resolve may affect the stakeholders' ability to handle the situation or proposed action identified in Step 1. If different individuals or stakeholder groups do their own legitimacy analysis, **compare** the results.



Legitimacy

ADAPT

Create a table with the list of stakeholders in Column 1. Set a range of values for each 'R' factor showing its relative weight, as seen by the participants (such as 1 to 9 for rights, 1 to 6 for responsibilities, and 1 to 4 for resolve; see *Weighting*, p. 51).

Record each stakeholder's **rights** related to the situation or proposed action in Column 2 using key words. Rate the importance of each right using the appropriate scale. Calculate the average importance of the rights of each stakeholder. This is **Score A**. If a stakeholder's rights are in dispute, assign a middle range value and note the dispute. Evaluate and rate the stakeholder's **resolve to exercise their rights** using the appropriate scale, and record the rating in Column 3. This is **Score B**. Multiply Score A by Score B for each row to arrive at an overall assessment of the stakeholder's rights and resolve, and record the results in Column 4.

Stakeholders	Rights			Responsibilities			Total legitimacy score
	Details (Score A)	Resolve (Score B)	(A x B)	Details (Score C)	Resolve (Score D)	(C x D)	

Record each stakeholder's **responsibilities** related to the problem or action in Column 5 using key words. Rate the importance of each responsibility using the appropriate scale. Calculate the average importance of the responsibilities of each stakeholder. This is **Score C**. If a stakeholder's responsibilities are in dispute, assign a middle range value and note the dispute. Evaluate the stakeholder's **resolve to exercise their responsibilities** using the appropriate scale, and record the rating in Column 6. This is **Score D**. Multiply Score C by Score D for each row to arrive at an overall assessment of the stakeholder's responsibilities and resolve, and record the results in Column 7.



To obtain the **total legitimacy score** for each stakeholder, multiply Columns 4 (A x B) and 7 (C x D). Record the result in Column 8.

Positions and Interests

Purpose To compare the positions that stakeholders take on a situation or proposed action with their underlying interests.

Step 1 Define the context and describe the **situation or proposed action** where stakeholder views and interests may differ significantly. Decide which stakeholders will be included and who will engage in the exercise and the steps that follow (see *Stakeholder Identification*, p. 75 and *Social Analysis CLIP*, p. 79).

Step 2 Discuss and rate how strongly stakeholders feel about the situation or proposed action described in Step 1. Use values ranging from -10 (strongly opposed) to +10 (strongly in favor). This is **Score P** (for position). It is an estimate of each stakeholder's **support** for the situation or proposed action. For more precision, use **indicators** to define the meaning of each number on the scale.

Step 3 For each stakeholder ask what would the stakeholder gain if its position were adopted. Make a list of the **gains**, discuss how important the gains are and which ones are the most important.

Step 4 For each stakeholder ask what would the stakeholder lose if its position were adopted. Make a list of these **losses**. Discuss how important the losses are and which ones are the most important.



Step 5 Calculate the **net gains** (or net losses if the position is defeatist or altruistic) the stakeholder would realize if its position were adopted. Use values from -10 (high loss) to +10 (high gain). This is **Score I** (for interests). For more precision, use **indicators** to define the meaning of each number on the scale.

Stakeholders	-10 I : High net loss P : Strong opposition	0 Neutral	+10 I : High net gain P : Strong support
Ranchers	I ←————— P		
Small farmers	P ●————→ I		
Women's association	P ●————→ I		

Make sure not to confuse the idea of 'acting in one's *interest*' with 'taking an *interest* in something.' Also, clarify the difference between *interests* and **basic needs**.

Step 6 Create the **table** shown in the example and insert the names of the stakeholders in Column 1. In each row, insert the letters P and I in the cells that reflect the stakeholder's scores for position and interests. If relevant, use the results of *Social Analysis CLIP* to order the stakeholders in Column 1 by rank based on the factors of power, interests and legitimacy. Alternatively, insert the results of *Position and Interests* in the *Social Analysis CLIP* table (see example on p. 90).

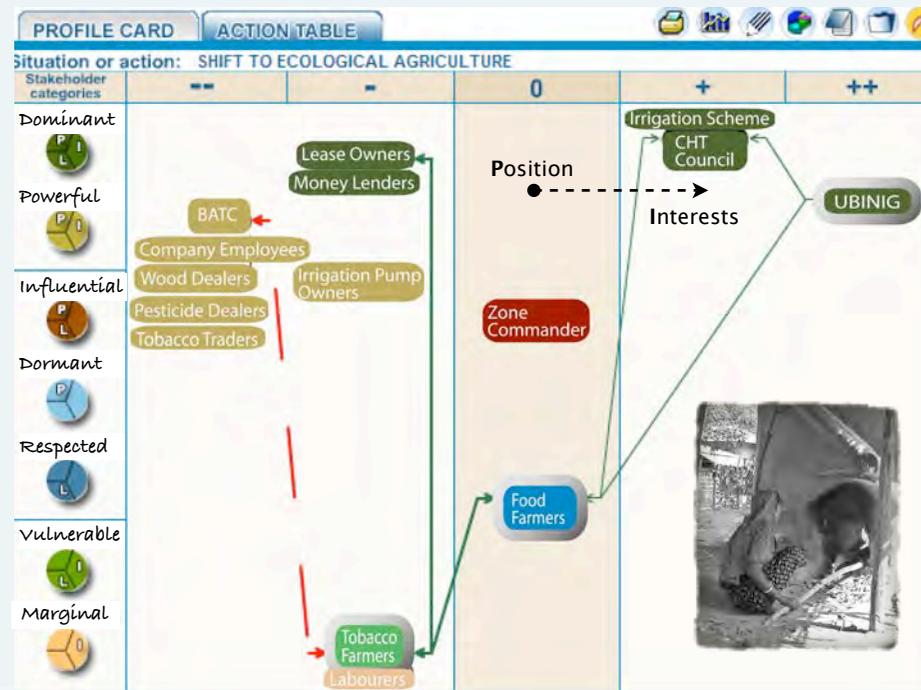
Positions and Interests

Step 7 Compare stakeholder net gains or losses (score **I**) with the stakeholder's level of support for the current situation or proposed action (score **P**). Assess the **degree and the direction of change** that could occur for each stakeholder if discussions and negotiations were based on interests rather than positions.

Step 8 Explore modifications to the situation or proposed action that could satisfy the interests of all parties concerned.

TIPS

- When using a 'why' question to identify stakeholder interests (such as 'Why do we take this position?'), keep in mind that stakeholders may adopt positions that do not reflect their own interests as they define them. People may give answers that focus on their values and **principles** or on **external factors**, not on their interests. If the answer is based on statements of rights or principles (such as 'We live here and this is our forest'), ask what are the **interests at stake** when rights or principles are being expressed. Continue asking this type of question until the underlying interests are made clear (such as 'We need firewood for cooking'). Ask in different ways, such as 'What are the benefits for us?', 'What would we gain if we did it our way?', or 'How would we be affected if it did not go our way?'
- Facilitators should not express positive or negative comments or **judgments** when discussing stakeholder positions and interests.



Summary: UBINIG supports farmers in southern Bangladesh who want to shift out of tobacco farming, into ecological farming. A large block of 'dominant' and 'forceful' stakeholders stand to lose if this initiative proves to be successful. Living in conditions of poverty and marginality, tobacco farmers and labourers are not convinced that their interest is served by this shift either, at least not in the short run. UBINIG plans to undertake action-research demonstrating the long-term benefits of ecological farming. It needs support from the CHT Council and the Irrigation Scheme authorities, stakeholders who are currently assuming a neutral position on this issue, despite the political gains they could achieve if they were involved.

Values, Interests, Positions (VIP)

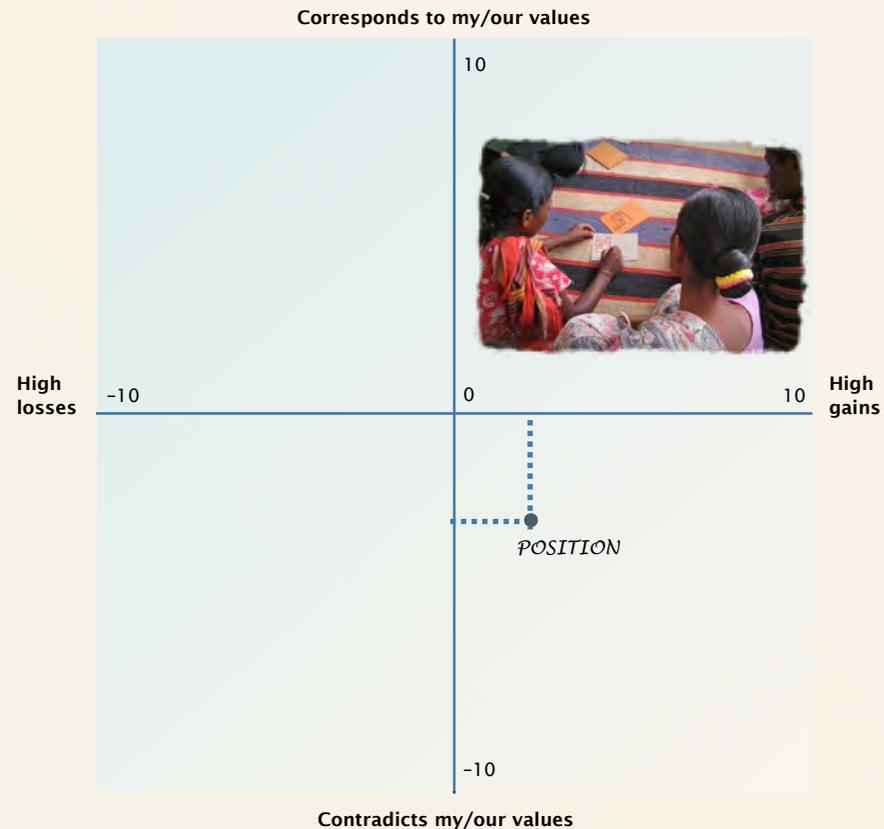
Purpose To compare the positions that stakeholders take on a situation or action (existing or proposed) with their actual interests and the moral values they hold.

Step 1 Define the situation or action where stakeholder positions must be discussed. This may be an action that stakeholders are taking and do not feel entirely satisfied with (for reasons yet to be identified). Determine whether participants should express their positions individually or as subgroups, and whether it should be done **openly** or **anonymously**.

Step 2 Create a diagram by drawing a vertical line that crosses a horizontal line of equal length. Write 0 where the lines intersect, and +10 and -10 at opposite ends of each line.

Step 3 Ask each individual or subgroup to **plot** on the vertical line the extent to which the situation or action **corresponds to the values they hold**. Use +10 to represent a situation or action that matches their values perfectly, and -10 to represent one that fundamentally contradicts their values.

Step 4 Ask each individual or subgroup to **plot** on the horizontal line the extent to which the situation or action supports their interests (financial, professional, political, etc.). These are the **net gains or losses**, expected or observed, that result from the situation or action. Use +10 to represent an action or project that brings high net gains, and -10 to represent high net losses.



Values, Interests, Positions (VIP)

Step 5 Mark where the values from the two lines meet. This represents the **position** of each individual or subgroup.

Step 6 Discuss the results and explore how to **improve** or **modify** the situation or action so that it better matches stakeholder values or interests.

ADAPT

- Label the four corners of the diagram with the name of a well-known profession, historical figure or life form (animal, plant, spirit) that best represents the position obtained by the combination of extreme scores in each corner.
- Use the technique to assess **different options**.
- Create a large-scale version of the diagram on the floor using masking tape. Ask each participant to create the same diagram on a card and mark their position using their individual ratings on the two factors (values and interests). Then ask them to exchange their diagram with other participants several times so that it can't be traced. End by inviting all participants to stand in the floor diagram at the location marked on the diagram now in their hands. Discussion of the distribution of positions can maintain **anonymity**, making it easier to discuss sensitive issues openly.



"When compared to interests and principles, basic needs and core values matter more deeply and last longer. They are the foundations and compelling forces of social life, not their day-to-day formulation and regulation. They are what organs and bones are to skin and flesh. Wise planners and conflict mediators take them into account. This is not to say that life should be reduced to its bare bones at all times. Surface interests and principles are also vital. They need to be fleshed out and kept in line with what is deeply felt and matters the most." Chevalier, J. M. and Buckles, D. J. (2013) Participatory Action Research: Theory and Methods for Engaged Inquiry, Routledge UK, p. 306.

Lessons and Values

Purpose To better manage a problem by becoming aware of what moral values people hold and applying the lessons learned from successful actions that are consistent with those values.

Step 1 Identify the **problem** that participants find difficult to resolve. Describe the **response** or **position** that participants have adopted to handle the situation and that they are **not entirely satisfied** with. Record the problem and the response to it on a card using a few key words or a short sentence. Add key details on the back of the card.



Step 2 Identify **why** participants are not satisfied with the response or position identified in Step 1, and record the answer on another card. If the reason is a negative statement, find positive terms to describe the **principle** or **value behind the reason**. Place this value card immediately above the first card.

VALUE 3

Everyone should care about other people's needs.

VALUE 3

We must fulfill our obligations as forest guards.

VALUE 2

We must protect the forest for those who need water.

VALUE 1

It is important that we protect the forest.

LESSON LEARNED

Other problem: locals complain about the park entrance fees.

Response: We explored many options and thought of something new that would benefit everyone — using some of the revenues to improve local roads.

LESSON LEARNED

Other problem: Last month we had to negotiate a new contract with the Forest Department.

Response: We were patient and made some concessions that showed how much we care about the park and its mission. But we also gave them information to justify our position and we made some gains.

RESPONSE

No one should be allowed to extract wood for any reason, and those who do will go to prison.

INITIAL PROBLEM

Locals are cutting trees in the park.

Imagine if we did the same...

Lessons and Values

- Step 3** Discuss why the value identified in Step 2 is important. Ask in a different way, such as ‘Why does this matter?’ or ‘What will happen if we all apply this value?’ Record the **new principle or value** on its own card and place it above the other cards.
- Step 4** Repeat this process until a **core value** is reached, and place it at the top. If there are two core values that are relevant to the problem, place both of them at the top.
- Step 5** Identify at least **one situation where the core value was applied with confidence and positive results**. Describe what was done in that situation. If the description is vague, use the *Laddering Down* technique (p. 35) to make it more meaningful and detailed. Ask ‘Can we give an example of this?’, or ‘How can we tell this response was respectful?’, for instance.
- Step 6** Go back to the situation identified in Step 1 and **imagine** a response or position using lessons learned about how core values can guide actions toward positive results.

TIPS

- If a value sounds too concrete or like a **cliché**, use the *Laddering Up* technique (p. 35) to make it more meaningful. Ask ‘Why do we think this (name the value) is so important?’, ‘Why is this (name the value) essential in life?’, or ‘What happens when people have this (name the value)?’ These questions may help identify a higher value that expresses the participants’ fundamental beliefs. Participants will recognize values that are higher up the ladder when they express things that are deeply felt and are central to the image they have of themselves. Participants often view these values as self-evident, essential in life and applicable to everyone.
- When using a ‘**why**’ question to identify values (such as ‘Why do we take this position?’), people may give answers that explain what causes something to exist or what their interests are. Respond with the why question again, formulated in a different way, until values are identified.
- Facilitators that are not also stakeholders in the situation should not make comments or express **judgments** about stakeholder values.



Assessing Options



Handbook for Participatory Action Research, Planning and Evaluation, Module 5,
Chevalier, Jacques M. and Buckles, Daniel J., SAS2 Dialogue, Ottawa, 2013.

A VISION OF CREE TOURISM IN NORTHERN QUEBEC

“Quebec’s ACCORD programme (Concerted Cooperative Action for Regional Development) fosters economic development in the province by supporting ‘Niches of Excellence’ that are competitive in the North American context and globally as well. In October of 2010, the Ministère du Tourisme and the Ministère du Développement économique, de l’Innovation et de l’Exportation convened the first meeting of the committee responsible for consulting and engaging key players, businesses and leaders in developing a common vision of their niche and its brand image in the northern Quebec region of James Bay and Eeyou Istchee (Cree for ‘The People’s Land’). Sixteen Cree and non-native representatives from the region attended the meeting, which took place in the Cree community of Ouje-Bougoumou. In response to a request from the Ministry, J. Chevalier designed the meeting, in direct consultation with committee members, and facilitated the event.

The first day began with a brief presentation of the ACCORD programme and a brainstorming session on criteria to assess plans to develop a thriving tourism industry in the North. In the afternoon, participants prioritized criteria to be applied to the assessment of a formal statement and branding of their Niche of Excellence. On the whole, the committee felt that the Niche should be unique to the region, reach an international market and build on existing natural assets, infrastructure and human resources. It should be viable and sustainable, bring tangible benefits to the partners and communities involved, and remain under their effective control. Also, the overall approach used to develop the Niche should be participatory and be guided by principles of mutual trust, respect and effective teamwork.

The second day posed a greater challenge: agreeing on the precise wording of a shared vision of tourism in the North, a formal statement that would satisfy the above criteria and receive full committee endorsement and substantial financial backing from the government of Quebec. Several attempts at creating a regional committee around a vision that both natives and non-natives would endorse had previously failed. The facilitator proposed a twofold method to unblock the situation: *The Carrousel* [p. 98] coupled with *The Socratic Wheel* [p. 47] (presented, with permissions, in the shape of a Dreamcatcher, an aboriginal symbol of unity). Participants formed three mixed groups (natives and non-natives) and used *The Carrousel* process to iron out differences in language and views regarding tourism in their region, towards a vision statement that everyone would be willing to endorse. In each round of discussion, participants were also asked to evaluate their own proposal and those of others against the criteria established on the previous day, now drawn as spokes in a Dreamcatcher diagram. At the end of the process, a brief plenary session allowed the committee to convert three negotiated statements into a final wording. This was done by underlining the key words and phrases that met with general approval, and using them to produce two complementary formulations: a message addressed to the general public, and a vision statement for ACCORD. The message invited the broader public to ‘*Discover the great open spaces of James Bay and Eeyou Istchee by travelling heritage routes through time. Learn and experience our living history and the Cree traditional land use and way of life.*’ The wording for ACCORD was slightly different and evoked an agreement to ‘*Position James Bay and Eeyou Istchee as a vast northern territory of rare natural beauty, rich in biodiversity, with a vibrant Cree culture to be discovered.*’ While they may seem noncontroversial, the two statements highlight the importance of Cree culture in a region inhabited by natives and non-natives, an issue that was debated and created some tension during the session. Both statements nonetheless received full support from all committee members, much to government officials’ surprise.” Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, pp. 314–315.

Ideal Scenario

Purpose To imagine an ideal scenario that recognizes and takes inspiration from past accomplishments and current strengths, using one or more of the following tools.

THE IDEAL SCENARIO TAPESTRY

Define a focus for a vision and invite participants to list the elements of an ideal scenario (see *Free List and Pile Sort*, p. 39). Collectively, create a tapestry made up of drawings of these elements on individual sheets of paper or a single drawing on a large sheet of kraft paper. If possible, use good quality art paper and pastels, intense color pencils or color ink so people can enjoy the drawing process. Participants may use real or imaginary life forms or scenes (such as animals, plants, landscapes, activities) to reflect their vision. Ask participants to explain their drawings to others and combine them into an ideal scenario tapestry.

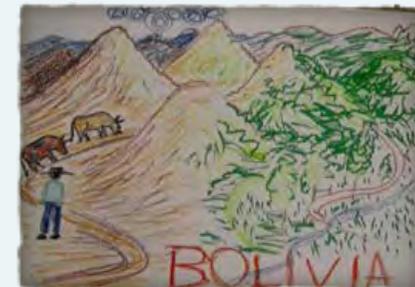


TRUE OR FALSE

Define a general topic and invite participants to think of a true story about a great thing they have accomplished, and a false story about something they would like to accomplish in relation to the topic and that builds on their existing strengths. Share the stories in pairs or small groups. The false story must be told convincingly while others try to guess which they think is the true story, and which is the false one.

