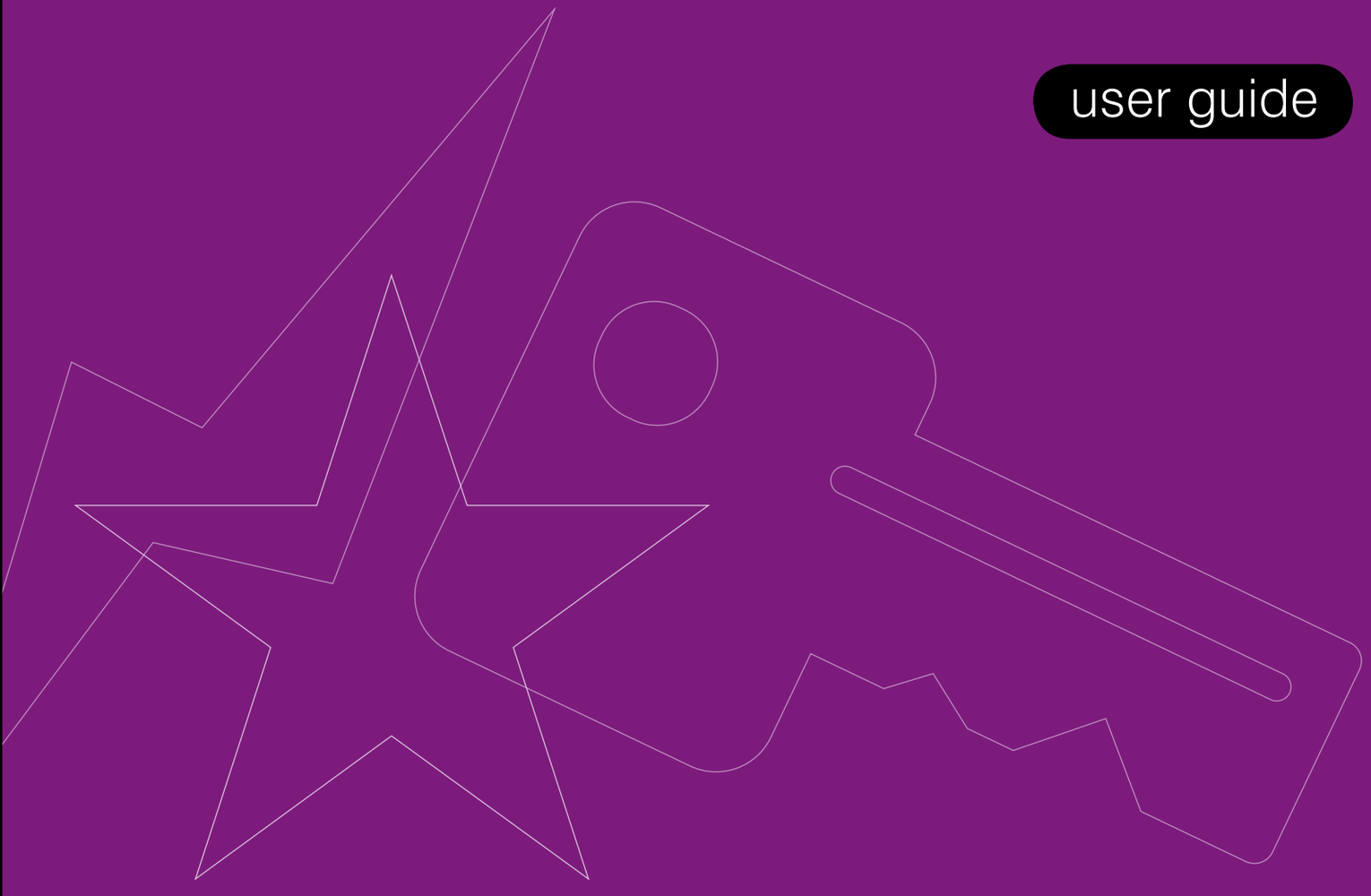
Australian Government

DEVELOPING AND USING **PROGRAM LOGIC**

IN NATURAL RESOURCE MANAGEMENT

user guide



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user guide

1

2

3

4

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Acknowledgments

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Working in partnership with AGLC and through a series of Australian Government sponsored consultancies, Dr Jessica Dart of *Clear Horizon* introduced this approach to program logic into the natural resource management arena in Australia. Through this partnership the broad natural resource management community has been inspired to adopt program logic and associated participatory evaluation approaches.

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In the spirit of continuous improvement, further feedback on the guide from users will be welcomed.

Contents

Introduction

This guide outlines a step-by-step process for developing program logic in the context of Natural Resource Management (NRM). The guide is aimed at those who are developing a program logic for the first time and may also be helpful to other users in a range of contexts.

Developing a program logic is about establishing a framework for methodically exploring and defining the parameters of a project. Because it serves as a roadmap for a project, a program logic helps to give participants greater confidence that their efforts will be comprehensive and effective.

In this guide, the term 'program' covers all levels of intervention, whether through a project, program, strategy or activity, as well as program design and evaluation.

Through a series of exercises, templates and checklists, this guide outlines the key steps in developing a program logic.

Key steps to develop a program logic

- » scoping—defining the program boundaries
- » developing an outcomes hierarchy—expectations about change
- » articulating and documenting assumptions—theory of change
- » formulating evaluation questions—program contribution and audiences.

KEY CONCEPT

The full set of templates and checklists at the end of the guide are intended to be copied for use when users are developing a program logic.

How to use this guide

This guide explains a step-by-step process for developing program logic in the context of NRM. Users may choose to change the sequence of the steps or to use only some of the steps at different times. The guide may be used by trainers in program logic or by an NRM organisation to develop program logic for a specific program or project. The guide is presented in a user-friendly format and should be easily adapted to these different user applications.

Features that increase the usability of the guide include:

- each section is represented by a distinctive colour and a tab making it easy to access particular parts of the guide as required
- a series of templates at the end of the document provide checklists and worksheets that can be copied and used to create particular program logic documents
- important points to note are highlighted in colour on the page margins.

The following symbols draw the user to parts of the program logic methodology that require particular attention:

KEY CONCEPT

Fundamental component of program logic

CAUTION

An area where the rigour of the methodology could be affected if care is not taken

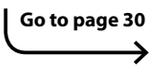
TIP

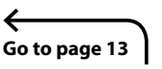
A suggestion for making the process smoother, more efficient or more fun

DEFINITION

The meaning of a key term used in this guide

The following arrows direct the user either forward or backward to the relevant section of the document.





All of these aids to navigating the guide are designed to make it easy for the user to find their way around the guide in a range of situations.

SECTION 1

PROGRAM LOGIC DEFINITIONS AND CONTEXT

What is program logic?

Program logic is an approach to program planning. It captures the rationale behind a program, probing and outlining the anticipated cause-and-effect relationships between program activities, outputs, intermediate outcomes and longer-term desired outcomes. A program logic is usually represented as a diagram or matrix that shows a series of expected consequences, not just a sequence of events (adapted from Dart 2007 and OECD 2002).

Program logic expresses how change is expected to occur. How the program logic is translated into operational plans will vary across programs and organisations.

Program logic expresses how change is expected to occur

The concept of program logic has been applied since the 1970s, particularly in international aid programs. Since then it has been used in many different disciplines in a variety of formats. More recently it has been adapted for use in natural resource management (NRM) programs.

Why develop program logic?

A program logic provides:

- a tool to guide planning at the conceptual stage of the program
- a way to share understanding and ownership among members of a team and with stakeholders
- a tool for clarifying and evaluating the strengths and weaknesses of a program, often when it is in the development or re-development phase
- a framework from which to develop monitoring and evaluation criteria for program performance
- a tool to inform learning and adaptation of strategies to improve program performance
- a communication tool, particularly for complex programs, to inform partners, the community and investors.

The process of developing a program logic facilitates thinking, planning and communicating about program objectives and actual accomplishments.

The process of developing a program logic facilitates thinking, planning and communicating about program objectives and actual outcomes.

Program logic can enhance planning, design, implementation, analysis and knowledge generation because it sets out a clear statement of anticipated outcomes, the assumptions underlying those outcomes and how success will be measured. It enables all those involved in a project to work from the same roadmap and timetable, which helps to maintain a focus on the big picture as well as the component parts.

Because it is particularly suitable for visual depictions, program logic modelling communicates well with diverse audiences from varying backgrounds.

Program logic sits within the broader context of monitoring, evaluation, reporting and improvement (MERI). It is therefore important to understand the principles that underpin the MERI Framework before attempting to develop a program logic.

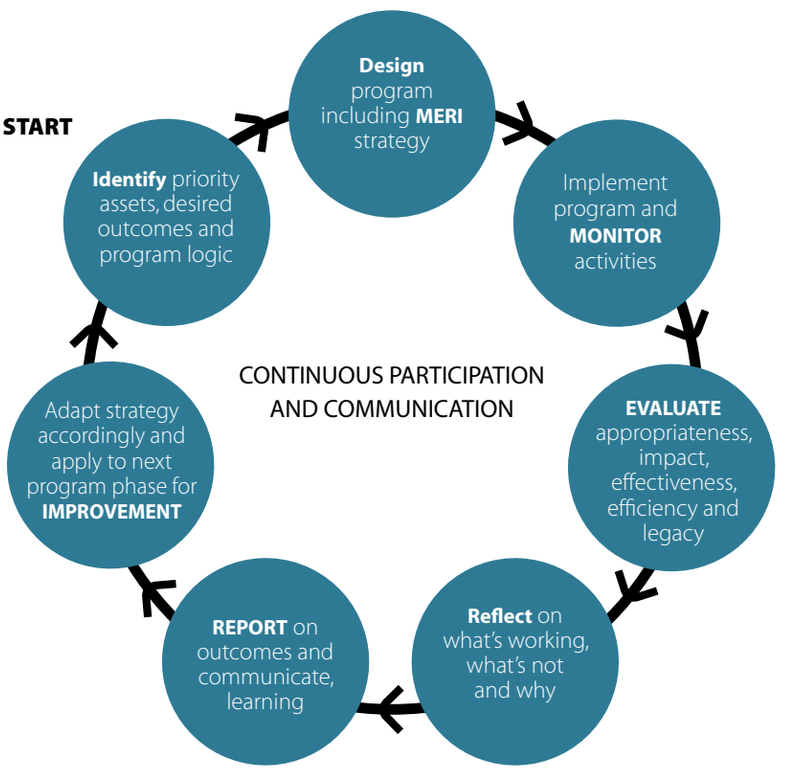
The MERI Framework

While program logic serves planning and management functions, it is also an element of the evaluation process, as described in the Australian Government's NRM MERI Framework. The MERI Framework outlines key concepts and principles for understanding NRM program performance. It presents the MERI steps as integrated components of program design:

- program logic
- monitoring
- evaluation and reporting
- improvement and adaptive management.

One of the underlying principles of the MERI Framework is that the MERI process is embedded within the program planning and implementation cycle (see Figure 1).

Figure 1: The logic of MERI in program design



Components of the MERI Framework

Table 1 illustrates the MERI Framework's key components and outputs. The framework's iterative activities recur throughout program planning, design and implementation. This guide is concerned with the first component—establishing the program logic.

Table 1: Key components of the MERI Framework

Component	Outputs
Program logic	» Desired changes, and the types and extent of changes expected at different scales » Key assumptions about how change will occur » Anticipated outputs and outcomes » Evidence in support of logic » Key evaluation questions and methods » Specified targets for outcomes » Performance indicators, both qualitative and quantitative
Monitoring	» Collation of relevant new and existing quantitative and qualitative data to address evaluation questions » Assessing relevant data against outcome targets » Data and information management
Evaluation and reporting	» Reflection on results of monitoring against the relevant evaluation questions » Assessment of the impact, appropriateness, effectiveness, efficiency and legacy at different stages of the program to determine immediate, intermediate and longer-term outcomes » Communication of evaluation results to internal stakeholders and key external stakeholders
Improvement and adaptive management	» Reflection on what is working and what is not working based on monitoring data and evaluation reports » Amendment of program strategies based on reflection on monitoring results and outcome reports

Participatory MERI

Developing a program logic can be a dynamic, highly participatory activity. The iterative nature of the MERI Framework promotes continuous participation, communication and learning rather than viewing evaluation as a single event. Such a learning environment enables people to reflect critically on what is happening.

