

# Evaluation of Education for Sustainability Programs

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## What is the purpose of this section?

To introduce:

- the key concepts of evaluation in Education for Sustainability
- the document *Measuring effectiveness: Evaluation in Education for Sustainable Development*
- excerpts from *Measuring the success of Environmental Education programmes*
- links to further resources on evaluation.

## What are the key concepts of evaluation in Education for Sustainability?

Evaluation is an integral part of any Education for Sustainability program and the evaluation plan should be developed in the planning or design phase of the program. There are a number of key reasons for evaluating programs including:

- to measure learning
- to assess progress
- to improve the quality of your program
- to enhance accountability
- to communicate results
- to build up a body of evidence of effectiveness in EfS.

The above should be assessed using both formative and summative evaluation techniques.

**Formative evaluation** produces information that is fed back during the course of a program to improve it, a more informal method of this is known as 'feedback'.

**Summative evaluation** is done after the program is finished and provides information about its **effectiveness**.

Programs will normally generate both outputs, outcomes and impacts.

- **Outputs** are materials or resources that are generated as part of the educational project. They are the tools for the achievement of the outcomes. Outputs are usually measured as are statistics and indicate hardly anything about the changes in participants. Examples of outputs could be maps, reports or brochures.
- **Outcomes** are results related to the project objectives. They describe the changes that occur in people, organisations or communities as a result of your program. These are the actual benefits or changes for participants during or after the program. There are two types of outcomes:
  - educational outcomes which can be expressed in terms of enhanced learning such as increased knowledge, enhanced skills or positive changes in attitudes
  - issues-based outcomes such as increased levels of recycling. Outcomes are often hierarchical, i.e. there may be different levels of

outcomes. Outcomes can be thought of as the structure that needs to be in place in order to provide the environment for achieving the impacts. Another way of thinking of outcomes is as stepping stones towards the ultimate impacts or the vision. Examples of outcomes could be increased levels of understanding of an environmental issue, improved management of an environmental reserve, new legislation, or enhanced capacity to work for the achievement of conservation goals.

- **Impacts** are the longer term changes that you hope the project will help create and underlines why the project is important<sup>1 2</sup>. Impacts can also be educational or issues based. Examples of impacts could be long term improvement of the biodiversity of an ecoregion, increased numbers of an endangered species or an active engaged citizen.

In Education for Sustainability we are more interested in the outcomes and impacts of a program.

**Examples of outputs, outcomes and impacts from the Mentoring Local Government in EfS project**

<b>Output</b>	<b>Outcome</b>	<b>Impact</b>
The handbook	Increased capacity to identify elements of effective EfS practice.	Local government using education and learning processes effectively as a tool for sustainability.

There is also a need to differentiate between an effective program and a successful program. A **successful** program is one which has achieved its planned objectives or outcomes. An **effective** program is one which has high impact. It is a strategic program which makes good use of resources (or outputs) to maximise impacts.

Any evaluation should look at the following aspects of the program:

- Planning
- Design
- Management
- Processes
- Outcomes
- Impacts.

and should follow the following cycle:

- Plan evaluation
- Choose evaluation
- Collect data
- Analyse evidence

- Communicate results
- Revisit purposes
- Find out/review needs.

This is only a brief summary of the key concepts of evaluation of EfS programs. The following excerpts from two documents develop these themes in more depth.

## **Measuring Effectiveness: Evaluation in Education for Sustainable Development**

*Paper by the Council for Environmental Education, UK  
Text-only version downloaded from [www.cee.org.uk](http://www.cee.org.uk)  
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### **Who is this guide for?**

Do you work in an organisation involved in environmental education and Education for Sustainable Development (ESD)? As part of your job, do you need to know how effective your learning programmes are? Do you need to provide feedback to your users, funders, managers, colleagues, partners or other interested groups?

If the answer to any of these questions is yes, then this guide will help you and your organisation. It provides a model to help you to integrate evaluation into the planning and delivery of learning programmes. It also directs you to relevant sources of information on existing evaluation tools.

### **Why evaluation?**

Thinking about evaluation needs to be integral to the planning and implementation of learning programmes as this enables you to determine from the outset how you will make judgments, based on evidence, about the outcomes, value and quality of a programme.

#### *What are the benefits of evaluating in ESD?*

- to measure learning – to find out who has learned what
- to assess progress – to find out whether objectives have been met
- to improve the quality of your programme – to reflect on what is happening and plan further developments
- to enhance accountability – to demonstrate results to funders, managers and colleagues within the organisation
- to communicate results – to those directly involved, to colleagues within the organisation, and to wider audiences
- to build up a body of evidence of effectiveness in ESD – to help understand what works (and in what ways) in a variety of contexts.

### **Evaluation ... scary idea?**

In 2003, the Council for Environmental Education carried out a survey of existing evaluation practices amongst government agencies, professional associations, and non-governmental organisations working in the sector. The findings showed that, although many recognised the importance of evaluation, it is not always straightforward to measure the effectiveness of learning programmes in relation to

sustainable development. The survey highlighted what people saw as the main barriers:

- difficulty of measuring long-term results of programmes
- lack of time and resources
- lack of internal expertise
- differing requirements from funders and managers.

However, carrying out your own evaluations does not need to be onerous or take up disproportionate amounts of time. It can be enjoyable and professionally rewarding.