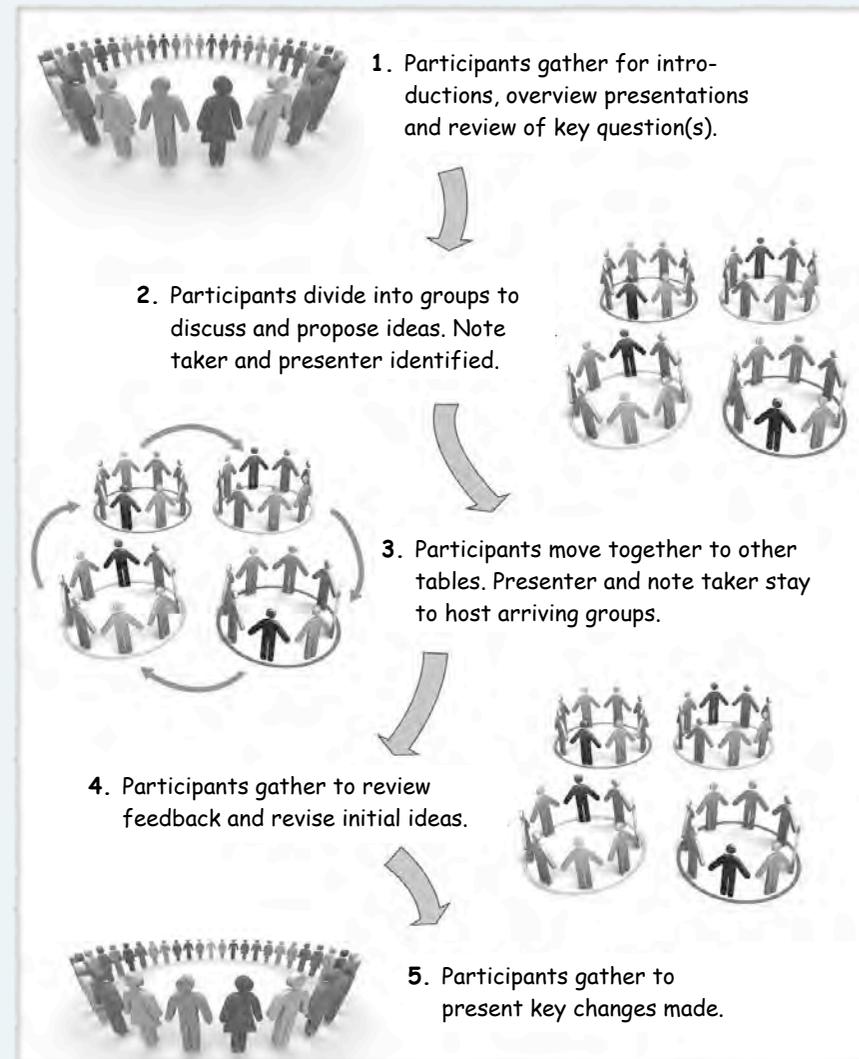
THE VISION CIRCLE

Define a specific focus for the vision, and invite participants to sit in a circle. Begin by asking participants to quietly think about an ideal situation relevant to the focus, including the gains that might result, the individual and group strengths and accomplishments that would be part of it, and the factors that would make it work. Then invite participants to close their eyes and offer one or two details of their vision, starting with the words 'I have a dream'. Others can join in whenever they are ready, without stopping to object or evaluate their own ideas or those of others. People can include the statements already heard and add new elements to the vision until the activity slows down naturally. The facilitator may ask questions about what the ideal situation looks like and ask if anyone has anything else they would like to add before the activity ends. Conclude with a brief discussion of what is exciting about the vision of the future, what feels possible and what was surprising in the visions shared.



THE CARROUSEL

Define a focus for this exercise and divide participants into groups of 5 to 8 people for rounds of small-group discussion. Decide whether each group will work on the same vision or mission statement or proposed action plan, or focus on a different aspect. Ask each group to prepare an outline of key aspects of their statement or plan, and elect a spokesperson for the group and a skilled note taker. Provide a common time frame for development of the outline. When ready, everyone from the group except the spokesperson and the note taker from each group visits another group to hear a presentation, provide comments and borrow ideas to advance their own thinking. Spokespeople and note takers stay at their original table to receive visiting groups and to both present and take note of comments. Other rounds of visits to some or all other groups can follow, time permitting. Another option is for presenters and note takers to visit each group. Once the visits are completed, invite each group to reconvene and improve its initial outline based on the recorded comments and ideas received from other groups. The exercise ends with a plenary session where all groups present their revised vision, mission statements or action plan, with an emphasis on the new elements accepted from other groups. Like the World Café, this process allows for effective sharing and rounds of improvements to ideas, and a shorter plenary.



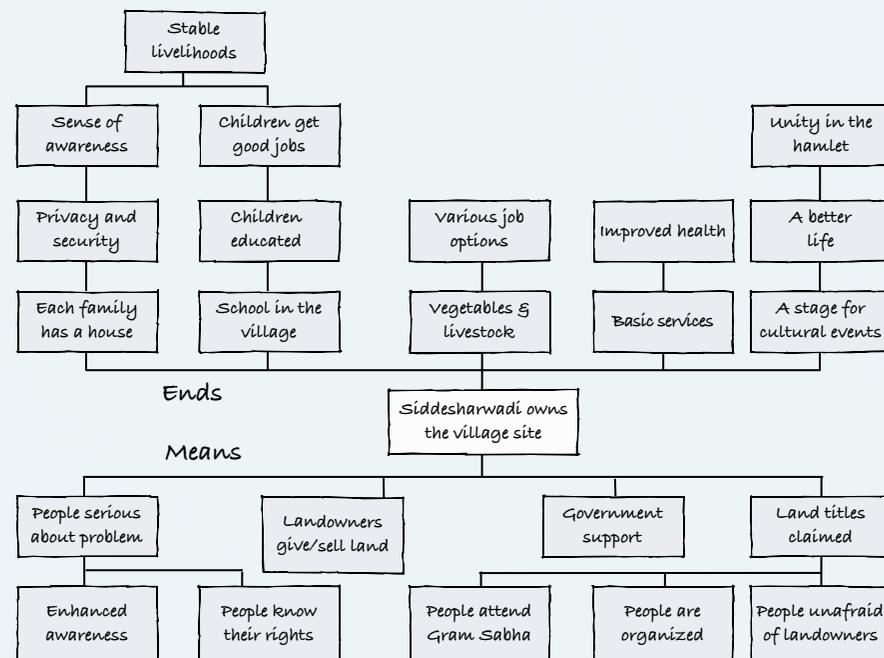
Ideal Scenario

THE TREE OF MEANS AND ENDS

Define a situation and draw a **tree trunk** that stands for a core goal shared by the group. Begin by asking participants 'What might happen if we achieve this goal?' and inviting them to write each response on a card using key words or a short positive sentence. Use *Free List and Pile Sort* (p. 39) to consolidate the cards into piles, and place them above the tree trunk as though they were **branches and fruit**. If the piles are directly related to each other, show this by placing them above or below each other, arranging them as **main and secondary ramifications**. Use the same process to identify the means or ways to achieve the goal, starting with the question 'What do we need to do or obtain to achieve our main goal?' Include all necessary means but leave out any that people think will have undesirable effects. Place these below the tree trunk and arrange them as **main and secondary roots** to show their interrelationship.

The Tree of Means and Ends is a mirror-image of the *Problem Tree* (p. 65), which centers on a core problem (the trunk) and its first-level and second-level causes (roots) and effects (branches). If the group has already done a problem tree, they can reframe the core problem into a positive statement as though it had already been achieved, and convert the causes and effects into means and ends.

(See other example, p. 66.)



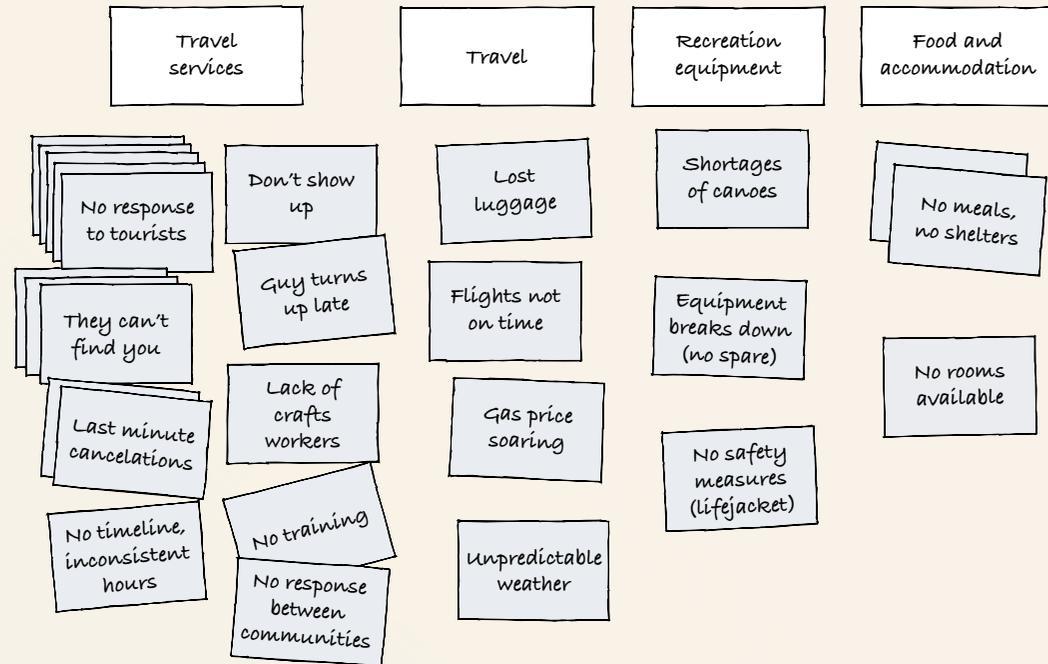
Sabotage

Purpose To identify and overcome habits, established patterns, doubts, fears and other barriers to success, with a touch of humor.

Step 1 Define a plan, activity or project and ask participants to think of one or two things they or others could do to make sure it will fail completely. Record each **sabotage idea** on a separate card. Encourage creative responses and remind everyone that they are not committed to any of the sabotage ideas stated!

Step 2 Share the sabotage ideas. Use *Free List* and *Pile Sort* to organize them into categories.

Step 3 Review the results and transform the sabotage ideas into positive statements, strategies or factors of success.



ADAPT

Distinguish sabotage ideas that are certain to block or destroy all possibility of success, from those that are simply irritants or disruptions that are likely to undermine enthusiasm, efficiency or enjoyment of the plan, activity or project.

COMBINE

The Improvisational Theatre game *But versus And* can be a follow-up to *Sabotage* if one of the behaviours consists in being too critical or to censor oneself or others prematurely. To start, identify a proposed task or action related to the issues under discussion. Ask participants to comment negatively on the proposed plan or task, starting each sentence with 'Yes, but...' After a few minutes of critical feedback, ask the group(s) to comment on the same task or action starting each sentence with 'Yes, and...' Review and contrast the two rounds of discussion and how people feel about the plans emerging from each round. The exercise can incorporate other *Active Listening* tips as well (pp. 35-38).



Disagreements and Misunderstandings

Purpose To rank stakeholders' goals in order of importance, and review disagreements or misunderstandings people may have about these goals.

Step 1 Define the **situation** and ask participants to list the key **goals** and competing priorities they have using positive terms. Goals may be objectives, activities or the moral values that people hold. Define these goals clearly, using key words or a picture to describe the goal.

Competing project priorities of men and women in Mehi, West Bengal, India

Options	Ranking by men	Ranking by women	Dis-agreement	Ranking by women for men	Women's mis-understanding	Ranking by men for women	Men's mis-understanding
Mixed cropping	2	3	1	3	1	5	2
Fisheries	1	4	3	2	1	2	2
Grain bank	4	2	2	4	0	3	1
Road construction	6	6	0	1	5	6	0
Children's nursery	3	1	2	5	2	4	3
Kitchen garden	5	5	0	6	1	1	4
All activities			8/18		10/18		12/18

Step 2 Divide the participants into **two groups** based on some significant difference relevant to the situation (such as men and women, management and workers, community members and government officials, high and low income, etc.). Ask each group to gather separately (perhaps in different rooms), write each goal on its own card, and then **rank** the goals in order of importance from first to last (see *Ranking*, p. 41). The most important goal should be numbered 1, with each score recorded below the goal written on the corresponding card.

Step 3 Once the ranking is complete, ask each group to rank the same goals as they think the other group would have ranked them. This will produce two rankings, one of their own priorities, and another of the **ranking they think the other group will have**. Write the second set of scores on the the back of each corresponding card.

Step 4 Come together as a single group to **compare** rankings of the cards. First look for similarities and differences in **actual priorities**, and discuss the implications. Then look at each group's **understanding** of the priorities of the other group, and discuss the implications. Members of each group may wish to discuss these issues among themselves before sharing their views with the other group, especially if there is a lot at stake.

To show the order of priorities physically, ask members of each group to distribute cards among themselves and to form **two lines** facing each other, with cards in their hands, in the order of the groups' priorities. Discuss the differences, and then ask one line to reorganize itself as they thought the other group would have ranked the goals. Discuss the misunderstandings of this group, and then reorganize again to discuss the misunderstandings of the other group.

Disagreements and Misunderstandings

Step 5 Levels of disagreement combined with levels of misunderstanding produce **six possible scenarios** (see table). Identify the scenario that best reflects the findings of the exercise.

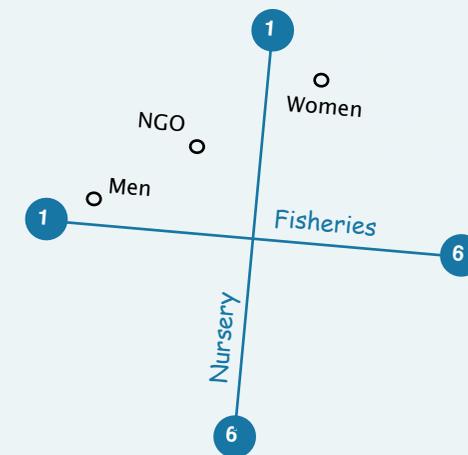
Step 6 This step is optional. To measure **levels of disagreement** and **levels of misunderstanding** between the rankings and priorities of the two groups, create a table, as in the example. To assess levels of disagreement, total the differences between same-goal rankings of the two groups. Then, divide this number by the maximum difference that could have been generated by the two ranked lists. If values range from 1 to 6, then the maximum difference is 6-1, 5-2, 4-3, 3-4, 5-2, and 6-1, for a total difference of 18. Multiply the result by 100; this gives you the percentage level of disagreement. To assess **levels of misunderstanding**, use the same calculations by comparing the actual rankings of each group with the rankings attributed to them by the other group.



SCENARIO	Understanding		Misunderstanding
Agreement	Scenario 1 The parties agree and both know it	Scenario 2 The parties agree but one doesn't know it	Scenario 3 The parties agree but don't know it
	Scenario 4 The parties disagree and both know it	Scenario 5 The parties disagree but one doesn't know it	Scenario 6 The parties disagree but don't know it

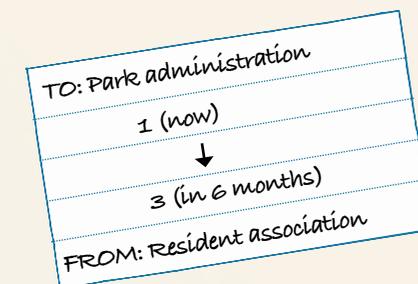
TIPS

- To compare and discuss the rankings of **more than two groups**, identify the **two goals** where people seem to **disagree** the most. Create a diagram by drawing a vertical line that crosses a horizontal line of equal length. Use the vertical line to represent one goal, and the horizontal line to represent the other. Write the lowest and the highest ranking numbers at the opposite ends of each line. Place each group's name into the diagram where the group's rankings on the two goals intersect.



Purpose To assess and negotiate what stakeholders can expect of each other.

- Step 1** List all the **key stakeholders (individuals or groups)** that wish to work together to achieve common goals. Consider whether to include representatives of a group as a stakeholder different from those they represent and the community of all stakeholders as a group with its own profile. Create a flip chart or 'post box' for each stakeholder able to participate in the exercise.
- Step 2** Establish a **rating scale** for levels of interaction among stakeholders, from 0 to 3 or 0 to 5. Alternatively, use simple phrases or measurable objects (high, medium, low or colorful stickers, for instance) instead of numbers to set a scale.
- Step 3** Ask each stakeholder to create one **card** for each other stakeholder. Each card should indicate who it is from and to whom it is addressed (see example).
- Step 4** On each card, rate the **current level of interaction** with the other stakeholder (and the community of all stakeholders) and a desired or **expected level of interaction**. Members within a stakeholder group can also rate the current and expected levels of interaction among themselves. Record the ratings on the corresponding card. Determine the **time** needed to achieve the expected level of interaction.
- Step 5** Write on the back of the card the **reasons** given for the two scores. Also describe **what can be done** to achieve the expected level of interaction. This should include **offering** to do something for the other stakeholder as well as saying what they would like to **receive**.
- Step 6** Make a **copy** of each completed card for later discussions. **Post** each original card on the flip chart or in the 'post box' of the stakeholder the card is addressed to.
- Step 7** Invite each stakeholder to **read the cards** they receive from others and decide which other stakeholder they would like to **meet** immediately to explore mutual expectations and reach agreements.



Step 8 Set a time for a **negotiation fair** during which any stakeholder can meet any other stakeholder to discuss mutual expectations and specific ways to meet them. When two stakeholders reach an agreement, they can put their agreement in writing and sign it, noting things that need more discussion or approvals from others that are still needed.

Step 9 All stakeholders can present their agreements in a **plenary session**, if they so wish. Consider ending the exercise by inviting all stakeholders to stand in a large circle and present their **expectations of the community of all stakeholders**, starting with the phrase 'Imagine if...' and taking one step closer to the center of the circle after each statement. Discuss these expectations and ways to meet them.



ADAPT

- To facilitate the active negotiation of agreements, without detailed assessment of current and expected levels of agreement, focus only on the offerings and requests made by each party. These can be treated as 'letters' sent and received that express concrete ways of creating or strengthening collaboration around specific activities.
- If many stakeholders in a particular context do not need to interact with each other, focus on the level of interaction that exists between **one or two key stakeholders** and all other stakeholders.



- Introduce a touch of **humor** by asking each stakeholder to describe on the back of one card an offer or a request that is greatly exaggerated or completely unexpected, which other groups will try to detect. Each group can also choose a symbol (plant, animal) to represent themselves.
- Encourage parties to **announce** agreements or successful conclusions to a discussion by clapping, congratulating each other, launching a balloon or making some other celebratory gesture.
- Use the *Socratic Wheel* (p. 47) or a Cartesian graph to show the current and expected levels of interaction among stakeholders.



Levels of Support

Purpose To determine whether there is enough support from stakeholders to go on with a proposal or course of action, before any final decision or vote is taken.

Step 1 Identify or describe a proposal or course of action under consideration. Create a descriptive title or drawing, or identify an object that represents the proposal or course of action.

Step 2 Create an **agreement scale** to assess the level of support. The scale should consist of up to **nine statements** and no less than four statements ranging from the most negative to the most positive response to the proposal or course of action. Use phrases and local expressions that are meaningful to the people involved.

Step 3 Discuss whether participants should express their level of support as individuals, as subgroups or as a whole group. Also discuss whether they should express their level of support **openly** or **anonymously**.

Step 4 Ask each participant, subgroup or the whole group to choose the **support level** that best represents their response to the proposal or course of action, and to indicate their response on the agreement scale.

Step 5 Review the distribution of marks on the agreement scale. Discuss whether there is enough support from stakeholders to go on with the proposal or course of action, and concerns reflected in the responses. If the level of support is not as high as the group wants or needs it to be or if key stakeholders reject the proposal, participants may wish to **modify** the proposal or course of action so that it can address concerns and has enough support to succeed.

TIPS When discussing the distribution of marks on the agreement scale, invite participants to **express their concerns** directly, or use **role-play** to anonymously raise concerns people may have. Give special attention to low levels of support that may come from key stakeholders.

Source Adapted from S. Kaner et al. (1996) *Facilitator's Guide to Participatory Decision-Making*. New Society Publishers, Gabriola Island.



What If

Possible futures

Purpose To develop a plan to monitor risk factors and adjust activities accordingly.

Step 1 Define a plan, project or program and make a list of **key factors** that may have a high impact **and** are difficult to predict.