The MERI Framework promotes continuous participation, communication and learning rather than viewing evaluation as a single event

A learning environment can be created by small changes as well as by more far-reaching events and changes. Any program can integrate multiple ways of working in order to stimulate learning—from the very way in which a program is designed to how investment happens, as well as annual reviews with program stakeholders. Critical to this is the role of senior management in setting the example and facilitating dialogue between program partners.

Participatory MERI is based on organisational values that facilitate a common understanding of the problems to be addressed and the underlying assumptions about how change will occur. This leads to sustained engagement and effort.

Participatory MERI means clarifying who manages the process and who benefits from the findings. The point when the program team sits down with staff from partner organisations, and with the target group, is the time to talk about roles within the partnership.

A participatory approach is relevant both at the time of developing a program logic at the conceptual stage of a program and when reviewing an existing program logic. In either case, to develop a version of participatory MERI that suits an organisation's situation, it is important to first determine in which part of the MERI process participation is most important.

Who is going to use the final information from each stage of the MERI process? Those who will use the information for decision making should understand what it is based on and how it was calculated—otherwise, they will not understand its implications.

It is also important to determine what skills are required to develop a program logic. The more complex the program logic, the more caution should be used in encouraging broad participation unless it is clear whom it will benefit and how.

Different people have different motivations for getting involved in MERI. Support may be required to assist the different systems to work together. It is often helpful to negotiate and agree on how much participation for whom.

CAUTION

The more complex the program logic, the more caution should be used in encouraging broad participation unless it is clear whom it will benefit and how.

Even if program and partner staff and primary stakeholders are motivated, they still need to see progress and results if they are to keep investing time and energy into joint learning. Also, depending on the organisation's size and resources, it may be necessary to invest in building capacity.

The big picture of NRM outcomes

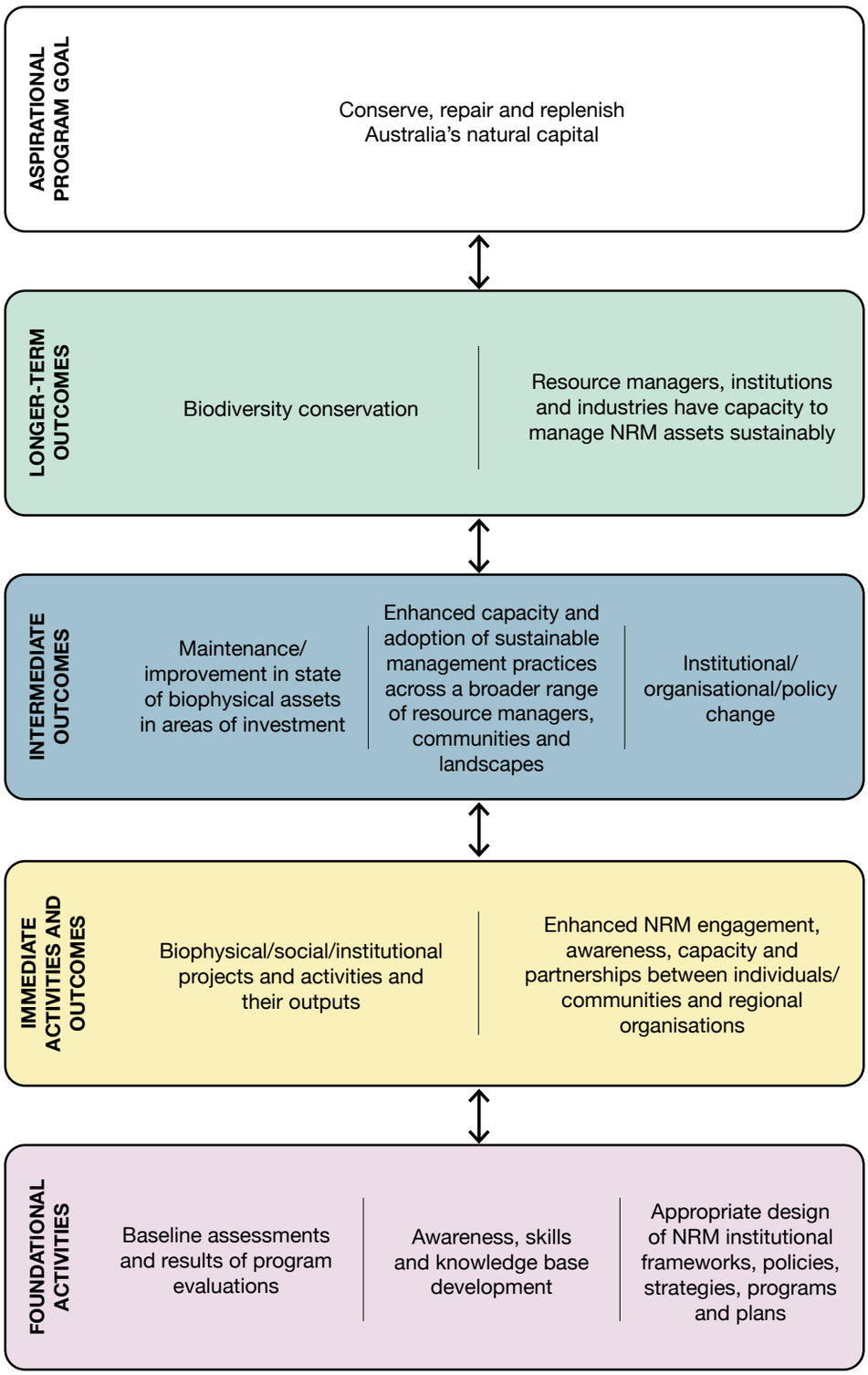
Figure 2 represents the Australian Government NRM outcomes hierarchy. It illustrates the series of changes in NRM assets* that the Australian Government hopes to contribute to at the national level through investment in NRM programs. The outcomes hierarchy provides an overarching framework to guide the logic of specific programs and initiatives.

DEFINITION

* **Assets**—are useful things or qualities, something that has a value. In the NRM context, assets can be human, social, natural, physical or financial.

This generic NRM outcomes hierarchy is based on assumptions about the series of consequences that are likely to lead to improvements in the extent and/or condition of NRM assets, including biophysical, social, institutional and economic assets.

Figure 2: **Generic NRM outcomes hierarchy**



This logic underpins the MERI Framework and acknowledges that NRM operates at a range of scales and over different timeframes. The actual timeframe for each outcome level will depend on the length of programs and funding cycles.

The logic acknowledges that to achieve and adequately report on desired outcomes there must be a focus on both the means and the ends.

TIP

There are two important investment streams of NRM assets:

- investment in biophysical outcomes—ends
- investment in social, institutional and economic outcomes—means to achieve biophysical outcomes.

It will always be necessary to invest both in on-ground environmental improvement activities and in supporting and building the knowledge base and skills of the people and institutions that manage the environment and the resources derived from it. This dual investment helps to ensure that threats and pressures are reduced and that these assets are protected and enhanced.

SECTION 2

GETTING STARTED

Preparing to construct a program logic

Ideally, a program logic is established during the development phase of a program and then refined as often as necessary during program implementation. A program logic can also be developed for an existing program.

Developing a program logic begins with reflecting on the aspirational goal for the program, and the immediate, intermediate and longer-term outputs, activities and outcomes. Through this process, original assumptions about how change would occur (not simply a plot of what did occur) are captured and documented.

Program logic principles

Applying the simple principles set out below can help to develop a program logic.

KEY CONCEPT

Program logic principles

- Developing a program logic is a participatory process.
- A clear understanding and agreement is required among participants about what needs to change and how the program can best contribute to that change in the context of the bigger sustainability picture.
- Discussions of people's visions and aspirations are more useful than statements of problems.
- A focus on assets helps to conceptualise required change.
- Explicit immediate and intermediate outcomes pave the way for establishing program strategies and activities.
- Program logic is more complete when accompanied by an analysis of conditions outside the program that are critical for the program to succeed.
- Program logic is more complete when areas of uncertainty are explicitly stated.
- Tracking assumptions as part of the evaluation process and updating the program logic increase its value.

The program logic workshop

Program logic development is often undertaken in a workshop format. As a guide, approximately one to three days should be allowed.

There are a number of considerations to be taken into account when planning a program logic workshop, and workshops may be delivered in different ways, depending on the audience, the program in question and the working environment.

Suggestions for the agenda, resources, people and workshop operations are provided below.

Workshop agenda

The agenda at Figure 3 sets out the basic components of a program logic workshop. The agenda will vary in different contexts.

Figure 3: Sample program logic workshop agenda

PROGRAM LOGIC WORKSHOP

Agenda

Scene setting

Scoping

Outcomes

Assumptions

Evaluation questions

Resources

Some resources that are regularly required at program logic workshops are listed below.

- Key reference documents
- Sufficient wall space for temporary adhesives
- Shower curtains (explained later) sprayed with repositionable spray (available from office supply stores)
- A whiteboard
- Marker pens
- Lots of sheets of A5 paper in an assortment of colours
- Pre-typed cards that outline the levels of the outcomes hierarchy
- Cut-out arrows for illustrating links between the outcomes in the hierarchy.

People

Actively involve key participants in setting outcomes for the program. This could include strategic thinkers and those who will make funding allocation decisions, MERI implementers and key stakeholders including service users and financial contributors (including potential contributors).

For those creating a program logic for the first time, it can be helpful to engage a facilitator who is experienced in participatory planning and evaluation processes. It can also be useful to bring in a professional evaluator as a mentor so that the organisation can develop its program logic skills.

Scene setting

At the outset of the workshop, a facilitator generally:

- introduces participants and asks what their interest is in the program and their prior experience with program logic
- outlines the agenda for the day
- emphasises the participatory nature of the workshop
- introduces the workshop 'rules'
- provides an overview of the environment and systems in which the program logic and program will operate
- provides an overview of the high-level outcomes required by funding organisations and management boards and an outline in broad terms of what might need to change for the outcomes to be achieved.

Workshop products

The products from the program logic workshop include:

- a shared understanding of the outcomes to be achieved and the assumptions about how change will occur
- documented analysis of the environment and system in which the program will operate and how time-critical activities and outcomes are
- an outcomes hierarchy with clear outcome statements
- documented assumptions about the cause and effect of interventions at each level of the outcomes hierarchy
- a key evaluation question, plus evaluation questions that sit below the key evaluation question and align to each level of the outcomes hierarchy.

TIP

Tips for the program logic workshop

- Actively involve key participants in setting outcomes for the program
- Welcome the opinions and ideas of all participants
- Keep a positive outlook by looking for positive outcomes in the first instance rather than potential problems
- Work in small, interactive groups
- Use culturally appropriate examples to introduce ideas
- Use language that will be familiar to participants
- Build a shared vision through participatory decision making
- Create a draft model, revise it, and continue to refine it over time
- Recognise that logic model development is not quick or easy—develop the draft model first before analysing it

Adapted from <www.uwex.edu/ces/pdande/evaluation/pdf/lmguidecomplete.pdf>.