### **Plan the evaluation**

*What is the purpose of your evaluation?*

Depending on the time and resources available, you need to decide what you want to find out and the reason for doing it.

- Do you want to focus on the outcomes of the programme, the whole process, or both?
- Do you want to gather information during the programme to review progress and make adjustments as you go along (formative evaluation)? Or only to make judgements about the overall effectiveness of the programme (summative evaluation)?
- How will your evaluation be linked to your partners' and funders' interests and requirements?

It is important to be clear about what your evaluation can and cannot do. You need to be selective and realistic about what you want to measure. Asking realistic questions will enable you to gather information that is meaningful and relevant to your organisation. For example, it will be difficult to find evidence that your programme has encouraged long-term change in participants' values and behaviours. It might be more appropriate to find out whether it has encouraged and/or enabled them to think critically about how they live their lives.

*What do you need to find out?*

As part of the planning or review of your programme you will have identified the needs of your participant groups. Deciding whether you have met these needs has to be part of your evaluation. You will also have identified clear objectives. Part of the process of setting objectives is to agree desired outcomes (including learning outcomes) that will be measurable to varying degrees. These will help define what you are trying to achieve and the information you need to collect to measure what has actually been achieved.

### **Areas of learning in Education for Sustainable Development are likely to include:**

- **knowledge and understanding**  
learning new knowledge, viewing prior knowledge in new ways, applying knowledge to new contexts, enabling deeper understanding, acquiring new insights, appreciating inter-connectedness
- **intellectual, practical and social skills**  
becoming more skilled, being able to do new things, being able to do things in new ways, being innovative and creative

- **worldviews, values and attitudes**  
changing perceptions, understandings, convictions and feelings about yourself in relation to other people and the world, knowing what you believe, knowing what you value, and why
- **actions and lifestyles**  
getting involved, arguing for personal viewpoints and actions, making a difference, re-thinking how you live and why
- **enjoyment and satisfaction**  
being engaged, having fun
- **learning**  
learning about how people learn, learning how you learn, knowing when/what you have learned.

## Evaluation jargon

### *Goals*

The intended outcomes (may be expressed as aims or objectives).

### *Activities*

What is done in a programme and how (focus/content/method).

### *Inputs*

Materials and resources that are used in a programme.

### *Outputs*

The material products that result from a programme (tools for the achievement of outcomes, e.g. training courses delivered, resource produced).

### *Outcomes*

Achievements or changes brought about by a programme. These can be tangible and/or provide a supportive context for longer-term development.

### *Impacts*

Everything that accrues from a programme whether positive or negative, intended or unintended, long-term and short-term.

## Choose your approach

### *Who will be involved?*

Depending on what you want to know, you need to decide who will be included in the collection of information (staff, facilitators, participants, volunteers, partners, end users, others). Try to make the evaluation as participative as possible so it captures the various perspectives of those directly involved in the programme (e.g. include participating teachers in formulating questions to measure the effectiveness of your education programme). If you have to sample views, how large must your sample be to obtain useful and representative data?

### *What kind of data do you need to collect?*

Decide on the kind of information you need to collect or generate as part of your evaluation. Do you need to collect descriptive or narrative data based on experiences and perceptions (**qualitative** data)? Or do you need to collect numerical data based on scores and frequencies (**quantitative** data)? You may need to collect both.

### *What methods will you use?*

Select appropriate ways of collecting evidence by asking yourself questions such as:

- Are we involving a wide enough range of people in order to obtain different perspectives?
- Is our approach user-friendly, time-efficient and cost-effective?
- Are we in danger of collecting data we don't need?

### *What is Validity and Reliability?*

**Validity:** Does your method or tool measure what it is supposed to measure?

**Reliability:** If someone else used the same method or tool, with the same group at the same time, would they obtain similar results?

### *Use more than one source of data*

To improve the quality of your data, and to reduce bias, use more than one method of collecting information and gather views from different groups of respondents. This is called **triangulation**. For example, questionnaires, direct observations and face-to-face interviews could be used to gather the various perspectives of those involved (e.g. project managers, volunteers, parents, young people, local residents, partners, local businesses, etc). Evidence of success (or otherwise) is most plausible where a variety of perspectives, collected in different ways, point more or less to the same conclusion.

### **Why do we need to collect data? What is data and how do we collect it?**

Select the appropriate tools to collect the information you need in relation to your evaluation aim and questions. Many tools are available, providing step-by-step guidance and templates. To save time and effort, you might try to use or adapt them (see Resources, pages 8/9). Make sure that the tools you use are appropriate to your audience (e.g. if you work with children or people with learning difficulties). You also have to think about who will be involved in the collection of data (e.g. staff, external evaluators, the participants themselves). Decide when you need to collect your data and how often.

**Questionnaires** and **surveys** might be best to find out about an increase in knowledge and understanding after a short session at a centre or use of a new resource. They are not expensive and can be easy to analyse, quick to administer, and can gather a lot of data. BUT the questions need to be worded carefully, respondents' interpretations of questions may vary and they do not allow measurement of progress on more complex aspects of learning. It is always necessary to pilot a questionnaire.

**Interviews** with open questions might be better to gather more in-depth information and insights into what has been learned. They are more flexible, allow clarification of responses and allow unanticipated outcomes to be uncovered. BUT they can be intensive, time consuming and expensive. They are dependent on the person doing the interview. Data need to be transcribed and can be hard to analyse and compare.