Step 2 Review the list and select the **two factors** that may have the highest impact **and** are very difficult to predict. Use *Ranking* (p. 41), if need be.

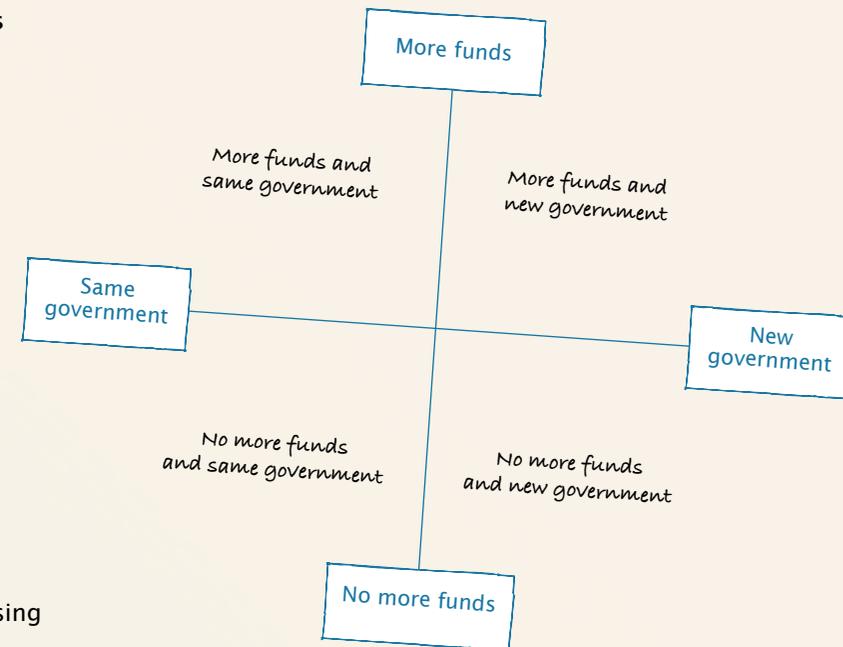
Step 3 Create a diagram by drawing a horizontal line that crosses a vertical line of equal length. On the horizontal line label **two opposite outcomes for one of the factors** (such as 'No more funds' versus 'More funds').

Step 4 On the vertical line, label **two opposite outcomes for the other factor** (such as 'A new government' versus 'The same government').

Step 5 In each corner of the diagram, write (or draw) the **scenario** obtained when the possible outcomes are combined.

Step 6 Discuss the potential **impact** of each scenario and record this using key words or a visual symbol in each corner of the diagram.

Step 7 Review the result and identify what **kind of information** is needed to track the two factors. Decide *when* and *how* the information can be obtained, and *who* will be responsible for doing this. Over time, adjust broader plans in light of the information collected.



"Real-life events call for logic and rigour, to be sure. But they also call for creativity and flexibility, the kind that allows people to move in and out of risky plans in response to new circumstances and information acquired step by step, along the way, through trial and error. Good planning in complex settings includes decisions not to decide and also plans to plan later, when the exercise is useful and possible, if at all. As with medicine, knowledge to address messy problems is a science of uncertainty and an art of probability. This is Aristotle's phronesis, Freire's praxis, or Checkland's soft-system thinking. It is Lyotard's work of 'art emerging in the doing of it'." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 78.

Projections

Purpose To visualize what can be expected if current trends continue and stakeholders' actions do not change them.

Step 1 Define the **situation** and make a list of **the positive and the negative factors** that are part of the situation. Focus on the most important factors.

Step 2 Create a **table** and insert the list of positive and negative factors in Column 1 (see example).

Step 3 In Column 2 indicate the importance or **weight** of each factor, using a scale of 1 (low) to 5 (high). Use plus (+) and minus (-) signs to distinguish the positive and the negative factors.

PROJECTION TABLE

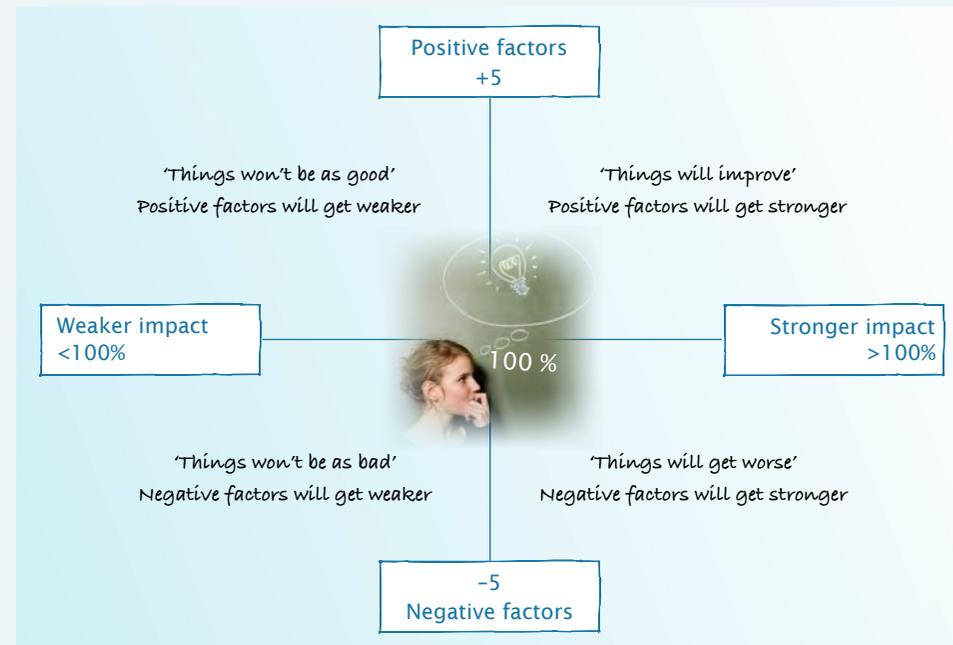
Current situation factors	A Weight -5 to +5	Main cause(s)	B Future impact < 100% (lesser) = 100% (stable) > 100% (greater)	A x B Projection score
Positive factors 1. 2.				
Negative factors 1. 2.				

Step 4 Discuss the main cause(s) responsible for each factor and current trends. Record key words to describe the **main cause(s)** in Column 3.

Step 5 In Column 4 indicate whether each cause is likely to have a **stronger or a weaker impact** over time, assuming no one tries to change the current trends. Use a range of 0 to 100% and above, where 100% indicates an impact that will remain the same over time, a value below 100% a lesser impact, and above 100% a greater impact. Determine the **time** needed for these expected changes. Plan to get more information to estimate future impacts, if needed.

Step 6 Calculate the **Projection Score** for each row by multiplying scores A (Column 2) and B (Column 4). Record the results in Column 5. The more positive the overall projection score is, the more reason there is to be optimistic. The more negative the score is, the more reason there is to be pessimistic. When there are several causes for a factor, calculate the average projection score by totaling all the projection scores for the factor and dividing the total by the number of causes.

Step 7 Create a **diagram** by drawing a vertical line that crosses a horizontal line of equal length. Use the vertical line to represent the maximum positive and negative weights that could be obtained for the factors that are part of the situation (+5 and -5). Use the horizontal line to indicate impact, from the weakest score (0%) to the highest impact over time (>100%). In each corner of the diagram, describe the **scenario** obtained when the two considerations (factors and impacts over time) are combined: i.e. positive factors will get either stronger (top right) or weaker (top left), and negative factors will get either stronger (bottom right) or weaker (bottom left). To facilitate the analysis, find an idea or a symbol to represent each quadrant of the diagram.



Step 8 Using the results from Column A and Column B in the table, **locate** each factor in the diagram; use a dot to mark where the values from the two lines meet and write the factor. **Discuss** how the positive and negative factors are distributed. **Summarize** each situation that results from the negative and the positive factors and the likely future impacts of their causes. Pay special attention to factors that are likely to **change a lot** over time (extreme scores for future impacts).

TIP Different stakeholders may weigh the various factors and the future impacts differently, and give them different meanings. When contrasting views are likely, do the *Projections* separately and then discuss together.

Purpose To plan the shortest route to completion of a project, by distinguishing the tasks that must be completed in a sequence from those that can be done in parallel to other tasks.

Step 1 Define a **plan of action** and list the **activities** that are part of the plan. The activities should be concrete and distinct from each other. Write a few key words for each activity on its own card and describe the activity briefly on the back of the card.

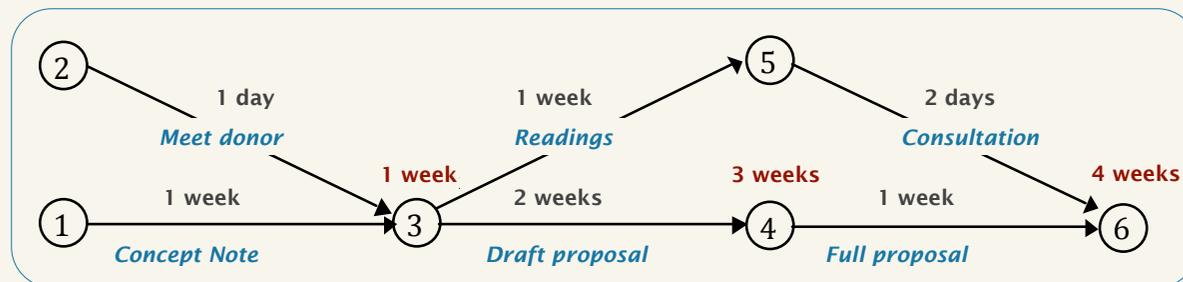
Step 2 For each activity, determine the **earliest date** by which it could start and estimate the **time** it will take. Record the information on the activity card.



Step 3 Identify the activities that must be completed **sequentially**, before other tasks can begin. Distinguish these from tasks that can be done at any time, as **parallel** tasks. Organize all the activity cards in the order that would take the shortest time, taking into account both parallel and sequential activities.

Step 4 Create a **critical path diagram** based on the organized cards using a code for the key information. For example, use numbered **circles** to show the start and finish of each activity. Draw **arrows** (from left to right) between circles to show the activity that needs to be completed before another can start. Write the **time** needed to complete the activity above each arrow. Above each circle track the cumulative **time** it will take to complete the project.

In this diagram, the **critical path** involves three sequential stages that must be completed on time if the proposal is to be done in 4 weeks: the Concept Note (1 to 3), the Draft Proposal (3 to 4), and the Full Proposal (4 to 6).



Step 5 Review the result and **adjust the amount of time** dedicated to different stages of the plan of action. Plans can be completed in shorter periods of time by investing more resources (human or financial) in some stages or reducing the scope of some activities. Postponing activities that are not part of the critical path is another option for managing time-sensitive plans.

Purpose To assess and address existing or perceived hazards using three criteria: their severity, their probability and people’s current capacity to respond to them.

Step 1 Define the **situation** and make a list of **the hazards** that are part of the situation (using *Free List and Pile Sort*, p. 39). Write each hazard on its own card. Organize these hazards into phases, if useful. For instance, in a disaster cycle, the phases are prevention, preparedness, emergency response and recovery.

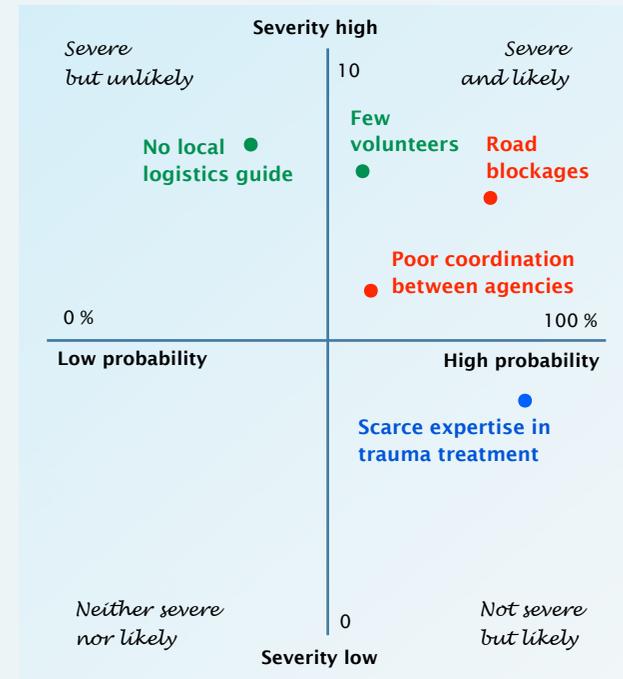
Step 2 Assess each hazard using three criteria: its **severity**, its **probability** and people’s **capacity** to respond to it. Use a scale of 0 to 10 to represent the severity or magnitude of the harm potentially caused by the hazard. Represent the probability that the harm will occur on a scale from 0 % to 100 %. Rate peoples’ current capacity to respond to the hazard on a scale of low (L), moderate (M) and high (H).

Step 3 Create a **diagram** by drawing a vertical line that crosses a horizontal line of equal length. Use the vertical line to represent the severity or magnitude and the horizontal line to represent probability. In each corner of the diagram, describe the **scenario** obtained when the two considerations (severity and probability) are combined.

Step 4 **Locate** each hazard in the diagram; use a dot to mark where the values from the two lines meet. Adjust the color of each dot to indicate people’s current **capacity** to respond to the hazard — red for low (L), blue for moderate (M), and green for high (H) current capacity to respond), for example.

Step 5 **Discuss** how hazards are distributed. Pay special attention to hazards that are more severe and more likely to occur and those where the current capacity to respond can be greatly improved.

ADAPT Some people may be more **vulnerable** to some or all hazards compared to others. Views and responses to hazards will vary accordingly. If this is the case, invite each group (men and women, for instance) to do their own *Hazards* assessment separately and then discuss the results together. For an illustration of different perceptions of vulnerability, see our application of *Hazards* to accident prevention in the construction industry in Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, chapter 10.



Results and Risks

Purpose To evaluate different courses of action based on the negative and the positive results expected, the value given to specific results, and the probability that these results will occur. This is a group adaptation of a tool negotiators and conflict mediators use to determine the Best Alternative To a Negotiated Agreement (BATNA).

Step 1 Define a **situation** and make a list of the **actions** being considered. The actions should be concrete, distinct in some way and relevant to the situation.

Step 2 Create a **table**. List the actions in Column 1. A choice between two actions (such as 'do' or 'do not do') is the minimum you need.

Step 3 Discuss the **negative result(s)** that may be associated with each action. Using key words, record these results in Column 2.

Step 4 Give a value to each negative result, from -1 to -10; the -10 score (or 10 objects such as black pebbles) indicates the **worst** that could happen. This is **Score A**. Then, estimate how likely it is that each negative result will happen (the probability in percentage), based on current knowledge of the situation. This percentage is **Score B**. To be more precise, identify **indicators** that define the meaning of numbers and percentages on each scale. Record Score A and Score B for each action in Column 3.

Step 5 Multiply Score A by Score B (if using pebbles for Score A, reduce the number to a proportion equal to the probability percentage). This gives the **total score** for each negative result. Record the scores in Column 4.

Step 6 Discuss the **positive result(s)** that may be associated with each action. Using key words, record these results in Column 5.

Step 7 Give a value to each positive result, from 0 to 10; the +10 score (or objects such as 10 white pebbles) indicates the **best** that could happen. This is **Score C**. Estimate how likely it is that each positive result will happen (the probability in percentage), based on current knowledge of the situation. This percentage is **Score D**. To be more precise, identify **indicators** that define the meaning of numbers and percentages on each scale. Record Score C and Score D for each action in Column 6.

Step 8 Multiply Score C by Score D in each row (if using pebbles for Score C, reduce the number to a proportion equal to the probability percentage). This gives the **total score** for each positive result. Record the scores in Column 7.

Step 9 In Column 8 **total** the scores recorded in Columns 4 and 7. Review the result and decide which course of action is best. The higher the total number is, the more reason there is to take that course of action.



Results and Risks

RESULT AND RISK ASSESSMENT TABLE

Courses of action	NEGATIVE POSSIBILITIES			POSITIVE POSSIBILITIES			Total score
	Negative result	A. Value B. % probability	Negative score A x B	Positive result	C. Value D. % probability	Positive score C x D	
Ignore letter	Tree harmed and dies. Neighbors are enemies.	-10 40%	-4.0	Harmed tree survives.	10 30%	3.0	-1.0
Go to court	Fruit lost and costly battle. Neighbors are enemies.	-8 70%	-5.6	Win battle.	8 50%	4.6	-1.6
Sign agreement	Lose fruit.	-8 100%	-8.0	Neighbors are friends.	10 90%	9.0	+ 1.0



Summary: Your family receives a letter from the neighbor. In the letter the neighbor demands the right to have 50 percent of all the mangoes falling from the tree that your grandmother planted on the edge of your family farm about sixty years ago. You have one week to sign the agreement. If you do not agree, he threatens to cut off all the branches that are hanging on his side of the property, and possibly dig up all the roots on his side, as well. You know that if he does this, it would probably kill the tree. You must now decide how to respond to their letter. You are considering three options: sign the letter, ignore it, or go to court in the hope that the judge will reject the neighbor's demands. The analysis suggests that signing the agreement is your best option.

Source: Adapted from Means, K. and Josayma, C. with Nielsen, E. and Viriyasakultorn, K. (2002) *Community-Based Forest Resource Conflict Management: A Training Package*, vol. 1 (section 4.4, www.fao.org/DOCREP/005/Y4300E/Y4300E00.HTM) and vol. 2 (activity 32, www.fao.org/DOCREP/005/Y4301E/Y4301E00.HTM). FAO, Rome.

Contribution and Feasibility

Possible futures

Purpose To choose between several courses of action using two criteria: the contribution that each action would make to achieving goals, and how feasible each action is in light of favorable conditions (strengths, opportunities) and unfavorable conditions (weaknesses, limitations).

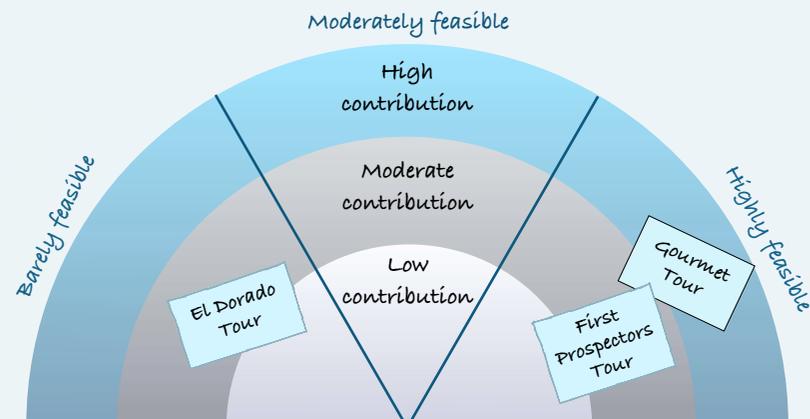
Step 1 Define the **situation** (project, problem) and create a list of current or proposed **actions** to be compared for planning purposes. Each action should be concrete, distinct and clearly described. Draw or write each action on its own card, with some details about the action on the back of the card or on a flip chart.

Step 2 Assess and indicate on each card whether the action will make a high (C-H), moderate (C-M) or low **contribution** (C-L) to resolving the problem or achieving goals. For more precision, use **indicators** to define the meaning of levels on the contribution scale. Record the **reason(s)** given for each potential contribution on the corresponding action card or on a flip chart. If rating is done as a group, discuss each rating until participants agree based on consensus or a majority vote. Alternatively, calculate the average rating for each action. (Review the *Scoring Tips*, pp. 45-46. They are critical to proper application of the *Contribution and Feasibility* tool.)

Step 3 Assess and indicate on each card whether the action is highly (F-H), moderately (F-M) or barely **feasible** (F-L). When discussing feasibility, take into account the favorable conditions (strengths, opportunities) as well as the unfavorable conditions (weaknesses, limitations) associated with the action (see *Force Field*, p. 69). For rating procedures, see Step 2.

Step 4 Create a **rainbow diagram** with three bands on a flip chart or with masking tape on the floor. In the smaller band, insert the cards of low contribution options (C-L). Insert the cards showing actions of moderate contribution (C-M) in the middle band, and those of high contribution (C-H) in the larger band.

Step 5 Divide the rainbow bands into **three equal parts**: one part to the left, one in the middle and one to the right. Move the cards of highly feasible options (F-H) to the right side of the diagram. Move those that are barely feasible (F-L) to the left side. Leave the moderately feasible actions (F-M) in the middle.