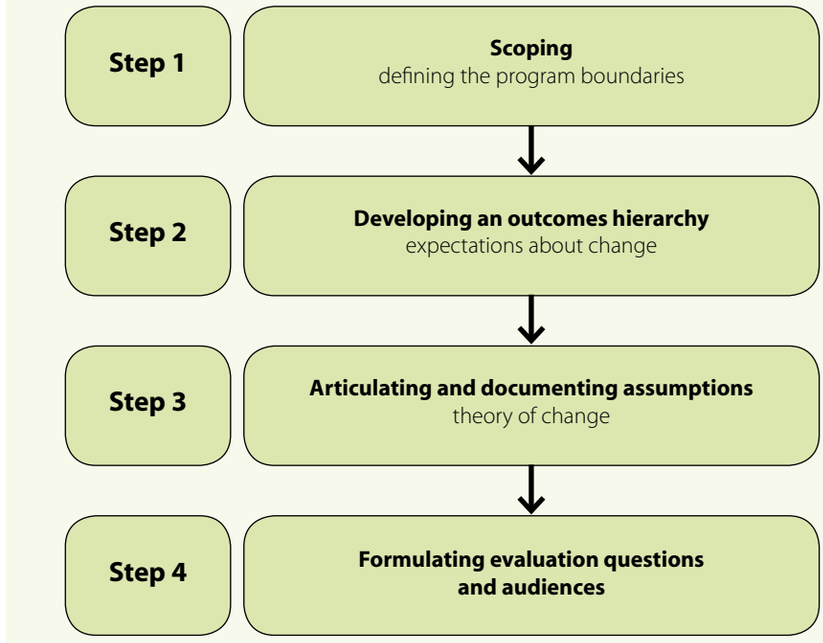
SECTION 3

BUILDING A PROGRAM LOGIC

Steps to build a program logic

This section describes each of the four steps in constructing a program logic. A checklist is provided at the end of each step. Using the checklists can help to ensure that the significant parts of each step have been completed and to keep a record of activities or information that is still required.

Figure 4: Four key steps



Step 1

Scoping

Scoping

When establishing a program logic, a useful starting point is to clarify the boundaries of the program. Ideally, this is done in advance of the program logic workshop.

Identifying program boundaries

The program boundaries can be identified by addressing four questions:

- Is the program outcome realistic in the given timeframe?
- What needs to change and which changes are most urgent?
- Are there any rules or regulations that impact on the program?
- Who will use the program logic to implement the program and who are the audiences for information generated by an evaluation based on the program logic?
- What resources are available?

KEY CONCEPT

Is the program outcome realistic?

Many programs have lowered their chances of success by setting unrealistic and unachievable or unmeasurable program outcomes. Often the program outcome really represents an intermediate outcome in the program logic. Significant impacts in NRM may not be seen for a long time—sometimes in the order of decades.

What needs to change?

Deciding what needs to change involves answering the following questions:

- Which assets are to be protected through the program?
- How are those assets valued?
- What is known about the current condition of the key assets the program is concerned with?
- What is contributing to deterioration in asset condition and are there mitigation strategies for threats to the assets?
- How urgent is the change—what are the potential costs of not acting?

Consideration of assets may include social, institutional, economic and environmental assets.

Agreement about what needs to change in the broader NRM context—and what the program will set out to achieve as a contribution to that change in the bigger picture (aspirational longer-term outcomes)—should be reached before the workshop as part of a problem analysis process. This allows workshop participants to focus on the outcome statements at the next levels down the outcomes hierarchy.

The organisation that is implementing the program will benefit from having a documented account of the program logic and associated scoping discussion. The context in which decisions were made will always be relevant for future decision making.

Who will use the program logic to guide program evaluation?

» Who are users and stakeholders for the program logic and the evaluation reports that will be based on the logic model?

» What strategies are needed to ensure that those who are to use it for decision making understand the evaluation approach and what it will deliver to them?

» What types of communication products will be best for each audience?

What resources are available?

» Are the available resources—including funding, people, technical equipment, data and data collectors—adequate to achieve the program outcomes in the period available?

» Are there other people or organisations that could contribute to the program, and if so what are the best ways to engage them and/or establish partnerships?

The checklist at Figure 5 guides reflection on the scoping process—setting boundaries and clarifying some fundamental questions. Have the key outputs from scoping been achieved? What work remains to be done for a thorough scoping process?

Go to page 47

Figure 5: Scoping checklist

Progress towards defining program boundaries	Yes	Not yet	Comments/revisions
Information about the assets and attempts to manage and/or improve them has been explored, including consultation with experts in the field.			
The condition of the assets, and issues with managing the assets and threats, have been identified.			
The assets for change have been specified and are consistent with high-level program priorities.			
Required changes to the assets that are time critical have been identified.			
The stated aspirational goal and longer-term outcomes for the program are achievable within the funding periods specified.			
Available and/or required resources—including funding, staff, access to research/scientific data, and opportunities for partnerships—have been identified.			

Step 2

Developing an outcomes hierarchy

Developing an outcomes hierarchy

NRM outcomes are generally long term, and involve a wide range of often complex activities. These features require a program logic that strikes a balance between including enough detail and oversimplification.

Specific timeframes can be allocated at each level of the hierarchy, especially at the intermediate and longer-term levels. However, the program logic may be limited to the life of the program. This is often determined by funding agreements. Framed in the bigger picture, longer-term biophysical program outcomes may take decades. Specific program guidelines and MERI strategies will often guide timelines.

An outcomes hierarchy can provide a succinct diagram that summarises the series of planned changes the program will contribute to (the program at a glance). This can be used to provide an overview of the program for external communications and to inform program funding decision makers, who often do not have time to absorb long documents. For those using the program logic as a management tool, more detail will be needed.

TIP

- **Think positively** about how the program can contribute to improving the assets under consideration.
- **Only include activities** after the first level of the hierarchy (foundational level). Rather than creating a flow chart or action plan, focus on consequences.

Resources

'Magic walls'—which are shower curtains sprayed with repositionable—spray are an excellent way to display the outcomes hierarchy and to engage participants in building it. Once the shower curtain is affixed to the wall, pre-written cards that outline the levels of the outcomes hierarchy (as guided by the outcomes hierarchy in the NRM MERI Framework at Figure 2 (page 11)) are placed down the left-hand side of the curtain. Figure 6 (overleaf) explains in more detail how to build a 'magic wall'.

Go to page 11

Figure 6: Building the 'magic wall'

How to build a 'magic wall'

Materials

» A plastic shower curtain in a soft, solid colour

» A can of repositionable spray (available from office supply stores)

Method

» Open out the curtain and lay it flat on some suitable surface (not carpet).

» Try to smooth any creases (it may be necessary to leave the curtain out overnight to reduce creases).

» Follow the instructions on the spray can, and coat the curtain as instructed. The curtain will then feel 'tacky' once dry and paper will stick to it as if it was a sticky note.

» When folding the curtain after use, try not to crease it.

» Fold the tacky side inwards to avoid picking up dust.

When attaching the curtain to a wall, use masking tape or similar strong tape, as re-usable adhesives (such as Blu Tack) do not work as well for this purpose.

Paper can be pressed to the sheet and will normally hold for several hours (depending on the size of paper etc.).

The curtain may need periodic recoating of adhesive to refresh its 'tackiness'

Alternatively, cards can be written on and arranged on a table or sticky labels can be used to position them on a wall. The advantage of the 'magic wall' is that it can be removed intact at the end of the session and taken to where the information can be transcribed. Participants can also use a digital camera to take a photo of it to provide a record.

Process

Participants can work in small groups using the coloured A5 paper (a different colour for each level of the hierarchy) to write their own outcome statements and place them in the appropriate levels in the outcomes hierarchy. It helps to take one pathway (especially for more complex programs) and develop the outcomes along it by working from the bottom up to the ultimate outcome.

The intermediate outcomes help to identify the pathway. This activity is usually both fun and productive as it generates discussion and debate. The guide to writing outcome statements may be useful.

Guide for writing outcome statements

- State outcomes succinctly (about 10 words or less), indicating clearly what change will look like. It must say 'what' not 'how'. The 'how' is a later step.
- Begin the aspirational outcome statement: 'The program contributed to ……' (the desired change in the asset at a particular site and possibly with a particular target group).
- Define the key terms used in the statements.
- Use plain English words in the statement—no ambiguity.
- Remove all excess/unnecessary adjectives that could increase the difficulty of measuring outcomes.
- Specify assets for change and ensure they are consistent with high-level program priorities.
- Identify data that is or is likely to be available to measure the stated outcomes.
- Test that outcomes are likely to be achieved in the program timeframe (within the funding and reporting periods).
- Identify data sources and resources for collecting, analysing and reporting that may be required to achieve outcomes—is the data available?

KEY CONCEPT

Constructing the hierarchy

Go to page 11

The NRM outcomes hierarchy (Figure 2) has five levels:

- aspirational program goal
- longer-term outcomes
- intermediate outcomes
- immediate activities and outcomes
- foundational activities.

When constructing a program logic, the aspirational program goal is at the top level of the hierarchy.

Social, environmental and industry/economic outcomes can all be represented at the longer-term level. Through the aspirational goal and the longer-term outcomes that sit beneath it, the outcomes hierarchy provides a picture of how the program will contribute to the aspirational goal.

With the aspirational program goal at the top, it is most effective to start at the bottom of the hierarchy and work upwards.

KEY CONCEPT

In practice, this is iterative and the statements do quite a lot of moving around amid group discussion before agreement is reached.

Naturally, participants will have some disagreements about the outcomes. They should be encouraged to engage in debate and move the statements around until there is general agreement. Once general agreement has been reached, participants can reflect on the logic in the hierarchy.

When one pathway is finished the others can be progressively worked through. Participants can step back and, as a group, look at the hierarchy to ensure that:

- there are clear links (that is, there are no cards in isolation—they all connect)
- common outputs duplicated across pathways are identified
- the language on the cards is self-explanatory and meaningful (the intent is well understood).

Go to page 51

Attachments 1, 2 and 3 (see pages 51–55) at the end of this document provide examples of three different outcomes hierarchies. Attachment 1 has a social longer-term outcome and Attachment 2 has an environmental longer-term outcome.

Go to page 55

Attachment 3 (see page 55) illustrates a more complex hierarchy like the NRM program logic at Figure 2. It has an integrated set of outcomes from sub-catchment planning—environmental, economic and social outcomes. For organisations designing an outcomes hierarchy with multiple outcomes at the longer-term level, like that in Attachment 3, it may be necessary to work through each stream separately and then integrate them afterwards.

The unidentified amounts of change (x) in the outcome statements in the example program logics represent targets*.

DEFINITION

* **targets**—are the desired or expected amount of change in the asset.

Attachments 1, 2 and 3 show links using lines and arrows. Some organisations may decide not to include the arrows because of the complex nature of their programs, and the lines can make it even more complex.

Identifying evidence to support the logic

How logical is the logic? What evidence is known, available or needed in order to monitor progress toward the outcomes? Once the outcomes have been identified, the next task is to consider whether there is evidence available to answer the question, 'To what extent has the program contributed to… ?'

Reviewing and considering existing evidence in support of the outcome hierarchy is a critical step. This is generally a brainstorming process to allow people to list the information and data they are aware of and where more evidence is needed. Additional evidence can be accessed or generated outside of the program logic workshop. The logic can be refined and supported with evidence that indicates that the outcomes can be measured. Usually the analysis would be applied to only the most important outcomes at each level of the hierarchy.

Types of evidence could include:

- research reports
- national, state, regional or local surveys, studies and reports
- published material on the subject
- target monitoring
- benchmarking studies
- investment financial output reports
- photo-point monitoring
- expert panels.

Evidence selected to support the program logic should be appropriate and affordable for the particular logic model and program arrangements. The simple criteria listed in the box below provide a guide to confirm sources, relevance and rigour of information.

A guide for selecting evidence

- Is the evidence relevant to the issue/area that is central to the program?
- Is there a reliable explanation for the evidence in the area?
- Would this evidence only be seen under particular spatial or temporal situations?
- Are there particular constraints to using the evidence in the area?
- Does the expected response always occur in the presence of the activity? That is, is there a credible link between intervention and response?
- Would there be another plausible explanation for this response in the area?