**Focus groups** are useful to gather ideas and different viewpoints about what has been learned in a short time. BUT the information gathered cannot always lead to generalisations and responses can be difficult to analyse. Meetings are difficult to schedule and need the skills of a good facilitator.

**Observations** (structured or unstructured) can be useful in obtaining data about how people think and feel, and what they do. BUT they tend to be expensive and time consuming, require certain skills to conduct, and the data collected might be difficult to categorise and analyse.

### **Analyse evidence**

Now that you have collected and processed your data, how do you make sense of it in relation to your evaluation aims and questions?

Evaluation allows you to think about what has been learned, what you might do differently next time and how you can build on the most successful areas of your programme. It can also contribute to changes and development in your organisation.

#### ***You need to ask questions such as:***

- To what extent were our aims and objectives achieved? How do we know? What evidence do we have?
- To what extent did participants meet their own objectives?
- To what extent did our partners meet their objectives?
- To what extent were the approaches/learning activities appropriate?
- What else did we learn?
- What else happened that was significant?
- What might we do differently?
- What will we do next?

### **Communicate results**

To strengthen the case that education and learning are key to sustainable development, good practice needs to be shared and disseminated.

Decide with which groups, both inside and outside the organisation, you need to communicate. How will you tell them about what has been achieved through your programme?

#### ***You need to ask questions such as:***

- What achievements should we communicate (including how we overcame unforeseen problems) and to whom?
- What are the compelling stories to get us noticed and engage the media and other groups?
- What are the best mechanisms to have an impact on those who influence and support ESD (policy makers and others)?
- How can we make the language accessible to our audiences?

A **review meeting** with participants, partners and other interest groups might be the best way to communicate results to those directly involved in the programme.

A **written report** or **verbal presentation** might be more appropriate for colleagues in the organization or funders.



A **conference** can provide feedback to other organisations working in the sector, policy makers, funders, researchers and a wider audience.

A **case study** can enable readers to think critically about their own work and refine their practice in ways appropriate to their own needs and context.

A **journal article, newsletter** or **press release** can target different interest groups, for example, young people.

A **summary** or **report on your website** can reach a wider audience and get feedback.

### **Revisit purposes**

What is next? How do you want to modify and improve your programme?

#### ***You need to ask questions such as:***

- What are the strengths of our programme and how can we build on this?
- What new areas of work are needed?
- Do we need to review priorities and resources (staff, budget, training, etc)?
- Do we need to set up, continue or extend partnerships (link to a new audience, gain funding, develop resource)?
- How will we review our education policy in relation to what has been learned and what is needed?

### **Find out/review needs**

Learning programmes are most likely to be successful if they:

- respond to real needs, as established through research and consultation with participants
- target a specific audience
- provide something new and appropriate for the audience
- fit in with priorities at local, regional and national level.

### **The evaluation cycle**

#### ***Plan evaluation***

- What is the purpose of our evaluation?
- How can the evaluation be linked to the partners' and funders' interests and requirements?
- What do we need to find out to gauge our achievements?
- When do we need to be doing this?
- Have we allocated resources for the evaluation?

#### ***Choose approach***

- Who will we involve in the evaluation?

- What kind of data do we need to collect?
- What methods will we use and why?
- How will we ensure these are valid and reliable?
- Are we using more than one source of data?
- Are we involving a wide enough range of people to obtain different perspectives?

### ***Collect data***

- What are the best tools to collect the information we need and to engage people?
- Can we adapt existing tools or do we need to devise new ones?
- When do we need to gather the data (before, during and/or after the project) and how often?
- Who will be involved in the collection of data (staff, external evaluator, participants, etc)?

### ***Analyse evidence***

- What do the data gathered tell us about:
  - the overall effectiveness of our programme?
  - what went well/poorly?
  - who learned what?
  - what needs doing as a result?

### ***Communicate results***

- What achievements do we want to communicate, and to whom?
- What are the best ways to communicate these effectively?
- Is the language accessible to our audience?
- What are the best ways of having an impact on those who influence and support ESD - policy makers, practitioners and others?

### ***Revisit purposes***

- How can we build on the strengths of our programme?
- What new areas of work (or emphasis) do we need to consider?
- Do we need to:
  - review objectives, priorities and resources?
  - set up, continue or extend partnerships?
  - review our education policy?

### ***Find out/review needs***

- What are the real needs of our participants?
- Which audience do we need to target?

- Do we provide something new through our programme?
- Does it fit with priorities at local, regional and national level?

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# Measuring the success of Environmental Education programmes

The following excerpts are taken from Hoffman, J. and Thomson, G., 2003 Canada: Network for Environmental Education. *Measuring the success of Environmental Education programmes* [www.cpawscalgary.org/education/evaluation](http://www.cpawscalgary.org/education/evaluation)

## What is Evaluation?

Evaluation is a scary word. My experience has been that as soon as you use that word, people get their backs up and feel like **they** are going to be evaluated, and hence judged. It gets personal very easily.

We as humans evaluate all the time. Listen in on conversations and you'll hear: 'I loved that movie last night'. 'He is a terrible cook!' 'That car isn't worth the price they're charging.' In more formal terms, most of us have **been** evaluated by teachers through the school system or by employers in the work place – often leaving us with negative connotations about both the process and the end results.