Contribution and Feasibility

Step 6 Discuss the picture that emerges and overall course of action based on the level of contribution and feasibility of each action. Also discuss ways to **improve or combine** the actions so they make a greater contribution to resolving the problem or achieving goals, or become more feasible.

ADAPT

- Instead of using a rainbow diagram, locate each option in a Cartesian graph where the vertical line represents different levels of contribution (from 0 to 10), and the horizontal line, different levels of feasibility (from 0 to 10).
- Use **visual codes** (colors, numbers, icons, etc.) to add other information on each action, such as the order in which each preferred action should be carried out and dependency relationships between actions. Other information that may be useful is the level of completion for the corresponding course of action (indicated by a small pie chart or clock symbol, for instance).
- Use a **nautilus diagram** to represent the assessment of each option against its potential contribution, its feasibility and how complete it is. Steps to this nautilus-shaped assessment of possible options or courses of action are slightly different from those described above. The adjustments are as follows.

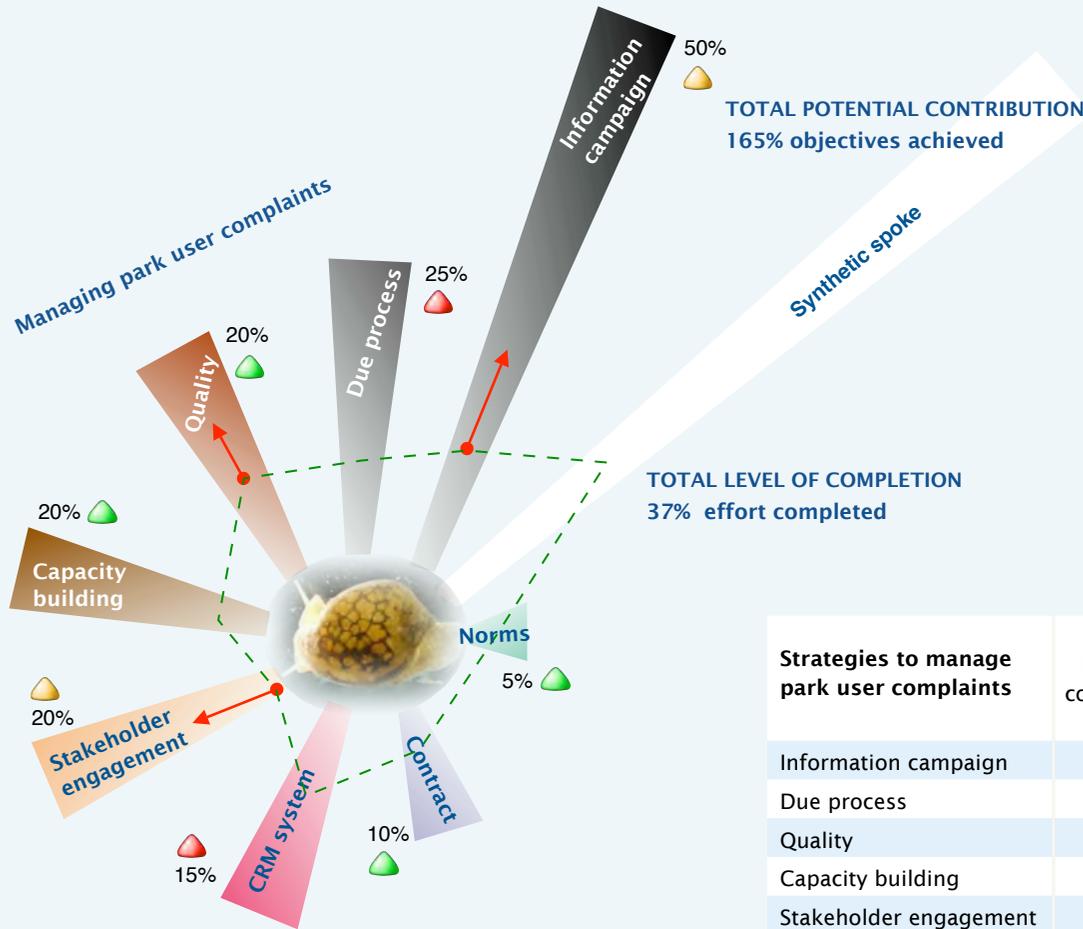
Step 1 Instead of assessing the potential contribution of each option (as in Step 2), from low to high, determine how far each option would go in **resolving the problem** or **achieving project goals**, using a percentage figure (from 0% to 100%). Use a table (see example on p. 115) to record these potential contributions. Place them in Column A, in descending order.

Step 2 Create a **graph** on paper or a flip chart using spokes (or ribbons on the floor) to represent the different options or actions under discussion. Adjust the **length** of each spoke to reflect its potential contribution, and organize the spokes in a clockwise ascending order. **Label** each spoke with a title card, a drawing or an object representing the option or action. A relevant metaphor can also be identified to represent the purpose of the exercise (see the snail in the figure on p. 115).

Step 3 Estimate the actual **level of completion** for each option as part (a percentage) of the total effort needed to realize its full potential. Record each percentage rating in the table, in Column B. **Mark** each rating on the corresponding spoke, between the center (0% effort level) and the other end of the spoke (representing 100% of the effort needed to realize maximum potential). Draw **straight lines** between the marks to create a shape that defines the actual effort profile for each action.



Contribution and Feasibility



Summary: National Park staff decide to reassess the various strategies they use or could use to handle suggestions and complaints from park users more effectively. Three strategies stand out as priorities (see red arrows in the graph). The team estimates that *engaging stakeholders* in problem solving and establishing *quality standards* to be applied when delivering park services would contribute significantly to reducing complaints. They would resolve the problem by 40%. While the stakeholder engagement process has yet to be designed, the work involved in defining quality standards has already started (by 30%) and is easier to achieve (▲). A public *information campaign* about what the Park has to offer (and services not available) could also make a significant contribution, reducing the problem by another 50%. However, much of this work remains to be done and may be a bit challenging (▲).

Strategies to manage park user complaints	A Potential contribution	B Level of completion	A X B Potential contribution of completed effort	Feasibility
Information campaign	50%	20%	10.0%	▲
Due process	25%	30%	7.5%	▲
Quality	20%	30%	6.0%	▲
Capacity building	20%	10%	2.0%	▲
Stakeholder engagement	20%	0%	0%	▲
CRM system	15%	40%	6.0%	▲
Norms	10%	20%	2.0%	▲
Contract	5%	70%	3.5%	▲
Total	165%		37.0%	

Contribution and Feasibility

Step 4 **Total** all potential contribution ratings. Add another spoke to the graph, the longest, and record the **total potential contribution** at the end of this **synthetic spoke**. Keep in mind that the total potential contribution can surpass 100% and may be more than what is required.

Step 5 Multiply Column A by Column B ratings for each row, and record the results in the 'A X B' column. The resulting figures represent the potential contributions of actions already completed. Total these ratings (where the level of completion is weighted by its potential contribution) and record the total at the bottom of the last column. Mark this **total current contribution potential** at the appropriate place on the synthetic spoke.

Step 6 Discuss the picture that emerges and overall course of action based on the scores. Also discuss ways to **improve** or **combine** the actions so they make a greater contribution to resolving the problem or achieving goals, or reduce the overall level of effort still required.



"Knowledge gained through evidential inquiry, theoretically informed, has acquired multiple meanings over the centuries, in fields ranging from medicine to law, psychology, ecology, economics and the social sciences. There are now myriad 'sciences' where reasoning, facts and rigour matter. Some, however, do not have the luxury or pretence of controlling all key factors and variables associated with the phenomena they study. 'Exact science' itself has developed probabilistic models of reality that acknowledge indeterminacy, uncertainty and the unknown. This is a far cry from basic models of linear causality that evidence-based thinking is often associated with and tries to mimic. Linear positive science no longer has an exclusive monopole over evidential reasoning. In hindsight, it never did." Chevalier, J. M. and Buckles, D. J. (2013) Participatory Action Research: Theory and Methods for Engaged Inquiry, Routledge UK, p. 3.

Attribution and Contribution

Purpose To assess the extent to which observed changes can be attributed to a specific intervention (action, project, program) and the implications of this contribution for future action.

In a judicial process responsibility for an outcome is established through the exercise of legal reasoning and judgment. Similar reasoning may serve to assess the extent to which change observed in a domain can be attributed to a specific intervention (action, project, program). The investigation and final recommendations reflect several considerations, including the immediate, intermediate and ultimate results that were deliberately aimed for; the nature and importance of changes observed at each level; what would have happened had the intervention not taken place; the obstacles to overcome and factors that helped in achieving results; the scale of means used (time, resources); and the soundness of evidence provided to answer these questions.

Step 1 Describe the **intervention** (action, project, program), its **timeframe** and its implementing **partners**. Define the **objectives** or expected results, as established at the outset or modified along the way. To be more precise, distinguish between expectations in regards to **immediate** (e.g. building capacities in natural resource management), **intermediate** (e.g. behavioural change in natural management practices) and **ultimate results** (e.g. greater food security or sovereignty). (See hockey example.)

1. OBJECTIVES, INTERVENTION, DURATION, PARTNERS

Since the winter of 2010, federal park managers and their partners have established a pilot project involving a multistakeholder forum to better address growing tensions between park management and winter trail users, especially local sport clubs. All parties hope this will lead to a meaningful shift in park management culture, towards greater dialogue and values of civic engagement.

2. RESULTS (OBSERVED CHANGES AND DEFAULT SCENARIO)

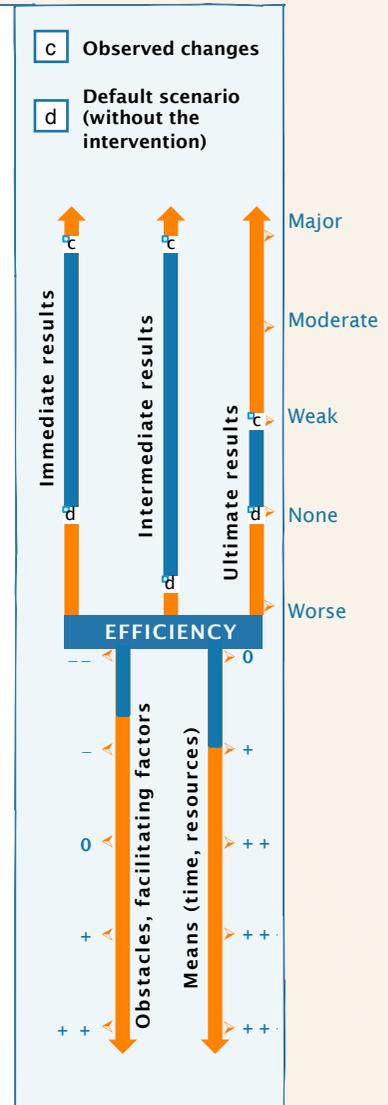
The immediate objective of this joint initiative has been successfully achieved: the creation of Park Dialogue, a decentralized multistakeholder forum that meets three times a year, with the constant and active participation of park managers and user representatives. All indications are that this semi-formal roundtable, facilitated by a third party, has greatly contributed to achieving its intermediate objectives — reducing the number of complaints from winter park users and the daily stress experienced by staff. Without Park Dialogue (d, default scenario), there is good reason to believe that these observed changes (c) would not have taken place. Actually, things probably would have gotten worse considering the recent drop in personnel, the increased use of winter trails, easier access to web-based channels of communications (to lodge complaints) and the erratic effects of climate change on park maintenance. The ultimate objective of this initiative, however, is still far from being reached. While some progress has been made, promoting a new culture of civic engagement in park management activities will require more time and effort.

3. EFFICIENCY (MEANS AGAINST RESULTS & INTERVENING FACTORS)

The contribution of Park Dialogue, especially at the intermediate level, is all the more significant as the amount of time and resources dedicated to this initiative has been modest. Also obstacles to improving relations with users were many, including strong feelings of distrust initially expressed by sport club representatives.

4. RECOMMENDATIONS

Park Dialogue should become permanent and the experience better documented. It is also worth replicating the process in other areas of park activities and services offered to the public.



Attribution and Contribution

Step 2 First, describe the **observed changes (c)** as they relate to expected results at each level, i.e. immediate, intermediate and ultimate. Determine for each level whether there has been major, moderate, small or no progress or whether the situation has gotten worse. Record your response in the upper part of the histogram (see example, p. 117). Justify your response and indicate your sources of evidence. If change is unknown, describe a more specific intervention and objectives (Step 1) or make plans to gather evidence before proceeding to the next steps.



The immediate objective of a hockey player may be to pass the puck to another teammate hoping he will catch it, score or pass it to another scoring teammate (intermediate objective). The ultimate objective is for the whole team to win the game.

Second, determine the extent to which the change observed at each level would have occurred had the intervention not taken place. This **default scenario (d)** takes into account the other factors and actions that would have contributed, directly or indirectly, to changes in the initial situation, independently from the intervention. Determine at each level whether there would have been major, moderate, small or no progress or whether the situation would have gotten worse. Record your response in the upper part of the histogram. Justify your response and indicate your sources of evidence.

Discuss the difference or gap between the changes observed (c) and the default scenario (d) at each level. Each gap corresponds to the contribution that the intervention has made to observed changes — its **immediate, intermediate and ultimate results**.

Step 3 First, discuss and assess the scale of means (time, resources) used to achieve the observed results. In the lower part of the histogram, indicate whether the scale is very high (+ + + +), high (+ + +), moderate (+ +) or low (+) *in relation to the observed results* (determined in Step 2). Justify your response and indicate your sources of evidence.

Second, discuss and assess the **conditions** encountered during the intervention, i.e. other actors or factors that helped or hindered the process of achieving results. In the lower part of the histogram, indicate whether these conditions were highly favorable (+ +), moderately favorable (+), neutral (0), moderately unfavorable (–) or highly unfavorable (– –). Justify your response and indicate your sources of evidence. (For a more detailed analysis, use *Timeline*, p. 59, or *Force Field*, p. 69.)

To evaluate how **efficient the intervention has been** and its **overall contribution**, assess the observed results (upper part of the histogram) in light of the means used and the conditions encountered along the way. For example, an intervention is all the more efficient and its contribution all the more significant if major progress has been achieved despite important obstacles and limited means such as time and resources (see example, p. 117).

Step 4 Discuss implications and **recommendations** that follow from the evaluation. Should the expected results be modified, other partners be involved or roles be revised? Should the action or activities be modified in light of unexpected results (unintended consequences), positive or negative? Should the means be scaled up or down or used differently to better cope with unfavorable conditions or existing opportunities? Should plans be made to collect more information on observable changes and factors affecting the intervention?

Understanding Systems



Handbook for Participatory Action Research, Planning and Evaluation, Module 6.1,
Chevalier, Jacques M. and Buckles, Daniel J., SAS2 Dialogue, Ottawa, 2013.



"Values and knowledge systems vary greatly across time, cultures and individuals. Acknowledging this means that we must be wary of universal theories, comprehensive schemes and trendy buzzwords that show little respect for the myriad traditions of language, culture and ways of understanding the world. More than ever, inquisitive minds must tap into the great wealth of local knowledge, using measures of learning that go beyond mere observation and surface description. At the same time, knowledge traditions should not be naively glorified and fixed in time. Theories that mummify tradition, assigning a distinctive science to every people or class, spell ruin for human learning. The notion that tradition is authentic only when it remains intact forces all learning into a tight corner — what people already know, and their current habits of thinking. For tradition to flourish and endure, it must be living knowledge that thrives on problem solving and conversations across boundaries. Custom-made thinking may be a habit of mind, but so is new learning and thinking outside the box. In the end, learning is knowledge in motion. It is a verb, not a noun." Chevallier, J. M. and Buckles, D. J. (2013) Participatory Action Research: Theory and Methods for Engaged Inquiry, Routledge UK, p. 406.

Domain Analysis

Purpose To describe how people view a domain or topic area, and create new learning opportunities based on this understanding.

PRINCIPLES

The system theory underlying *Domain Analysis* is our social adaptation of Personal Construct Psychology, a well-known theory in Psychology and the Cognitive Sciences developed in the 1950s by George Kelly. The key assumption is that people understand a **domain** by dividing it into parts and creating a description of the whole based on comparisons (or degrees of similarity and difference) between the parts. For example, to know the meaning of 'tasty food' requires not only a sense of what 'tasty foods' have in common but also words and ideas to describe the opposite. In Personal Construct Psychology, domain parts are called **elements** and the contrasting characteristics are called **constructs**. The social adaptation presented below builds on this perspective by showing how stakeholder groups create and organize elements and their contrasting characteristics for a domain or topic area. The method uncovers ways people make sense of reality in a particular context and helps create opportunities for problem solving and learning.



Domain Analysis is a way to reconstruct or uncover local knowledge. It can be applied to any topic including things in nature (*Ecological Domain*), activities (*Activity Domain*), problems (*Problem Domain*), stakeholder profiles (*Social Domain*) and options for action (*Option Domain*). Following are detailed instructions for the generic method and brief illustrations of specific applications using the software RepGrid (regrid.com).

- Step 1** Define the domain or **topic area** and identify at least **6 elements and no more than 12** that belong to the domain. These should be **concrete**, distinct and clearly defined. If the elements are abstract or **vague**, use the *Laddering Down* method in *Active Listening* (p. 38) to make them more specific and meaningful. Ask 'What do you mean by this?' or 'Can you give an example of this?' Another option is to use **description and storytelling** to explore the topic, and then use this information to identify the elements. Write or draw each element on its own card with a brief description on the back of the card.
- Step 2** Decide on a rating scale with a range from 1 to 5 or 1 to 7 (see *Scoring Tips*, p. 45). Create a table on the floor or wall with the term '**Characteristics**' at the top of Column 1.
- Step 3** (This step and the next two steps are optional.) If necessary, discuss or provide one **key characteristic** participants want to explain in light of a problem-solving exploration of the domain. Write the key characteristic on a card, using one or two key words and give it a score of 1; add details on the back of the card. Then, identify the **opposite** of the key characteristic on the same card and give it a score of 5 (or 7). Place the card showing these two opposite characteristics and the corresponding scores in the second row of the first column.
- Step 4** **Rate all the elements** using the key characteristic and its opposite and the rating scale (from 1 to 5, for instance). Discuss the score for each element until participants agree. Record each score on its own card and write the reason given for each score on the reverse side of its card or on a flip chart. Place each score card in the row for the key characteristic, below the corresponding element.

Domain Analysis

- Step 5** To facilitate interpretation of the table, **reorganize** all the elements in order based on the ratings given for the key characteristic.
- Step 6** To elicit other characteristics from participants, choose **three** element cards from the top row at random. Identify two of them (a pair) that are the same in some important way, and different from the third. Identify what it is these two elements have in common that is also *relevant to the topic*. Write the characteristic on a new card and give it a score of 1. Then, identify the opposition or contrast that makes the **third element different from the pair**. Write this opposite or contrasting characteristic on the same card and give it a score of 5 (or 7). Examples of opposite characteristics are: a good listener – a good speaker; short term – long term; physical violence – psychological violence; etc. Place the card showing these two opposite or contrasting characteristics and the corresponding scores in the third row of the first column.
- Step 7** Repeat the process described in Step 6 to identify **other sets of opposite or contrasting characteristics** and add a **new row** for each set.
- Step 8** **Rate all the elements** using each characteristic and its opposite and the rating scale created in Step 2. Discuss the score for each element until participants agree. Record each score on its own card and write the reason given for each score on the reverse side of its card or on a flip chart. Place each score card in its row, below the corresponding element.