KEY CONCEPT

The worksheet as shown at Figure 7 can be used for listing the types of existing evidence that are available to support the logic. One worksheet can be used for each outcome.

For further information on assessing the likelihood of selecting most important evidence and managing risks in relation to the evidence selected see AS/NZS 4360:2004.

Go to page 43

Figure 7: Evidence worksheet

(Write outcome statement here)	Importance of evidence 1–5 (1 = unimportant, 5 = essential)	Likelihood of being able to access evidence 1–5 (1 = rare, 5 = almost certain)
Available evidence		
New evidence required		

Evidence should be considered after the assumptions are documented (step 3) and again after the evaluation questions have been formulated and agreed (step 4).

Evidence should be considered after the assumptions are documented (step 3) and again after the evaluation questions have been formulated and agreed (step 4).

Participants should:

» consider existing local and external evidence

» flag the kinds of new quantitative and qualitative evidence needed to address the evaluation questions.

In some cases it will be necessary to seek advice from experts on the availability of evidence to support the outcomes and potential costs involved in generating new evidence. This can occur during the program logic workshop and after the workshop as required.

Go to page 44

Figure 8: Outcomes hierarchy checklist

Outcomes are stated succinctly, indicating clearly what change will look like.		
Statements are in plain English with no ambiguity.		
Assets for change have been specified and they are consistent with high-level program priorities.		
The type of evidence that is or is likely to be available to measure the stated outcomes have been identified.		
Outcomes are likely to be achieved in the program timeframe (within the funding and reporting periods).		
Data sources (and resources for collecting, analysing and reporting) that may be required to achieve outcomes have been identified.		

Step 3

Articulating and documenting assumptions

Articulating and documenting assumptions

The next step in developing the program logic is to articulate and document the group's assumptions* about how one program outcome or activity will lead to the next and to identify any risks associated with the assumptions.

* **assumptions**—are expectations, based on current knowledge and experience, about what is important for a project's success.

DEFINITION

Importantly, the program logic is a *model*—not reality. It depicts assumed causal connections, not true cause-and-effect relationships. Identifying the underlying assumptions provides a focus for testing and adapting the logic.

Throughout this process it is helpful to refer back to the table of evidence that is available and/or needed to illustrate outcomes.

TIP

Uncovering the assumptions

To get at the assumptions, it is useful to talk in terms of the outcomes hierarchy. A facilitated group discussion provides an opportunity for participants to work through the hierarchy. They can articulate assumptions about the outcomes and the relationships among the different types of intervention (strategies and activities) and how they will lead to change. This then enables participants to discuss how the series of consequences in the outcome hierarchy will occur.

Assumptions about how change is expected to occur through the implementation of the program can be debated and documented as in the example at Table 2 (see page 28), which uses the regional biodiversity project outcomes hierarchy from Attachment 2. A template for documenting assumptions in program logic is at Worksheet 2 (see page 44) at the end of this document.

Go to page 28

Go to page 44

Table 2: Example of an outcomes hierarchy with assumptions documented

	Outcome statements	Assumptions
Aspirational program goal	The program contributes to biodiversity conservation	Data is available and can be meaningfully aggregated from local to national level Correct indicators Stable conditions Resources are available for data collection and management
Longer-term outcomes	Net gain in extent, distribution and quality of all native vegetation communities	Stable climatic conditions Stable land-use patterns Stable land tenure status Stable availability of incentives Land managers use best management practices
	Net gain in vegetation communities on farms	
	Increase in number of land managers applying biodiversity conservation skills	Best practice is known Same land managers over time Land managers engage in education and training initiatives Content and style of education and training are appropriate for land managers Land managers will adopt new land management practice Land managers will comply with covenants
Intermediate outcomes	Increase in extent of native vegetation for threatened communities	Stable climatic conditions Stable land-use patterns Stable land tenure status Stable availability of incentives Land managers use best management practices
	Improved quality of threatened native vegetation communities	
	Fewer other threats on farm	Land managers use best management practices
	Enhancement of vegetation on farms	
	Increase in extent of remnants and weeds managed appropriately	Land managers are aware of and apply best management practices
	Increased appreciation for biodiversity values	Land managers want to participate in field days People do not currently value biodiversity People will be prepared to change their values People will be prepared to forgo some profit for biodiversity Same land managers over time Land managers engage in education and training initiatives Content and style of education and training are appropriate for land managers Land managers need knowledge and financial incentives to develop sustainable native vegetation management skills. Landholders will take up incentives and accept voluntary agreements

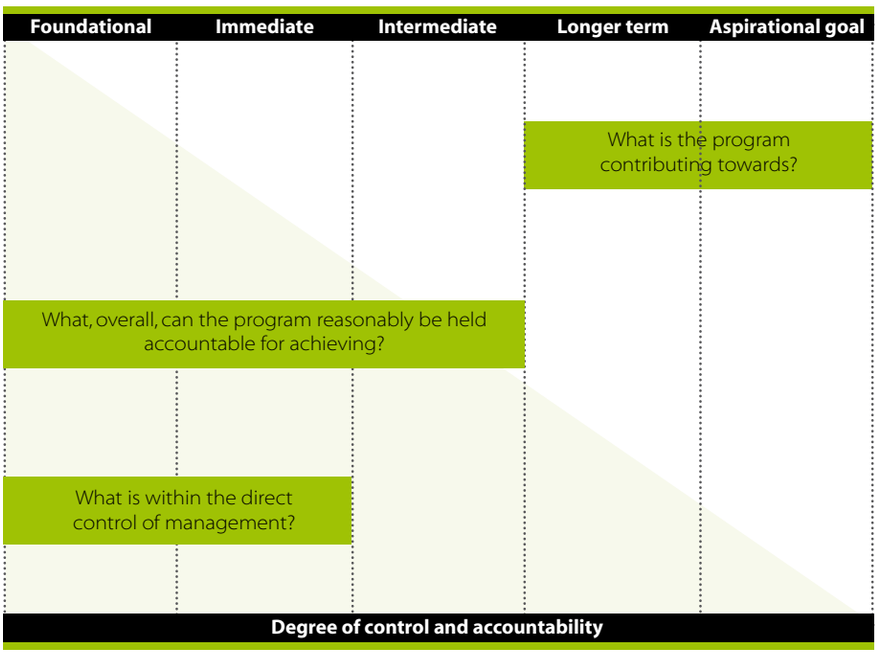
	Outcome statements	Assumptions
Intermediate outcomes (continued)	Increase in appropriate grazing	Land managers are aware of and apply best management practices Land managers have the economic capacity to apply best management practices
	Increased number of land managers involved in fencing	Program funding will continue Fences will manage the grazing threat Decline in quality and extent of vegetation and habitat can be stopped through management of identified threats
	Increased understanding of the principles and practices for revegetation and enhancement	Land managers attend training Land managers find training useful and are prepared to accept recommendations
	Increased land manager knowledge of what vegetation occurs on the site	Land managers are aware of the principles and practices for revegetation and enhancement and apply that information
Immediate activities and outcomes	Increased number of voluntary 10-year management agreements	Compliance with covenants Funding
	Increased number of permanent covenants on areas of remnant protected or enhanced vegetation	
	Landholders agree to fence	Fencing will stop the decline of quality and extent of vegetation and habitat Land managers participate in fencing Land managers need incentives
	Increased land manager knowledge of threats that could be managed	Land managers engage in education and training initiatives Content and style of education and training are appropriate for land managers Land managers need knowledge about sustainable native vegetation management skills Same land managers over time
	Increased awareness of the program through the range of communication mechanisms	The most appropriate/preferred communication types and modes are used to target key program audiences
	Incentives for enhancement of remnant vegetation	Land managers are more likely to change their practices and participate in programs if incentives are offered
	Field days/workshops for land managers	Bringing land managers together is a good way to get them engaged in NRM programs Once engaged, land managers will stay engaged
	Compliance with contracts	Land managers will comply with contracts because they want the incentive payments

Identifying risks associated with the assumptions

Understanding the environment and the systems the program will operate within is critical when it comes to assessing the relevance of strategies and activities, anticipating operational problems and judging a project's contribution. This is how risk management is integrated into program planning from the outset.

An organisation's control over factors in the project environment that influence the achievement of outcomes decreases with each level of the outcomes hierarchy (see Figure 9).

Figure 9: The limits of control and accountability in a program



At the level of foundational activities and immediate outcomes and activities, program managers and staff have much control. External factors are unlikely to pose serious threats to carrying out activities at these levels. But at the intermediate, longer-term and aspirational outcome levels, many factors beyond the direct control of program managers will influence the impact of activities.

An NRM project is usually one of many contributing to improvements in the quality of a national asset such as water, knowledge, productivity of agriculture or Indigenous management skills. A project's accountability at the higher levels of the outcomes hierarchy decreases but never disappears entirely.

For example, a project might include training activities for farmers. The program can directly control the hiring of a training venue, the preparation of materials, the provision of a qualified trainer and the invitation of suitable participants.

It has less control over whether potential participants will attend and considerably less control, if any, over whether the skills the participants learn will actually be used back on the farm. While the trainers can be held accountable for making the training relevant and accessible, they cannot be held accountable for whether the farmers have all the necessary conditions on-farm to use the new skills they have learned.

It is important for the group to brainstorm about what circumstances could present a risk to the likelihood of an assumption being correct—that is, that the interventions do not lead to the results assumed in the logic. The worksheet at Figure 10 is designed to guide an interrogation of the risks to the logic so that risk management strategies can be put in place. The exercise can also help to prioritise the outcomes. Often these will be the ones that rate high in the worksheet.

It is important for the group to brainstorm about what circumstances could present a risk to the likelihood of an assumption being correct

Go to page 45

Figure 10: Risk worksheet

Assumption	Risks*	Likelihood of assumption being wrong 1–5 (1 = rare, 5 = almost certain)	Consequences for longer-term outcomes if assumption is wrong 1–5 (1 = insignificant, 5 = extreme)	Risk management strategies

* How likely is it that the assumption is wrong and how great will the impact be on the program's ability to achieve required outcomes if the assumption is wrong?

To complete the risk worksheet, participants should begin by identifying external influences that may affect the program interventions and outcomes. What environmental events or factors could affect program performance (e.g. drought, climate change, flood)? What social or institutional factors and events could impact on the ability to carry out planned activities and achieve results (e.g. market trends and fluctuations, staff capacity, engagement of land managers, cultural knowledge)?

For example, improving water quality might be based on an assumption of continued best practice water management by land managers. But the dam could silt up from poor environmental management or the water could be diverted to other users. By identifying assumptions and then what could go wrong, program managers and staff can accept the ones that are outside their direct control and discuss what they can do to reduce external risks.

Equally important, and more neglected, are assumptions about the internal cause-and-effect logic of the project. For example, a program may invest in a project to recruit volunteers to plant trees as a strategy to revegetate a degraded landscape.

This approach assumes that enough people with skills in planting the right tree species in the right places will join and continue to work voluntarily until there are enough trees in enough places to achieve better landscape connectivity and biodiversity corridors.

But will there be enough volunteers with the required capacity who stay on and will all the trees survive? Will the trees reach maturity and will native fauna return to the area?

These are examples of internal logic assumptions that lie behind the simple statement, 'Planting trees results in biodiversity'.

TIP

In this exercise, to identify the risks to assumptions, one group of participants can look at the problems with the logic.

Another group can suggest ways of overcoming the problems.

This will lead to some refinement of the logic.

Making assumptions explicit helps to check where the objective hierarchy has weak spots and so reveals what needs to be adjusted. The checklist at Figure 11 assists in making sure the key steps in articulating and documenting assumptions have been covered.