Evaluation is a term that is used to represent judgments of many kinds. What all evaluations have in common is the notion of judging merit. Someone is examining and weighing something against an explicit or implicit yardstick. The yardsticks can vary widely, and include criteria such as aesthetics, effectiveness, economics, and justice or equity issues.

One useful definition of program evaluation is provided below, with an analysis of its components:

Evaluation is the **systematic assessment** of the **operation and/or the outcomes** of a program or policy, compared to a set of explicit or implicit **standards**, as a means of contributing to the **improvement** of the program or policy.

(Weiss, 1998)

Dr. Weiss breaks the definition down into several key elements, which serve to highlight the specific nature of evaluation:

**Systematic assessment:** this emphasizes the *research* nature of evaluation, stressing that it should be conducted with rigor and formality, according to accepted research canons. Therefore, an evaluation of an environmental education program should follow specific, well-planned research strategies, whether qualitative or quantitative in nature. Scientific rigor can take more time and be more costly than informal methods, yet it is an essential component of successful evaluations. This is especially so in education, where outcomes are complex, hard to observe, and made up of many elements that react in diverse ways.

The **activities and outcomes** of a program are the *actual focus* of the evaluation – some evaluations study process while others examine outcomes and effects. An educational program evaluation would usually look at both the activities of the program (how it's delivered, by whom, etc.) and its outcomes for participants (skills, knowledge, attitudes, values change, etc.).

**Standards for comparison:** this is a set of expectations or *criteria* to which a program is compared. Sometimes it comes from the program's own goals or mission statement, as well as from the objectives of program sponsors, managers and practitioners.

**Improvement of the program:** the evaluation should be done not to point fingers or assign blame but to provide a positive contribution that helps make programs work better and allocates resources to better programs.

## A. Evaluation Planning: A Background

*One does not plan and then try to make circumstances fit those plans.*

*One tries to make plans fit the circumstances.*

General George S. Patton, 1947

*'Begin at the beginning,' the King said gravely, 'and go on till you come to the end: then stop.'*

Lewis Carroll, 1865

Evaluation has become very popular over the past two decades, as an important tool for program funding and decision-making, organizational learning, accountability and program management and improvement. How do we as environmental educators go about developing evaluation programs that work for us?

Evaluation planning can be a complex and cyclical process. One must identify the key questions for a study, decide on the best measurements and techniques to answer the questions, figure out the best way to collect the data, develop an appropriate research design, implement it and promote appropriate use of the results. Here are some evaluation definitions and descriptions to provide some background.

### Formative and Summative Evaluation

Michael Scriven introduced these two terms, formative and summative, in 1967, to describe the evaluation of educational curriculum. **Formative evaluation** produces information that is fed back during the course of a program to improve it. **Summative evaluation** is done after the program is finished, and provides information about its effectiveness. Scriven later simplified this distinction, as follows: 'When the cook tastes the soup, that's formative evaluation; when the guest tastes it, that's summative evaluation.' (In Weiss, 1998, p. 31)

Programs are seldom 'finished'; they continue to adapt and modify over time, in response to internal and external conditions. Therefore, the need for 'formative' information continues – to be fed back to program staff to improve the program.

## Outcome and Process-Based Evaluation

Focusing on the results of a program or its outcomes is still a major aspect of most evaluations. **Outcomes** refer to the end results of a program for the people it was intended to serve – students, teachers, and volunteers – whoever your audience is. The term **outcome** is often used interchangeably with *result* and *effect*. Some outcomes of a program are the results the program planners anticipated. Other outcomes however are effects that nobody expected – and sometimes that nobody wanted – yet are important information for program improvement. Change is a key word here – what is the *change* that results from a particular program? Is it an increase in something, such as knowledge? Or a decrease in something, such as environmentally detrimental behaviour?

The *process* of a program is also important to evaluators – a systematic assessment of *what is going on*. Evaluators need to know what the program actually does – what is actually happening on the ground. Sometimes process is the key element of success or failure of a program – how is it delivered, what services does it provide, is there follow-up, do students like it? Studying program process also helps one to understand outcome data.

Initially, there seems to be a lot of similarity between formative-summative and process-outcome evaluations. However, the two sets of terms have quite different implications. Formative and summative refer to the *intentions* of the evaluator in doing the study – to help improve the program or judge it. Process and outcome have nothing to do with the evaluator's role, but relate to the *phase* of the program studied. Often there is a combination of evaluations going on – the study of a program's process or what goes on during a program, in a formative sense, combined with a look at outcomes – the consequences for participants at the end.

## B. Conditions Unfavourable for Evaluation

There are four circumstances where evaluation may not be worthwhile: review your program with these in mind before beginning.

### 1. When the program has few routines and little stability.

This might be the case with a new program that needs to be piloted and established before any systematic evaluation can occur. It can also occur if the program has no consistent activities, delivery methods, or theories behind it. However, a formative evaluation done through a pilot phase may help identify these gaps more clearly.

### 2. When those involved in the program can't agree as to what it is trying to achieve.

If there are big discrepancies in perceived goals, staff are probably working at cross-purposes. Again, the coherence of the program is in doubt, and while a process-based evaluation might be helpful, an Outcomes-Based Evaluation would have no criteria to use.

### 3. When the sponsor or program manager sets limits as to what the evaluation can study, putting many important issues off limits.

This occurs rarely, when the sponsor or manager wants a 'whitewash' job from an evaluation. Avoid at all costs!