Characteristics	Conflict A	Conflict B	Conflict C	Conflict D	Conflict E	Conflict F
Rarely (1)						
Often (5)	1	1	2	3	5	5
Legal (1)						
Personal (5)	4	5	3	2	1	2
Interests (1)						
Values (5)	1	3	2	4	5	4

INTERPRETING THE RESULTS

- Step 9** To **interpret** the results, start with a **review** of the **process**, including the way that participants interacted and reached decisions at each step. Also review the **substance** of the exercise, including the topic that participants selected, the elements and the characteristics identified, and the kind of information or knowledge used to rate the elements. Summarize the main points on a flip chart.
- Step 10** Review the **column scores** that describe the elements. Look for obvious features such as whether the scores tend to be in the middle or closer to the poles. Also look for the elements that have **similar scores** for most characteristics, including the key characteristic. Summarize the characteristics they share and draw lines connecting elements with similar column scores to show that they are part of the same **cluster** or family of elements.
- Step 11** Review the **row scores** that describe the characteristics. Look for obvious features such as scores that vary little and others a lot, or characteristics that are more meaningful compared to others. Also look for **matching characteristics**. There is a match between two or more characteristics when row scores are **similar** or show an **inverse relationship** to each other. Summarize the matches and draw lines connecting characteristics with similar (or inverse) row scores. Characteristics that match the **key characteristic** (identified in Step 3) can help explain important aspects of the topic area.

Domain Analysis

RETHINKING THE ANALYSIS

Step 12 Modify, delete or add to the list of elements, characteristics and scores at any time during the process.

Look for an **extra characteristic** and opposite if two elements that are very similar need to be distinguished from each other more sharply. To do this, find a meaningful difference between the two elements. Use this difference to create a new characteristic and its opposite and rate all the elements on this characteristic.

Look for an **extra element** if two characteristics that are closely matched need to be distinguished from each other more sharply. To do this, find a new element within the domain that brings together opposites (from each set of characteristics) that are *rarely* matched. Insert the new element in a new column and rate it for each characteristic and its opposite.

Step 13 Review and summarize key comments concerning the domain or topic made during the exercise. Then identify the **learning opportunity** (see *Learning opportunities*, below) and develop a strategy to act on this understanding.

Be sure to review **in detail** the *Scoring Tips* (p. 45). These are critical to proper application of *Domain Analysis*.



TIPS ON ELEMENTS

- **Supply** or **negotiate** some or all the elements or **elicit** them from the participants, depending on the purpose of the exercise and the facilitator's role.
- The list of elements can include an **ideal** or a **problematic element** that can be compared with other elements.

TIPS ON CHARACTERISTICS (CONSTRUCTS)

- **Supply** or **negotiate** any characteristic and its opposite or **elicit** them from the participants, depending on the purpose of the exercise and the facilitator's role.
- When using characteristics to describe the elements, do not interpret the descriptions as statements of facts that are either right or wrong. Statements about elements should be **accurate** only in the sense of truly reflecting people's views and understanding of reality.
- Characteristics should be **relevant** to the topic area, **focussed** and **clear**. They should usually consist of **concrete** nouns, actions or verbs ending in '-ing' rather than abstract terms, qualities or ideas.
- Characteristics and their opposites can include responses or concrete **actions** related to each element (see *Problem Domain*, p. 133).

Domain Analysis

TIPS ON CHARACTERISTICS (CONSTRUCTS) continued

- If the characteristics are **vague** or sound like clichés, use the *Laddering Down* technique in *Active Listening* (p. 38) to make them more meaningful and detailed. Ask ‘What do we mean by this?’, ‘Can we give an example of this?’, ‘How can we tell this?’, or ‘In what way is this true?’
- Don’t use **negative phrases**, such as ‘not legal’ to describe the opposite of or contrast with a characteristic such as ‘legal.’ Negative phrases tend to be vague and meaningless. Opposites or contrasts phrased more precisely will describe people’s views on a domain in a more meaningful way.
- If relevant, some of the characteristics may involve a **single pole** or reference point against which all the elements are rated. For example, ‘cost’, ‘importance’, ‘priority’ or ‘feasibility’ may go from low to high (see *Option Domain*, p. 134).
- If participants **cannot identify** what it is that two elements have in common or what makes the third element different from the pair, ask in another way, apply the *Laddering Down* technique (p. 38), choose another three elements at random or choose two cards instead of three.
- You can use other elicitation tools to identify characteristics and their opposites, without comparing elements chosen at random. A simple procedure is the **catchall question**: ‘Can you think of some new, different characteristic and its opposite?’ Another option is the **full context** procedure: review all elements and find two that have a characteristic in common, and then the element that is the most different from these and in what way. Use this procedure to identify one or more characteristic and its opposite. Another option is to use **description and storytelling** to explore the topic (e.g. by describing examples of success and failure), and then use this information to identify the elements as well as their characteristics organized into opposites.
- To compare two different lists and negotiate a **common list**, see *Free List and Pile Sort*, p. 39.
- To identify several characteristics and their opposites in **less time**, divide all participants into groups of two or three. Ask each group to choose three elements at random and to identify a relevant characteristic and its opposite. Collect these new characteristics and their opposites, discuss and clarify their meaning, and group together those that are the same (see *Social Domain*, p. 151).
- Don’t use a characteristic together with its opposite more than once. However, a particular characteristic can be used more than once if it is paired with a different opposite characteristic (such as ‘legal’ as opposed to ‘personal’ in one case, and then ‘legal’ as opposed to ‘political’ in the other case).
- Characteristics can be grouped together into appropriate **categories** supplied by the facilitator or created and defined by the participants (see *Free List and Pile Sort*, p. 39). They can also be ranked by **order of importance**. This will help with interpretation of the table at the end of the exercise.

TIPS ON RATING

- If the characteristic and its opposite **do not apply** to an element, don’t provide a score. If a characteristic does not apply to many elements, try rewording it or leave it out of the analysis.
- If the scores for a characteristic and its opposite are **nearly the same** across all elements, redefine the characteristic or leave it out of the analysis.

Domain Analysis

TIPS ON RATING continued

- The rating of elements can be done **without focussing attention on the table**. To do so, place a card representing a characteristic and some distance from another card representing its opposite or contrast. Then take each element card or an object representing the element and ask participants to locate the element somewhere on the continuum between the two characteristic cards. Convert this location into a rating, and track the scores separately in a table or directly in RepGrid. Repeat this exercise for each characteristic and its opposite.

Characteristic	1	2	3	4	5	Characteristic
<i>Good speaker</i>				<i>John S.</i>		<i>Good listener</i>

TIPS ON INTERPRETING

- When comparing elements, focus on those row characteristics and relationships that are more important or interesting. Don't assume that all relationships are meaningful. This would be **over-interpreting** the results.
- As noted in Step 5, use the ratings for the key characteristic (identified in Step 3) to **reorganize** all element cards (row 1) and score cards (row 2) from the lowest score to the highest. The reorganized table will help explain the key characteristic.
- **Group together** similar elements by moving the columns around and placing them side by side (use masking tape to stick the column cards together). Do the same with matching characteristics, by moving the rows around and placing them one above the other.
- Where you find high matches between row scores or sets of characteristics and their opposites, discuss whether one row set is an **example** or the **effect** of the other row set, or if it has the same **meaning** or the same **cause** as the other set.
- To focus on **two characteristics and their opposites only**, create a diagram by drawing a vertical line that crosses a horizontal line of equal length. If your scale is from 1 to 5, write 1 and 5 at opposite ends of both the horizontal line and the vertical line; indicate what these minimum and maximum scores mean. Write 3 where the two lines cross. For each element, locate the score for one characteristic and its opposite on the horizontal line, and then the score for the other characteristic and its opposite on the vertical line. Connect the scores from the two lines, and write the name of the element where they meet. The closer two elements are in the diagram, the more similar they are.

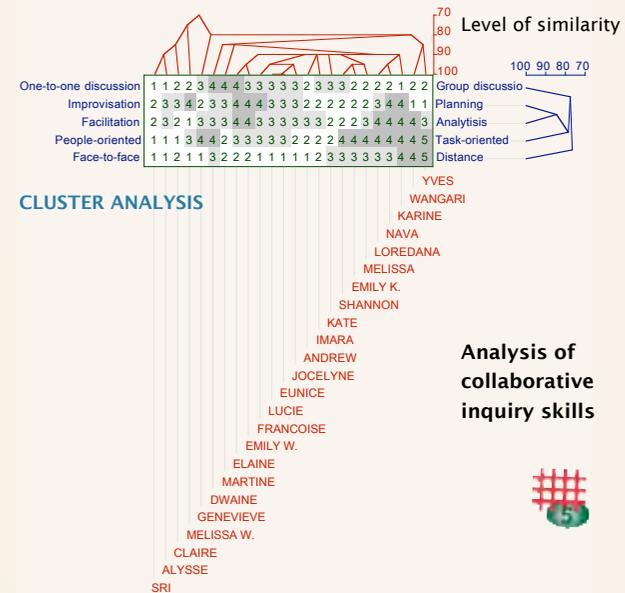


TIPS ON INTERPRETING continued

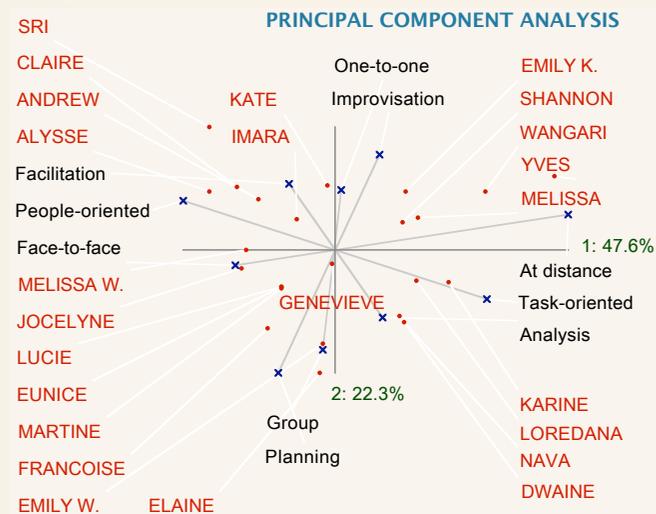
- To help people participate actively in the analysis, prepare table cards for all elements and distribute them among the participants (see example on p. 136). Then ask participants to identify **other elements** with row scores that are identical or very similar to theirs. Give special attention to similarities in the key characteristic and other characteristics important to the domain. **Groups formed around similar elements** can then prepare and present a brief description of what the elements have *in common*. Following this, all participants can discuss the *main differences* observed **between groups**.

TIPS ON THE MATHEMATICS

- The software RepGrid (regrid.com) performs the calculations described below. The Focus command creates a **cluster analysis**. Elements that have the most similar ratings are placed side by side. Characteristics that are closely matched also appear side by side, with inverse relationships converted into positive relationships. A diagram with lines outside the table meeting at various points indicates the levels of similarity between elements and between characteristics.
- The PrinGrid command creates a graph with calculations based on **principal component analysis**. The graph is a two dimensional representation of multidimensional relationships among elements and characteristics. Dots show the location of each element in relation to all other elements and to characteristics represented by straight lines. The shorter the characteristic line, the less the ratings for the characteristic vary. Nearness indicates closer relationships between elements (dots), between characteristics (lines) and between elements and characteristics. The main horizontal line (principal component 1) and vertical line (principal component 2) are summary variables for these multidimensional relationships. The percentages at the end of each line indicate the extent to which each component explains these multidimensional relationships. (See examples.)



Analysis of collaborative inquiry skills



Domain Analysis

TIPS ON THE MATHEMATICS continued

- To manually calculate the **level of difference between two column elements**, calculate the sum of differences (SD) between same-row scores (leave out rows that have empty squares). Then calculate the total maximum difference for all scores (this is MS, the maximum score, minus 1, multiplied by C, the number of row characteristics that got ratings). The level of difference between two elements is SD divided by the total maximum difference for all scores multiplied by 100. To turn this level of difference into a percentage similarity score, subtract it from 100. In other words: $[100 - (SD \times 100)] / [(MS-1) \times C]$. Using the table created in Step 7 as an example (p. 122), the sum of differences (SD) between the recorded scores for elements E and F is 2 and the total maximum difference is 12, or $[(5 - 1) \times 3]$. This results in a difference of 16.7% $(2/12 \times 100)$. Looking at it another way, the two elements are similar at a level of 83.3%.
- To manually calculate the **level of difference between two row characteristics**, calculate the sum of differences (SD) between same-column scores (leave out columns that have empty squares). Then calculate the total maximum difference for all scores (this is MS, the maximum score, minus 1, multiplied by E, the number of elements that got ratings). The level of difference between two characteristics is SD divided by the total maximum difference for all scores multiplied by 100. To turn this level of difference into a percentage similarity score, subtract it from 100. In other words: $[100 - (SD \times 100)] / [(MS-1) \times E]$. Using the table created in Step 7 as an example (p. 122), the sum of differences (SD) between the recorded scores for the last two rows is 14 and the total maximum difference is 24, or $[(5 - 1) \times 6]$. This results in a difference of 58.3% $(14/24 \times 100)$. Looking at it another way, the two elements are similar at a level of 41.7%.

If the level of similarity between two sets of row scores is very low, this indicates an **inverse relationship**. This means that if participants choose a characteristic at one end of the continuum in one row then they tend to choose the characteristic at the opposite end in the other row. When this happens, turn the inverse relationship into a positive one by reversing all the scores in one row (from 2 to 4 or from 5 to 1, in a scale from 1 to 5, for instance). Positive relationships are easier to interpret. For instance, by reversing the scores for the last row in the table already presented (p. 122), the level of similarity between the last two rows is 83.3%.



LEARNING OPPORTUNITIES

Domain Analysis helps to identify **learning opportunities** based on an understanding of multidimensional relationships (perceived similarities and differences) among elements and characteristics within the domain or topic area. Opportunities may involve structural learning, communicational learning, temporal learning or adaptive learning. Understanding the nature of the learning opportunity is key to developing an action strategy.

STRUCTURAL LEARNING

Convergence

There is convergence in the system when the row scores in the table are closely matched. In this case, most characteristics can be regrouped into two categories that are opposite each other, with the elements falling somewhere along the continuum from one set of opposites to another. If convergence in the system is limiting, search for new elements that combine the characteristics in novel ways. Give special attention to novel ways of combining elements with the key characteristic identified in Step 3 (see *Social Domain*, p. 151).

Polarization

There is polarization in the system when one group of elements has one set of column scores and the other group of elements is opposite in all respects. In this case, most elements can be regrouped into two categories that are opposite each other. If polarization in the system is limiting, search for new elements that combine the characteristics in novel ways. Give special attention to novel ways of combining elements with the key characteristic identified in Step 3. See the story of *Ecological Domain* used in Bangladesh, in Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, ch. 19.

Dispersion

There is dispersion in the system when very few elements or characteristics are closely matched. This indicates that each element is entirely different and there is no pattern in the system. If dispersion in the system is limiting, search for other elements or characteristics that may be missing and needed to introduce some meaningful pattern into the system.

Vagueness

There is vagueness in the system when the scores for the elements do not vary much. If this is limiting, search for the likely cause. Some possibilities are: participants have very different views of the elements and negotiated the differences by assigning average scores; participants emphasize the connections and similarities between the elements, not the differences; participants have limited knowledge of the domain or topic area; or the elements chosen are too general.



Domain Analysis

COMMUNICATIONAL LEARNING

Disagreement

There is disagreement when people give very different scores to the same elements using the same characteristics. To measure levels of agreement and disagreement between two tables or sets of scores, total the differences between same-square scores and divide this number by the total maximum difference between all squares (this is MS, the maximum score, minus 1, multiplied by E, the number of elements that got ratings). If disagreement is a limitation, identify the key area(s) of disagreement and the likely causes. Continue discussion of the causes until the scores reflect a common assessment of the situation.

To *compare many characteristics and tables* representing the views of different individuals or groups, reorder the row characteristics in each table from top to bottom, with *those at the top matching the ratings of the key characteristic* identified in Step 3. These key matching characteristics represent what each individual or group has in mind when thinking about important aspects of the topic. Then, look for key matching characteristics that participants agree or disagree with across the sample. If the tables contain many characteristics, they can be grouped into categories (see *Tips on characteristics*, p. 123), reordered from top to bottom within each category, and then assessed for key match agreements and disagreements across the sample within each category. The software RepGrid will also compare tables that contain some or all the same elements and characteristics. Levels of agreement may be combined with levels of understanding (below) to produce the six possible scenarios outlined in *Disagreements and Misunderstandings* (p. 101).

Misunderstanding

There is misunderstanding when a party with a particular profile (such as men) fails to predict how a party with a different profile (such as women) will rate certain elements. To measure levels of misunderstanding, each party must try to guess how the other party will rate the same elements using the same characteristic(s). Then, total the differences between the original scores and the scores each group predicted for the other. Divide this number by the total maximum difference for all squares (this is MS, the maximum score minus 1, multiplied by the number of elements). If misunderstanding is a limitation, identify the key area(s) and the likely causes of misunderstanding. Compare and discuss the scores until there is a better understanding of each other's views. Levels of understanding may be combined with levels of agreement (above) to produce the six possible scenarios outlined in *Disagreements and Misunderstandings* (p. 101).

Confusion

There is confusion among people when the parties use different elements or characteristics to describe the same domain or topic. If confusion is a limitation, search for common elements or shared characteristics to create some basis for mutual understanding and agreement.



TEMPORAL LEARNING

Instability

There is instability in the analysis when the way people view a domain or topic and characterize its elements changes quickly or frequently over time, without any clear justification. If instability is limiting, identify the factors that may explain this. Look for elements or characteristics that are more meaningful, or take more time to discuss the ratings or to gather the information needed to complete the exercise.

Resistance to change

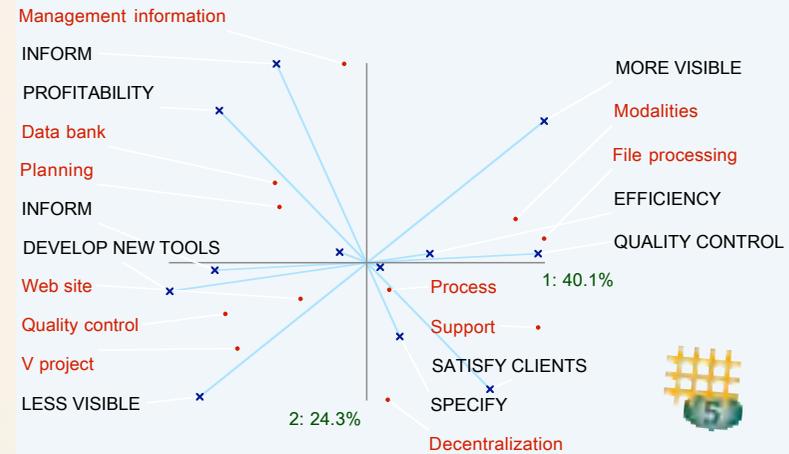
There is resistance to change when people become aware of specific learning opportunities described above yet prefer to leave the views expressed in their analysis unchanged. If resistance to change is limiting, identify the factors that may explain this or take more time to discuss the topic, the elements and their characteristics. Note that elements and characteristics (which reflect *how* people think) are generally more difficult to change compared with element ratings (which reflect *what* people think about links between the elements and the characteristics).

ADAPTIVE LEARNING

Failure to predict

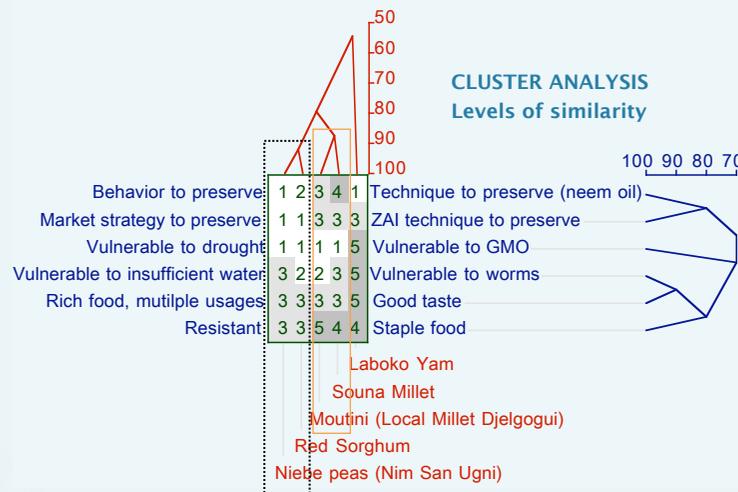
There is a failure to predict when experience and real events do not confirm the characteristics and the ratings applied to the elements in the analysis. To assess the predictive value of the analysis, select key characteristics and their opposites, and then identify **indicators** that define the meaning of each number on your rating scale. Collect reliable information on these indicators related to each element to see if the characteristics are relevant and the ratings are confirmed. If the failure to predict is limiting, change the ratings or look for characteristics that have better predictive value.