Go to page 49

Figure 11: Articulating and documenting assumptions checklist

Progress towards articulating and documenting assumptions	Yes	Not yet	Comments/ revisions
Assumptions about how change will occur were discussed.			
Assumptions about how change will occur were documented.			
Risks that could affect the achievement of outcomes were identified and documented.			

Step 4

Formulating evaluation questions

Formulating evaluation questions

Evaluation questions provide a basis for assessing the extent to which outcomes have been achieved at the different levels of the outcomes hierarchy and the extent to which the program has made a contribution towards the longer-term outcomes and aspirational goal. Having this framework helps to focus on questions that have real value for all stakeholders.

Not only does the program logic assist in generating information for external audiences, it enables adaptive management and internal learning.

The MERI Framework suggests that evaluations address five evaluation categories.

KEY CONCEPT

Evaluation categories

Impact
In what ways and to what extent has the program contributed to changing asset condition and management practices and institutions?

What, if any, unanticipated positive or negative changes or other outcomes have resulted?

To what extent were the changes directly or indirectly produced by the program interventions?

Appropriateness
To what extent is the program aligned with the needs of the intended beneficiaries?

To what extent is the program compliant with recognised best practice processes in the field—e.g. the type, level and context of investment and associated activities?

How time critical is the program?

Effectiveness
To what extent have the planned activities and outputs been achieved?

Are current activities the best way to maximise impact or are there other strategies that might be more effective?

To what extent is the program attaining, or expected to attain, its objectives efficiently and in a way that is sustainable?

Efficiency
To what extent has the program attained the highest value out of available resources?

How could resources be used more productively and efficiently?

What could be done differently to improve implementation, and thereby maximise impact, at an acceptable and sustainable cost?

Legacy
Will the program's impacts continue over time and after the program ceases?

How and by whom should the legacy be managed?

Depending on the program, the reporting requirements may not include all of these categories, but it is useful to cross-check. Some types of assessment will be required as part of an organisation's funding agreement. Others will be important to certain stakeholders, including the organisation itself. Some evaluation questions that emerge from the logic will possibly address more than one category. The final decision about which categories the program logic addresses may well be determined by the program budget or information and reporting requirements.

Two levels of evaluation questions

The MERI Framework defines two types of evaluation questions: the key evaluation question* and the evaluation questions# that break down the elements of the key evaluation question.

DEFINITION

* **key evaluation question**—assesses the worth or significance of a project, program or strategy in relation to its expected outcomes.

The purpose of the key evaluation question is to generate information that can be used to demonstrate the results of the program to funding bodies and the community. It should focus most on the effectiveness of the program in achieving intermediate and longer-term outcomes and help to demonstrate the contribution the program has made.

Go to page 53

For example, taking the program logic in the outcomes hierarchy for the biodiversity project (Attachment 2), the key evaluation would be: 'To what extent has the project contributed to an increase in the extent, distribution and quality of native vegetation?' This overarching question frames the evaluation. A number of more specific evaluation questions will sit below the key evaluation question.

DEFINITION

\# **evaluation questions**—represent a breakdown of the key evaluation question.

In the context of MERI for NRM, the evaluation questions link to the outcomes in the different levels of the program logic, particularly the foundational, immediate and, to some extent, intermediate outcomes.

Go to page 53

Both kinds of evaluation questions generate information that shows the extent to which the program has had the expected impacts and provides a basis for sharing with others the successes and lessons learned through implementing the program. Using the biodiversity project example from Attachment 2 again, Table 3 sets out an illustrative set of evaluation questions that correspond to the program logic.

Table 3: Sample evaluation questions worksheet

	Evaluation questions
Aspirational program goal	To what extent has the project contributed to an increase in the extent, distribution and quality of native vegetation?
Longer-term outcomes	In what ways has the quality of the remnant vegetation improved? What is the extent of increase in native vegetation? What proportion of the priority vegetation on farms is now protected? What increase has there been in the number of land managers applying biodiversity conservation skills?
Intermediate outcomes	What is the change in extent of remnant vegetation on targeted sites? How many hectares are under agreements (protected and enhanced)? To what extent have the threats been removed? To what extent are people managing their native vegetation differently and how and why? To what extent and in what ways has knowledge of condition and trend improved? How has the organisation's ability to target investment improved?
Immediate activities and outcomes	To what extent has involvement in the program changed participants' appreciation of biodiversity values? How many land managers were able to manage weeds as per the contract? What is the level of compliance with the vegetation management agreements and permanent covenant conditions? How many events were held through the program to inform/educate land managers? How successful were the strategies to promote the program? How many field days were held and how many land managers attended? How many land managers said they would do something differently as a result of attendance at an event? How many property visits were done? What was the most significant trigger for a property visit?
Foundational activities	What investment prioritisation activities were undertaken? Was existing research and knowledge used to inform program planning? Did the program development involve all key stakeholders?

When developing evaluation questions, participants should draw on the logic model and assumptions about how change will occur. It is useful to start by asking, 'What is going to be evaluated at each level of the outcomes hierarchy?'

Questions should be restricted to a minimum number of the most important aspects of the program at each level of the hierarchy.

TIP

The evaluation questions should fall out of the outcome statements and assumptions. For example, the assumption 'Land managers will engage in education and training initiatives' gives rise to the question, 'To what extent and in what ways has knowledge of condition and trend improved?' Asking why and why not will assist in the learning and adaptive management process.

The questions can be documented by small groups and then refined in the large workshop group.

It is important to be mindful of the issues that can either restrict capacity to answer the questions or provide opportunities to minimise the extent of reporting needed.

TIP

Generally, if the questions are constructed to satisfy all key stakeholders, they will also be able to address the key evaluation categories.

Stakeholder analysis

As each evaluation question is devised, it is useful to think about who will want the information the question generates. All key program stakeholders should be consulted about their needs, and where possible represented at this part of the workshop.

When the program logic is used as the basis for evaluating the program, the stakeholders will be interested in a variety of information. The funding body will want to know if the money was used as intended, that it was spent efficiently and that there have been positive outcomes. Land managers might want to know how many sites the program covers and how much vegetation has been restored. The program delivery agents could be interested in the appropriateness of their investment strategies—did they align with the needs or means of the targeted stakeholders?

CAUTION

No evaluation can answer all of the questions stakeholders may ask, so it is critical to prioritise using some criteria for refining and narrowing the questions.

Involving stakeholders from the beginning helps to ensure that meaningful information is gathered, in which program supporters have a real interest.

KEY CONCEPT

Criteria for refining evaluation questions

- Does the evaluation question address the type of evaluation required for the program?
- Which stakeholder groups are interested in this information?
- Would knowing the answer to this question improve the program?
- Will this information assess the program's effectiveness?
- How will this information inform better program management practices through internal learning?
- Are there data available to answer the questions?
- Are there adequate resources available to collect and analyse the identified data and report on the questions?
- Can some of the questions and supporting data satisfy multiple reporting requirements?

At the end of this exercise, workshop participants should have enough information to complete the worksheet on evaluation questions and stakeholders as illustrated in Figure 12.

Go to page 46

Figure 12: Evaluation questions and stakeholders worksheet

Outcome level	Outcome	Evaluation questions	Category	Stakeholders
Aspirational program goal				
Longer-term outcomes				
Intermediate outcomes				
Immediate activities and outcomes				
Foundational activities				

It is important to keep the evaluation manageable. It is preferable to answer a few important questions thoroughly than to answer several questions poorly. These parameters are often negotiated among stakeholders. How well the questions are answered will depend on the time, money and expertise available to perform the functions required by the evaluation.

Answer a few important questions thoroughly rather than answering several questions poorly.

TIP

The checklist at Figure 13 can be used to assess whether the main considerations in constructing useful and realistic evaluation questions have been addressed.

Go to page 50

Figure 13: Evaluation questions checklist

Progress towards formulating evaluation questions	Yes	Not yet	Comments/ revisions
Key program stakeholders were consulted/engaged in the workshop.			
Information requirements were identified for each stakeholder group.			
There are a manageable number of questions at each outcome level.			
Questions address how critical timing is for the project.			
Questions generally relate to extent of change/ impact/contribution to longer-term impact.			
An evaluation category was identified for each question.			
Questions address the required evaluation purposes.			
Participants are confident that the questions will provide information to meet the requirements of stakeholders.			
Participants are confident that evaluation reports will meet the multiple requirements and needs of stakeholders.			

A final word

The outcomes hierarchy will assist in assessing achievements against expected outcomes and understanding why differences occur, which they inevitably will. For example, some regional NRM organisations have incorporated an outcomes hierarchy within their annual investment plan review. Many programs focus on activities during progress reviews, but this is not enough to manage for impact.

The outcomes hierarchy provides a valuable focus for regular (semi-annual and annual) review and planning events.

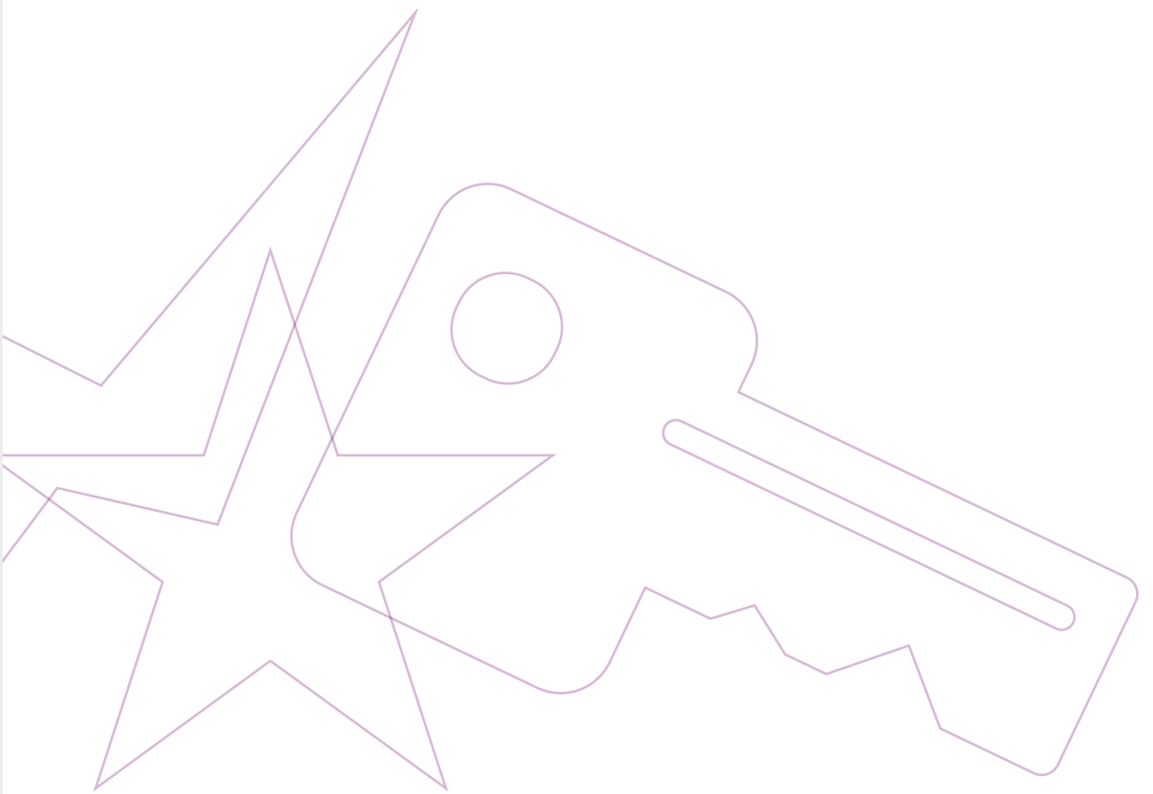
The outcomes hierarchy provides a valuable focus for regular (semi-annual and annual) review and planning events.