### 4. When there is not enough funds, resources, or staff expertise to conduct the evaluation.

Evaluations call for time, money, energy, planning and skill: it is important to ensure these are in place for a successful product. This is beyond a doubt the single most prevalent reason that program evaluations are either not done or are not adequate.

## Pros and Cons of Evaluation Instruments

The following table is a summary of the advantages and disadvantages of different evaluation instruments.

Instrument	Advantages	Disadvantages
<p><b>1. Questionnaires and Surveys</b></p> <p>Types include:</p> <ol style="list-style-type: none"> <li>1. Self-administered.</li> <li>2. Interview administered by telephone.</li> </ol>	<ul style="list-style-type: none"> <li>✓ Inexpensive.</li> <li>✓ Easy to analyze.</li> <li>✓ Easy to ensure anonymity.</li> <li>✓ Can be quickly administered to many people.</li> <li>✓ Can provide a lot of data</li> <li>✓ Easy to model after existing samples.</li> </ul>	<ul style="list-style-type: none"> <li>✗ Wording of questions might bias responses.</li> <li>✗ No control for misunderstood questions, missing data, or untruthful responses.</li> <li>✗ Not suitable for examining complex issues.</li> <li>✗ Can be impersonal.</li> <li>✗ By telephone: respondents may lack privacy.</li> </ul>
<p><b>2. Interviews</b></p> <p>Types include:</p> <ol style="list-style-type: none"> <li>1. Informal, conversational interview.</li> <li>2. Standardized, open-ended interview.</li> <li>3. Closed, fixed-response interview.</li> </ol>	<ul style="list-style-type: none"> <li>✓ Can allow researcher to get a full range and depth of information.</li> <li>✓ Develops relationship with client.</li> <li>✓ Can be flexible with client.</li> <li>✓ Can allow you to clarify responses.</li> <li>✓ Interviewer controls situation, can probe irrelevant or evasive answers.</li> <li>✓ With good rapport, may obtain useful open-ended comments.</li> <li>✓ Usually yields richest data, details, and new insights.</li> <li>✓ Best if in-depth information is wanted.</li> </ul>	<ul style="list-style-type: none"> <li>✗ As a rule not suitable for younger children, older people, and non-English speaking persons.</li> <li>✗ Not suitable for sensitive topics.</li> <li>✗ Respondents may lack privacy.</li> <li>✗ Can be expensive.</li> <li>✗ May present logistics problems (time, place, privacy, access, safety).</li> <li>✗ Often requires lengthy data collection period unless project employs large interviewer staff.</li> <li>✗ Can take much time.</li> <li>✗ Can be hard to analyze and compare.</li> <li>✗ Interviewer can bias client's responses.</li> </ul>

**Table Seven: Pros and Cons of Evaluation Instruments (cont'd)**

<p><b>3. Focus groups</b></p>	<ul style="list-style-type: none"> <li>✓ Useful to gather ideas, different viewpoints, new insights, and for improving question design.</li> <li>✓ Researcher can quickly and reliably obtain common impressions and key information about programs from group.</li> <li>✓ Can be efficient way to get much range and depth of information in short time.</li> <li>✓ Information obtained can be used to generate survey questions.</li> </ul>	<ul style="list-style-type: none"> <li>✗ Not suited for generalizations about population being studied.</li> <li>✗ It can often be difficult to analyze responses.</li> <li>✗ A good facilitator is required to ensure safety and closure.</li> <li>✗ It can be difficult to schedule people together.</li> </ul>
<p><b>4. Tests</b></p> <p>Types include</p> <ol style="list-style-type: none"> <li>1. Norm-referenced.</li> <li>2. Criterion-referenced.</li> <li>3. Performance assessment tests.</li> </ol>	<ul style="list-style-type: none"> <li>✓ Test can provide the "hard" data that administrators and funding agencies often prefer.</li> <li>✓ Generally they are relatively easy to administer.</li> <li>✓ Good instruments may be available as models.</li> </ul>	<ul style="list-style-type: none"> <li>✗ Available instruments may be unsuitable.</li> <li>✗ Developing and validating new, project-specific tests may be expensive and time consuming.</li> <li>✗ Objections may be raised because of test unfairness or bias.</li> </ul>
<p><b>5. Observations</b></p> <p>Types include</p> <ol style="list-style-type: none"> <li>1. Observations.</li> <li>2. Participant observations.</li> </ol>	<ul style="list-style-type: none"> <li>✓ If done well, can be best for obtaining data about behaviour of individuals and groups.</li> <li>✓ You can view operations of a program as they are actually occurring.</li> <li>✓ Observations can be adapted to events as they occur.</li> </ul>	<ul style="list-style-type: none"> <li>✗ Can be expensive and time-consuming to conduct.</li> <li>✗ Needs well-qualified staff to conduct.</li> <li>✗ Observation may affect behaviour of program participants and deliverers.</li> <li>✗ Can be difficult to interpret and categorize observed behaviours.</li> <li>✗ Can be complex to categorize observations.</li> </ul>