PRINCIPAL COMPONENT ANALYSIS: Assessment of program activities

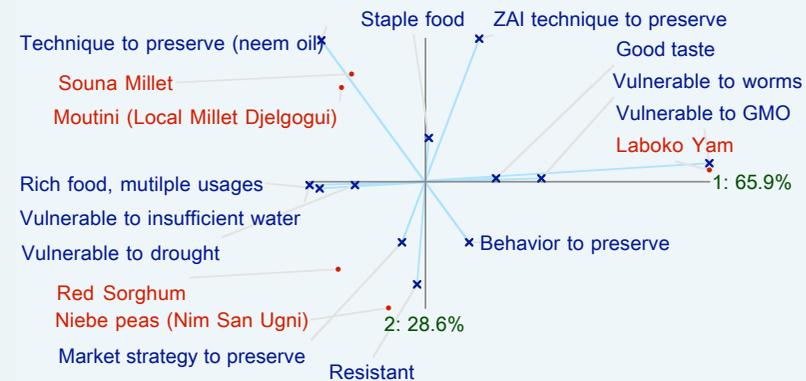


Ecological Domain

Ecological Domain examines how people view existing elements in nature using terms and characteristics that participants choose and negotiate. The tool may be used to classify things in nature (such as rice varieties or soils) or ecological processes (such as effects of climate change). The understanding of the domain may help people innovate, solve problems or test views against experience and other sources of knowledge.



PRINCIPAL COMPONENT ANALYSIS

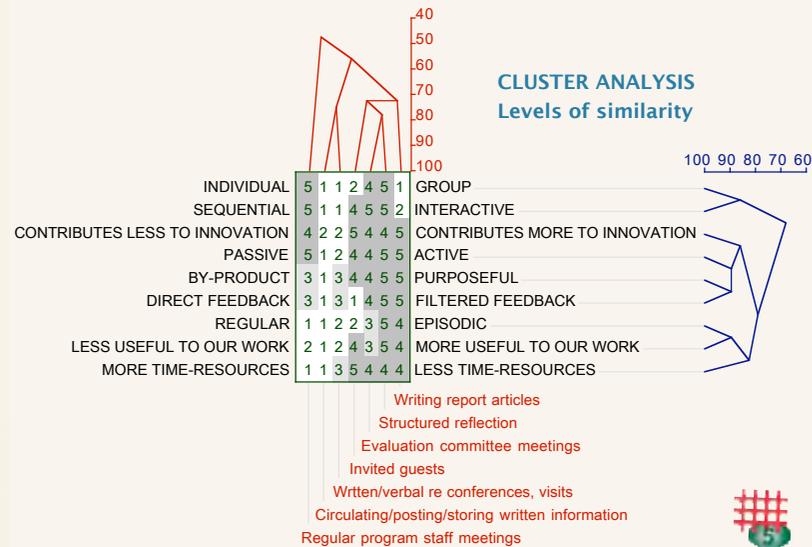


Summary: In March 2009 COPAGEN held in Dakar, Senegal a West African colloquium (facilitated by J. Chevalier) on strategies to preserve and promote peasant varieties of agricultural crops, partly in response to the risks posed by the spread of genetically modified organisms (GMOs) in Africa. Participants tested *Ecological Domain* to see how the technique could help develop a strategic and methodical approach to promoting local knowledge on peasant seeds (different from the conventional use of questionnaires and interviews). To start the analysis, the participants identified five **strategic** and **vulnerable** agricultural crops grown in their respective countries. They also identified a series of characteristics and their opposites that reflected three basic questions: in what way are the crops *strategic*, what makes them *vulnerable*, and what kind of *action* is being taken to preserve them. The results represented in the two graphs reveal that niebe peas and red sorghum are strategic because they produce rich and tasty food and have multiple uses. The source of vulnerability for these crops is their extreme sensitivity to drought conditions. Actions to preserve these crops involve marketing measures and customary rules of farmer behavior. While millet crops (souna, moutini) are also rich, tasty and vulnerable to drought, they can be preserved through technical measures (using neem oil and the Zai planting pit method). The remaining variety, laboko yam, is even tastier but is vulnerable to worms and GMO contamination. These patterns, represented in the Principal Component graph, account for about 94.5% of the variance within the system (see percentages on the horizontal and vertical axes). Considering these findings, participants decided to focus their attention on actions such as conventional plant breeding to preserve and reduce the vulnerability of crops to drought.

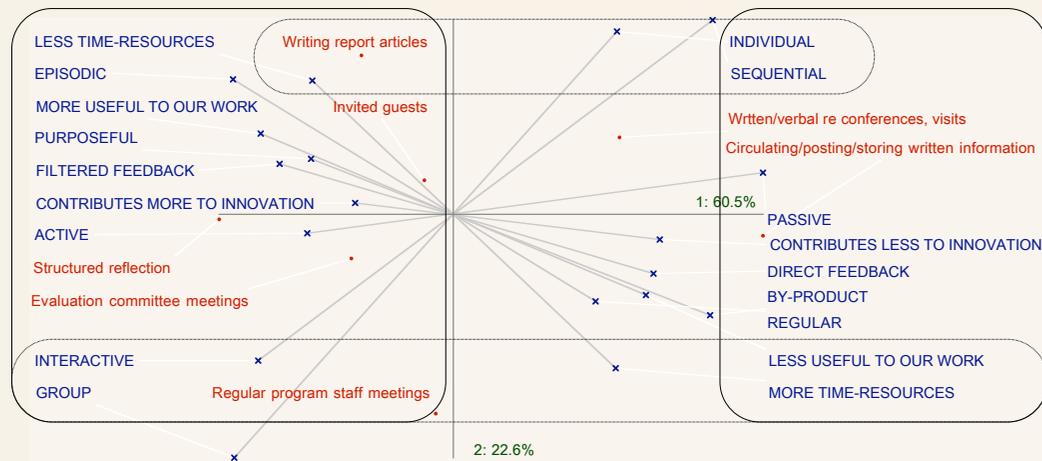


Activity Domain examines how people view existing activities or actions using terms and characteristics that participants choose and negotiate. The tool may be used to identify different types of actions or activities and explore associated levels of difficulty, forms of knowledge, benefits, the values or skills involved, etc. An understanding of the activity domain may help people innovate, solve problems or test views against experience and other sources of knowledge.

Summary: In this Canadian organization most knowledge sharing (KS) activities fall into two categories. KS that participants consider **more useful** to their work (on the left hand side) includes ‘structured reflection’ (rated the most useful), ‘writing report articles’ and ‘invited guests’ (both rated second), and ‘evaluation committee meetings’ (rated third). These activities tend to be planned (‘purposeful’) and are done episodically. They involve an active sharing of information and careful feedback on existing projects. Except for ‘writing report articles’, these more useful KS activities also involve real-time teamwork. By contrast, more time and resources are actually dedicated to the **less useful** KS activities (on the right hand side) that are regular by-products of other work. These activities include ‘circulating, posting and storing written information’ (rated fifth, the least useful) as well as ‘written/verbal reports’ (on conferences, visits, etc.) and ‘regular programme staff meetings’ (rated fourth). Except for ‘regular programme staff meetings’, these activities involve a passive sharing of knowledge. They are done individually, sequentially (not in real-time), and they contribute less to innovation. These patterns, represented in the Principal Component graph, account for about 83% of the variance within the observed system (see percentages on the horizontal and vertical axes). Based on this analysis, participants plan to allocate more time and resources to the most useful KS activities, and find ways to do the less useful ones such as regular programme staff meetings differently so that they can be more useful to KS.



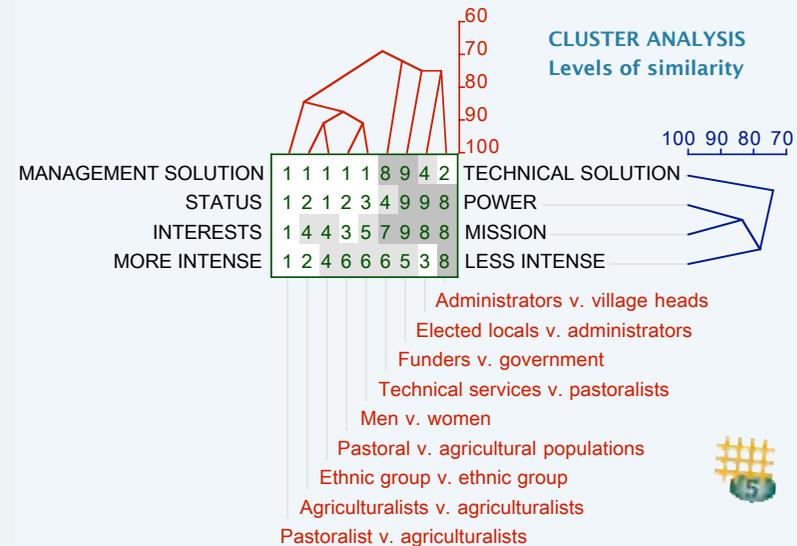
PRINCIPAL COMPONENT ANALYSIS



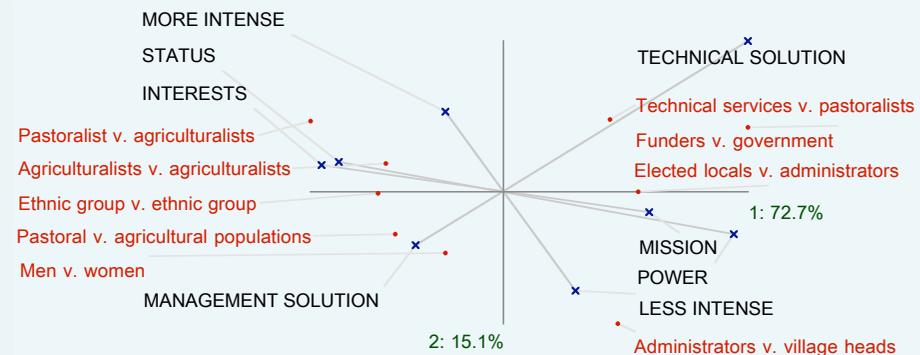
Problem Domain

Problem Domain examines how people view existing problems using terms and characteristics that participants choose and negotiate. The tool may be used to identify different types of problems, levels of difficulty, responses adopted in the past, etc. The understanding of the problem domain may help people innovate, find appropriate solutions or test views against experience and other sources of knowledge.

Summary: In a workshop (designed and facilitated by J. M. Chevalier), about 25 representatives of French-speaking African countries working on issues of natural resource management (NRM) identified the most frequent types of NRM conflicts occurring in their respective countries. Examples are conflicts between pastoralists and agriculturalists, elected locals and administrators, men and women, etc. They also identified contrasting characteristics to describe these conflicts. Each kind of conflict was rated against each characteristic and its opposite, using a scale of 1 to 9. The analysis showed that conflicts amongst agriculturalists and between agriculturalists and pastoralists are the most intense. Clashes between ethnic groups are also intense, although less so. All of these conflicts usually involve conflicts of status and economic interests and are currently addressed through land management solutions. By contrast, tensions between funders and governments and between technical services and pastoralists are much less intense. They involve conflicts in power, mandate and ‘mission’, and they are currently addressed through technical and administrative solutions (e.g. formal procedures and agreements). These patterns represented in the Principal Component graph account for about 88% of the variance within the observed system (see percentages on the horizontal and vertical axes). Discussion focussed on ways to introduce technical and administrative solutions into the more intense conflicts, as complements to current strategies. While no decisions were made, participants agreed that innovation in the response to conflicts was needed and that the analysis pointed to unconventional approaches and ways of looking at the problem that were worth exploring further.



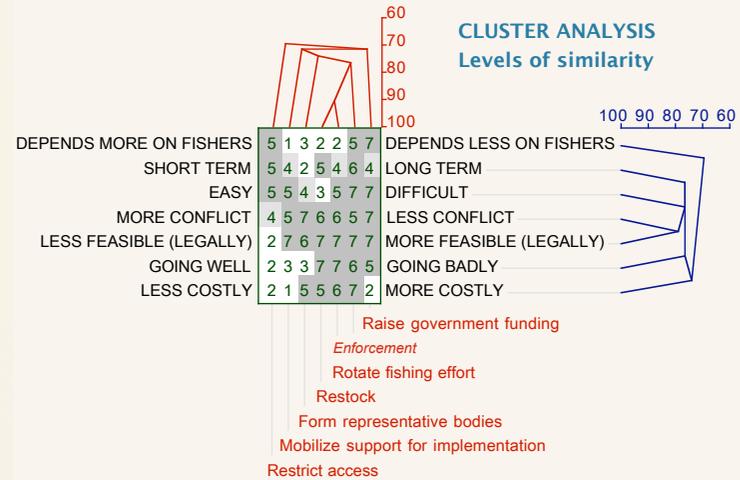
PRINCIPAL COMPONENT ANALYSIS



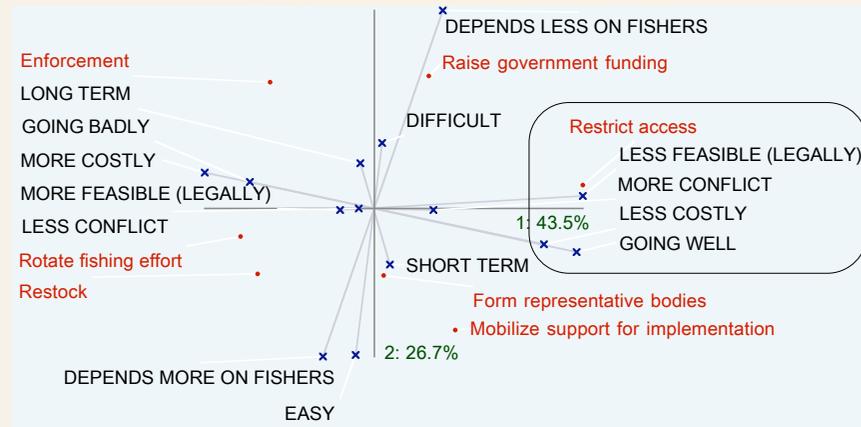
Option Domain examines how people view different proposed actions (options) using terms and criteria that participants choose and negotiate. The tool may be used to identify different kinds of options, evaluate them on specific criteria, establish priorities, and support decision-making. Understanding an option domain may help people innovate, solve problems or test views against experience and other sources of knowledge.



Summary: About 2000 artisanal fishers exploit shellfish in the Common Fishery Zone of Ancud in central coastal Chile. The Fund for Fisheries Research invited some 57 fishers, officials and scientists to a two-day meeting to discuss better fishery management strategies in the zone. With facilitation by J. Chevalier and Carlos Tapia of CESSO in Chile, participants identified seven possible actions together with seven criteria that could be used to evaluate the proposed actions. A scale of 1 to 7 was applied to each criterion. Participants noted that restricting access to the fishery may not be costly but will take time and is less feasible legally. Also it is likely to generate some conflict, at least at the beginning. Enforcement measures, while more feasible legally, are not going well and represent a costly, longer-term approach that depends a great deal on other actors. Raising funds from the government also creates dependence and will continue to be difficult. On the whole, the most favorable ratings lined up behind two options: mobilizing support for better implementation of current management practices and bringing excluded fishers into representative bodies. All of these observations and related patterns, represented in the Principal Component graph, account for about 70% of the variance within the observed system (see percentages on the horizontal and vertical axes). In addition to identifying the two best options, the analysis also generated new thinking about ways to improve enforcement, raise funds and gain better control over the rotation of fishing effort.



PRINCIPAL COMPONENT ANALYSIS

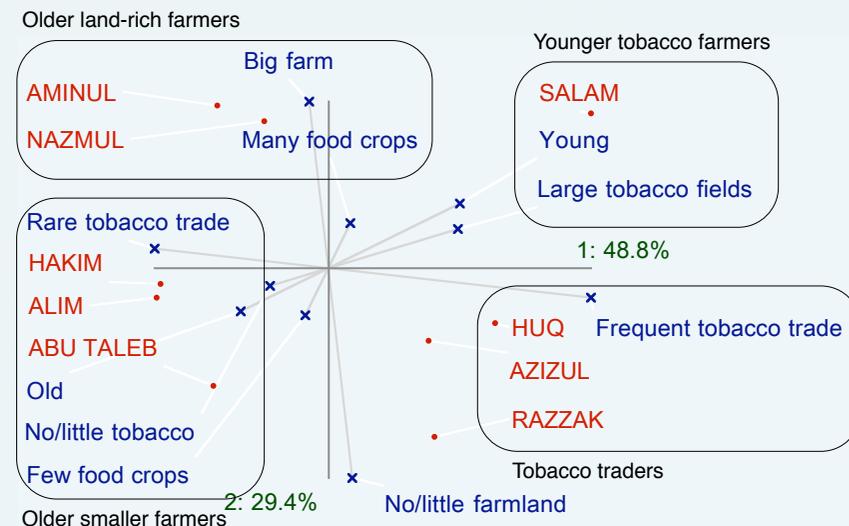


Social Domain

Social Domain examines how people view themselves and others using terms and characteristics that participants choose and negotiate. The tool may be used to identify different groups or categories of stakeholders based on the types and levels of interests they have in a project or program; the forms and levels of organization or power they can apply to a situation; the degrees and ways in which they are trusted or viewed as legitimate by others; the actions or positions they take in a conflict; the information, skills, values or leadership styles they might apply in a situation, etc. Understanding the social domain may help people innovate, solve problems or test views against experience and other sources of knowledge.

Summary: Farmers grow tobacco on some 80,000 acres of agricultural land in Bangladesh, mainly under direct contract with the British American Tobacco Company. While tobacco is a cash crop for farmers, tobacco farming causes a wide range of environmental, social and health problems in farming communities. The Bangladesh non-governmental organization UBINIG is working with tobacco farmers who have expressed a desire to move away from tobacco into other kinds of farming. As it cannot work with all households at the same time, the initiative needed to form subgroups that could conduct experiments and assess alternatives to tobacco. In a process designed and facilitated by D. Buckles, UBINIG used *Social Domain* to identify different farmer profiles they would need to work with in each major region. The exercise revealed that farmers in a well-established tobacco growing area were made up of households with one of four profiles: (1) younger tobacco farmers; (2) older farmers with small areas of tobacco and food crops; (3) tobacco traders with limited tobacco production of their own; and (4) older, land-rich farmers who no longer engaged in tobacco farming. It also suggested that being involved in the tobacco trade is particularly important to land-poor farmers (such as Razzak, Azizul and Huq), giving them a distinct profile that should be taken into account when evaluating alternatives to tobacco production. These patterns, represented in the Principal Component graph, account for about 78% of the variance within the observed system (see percentages on the horizontal and vertical axes). A plan was developed to engage each of the household types in monitoring and evaluation of the impact of alternatives to tobacco on livelihoods. Different profiles were identified in regions with a shorter history of tobacco farming, or where ethnic minorities were an important part of the farming population.

Characteristics	Aminul	Hakim	Razzak	Azizul	Nazmul	Alim	Abu Taleb	Huq	Salam
No/little tobacco (1)	1	2	2	2	2	2	3	3	6
Large tobacco fields (6)									
No/little farmland (1)	6	4	1	2	6	4	2	3	6
Big farm (6)									
Few food crops (1)	5	3	4	4	5	2	2	4	3
Many food crops (6)									
Rare tobacco trade (1)	1	1	5	4	2	1	1	6	6
Frequent tobacco trade (6)									
Young (1)	3	6	4	2	4	6	5	4	2
Old (6)									



ADAPT

Social Domain can also be facilitated **without the use of a table**, thereby focussing attention on the discussion and the active engagement of participants in describing meaningful similarities and differences between them. There are five steps to this variation on *Social Domain*.