What a program aims to achieve is the intermediate and longer-term outcomes, while outputs and foundational activities describe how it thinks it can do this. A progress review needs to look at both the 'how' and the 'what'. If an organisation looks only at the activities and outputs, it could conclude these are all going as planned. But it is also useful to ask, 'Where is this leading?' to assess whether the program is on track with the planned outcomes. This will help avoid wasting time and resources on unproductive outputs and activities.

Assumptions should be reviewed regularly to check that they are still valid. This is the time to identify new assumptions that have emerged and delete those that are no longer relevant.

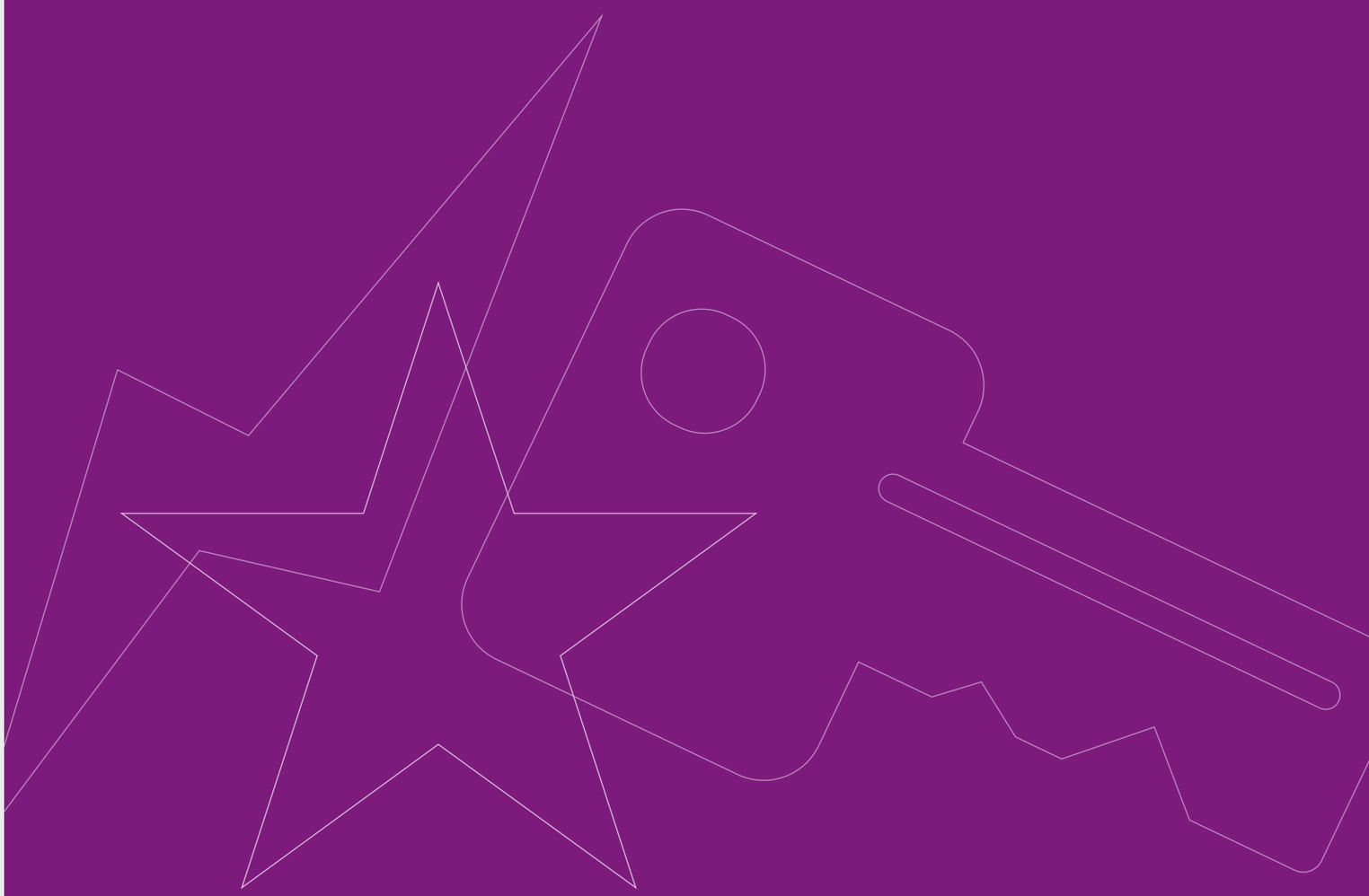
Assumptions should be reviewed regularly to check that they are still valid. This is the time to identify new assumptions that have emerged and delete those that are no longer relevant.

Based on the assessment of problems, successes and assumptions, each level of the hierarchy should be checked for relevance and completeness. New activities or outputs should be added and irrelevant ones deleted in line with the assessment.



SECTION 4

TOOLS



Tools

The tools included in this section are designed to assist trainers and developers of program logic. They include:

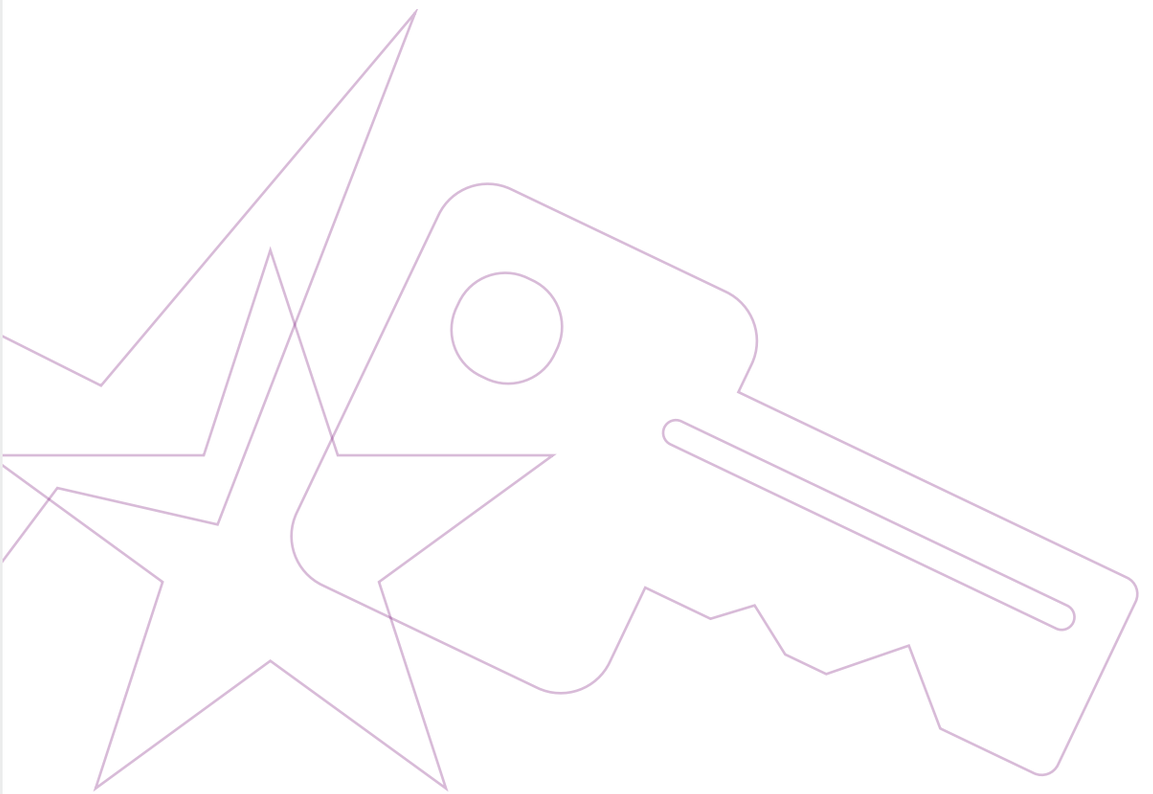
- worksheets to provide templates for users to fill in their own details as they work through the program logic process
- checklists to ensure that all components of each key step in developing a program logic have been covered.

The worksheets and checklists have been designed to be copied and used in training or to form the basis of a documented program logic for a particular program.

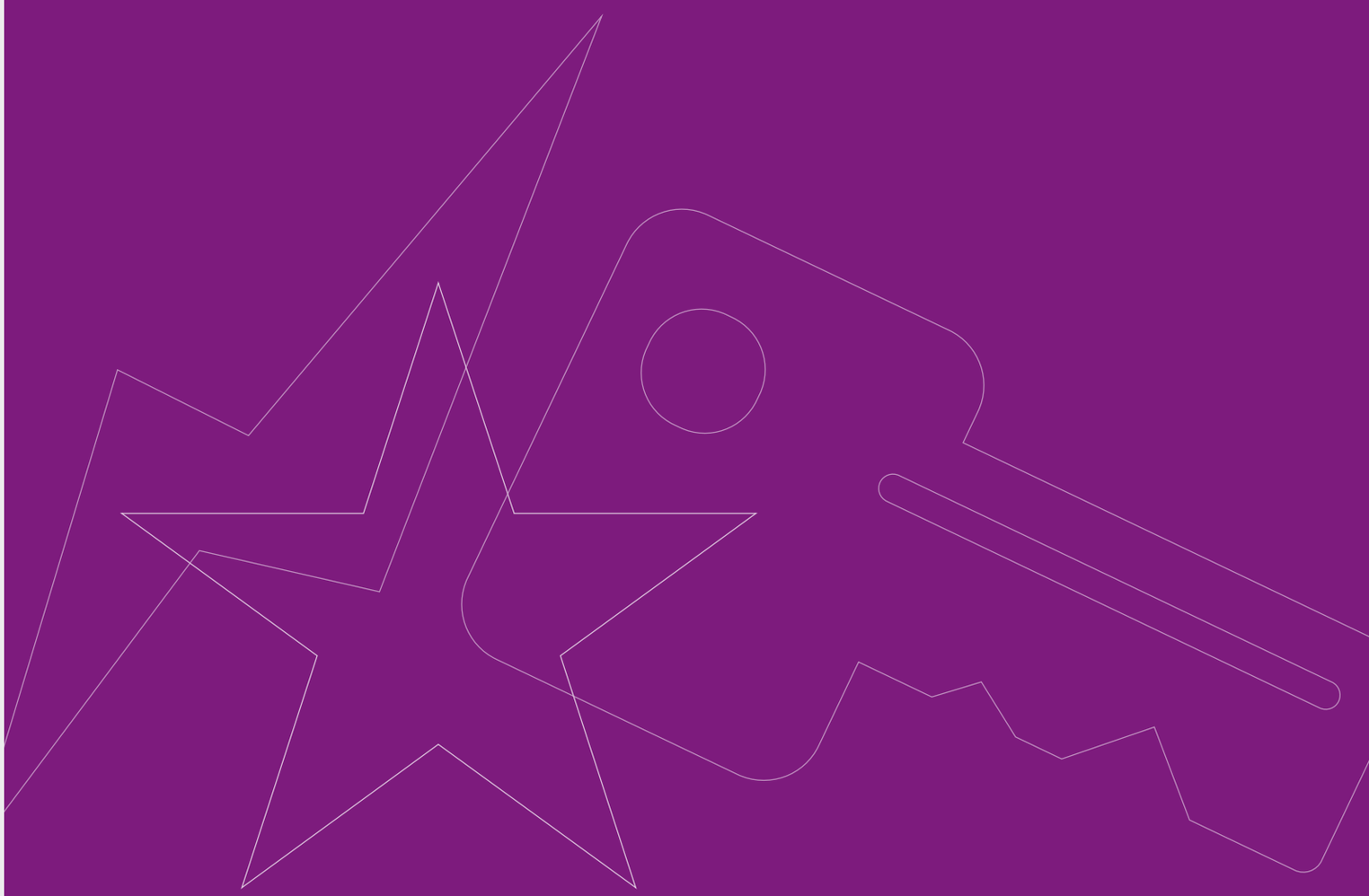
Having all the components of program logic recorded in this way enables regular review of progress towards program outcomes and retention of corporate memory. When new people enter the organisation or program they will be able to see the assumptions that underpin the program strategy.