**Table Seven : Pros and Cons of Evaluation Instruments (cont'd)**

<p><b>6. Documentation and Record Review</b></p>	<ul style="list-style-type: none"> <li>✓ Can be objective.</li> <li>✓ Can be quick (depending on amount of data involved).</li> <li>✓ Get comprehensive and historical information.</li> <li>✓ Doesn't interrupt program or client's routine in program.</li> <li>✓ Information already exists.</li> <li>✓ Few biases about information.</li> </ul>	<ul style="list-style-type: none"> <li>✗ Can also take much time, depending on data involved.</li> <li>✗ Data may be difficult to organize.</li> <li>✗ Can be difficult to interpret/compare data.</li> <li>✗ Data may be incomplete or restricted.</li> <li>✗ Need to be quite clear about what looking for.</li> <li>✗ Not a flexible means to get data.</li> </ul>
<p><b>7. Case Studies</b></p>	<ul style="list-style-type: none"> <li>✓ Fully depicts client's experience in program input, process and results.</li> <li>✓ Can be a powerful means to portray program to outsiders.</li> </ul>	<ul style="list-style-type: none"> <li>✗ Usually quite time-consuming to collect, organize and describe.</li> <li>✗ Represents depth of information, rather than breadth.</li> </ul>

The above table is a compilation of information take from the following documents and sources: Carter McNamara's *Basic Guide to Program Evaluation*; EHR/NSF's *User-Friendly Handbook for Project Evaluation*; and SAMHSA – CSAP – NCAP's *Getting to Outcomes*.

### **What is Outcomes-Based Evaluation?**

Outcomes-Based Evaluation is quickly becoming one of the more *important means of program evaluation being used by non-profit organizations. Is your program really doing the right activities to bring about the outcomes you want? Or are you just engaging in busy activities that seem reasonable at the time? Funders are increasingly questioning whether non-profit programs are really making a difference.*

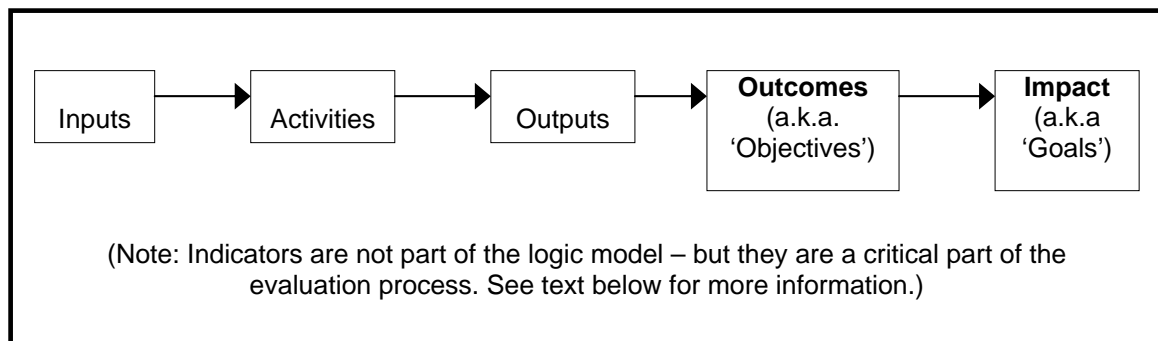
(McNamara, 1999)

Outcomes-Based Evaluation looks at the impacts, benefits, or changes to your clients – students, teachers, etc. – as a result of your efforts during and/or after their participation in your program. It helps you find out if you're really doing the right program activities to achieve some pre-specified outcomes. Outcome-Based Evaluation is a method of evaluation that is based on a program logic model; the measurement of the success of a program relies on the measurement of several components of the logic model system.

### **Program Logic Model**

A logic model is an approach to planning and managing projects that helps us to be clear both about what our projects are *doing* and what they are *changing*. The word 'logic' is used because of the logical link between the system components: inputs are a necessary precondition to activities; activities need to take place before outputs are

possible, etc. Think of your program as a system that has inputs, activities, outputs and outcomes:



**Input:** The materials and resources that the program uses in its activities. These are often easy to identify, and are common to many organizations and programs. For example: equipment, staff, facilities, etc. These are the resources you need to get the resources you seek.

**Activities:** Activities are what you do to create the change you seek; they are what you do with the inputs you have. Under the headings promotion, networking, advocacy, or training, you describe what the project is doing.

**Outputs:** Outputs are the most immediate results of your project, and each relates directly to your activities. More importantly, outputs create the potential for desired results; they create potential for your outcomes to occur. Outputs are usually measured as are statistics, and indicate hardly anything about the changes in clients. (Example: 61 students attended our Ecology Camp).

**Outcomes:** Outcomes describe the true changes that occur to people, organizations and communities as a result of your program. These are the actual impacts, benefits, or changes for participants during or after your program, expressed in terms of knowledge, skills, values or behaviours.

Outcomes may be expressed in terms of enhanced learning, such as increased knowledge, a positive change in perceptions or attitudes, or enhanced skills. For example, an objective of your program might be to 'demonstrated increase awareness of the causes and prevention measures of climate change'. Outcomes many also be expressed in terms of physical conditions, such as the development of school-grounds garden.

**Impact:** This describes your vision of a preferred future and underlines why the project is important. It refers to the longer-term change that you hope your project will help create.

**Measuring Outcomes:** The success of a program is measured using indicators that measure any or all of the three logic model components of output, outcome, or impact.