- Step 1** Divide all participants into random **groups of three**. Ask each group of three to identify two people in the group (a pair) that are the same in some way relevant to the domain or topic, and different from the third. Find a characteristic that is shared by the pair, and then the characteristic that makes the third person different.
- Step 2** Make a list of the distinctions between **characteristics and their opposites** obtained from all the groups. Discuss and clarify the meaning of each distinction. Group together the distinctions that are the same. Reduce the list to 4 to 6 distinctions that matter the most in the domain or topic area. To help interpret the results of the analysis, rank the pairs of characteristics in order of importance (see *Tips on characteristics*, p. 123).
- Step 3** Each participant **rates** himself or herself on each characteristic and its opposite, from 1 to 5. Ensure that participants have a common understanding of what the numbers on the scale mean for each characteristic and its opposite, or develop indicators. Each actor can record their ratings on a card showing the same characteristics, in the same order, and with the same format (see example card).
- Step 4** Ask each participant to find others that have cards with many row scores that are **identical or similar** (only one point apart in a majority of rows) to theirs. Give special attention to similarities in the rows that describe the most important characteristics. Encourage all participants to compare their cards with others until groups or 'families' with similar profiles are formed.
- Step 5** **Groups formed** around similar cards can then prepare and present to the whole group a brief description of the *characteristics group members have in common*. When a group presents their profile, others participants (individuals or groups) can **move closer** if they feel they are similar in significant ways or **distance** themselves if the differences are more important than the similarities. At the end of the exercise, participants should discuss the main differences observed between groups and plan strategies that draw on different but complementary profiles.

Actor's card: John S.						
Characteristics	1	2	3	4	5	Characteristics
Good listener				x		Good speaker
Organized			x			Creative
Efficient		x				Committed
Rallying person				x		Visionary
Experienced				x		Adventurous



Purpose To identify entry points into a system based on an assessment of how elements in the system interact to create specific behaviors and situations.

PRINCIPLES

A system is a set of interacting and interdependent parts forming an integrated whole. Each part can best be understood in the context of relationships with other parts and the whole system, rather than in isolation. *System Dynamics* helps people explore how they define and understand differences between parts of a system (e.g. elements in nature, stakeholders, factors, activities, skills or values), how parts interact with each other and how they relate to the whole. The method also invites participants to act based on their analysis of potential entry points into a system that offer opportunities for new learning and meaningful change.

System Dynamics is our adaptation of the input-output model used in economics to depict the interaction of sectors in an economy. Following are detailed instructions showing how the generic method can be adapted and applied to any topic, including elements in nature (*Ecological Dynamics*, p. 143), problems (*Causal Dynamics*, p. 145), activities (*Activity Dynamics*, p. 147), skills (*Skill Dynamics*, p. 149), stakeholders (*Network Dynamics*, 150), values (*Value Dynamics*, 152), and social systems involving the overall interaction of actors, problems and actions (*Social Dynamics*, p. 151).

Step 1 Define the **topic area** and identify the **key elements** or component parts of the system involved (see *Free List and Pile Sort*, p. 39). These should be **concrete**, distinct and clearly described. If the elements are **vague**, use the *Laddering Down* method in *Active Listening* (p. 38) to make them more specific and meaningful. Ask ‘*What do you mean by this?*’ or ‘*Can you give an example of this?*’ Another option is to use **description and storytelling** to explore the topic, and then use this information to identify the elements. Write or draw each element on its own card, with details on the back of the card or on a flip chart. When using a rating matrix, make a copy of each element card. For alternatives to using a matrix, see *Tips*, p. 141.

Step 2 Create a **table** on the floor or wall. Place one set of element cards in the top row and the other set (showing the same elements in the same order) in the first column.

Step 3 Decide on a **rating scale** to indicate the level of contribution that each element makes to other elements (for example, from 0 for no contribution to 10 for a maximum contribution). Develop indicators for points on the scale, if need be.

Elements	A	B	C	D	Total contribution
A	x				
B		x			
C			x		
D				x	
Total dependence					

System Dynamics

Step 4 Use the scale created in Step 3 to **rate the level of contribution** that each element currently makes to each other element. Ask ‘At what level does this (name the row element) contribute to that (name the column element)?’ Clarify the question and adapt it to the topic (see specific applications of *System Dynamics*). As in all rating exercises, the same score can be given to two or several elements.

Proceed with the rating exercise one **column** after another. Start by rating the extent to which row element B contributes to the element heading the column A. This will ensure that the direction of the contribution is clear and consistent. If participants invert the question and indicate how column A contributes to row B, insert the score in the appropriate cell and return to the questioning by column.

Record each score on its own card and write the **reason** given for each score on the reverse side of its card or on a flip chart. Place the **score cards** in the appropriate rows and columns of the table. Leave empty all cells that **combine an element with itself** (A contributes to A), unless the element interacts with itself (as do members within a stakeholder group, for instance).



Step 5 Once the table is complete, total all scores in each row and write **Total contribution** at the top of a new column to the right. Insert the total scores in this new column, in the appropriate rows. The column shows the total contribution of each row element to all other elements. (A different term for this column is used in *Ecological Dynamics*, *Causal Dynamics* and *Network Dynamics*.)

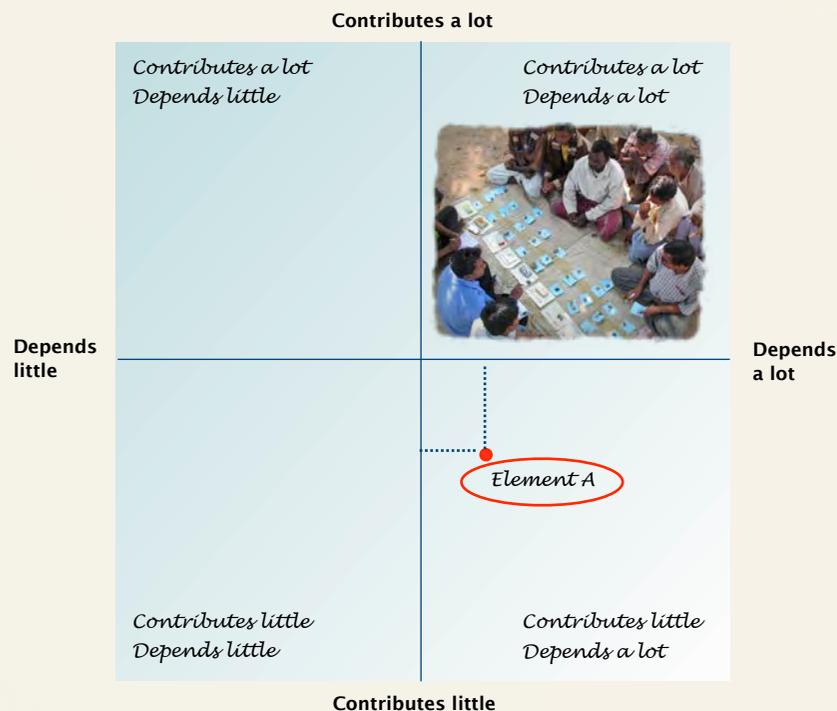
Step 6 Total all scores in each column and write **Total dependence** at the beginning of a new row below. Insert the total scores in this new row. This indicates the total dependence of the column element on all other elements. (A different term for this sum is used in *Ecological Dynamics*, *Causal Dynamics* and *Network Dynamics*.)

Step 7 Calculate the **dynamic interaction** between all elements by totaling all contribution scores and dividing the result by the maximum total score that could be obtained if all cells in the row (or the column) received the highest rating in the range. Insert the resulting percentage figure at the bottom of the last column.

Step 8 Create a **diagram** by drawing a vertical line that crosses a horizontal line of equal length. Write or draw a symbol representing the topic (identified in Step 1) above the diagram. Write at opposite ends of the vertical and horizontal lines the minimum score (usually 0) and the maximum possible score that could be obtained if all cells in a row or column received the highest rating in the range (for instance, the maximum total score that can be obtained with a list of four elements, where each element interacts with three other elements, using a scale of 0 to 10, is 30). Insert the number that represents the middle score (the sum of maximum scores in a row divided by two) where the lines cross. The **vertical line** indicates the total contribution of an element (its row total) and the **horizontal line**, its total dependence (or column total).

System Dynamics

- Step 9** Label the four corners of the diagram with the scenario obtained by combining the possible outcomes of each axis: elements that contribute and depend more (top right); those that contribute more and depend less (top left); those that contribute less and depend more (bottom right); those that contribute and depend less (bottom left). Note that the latter elements may be important even if they interact little with other elements in the system. To facilitate the analysis, find an idea or a symbol to represent each corner of the diagram.
- Step 10** To locate each element in the diagram, mark where the element's total contribution score is located on the vertical line and the element's total dependence score is located on the horizontal line. Draw a line from each location and insert the name of the element where the two lines meet.
- Step 11** Include in the diagram **other information** that may be useful for the analysis, such as the overall level of control that stakeholders have over each element in the system, the time and level of effort it would take to act on it, or the order in which people plan to act on certain elements. Use a **code** (such as capital letters, numbers, colors or circles) to identify elements with these characteristics (see examples below).

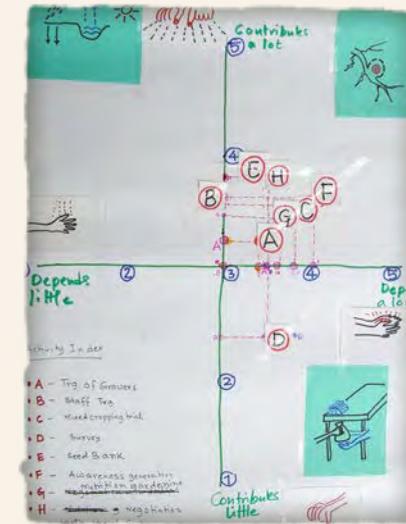


Odd scores that contradict the main tendencies of the diagram may also be important and affect the interpretation of results; one element (e.g. a project activity) that contributes little to other elements may still contribute a lot to one important element. To identify these odd scores, compare each cell score appearing in the rating table with the average row score to see if both scores are on the same lower side or upper side of the middle point of the scale (5 in a scale of 0 to 10, for instance). If a cell score is *not* on the same side as the average row score, compare the score with the average column score to see if both scores are on the same lower side or upper side of the middle point of the scale. If the cell score is *not* on the same side again, use bold font to highlight the cell score. Once these odd scores are identified, draw arrows in the diagram to indicate the relationships that **contradict the main tendencies** of the system. Use **continuous arrows** for scores above the middle point of the scale. These indicate bottom-side elements that contribute significantly to some elements located on the left side of the diagram (see example in *Ecological Dynamics*). Use **broken arrows** for scores below the middle point. These indicate upper-side elements that do *not* contribute significantly to some elements located on the right side of the diagram (see example in *Causal Dynamics*, p. 145).

INTERPRETING THE RESULTS

Step 12 Discuss the overall level of **dynamic interaction** of the elements calculated in Step 7 and review the location of the elements in the diagram, considering three possible scenarios: integration, hierarchy or dispersion.

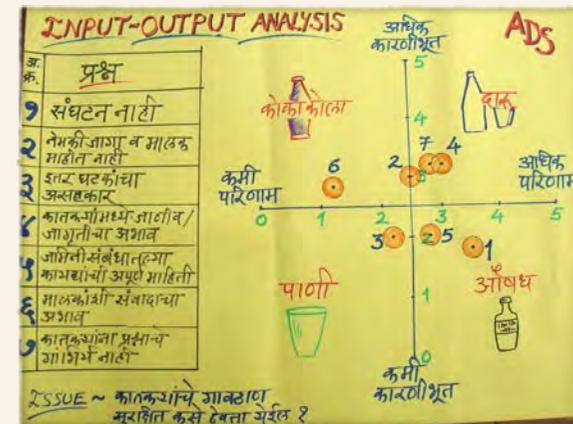
- There is **integration** in the system when many elements are located in the top right section of the diagram. This usually reflects a high score for dynamic interaction (above 60%, as calculated in Step 7). In an integrated system increasing or decreasing the contribution of one element in the top right section may in turn affect the level of contribution of all other elements located in the same section. The result is a chain effect that influences the dynamic interaction of all elements, including the element that receives initial attention (see example in *Network Dynamics*, p. 150).
- There is **hierarchy** in the system when the diagram consists mostly of top left elements and bottom right elements. This usually reflects a middle score for dynamic interaction (between 40% and 60%, as calculated in Step 7). In a hierarchical system, attention to elements in the top left section will automatically have an influence on the bottom right elements.
- There is **dispersion** or fragmentation in the system when the diagram consists mostly of elements in the bottom left section of the diagram. This usually reflects a low score for dynamic interaction (below 40%, as calculated in Step 7). Elements in this section may be important even if they interact little with other elements in the system. In a dispersed system, however, the elements interact little and can only be modified through direct actions (see *Activity Dynamics*, p. 147).



Step 13 **Summarize** the scenario or combination of scenarios that best describe the results in the diagram. Discuss the way that participants reached decisions at each step, the elements included and left out of the analysis, the kind of information or knowledge used to rate the elements, the contradictions identified and the other information added in Step 11. If need be, modify one or several elements considering the discussion, and recalculate the overall interaction of all elements (see Step 7). When completed, use this analysis to identify system entry points, rethink priorities or modify some elements so that they **interact differently** with the other elements. This is the key moment in the analysis, when participants can reflect on the meaning of their assessment and what to do to improve synergy in the system or overcome vicious circles that perpetuate problems in the system.

TIPS

- Be sure to review in detail the *Scoring Tips* (p. 45). These are critical to proper application of *System Dynamics*.
- The **elements** used in *System Dynamics* can be real or proposed (e.g. ongoing or planned activities in a project).
- A spreadsheet with formulas to calculate totals and create a Cartesian graph automatically is available at www.participatoryactionresearch.net.
- If some elements have a **negative** impact on other elements, use a **scale** that has negative scores (from -10 to 10, for instance; see *Ecological Dynamics*). Negative scores reflect conflict in the system.
- To focus on the rating discussion rather than the table, use a **flip chart to represent each column element**. On each flip chart place the rating cards that indicate the contributions other elements make to the flip chart element. Once the flip charts are completed, compile the scores in a table and go on directly to the diagram in Step 8. **Another option** is to make only one set of element cards and place these in a column in plain view of all participants. When discussing the elements, move the top card to one side and begin by asking to what extent do the remaining column cards contribute to the isolated element. Continue this line of questioning down the column, always referring to the isolated element card. Once these relationships have been scored and recorded in a table, return the top card to the column and pull out the next element card. All cards remaining in the column can then be discussed as elements contributing to the isolated card. Continue until all interactions have been assessed and recorded. Once the scores are compiled in a table, go on to the diagram in Step 8 and review the results and the process. Both of these options (flip chart and single column) lend themselves to a direct **conversational style** of facilitation focussing on rating of the elements rather than the construction of a table. It also makes it easier to use objects or drawings instead of written cards, and work in a smaller space.
- To compare current levels of interaction between elements with levels people are aiming for in the future, divide each cell of the table created in Step 2 into two parts and insert a score in each part. The first score to describe the **actual** contribution that an element makes to another, and the second score, the **ideal** contribution it should make. Write details on how to achieve the ideal contribution on the reverse side of each score card.



"Logic is a holistic machine. It creates systems out of distinct parts, with rules on how parts interact and relate to the whole. Unlike any machine, however, human logic must cope with complexity, learn from interaction, create meaning, adapt and evolve. To achieve this, the mind must design whole systems as systems with holes, with opportunities to challenge and improve the parts and meaning in the system. As Kafka put it, logic is doubtless unshakeable. But it does not withstand humans who want to go on living and learning." Chevalier. J. M. and Buckles, D. J. (2013) Participatory Action Research: Theory and Methods for Engaged Inquiry, Routledge UK, p. 400.



Elements	A	B	C	D	Total contribution
A	x				
B					
C					
D					x
Total dependence					

Ecological Dynamics

Ecological Dynamics helps describe how the components of an ecological system interact with each other. The tool may be used to support systems thinking concerning things in nature (such as plant species and varieties) or ecological processes (such as soil degradation or the dynamics of pollution). Understanding the system may help people decide where to focus attention and what relationships to change.

Elements	Rice	Maize	Sorghum	Barbaty bean	Pearl millet	Black gram	Sesame	Pigeon pea	Green gram	Total contribution
Rice	x	0	0	0	0	-3	0	0	-3	-6
Maize	-2	x	0	5	2	0	3	0	0	8
Sorghum	-3	0	x	5	0	-4	0	-4	-4	-10
Barbaty bean	-5	-3	0	x	0	-3	-4	-2	-3	-20
Pearl millet	-4	-5	0	5	x	-3	0	-4	-3	-14
Black gram	-3	0	0	0	0	x	0	0	0	-3
Sesame	-5	2	-3	-5	-5	0	x	-1	0	-17
Pigeon pea	-5	0	-2	4	-2	0	0	x	0	-5
Green gram	0	0	0	-3	0	0	0	0	x	-3
Total dependence	-27	-6	-5	11	-5	-13	-1	-11	-13	-70

Ecological Dynamics begins by defining an **ecological system** and listing the **components** of the system. The rating scale can include negative as well as positive values (for example, -10 to + 10). It focusses on the extent to which one component provides benefits to or harms other components in the system, and the extent to which each is helped by or harmed by other components. These can be seen as relations of cooperation (each component derives a benefit) or relations of exploitation or competition (each component benefits *at the expense of* the other). When rating, ask 'To what extent does this component (name the row component) provide benefits to or harm that component (name the column component)?' When both situations apply, estimate the net effect. The resulting matrix produces an index for **helps/harms other components** (vertical axis) and an index for **helped by/harmed by other components** (horizontal axis). See *System Dynamics* for generic instructions.



Ecological Dynamics

Summary: In this Indian mixed cropping system the most important crops (marked with circles) are rice, pigeon peas and sorghum. The analysis shows that some crops interact in positive ways. For instance, maize generally affects other crops positively or does no harm. It is also positively affected by sesame cultivation (as shown by the arrow). The growth of the barbaty bean benefits significantly from climbing on the stalks of maize, sorghum, millet and pigeon pea. On the whole, however, the diagram indicates that most crops affect other crops in slightly negative ways. This is tolerated by farmers because diversity in the system allows them to manage risk. If unpredictable environmental factors such as drought or pest attack affect some crops others will survive. When this happens, competition is eliminated, allowing the remaining crops to produce better. Farmers also adjust how much of each crop they sow and the planting time to meet specific priorities (markets, home use, feed for livestock, etc.). For example, a farmer may increase the ratio of rice in their field while reducing the ratio of pearl millet if market conditions are right. Source: Lundy, C. (2006) *Growing Seed Knowledge: Shifting Cultivation and Agricultural Biodiversity among Adivasi Communities in India*. MA Thesis in Anthropology, Carleton University, Ottawa.



"All forms of knowledge, including well-developed theories and methods, are like living organisms. They come to life by virtue of the distinctive features they possess and display. But their existence also hinges on their ability to adapt and mix characteristics and ideas scavenged from elsewhere. When life thrives on learning, the twain can never fully part. This means that apostles of either pure models or absolute muddles err on the side of simplicity. They ignore the fact that bodies of knowledge can be different from each other at the same time as they are profoundly mixed-up, just like humans." Chevalier, J. M. and Buckles, D. J. (2013) *Participatory Action Research: Theory and Methods for Engaged Inquiry*, Routledge UK, p. 429.

Causal Dynamics

Causal Dynamics helps assess how factors related to a key problem interact. The tool guides action when addressing a problem situation by targeting particular factors in the system (entry points).

Causal Dynamics focusses on relationships of **cause** and **effect** rather than relations of **contribution** and **dependence** explored in most other applications of *System Dynamics*. It begins by defining a **key problem** and listing the **factors involved**. Include the key problem in the rating matrix if it is distinct from other factors and interacts with them directly. Leave the key problem out of the rating matrix if the factors are examples of the key problem.

When rating, ask ‘To what extent does this (name the row element) cause that (name the column element)?’ or ‘At what level does this (name the row element) produce that (name the column element) as a consequence?’ The resulting matrix generates a cause index at the end of each row in the table (vertical axis in the diagram) and an effect index at the bottom of each column (horizontal axis in the diagram). Label the four corners of the diagram with the result obtained by combining the possible outcomes of each axis: factors that are **mostly causes** of other factors (upper left corner of the diagram), factors that are **mostly effects** of other factors (bottom right corner), factors that are both **causes and effects** (upper right corner) and factors that tend to be **independent** of other factors (lower left corner). See *System Dynamics* for generic instructions.