Attachments 1, 2 and 3 provide a detailed illustration of a logic hierarchy for different types of programs. The hierarchies were developed by regional NRM organisations. The diagrams provide a good basis for discussion and debate about assumptions about the causes and effects in change pathways.

The references and readings invite the user of the guide to further explore the world of program logic.



WORKSHEETS



Worksheet 1: Evidence

(Write outcome statement here)	Importance of evidence 1–5#	Likelihood of being able to access evidence 1–5*
Available evidence		
New evidence required		

IMPORTANCE 1 = UNIMPORTANT 2 = MODERATELY IMPORTANT 3 = IMPORTANT 4 = VERY IMPORTANT 5 = ESSENTIAL
* **LIKELIHOOD** 1 = RARE 2 = UNLIKELY 3 = POSSIBLE 4 = LIKELY 5 = ALMOST CERTAIN

Worksheet 2: Outcomes hierarchy with assumptions documented

	Outcome statements	Assumptions
Aspirational program goal		
Longer-term outcomes		
Intermediate outcomes		
Immediate activities and outcomes		
Foundational activities		

Worksheet 3: Risk

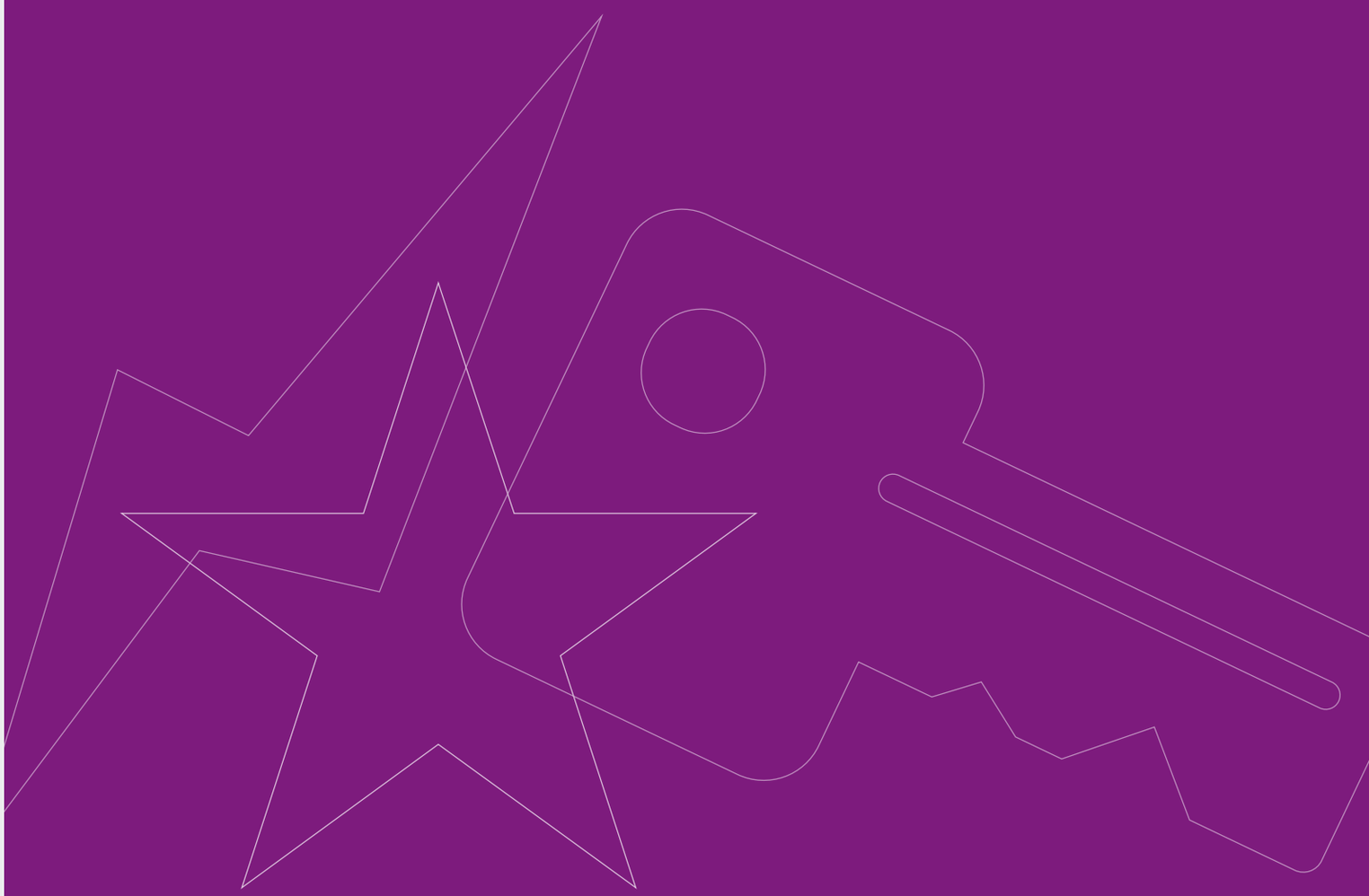
Assumption	Risks	Likelihood of assumption being wrong 1–5 *	Consequences for longer-term outcomes if assumption is wrong 1–5 #	Risk management strategies

*** LIKELIHOOD** 1 = RARE 2 = UNLIKELY 3 = POSSIBLE 4 = LIKELY 5 = ALMOST CERTAIN
 # CONSEQUENCES 1 = INSIGNIFICANT 2 = MINOR 3 = MODERATE 4 = MAJOR 5 = EXTREME

Worksheet 4: Evaluation questions and stakeholders

	Outcome	Evaluation questions	Purpose	Stakeholder
Aspirational program goal				
Longer-term outcomes				
Intermediate outcomes				
Immediate activities and outcomes				
Foundational activities				

CHECKLISTS



Checklist 1: Scoping

Progress towards defining program boundaries	Yes	Not yet	Comments/revisions
Information about the assets and attempts to manage and/or improve them have been explored, including consultation with experts in the field.			
The condition of the assets, and issues with managing the assets and threats, have been identified.			
The assets for change have been specified and are consistent with high-level program priorities.			
Required changes to the assets that are time critical have been identified.			
The stated aspirational goal and longer-term outcomes for the program are achievable within the funding periods specified.			
Available and/or required resources—including funding, staff, access to research/scientific data, and opportunities for partnerships—have been identified.			

Checklist 2: Outcomes hierarchy

Progress towards developing an outcomes hierarchy	Yes	Not yet	Comments/revisions
Outcomes are stated succinctly, indicating clearly what change will look like.			
Statements are in plain English with no ambiguity.			
Assets for change have been specified and they are consistent with high-level program priorities.			
The types of evidence that is or is likely to be available to measure the stated outcomes have been identified.			
Outcomes are likely to be achieved in the program timeframe (within the funding and reporting periods).			
Data sources (and resources for collecting, analysing and reporting) that may be required to achieve outcomes have been identified.			

Checklist 3: Articulating and documenting assumptions

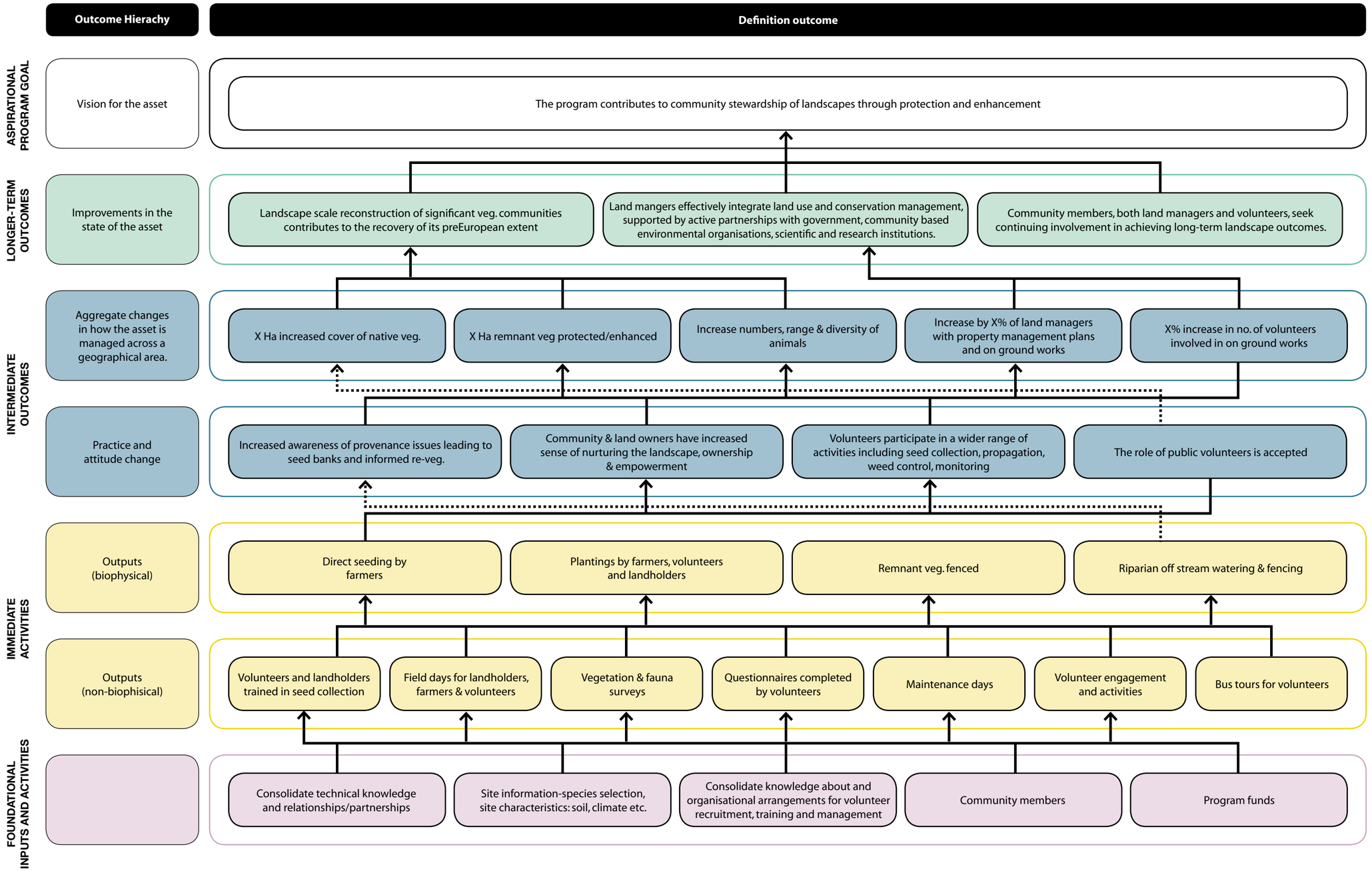
Progress towards articulating and documenting assumptions	Yes	Not yet	Comments/revision
Assumptions about how change will occur were discussed.			
Assumptions about how change will occur were documented.			
Risks that could affect the achievement of outcomes were identified and documented.			

Checklist 4: Evaluation questions

Progress towards a set of evaluation questions	Yes	Not yet	Comments/revisions
Key program stakeholders were consulted/ engaged in the workshop.			
Information requirements were identified for each stakeholder group.			
There are a manageable number of questions at each outcome level.			
Questions address how critical timing is for the project.			
Questions generally relate to extent of change/ impact/contribution to longer-term impact.			
An evaluation category was identified for each question.			
Questions address the required evaluation purposes.			
The questions will provide information to meet the requirements of stakeholders.			
Participants are confident that evaluation reports will meet the multiple requirements and needs of stakeholders.			