**Outcome Indicators:** These are what you can see, hear, read, etc. and suggest that you're making progress toward your outcome target or not. Indicators can be established for outputs, outcomes, and impacts. Indicators are measured using 'instruments' such as questionnaires or surveys, and may be either quantitative or qualitative. Indicators can be envisioned as the 'flags' that let us know we're on the

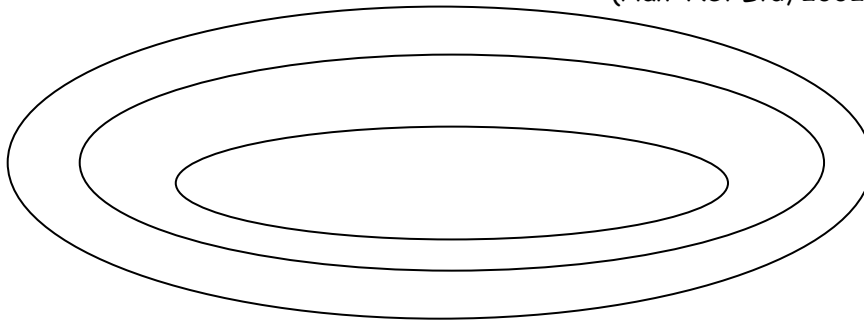
correct path. They answer the question, 'How will you know when you've achieved the outcome?' They are the measurable, observable ways of defining your outcomes. They define what the outcome looks like.

**Outcome Targets:** These specify how much of your outcome you hope to achieve.

### Splash and Ripple

Here is one image to help people understand and use outcome measurement. The rock is like a material **Input**; the person holding the rock is like a human resource **Input**. The act of dropping the rock is like an **Activity**. When the rock reaches the water, it creates a Splash - these are your **Outputs**. The ripples spreading out from the splash are like your **Outcomes**, then later your **Impacts**. The edge of the pond represents the geographic and population boundaries of your project.

(Plan: Net Ltd, 2002)



## **B. General Steps to Outcomes-Based Evaluation**

With a basic understanding of the process and language of Outcomes-Based Evaluation, we can start to think about how one would set about conducting it. Carter McNamara has produced many handy resources on how to understand and conduct Outcomes-Based Evaluation. The following is adapted from his Basic Guide to Outcomes-Based Evaluation in Nonprofit Organizations with Very Limited Resources (1999) and provides a very succinct set of steps that environmental education organizations can easily follow.

### **Step 1. Get Ready!**

- Start smart! Pick a program to evaluate. Choose one that has a reasonably clear group of clients and clear methods to provide services to them.
- If you have a mission statement, a strategic plan or a goal(s) statement for this program, haul it out of the filing cabinet you've jammed it into, and consider it.
- Ask for some money. Consider getting a grant to support developing your evaluation plan – while this is not vital to the process, evaluation expertise to review your plans can be extremely beneficial and insightful. Many grantors will consider assigning up to 15% of total budget amount to an external evaluation; make sure you ask about this.

### **Step 2. Choose Your Outcomes.**

- Choose the outcomes that you want to examine. Make a 'priority list' for these outcomes, and if your time and resources are limited, pick the top two to four most important outcomes for now.
- It can be quite a challenge to identify outcomes for some types of programs. Remember, an outcome is the benefit that your client receives from participating in your program (not a statistic). McNamara suggests using words such as 'enhanced', 'increased', 'more', 'new', or 'altered' to identify outcomes.
- Consider your timeframe and what you can evaluate within it. McNamara suggest that within 0-6 months, knowledge and skills can be evaluated; within 3-9 months, behaviours; and within 6-12 months values and attitudes. Try linking these short-term outcomes (0-3) months, with long-term outcomes (6-12 months).

### **Step 3. Selecting Indicators**

- Specify an indicator for each outcome.
- Choose indicators based on asking questions like: What would I see, hear, read about clients that means progress toward the outcome? For example: '30 of the 200 students who participate in CPAWS Grizzly Bear Forever! Program will demonstrate one new environmental stewardship activity within two months of the program'.
- If this is your first outcomes plan that you've ever done or the program is just getting started, don't spend a lot of time trying to find the perfect numbers and percentages for your indicators.

### **Step 4. Gathering Data and Information**

- For each indicator, identify what information you will need to collect or measure to assess that indicator. Consider the practicality of collecting data, when to collect data and the tools/instruments available to collected data. Basically, you're trying to determine how the information you're going to need can be efficiently and realistically gathered.
- Data collection instruments could include, but are not limited to: surveys, questionnaires, focus groups, checklists, and observations. See Appendix One for more information on the pro's and con's of each survey method.

### **Step 5. Piloting/Testing**

- Most likely you don't have the resources to pilot test your complete outcomes evaluation process. Instead, think of the first year of applying your outcomes process as your pilot process. During this first year, identify any problems and improvements, etc. and document these. Then apply them to your program evaluation the following year for a new and improved process (see Step 6).

### **Step 6. Analyzing and Reporting**

- Analyze your data. You may have collected quantitative (i.e. numerical) or qualitative (i.e. comments) data. To analyze comments, etc. (that is, data that is not numerical in nature): read through all the data, organize comments into similar categories, e.g., concerns, suggestions, strengths, etc; label the categories or themes, e.g., concerns, suggestions, etc; and identify patterns, or associations and causal relationships in the themes.
- Report your evaluation results. The level and scope of information in report depends for whom the report is intended, e.g., funders, board, staff, clients, etc.
- Remember that the most important part of an evaluation is thinking through how you're going to incorporate what you learned from it into the next round of programming. That's the real value, beyond reports to funders, accountability, etc.: its the learning that comes through looking at what worked and what didn't and applying that learning.