ADVANCED VERSION

Apparent and real weight

- 1 Some factors at the root of a key problem may have to be addressed **directly** even if they interact with other factors. To identify these, distinguish between the apparent and real weight of each factor. The **apparent weight** can be obtained by initially asking how important each factor is in relation to the key problem (as defined in Step 1). This reflects initial thinking about the weight of factors in a given context. Estimate the apparent weight using a **rating scale** of 1 to 10 and write the result in the corresponding cell in the top row of the table and the **sum** of all apparent factor weights in the last cell. Factors with very low scores may be left out of the analysis.
- 2 Complete Steps 4 to 7 (assessing interactions among factors) and then revisit the weight of each factor. Estimate how important the factor would be *if all the other factors were eliminated or did not exist*. This is the **real weight** of each factor and reflects thinking informed by the rating exercise regarding *the weight of each factor in isolation from other factors under analysis*. Use the same rating scale, making sure that the real weight is **less** than or the **same** as the factor’s apparent weight. Write the score next to the apparent weight in the corresponding cell in the top row of the table and the **sum** in the last cell.
- 3 Complete other steps including a diagram with the results (Steps 8 to 11). Review the apparent and real weight for each factor and adjust the **size of the dot** assigned to each factor. Use bigger dots when the **real weight of a factor is the same or close to its apparent weight**. This indicates that *the factor will remain significant even when other factors are eliminated*. Give special attention to these factors when interpreting the results. Factors that do not lose much of their real weight when other factors are addressed are **persistent** causes and may require more direct attention than initially thought.

Factors	Poor KM*	Weak innovation	Quantitative approach	RBM*	Weak partnering	Poor HRM*	Donor dependency	Cause index**
Weight: apparent, real	10, 2	7, 4	7, 4	6, 4	7, 6	8, 3	6, 5	51, 28
Poor KM	x	0	8	8	8	2	2	28/60
Weak innovation	10	x	6	8	4	4	2	34/60
Quantitative approach	10	10	x	4	4	10	0	38/60
RBM*	8	2	2	x	4	4	0	20/60
Weak partnering	8	8	8	0	x	8	0	32/60
Poor HRM*	8	10	10	4	8	x	6	46/60
Donor dependency	6	4	6	10	4	6	x	36/60
Effect index	50/60	34/60	40/60	34/60	32/60	34/60	10/60	234/420

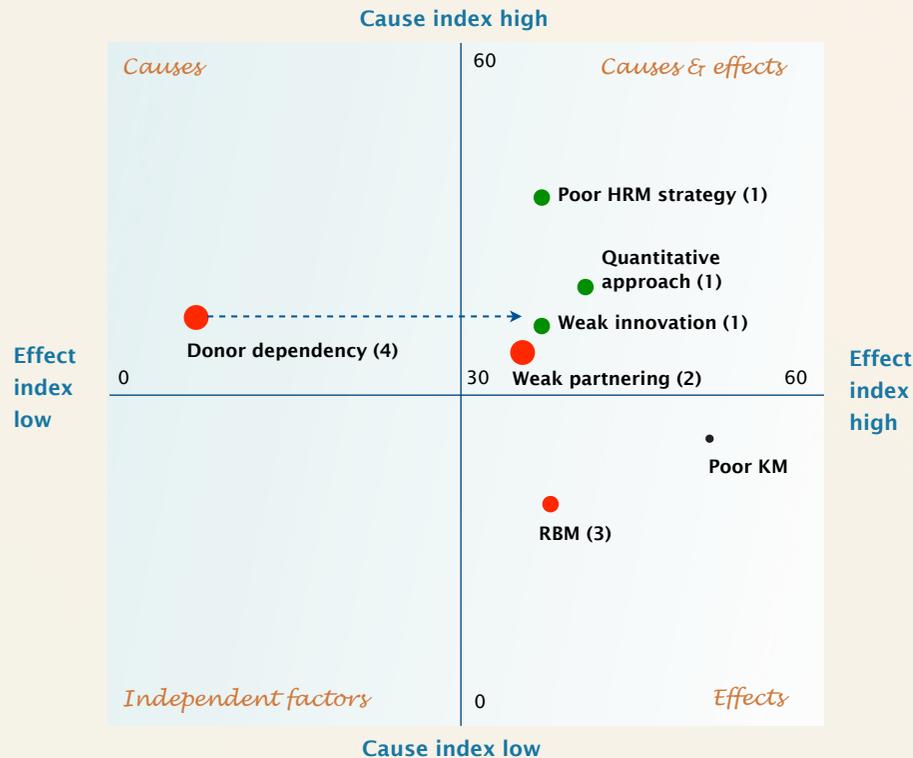
* RBM = Result-Based Management. KM = Knowledge Management. HRM = Human Resource Management.

** The Cause index and the Effect index correspond to the total factor contribution to and dependence on other factors, respectively.

Summary (see next page): This international volunteer organization feels that the way it manages knowledge is not as useful as it should be. Using the *Causal Dynamics* technique (and a rating scale of 0 to 10), participants choose to focus on the key factors in the top right of the diagram — factors that are both causes and effects of the problem (i.e. knowledge is not used). They discover that non-strategic management of human resources (poor HRM) is a major contributing factor. Since they have some control over this (empty dot) factor, they decide to free up some human resources and apply them to innovate in the field of Knowledge Management (KM). They can innovate despite their donor's accounting approach to KM (see arrow in the diagram) and the organization's overemphasis on periodic accounts of measurable results, (black dot) factors over which they have little control. Once these initial actions (number 1 in parentheses) are taken, the organization will then explore better ways to involve their partners in KM activities, a goal that will take time. Other objectives, such as rethinking the organization's dependence on a principal donor, are less urgent. In the long run, the organization may want to act on this factor directly or through causes not identified in this analysis.



Causal Dynamics



Legend: The **size** of each dot indicates the real weight of the factor. **Green** dots means participants have some control over the factor; **red** indicates little or no control. **Numbers** in parentheses reflect the order in which participants plan to act on each factor. A broken **arrow** indicates a weak causal relationship (odd scores contradicting main tendencies in the diagram).

Factor integration level

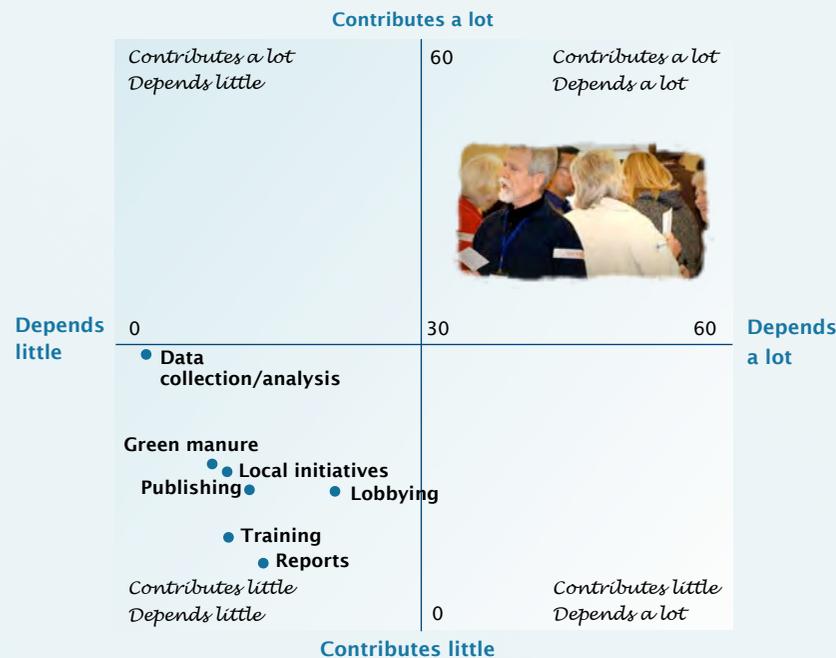
Step 7 in *System Dynamics* involves the calculation of the **dynamic interaction** between all elements. In the advanced version of *Causal Dynamics* this calculation may be influenced by persistent factors (factors with a real weight that is similar to its apparent weight). To take these into account, calculate the factor interaction level (FIL) by multiplying the **total cause index per cent** (the percentage figure at the bottom of the last column) by the **total real weight reduction**. The total real weight reduction is the total apparent weight (the sum of all apparent weights recorded in the last column) minus the total real weight (the total of all real weights recorded in the last column), divided by the total apparent weight. In short: $FIL = \text{total cause index per cent} \times (\text{total apparent weight} - \text{total real weight}) / \text{total apparent weight}$. In the example provided, the total cause index per cent is 55.7%, or 234/420. The real weight reduction is 45.1%, or $(51 - 28)/51$. Thus the factor interaction level is about 25%, or $55.7\% \times 45.1\%$, a moderate FIL. This measure helps to guide interpretation considering the three possible scenarios described under *System Dynamics*: integration, hierarchy and dispersion.



Activity Dynamics

Activity Dynamics helps describe how activities in a project or program interact with each other. The tool may be used to assess and increase synergy among activities and improve the overall efficiency and effectiveness of the system.

ACTIVITIES	RESEARCH			ACTION			TRAINING	Total contribution
	Data collection/ analysis	Publishing	Reports	Green manure	Local initiatives	Lobbying		
Data collection/analysis	x	8	6	1	3	8	3	29/60
Publishing	0	x	2	1	1	6	0	10/60
Reports	0	2	x	0	0	2	0	4/60
Green manure experiments	2	3	5	x	2	3	1	16/60
Local initiatives	1	2	4	2	x	4	2	15/60
Lobbying	0	0	0	2	4	x	7	13/60
Training	0	0	0	6	3	0	x	9/60
Total dependence	3/60	15/60	17/60	12/60	13/60	23/60	13/60	96/420



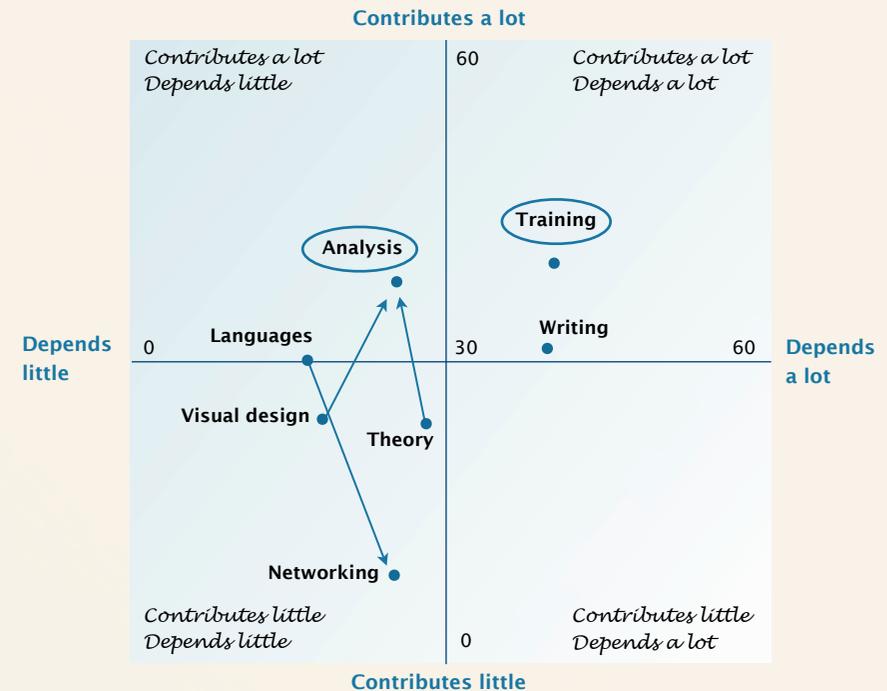
Activity Dynamics begins by defining a set of actions, a project or a program and listing the **activities involved**. It focusses on the extent to which one activity contributes to or depends on other activities. When rating, ask ‘To what extent does this activity (name the row activity) contribute to that activity (name the column activity)?’ The resulting matrix produces an index for ‘**Contributes to other activities**’ (vertical axis) and an index for ‘**Depends on other activities**’ (horizontal axis). See *System Dynamics* for generic instructions.

Summary: This project involves research and action mostly, with some training. On the whole, the interaction between the corresponding activities is very weak; each activity makes a limited contribution to other activities. Data collection and analysis contributes the most, and lobbying depends the most on other activities. Changing how these activities are carried out could increase synergies.

Skill Dynamics helps assess how each skill applied to a set of activities, project or program contributes to other skills and depends on them at the same time. The tool may be used to assess and increase synergies among the individual or group skills involved in achieving goals.

Skill Dynamics begins by defining a set of activities, a project or a program and listing the **skills involved**. It focusses on the extent to which one skill contributes to or depends on other skills. When rating, ask ‘To what extent does this skill (name the row skill) contribute to that skill (name the column skill)?’ The resulting matrix generates an index for ‘**Contributes to other skills**’ (vertical axis) and an index for ‘**Depends on other skills**’ (horizontal axis). See *System Dynamics* for generic instructions.

Summary: Training and analysis (circled) are the skills with the highest levels of satisfaction. Together with writing they contribute the most to other skills. Skills in theory and visual design are helpful when doing analysis, and languages are helpful when doing networking (see arrows in the graph). By contrast, networking skills contribute little to other skills in this system.



Skills	Analysis	Training	Languages	Networking	Visual design	Theory	Writing	Total contribution
Analysis	x	8	2	0	7	9	8	34/60
Training	5	x	4	8	5	6	9	37/60
Languages	1	9	x	9	1	2	8	30/60
Networking	0	4	3	x	0	0	0	7/60
Visual design	6	9	0	0	x	4	6	25/60
Theory	7	5	0	2	4	x	7	25/60
Writing	7	6	7	3	1	7	x	31/60
Total dependence	26/60	41/60	16/60	22/60	18/60	28/60	38/60	189/420 (45%)

Network Dynamics

Network Dynamics helps assess the network of influence, trust or information that exists between stakeholders involved in a particular situation or project.

Network Dynamics begins by defining a situation or project and listing the **stakeholders involved**. It assesses an existing network using one of three criteria: the extent to which each stakeholder **informs**, **influences** or **trusts** other stakeholders. See *System Dynamics* for generic instructions.

- A **network of influence** (or power) is a set of connections where people use their prestige, wealth, knowledge or position to affect other people's decisions. When rating, ask 'To what extent does this stakeholder (name the row stakeholder) influence that stakeholder (name the column stakeholder)?' The resulting matrix produces an index for '**Influences others**' (vertical axis) and an index for '**Influenced by others**' (horizontal axis).

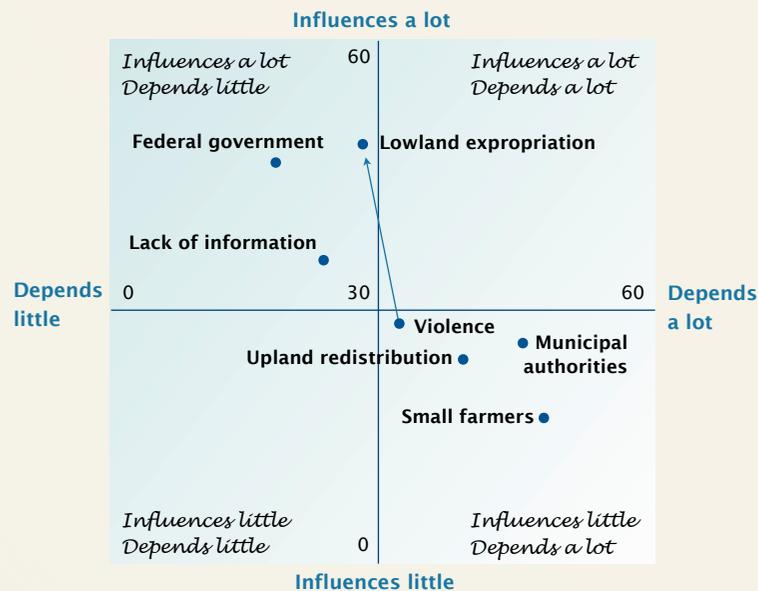
Stakeholders	Small farmers	Municipal authorities	Ranchers association	Agricultural laborers	Catholic Church	NGO	Teachers	Trusting
Small farmers	x	2	1	2	7	5	5	22/42
Municipal authorities	3	x	6	1	4	0	2	16/42
Ranchers association	4	7	x	3	2	0	3	19/42
Agricultural laborers	2	0	2	x	6	4	4	18/42
Catholic Church	6	5	5	7	x	5	7	35/42
NGO	5	0	0	3	3	x	2	13/42
Teachers	5	4	4	7	6	5	x	31/42
Trusted	25/42	18/42	18/42	23/42	28/42	19/42	23/42	154/294 (52.4%)

- A **network of trust** is a set of connections where people show confidence in other parties and rely on them to provide support, to behave in appropriate ways and to do what they are expected to do. When rating, ask 'To what extent does this stakeholder (name the row stakeholder) trust that stakeholder (name the column stakeholder)?' The resulting matrix produces an index for '**Trusts others**' (vertical axis) and an index for '**Trusted by others**' (horizontal axis).
- A **network of information** is a set of connections where people pass on knowledge or views to other people. When rating, ask 'To what extent does this stakeholder (name the row stakeholder) transmit knowledge or views to that stakeholder (name the column stakeholder)?' The resulting matrix produces an index for '**Informs others**' (vertical axis) and an index for '**Informed by others**' (horizontal axis).

Social Dynamics

Social Dynamics (also known as *Sinfonie*) helps assess the ways in which key stakeholders, key problems and significant actions influence each other in a particular situation.

Factors	Lowland expropriation	Upland redistribution	Lack of information	Violence	Small farmers	Municipal authorities	Federal government	Total contribution
Lowland expropriation	x	8	7	8	7	9	10	49/60
Upland redistribution	2	x	4	2	9	7	1	25/60
Lack of information	6	5	x	5	8	8	2	34/60
Violence	7	2	2	x	8	8	2	29/60
Small farmers	2	8	1	4	x	4	2	21/60
Municipal authorities	2	7	3	4	7	x	4	27/60
Federal government	8	7	8	8	8	8	x	47/60
Total dependence	27/60	37/60	25/60	31/60	47/60	44/60	21/60	232/420 (55%)



Social Dynamics begins by defining a situation and listing the **key stakeholders, problems and actions** involved. It focusses on the extent to which one element in the situation interacts with others. When rating, ask 'To what extent does this (name the row element) affect or influence that (name the column element)?' The resulting matrix produces an index for '**Influences other elements**' (vertical axis) and an index for '**Depends on other elements**' (horizontal axis). See *System Dynamics* for generic instructions.

Summary: The *federal government* is actively supporting current plans to *expropriate* half of the communal lowlands. This has led to acts of *violence*, which may affect the federal government's public image and power to expropriate the land (see continuous arrow in the diagram). This response (together with more information on communal land entitlements) may force the federal government to pressure the *municipal authorities* to endorse the *small farmers'* proposal to *redistribute* the remaining communal uplands as individual plots.

Value Dynamics helps assess how the values, moral principles or rules of ethical conduct that people adopt when taking a position or acting on a key problem interact with each other. The tool may be used to describe and reflect on the relationship between supporting values (acting as means) and values expressing end goals or effects.

Value Dynamics begins by defining a key problem or a set of actions and listing the **values people apply** and refer to in relation to the problem or actions. It focusses on the extent to which one value supports and is supported by other values people apply to the problem or action. When rating, ask ‘To what extent does the application of this value (name the row value) support the application of that value (name the column value)?’ The resulting matrix produces an index for ‘**Supports other values**’ (vertical axis) and an index for ‘**Supported by other values**’ (horizontal axis).

The value system resulting from the analysis can reflect one of three possible scenarios: integration, hierarchy and fragmentation. In an **integrated** value system, values support each other, acting as rules of ethical conduct and end goals or effects at the same time (top right section). In a **hierarchical** value system, top left rules of ethical conduct support bottom right end goals. In a **fragmented** value system, moral principles and rules of ethical conduct interact little and are applied to the key problem independently of each other. See *System Dynamics* for generic instructions.



Values	Fairness	Dialogue	Development	Understanding	Peace	Total contribution
Fairness	x	4	7	2	10	23/40
Dialogue	8	x	8	9	10	35/40
Development	0	2	x	2	1	5/40
Understanding	7	2	6	x	6	21/40
Peace	3	7	6	8	x	24/40
Total dependence	18/40	15/40	27/40	21/40	27/40	108/200 (54%)

Summary: In this project achieving *peace* and a better *understanding* of reality are supporting values and end goals at the same time. They represent core values that support and are supported by other values in the system. *Dialogue* and *fairness* play the role of supporting values (or means), while *development* is mostly at the receiving end of other values (an end goal).

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