## Where can I find out more about evaluation of EfS programs?

Development Education Association, 2001. *Measuring effectiveness in development education* London: DEA. [www.dea.org.uk/info/projects/effectiveness/](http://www.dea.org.uk/info/projects/effectiveness/) An electronic uses pack developed from a 2 year research project conducted by DEA, providing a framework for measuring effectiveness and examples of good practice. Easily adapted to Education for Sustainability projects.

Fien J, Scott W and Tilbury D (2002) Exploring principles of good practice: learning from meta-analysis of case studies on education within conservation across the WWF network *Applied Environmental Education and Communication* 1:153-162

Fien J, Scott W and Tilbury D (2001) Education and conservation: lessons from an evaluation *Environmental Education Research* Vol 7 No 4

Groundwork/New Economics Foundation, 2000 *Prove it! Measuring the effect of neighbourhood renewal on local people* London: New Economics Foundation. [www.neweconomics.org](http://www.neweconomics.org) Report resulting from the evaluation of Barclays Site Savers, a national program to reclaim derelict areas for community use.

Heritage Lottery Fund/Arts Council of England, 2002 *Culture and learning: creating arts and heritage education projects*. London: Arts Council of England. [www.artscouncil.org.uk/information](http://www.artscouncil.org.uk/information) Guide to help people working in the arts and heritage sectors to plan, deliver and evaluate education projects.

Hoffman, J. and Thomson, G., 2003 *Measuring the success of environmental education programs*

Canada: Network for Environmental Education. [www.cpawscalgary.org/education/evaluation](http://www.cpawscalgary.org/education/evaluation)

Model for evaluation of environmental education programs, using illustrative examples from existing programs and providing tips to select appropriate evaluation tools.

Learning through Landscapes, 2004 *Measuring success: a guide to evaluating school grounds projects* Winchester: Learning through Landscapes.

[www.ltl.org.uk](http://www.ltl.org.uk)

About school projects: principles and practices of evaluation in relation to school grounds projects; a six-step model of the evaluation process in action.

Sara Burns and Joy MacKeith, Triangle Consulting (2006) *Explaining the difference your project makes: A BIG guide to using an outcomes approach*

[http://www.biglotteryfund.org.uk/er\\_eval\\_explaining\\_the\\_difference.pdf](http://www.biglotteryfund.org.uk/er_eval_explaining_the_difference.pdf)

This guide sets out some of the main steps that you will have to take to plan and manage a project using an outcomes based approach.

Scott, W. and Gough, S., 2003. *Sustainable development and learning: framing the issues* London: Routledge Falmer.

Chapter 10 explores how we can know that sustainability is being promoted or enhanced; argues for a view of monitoring and evaluation as integral to learning; sets out a range of procedures.

Scott, W. and Gough, S., 2004. (Eds) *Key issues in sustainable development and learning: a critical review* London: RoutledgeFalmer.

Chapter 10 comprises two key readings from the literature on sustainable development and

evaluation, and two specially commissioned critical commentaries on these readings.

Stokking H., Van Aert, L., Meilberg, W. and Kaskens, A., 1999.

(1999) *Evaluating Environmental Education*. Gland, IUCN Commission on Education and Communication  
[http://app.iucn.org/webfiles/doc/CEC/Public/Electronic/CEC/Books/Evaluating\\_Environmental\\_Ed.pdf](http://app.iucn.org/webfiles/doc/CEC/Public/Electronic/CEC/Books/Evaluating_Environmental_Ed.pdf)

Illustrates logistics and thought processes of carrying out an evaluation; explains when and how to use different evaluation tools.

The Australian Evaluation Society

[www.aes.asn.au/](http://www.aes.asn.au/)

Membership includes twice yearly

*Evaluation Journal of Australasia*

The Centre for Public Agency Sustainability Reporting

[www.publicagencyreporting.org](http://www.publicagencyreporting.org)

The Centre was launched in March 2005 and its mission is to improve the sustainability performance of public agencies through the practice of reporting. The Centre is a not-for-profit entity, which seeks to build capacity in public agencies to undertake sustainability reporting and to facilitate the development of best practice in sustainability reporting by public agencies.

The Evaluation Center,  
Western Michigan University

[www.wmich.edu/evalctr/](http://www.wmich.edu/evalctr/)

The Evaluation Center's mission is to advance the theory, practice, and utilization of [evaluation](#). The Center's principal activities are research, development, [dissemination](#), service, instruction, and national and international leadership in evaluation.

Woodhill J and Robins L *Participatory Evaluation for Landcare and Catchment Groups: A Guide for Facilitators*

[www.greeningaustralia.org.au](http://www.greeningaustralia.org.au)

## References

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<sup>1</sup> Fien J, Scott W and Tilbury D (2002)  
Exploring principles of good practice:  
learning from meta-analysis of case  
studies on education within conservation  
across the WWF network *Applied  
Environmental Education and  
Communication* 1:153-162

<sup>2</sup> Hoffman, J. and Thomson, G., 2003  
*Measuring the success of environmental  
education programs* Canada: Network for  
Environmental Education.  
[www.cpawscalgary.org/education/evaluation](http://www.cpawscalgary.org/education/evaluation)  
on [Accessed 4 July 2006]