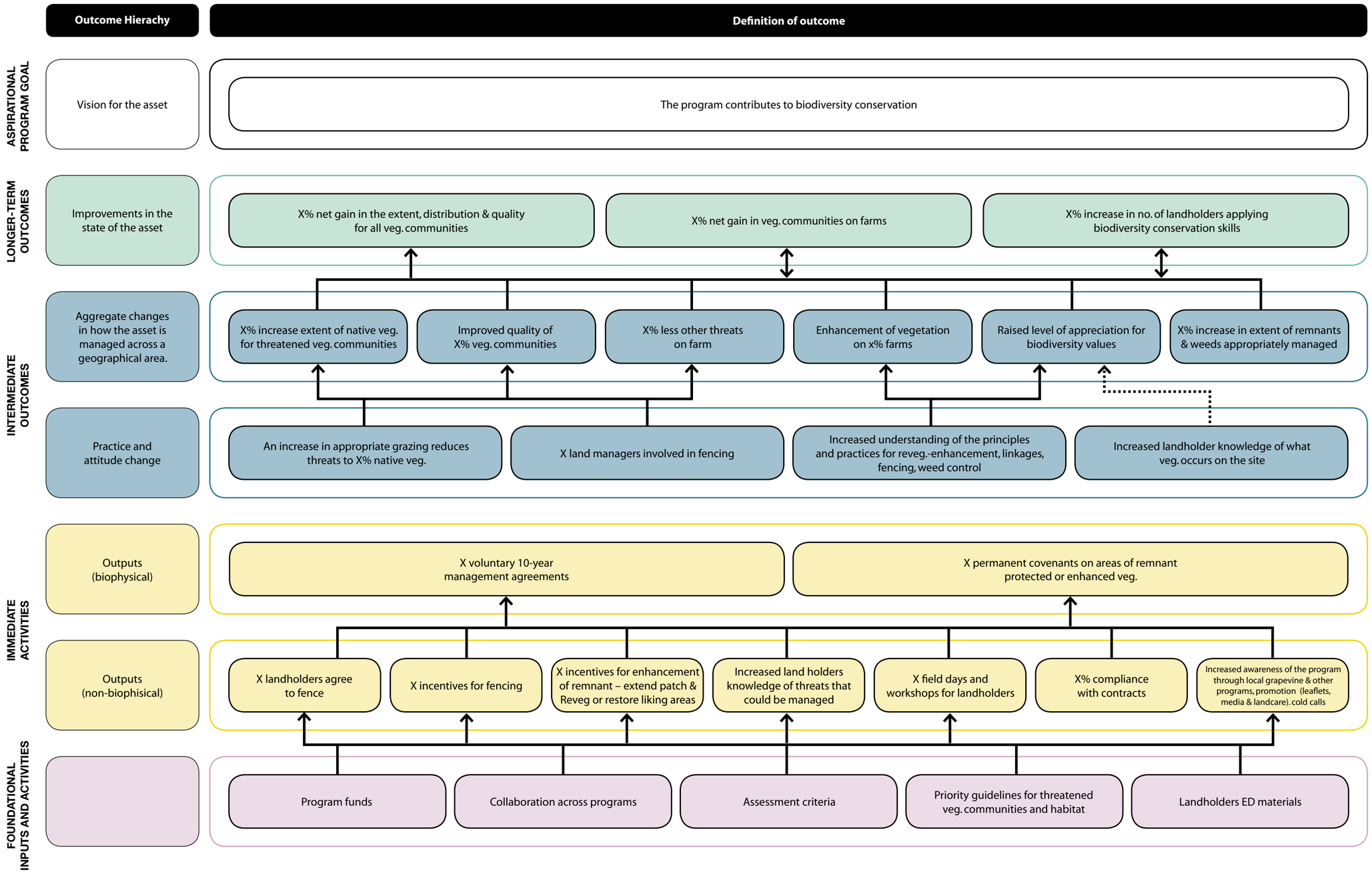
ATTACHMENTS

Attachment 1: Example outcomes hierarchy for a regional environmental protection and enhancement project

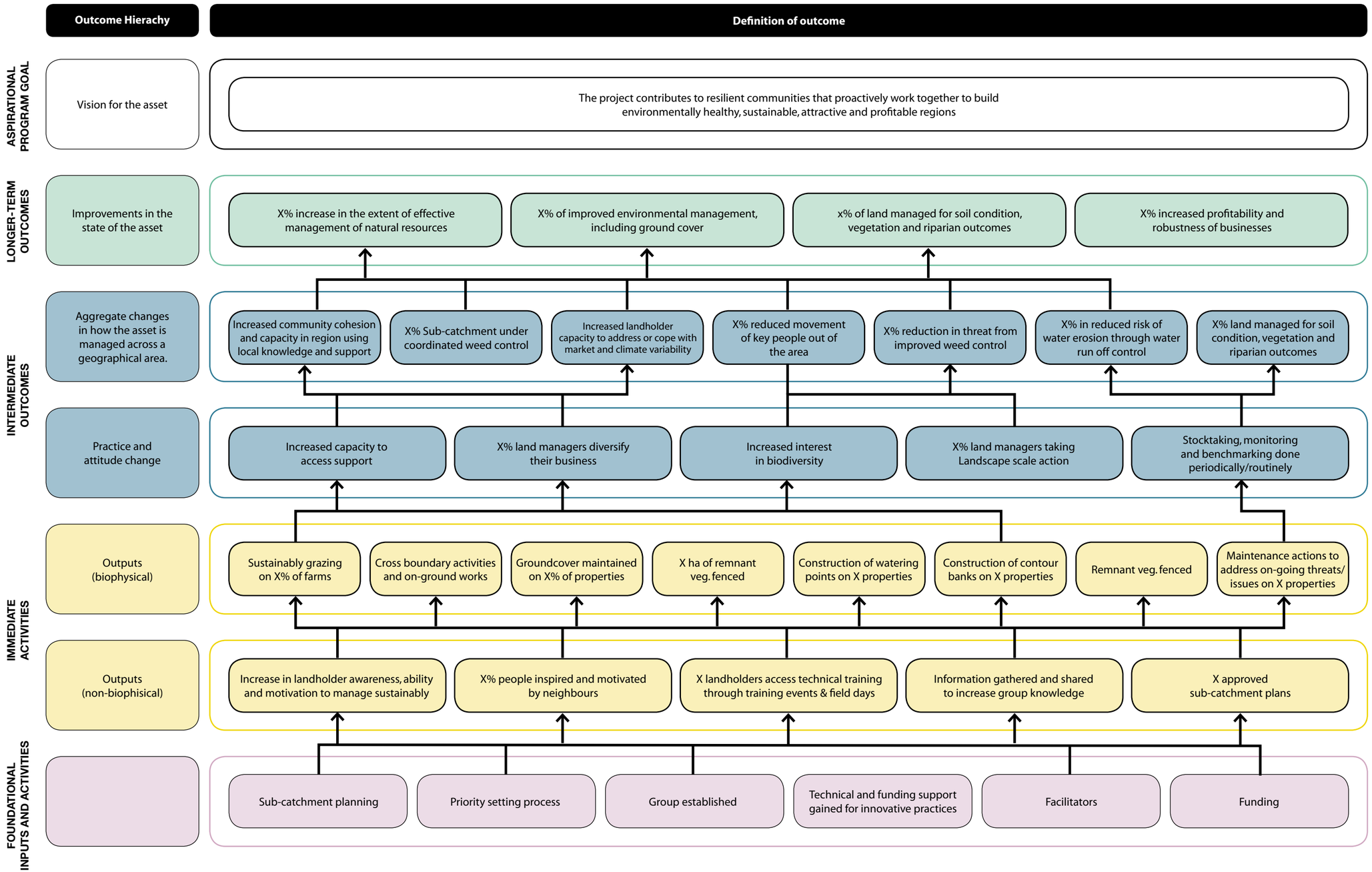


REFERENCES

Attachment 2: Example outcomes hierarchy for a regional biodiversity project

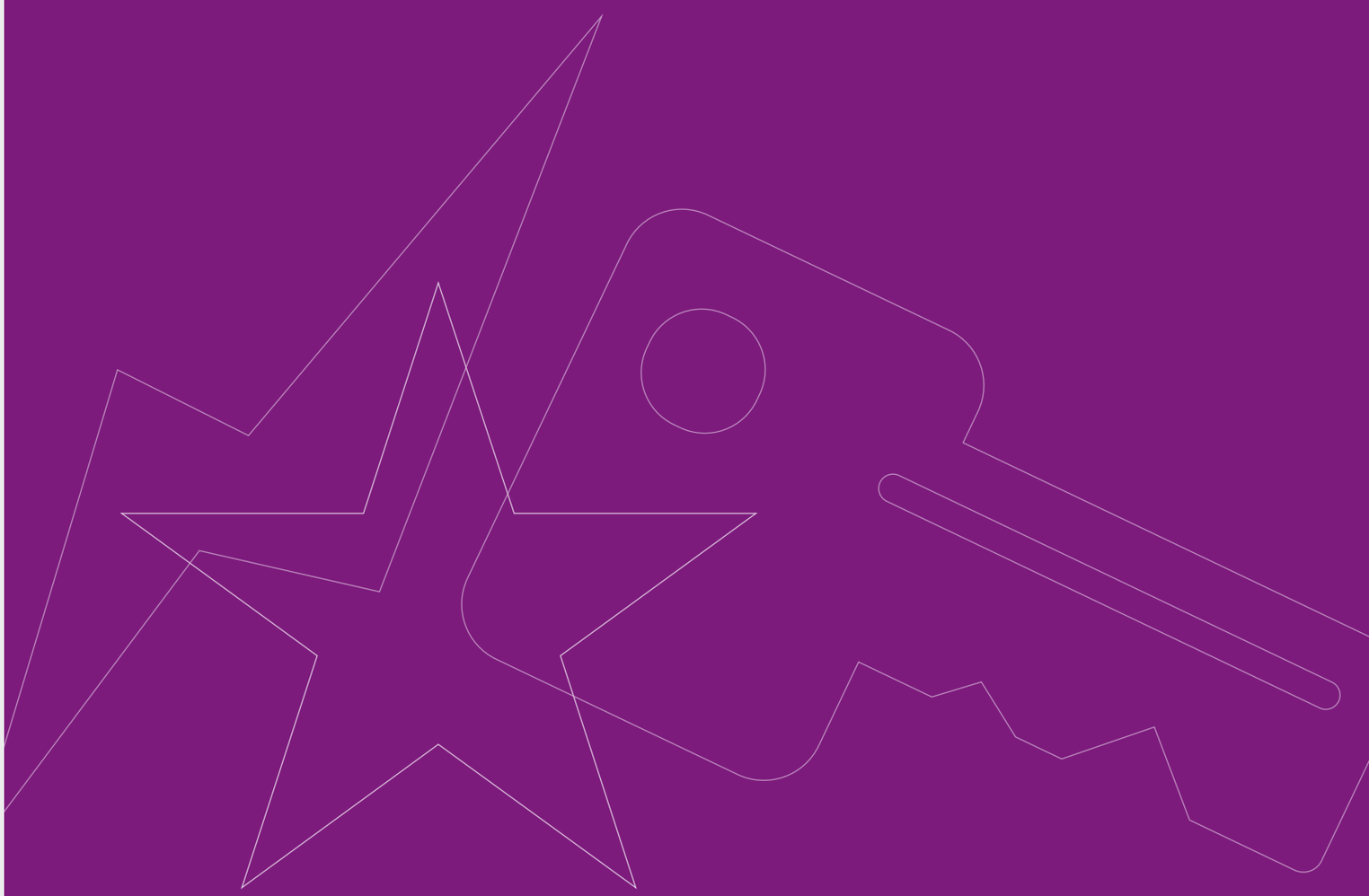


Attachment 3: Example outcomes hierarchy for sub-catchment planning



REFERENCES

REFERENCES AND ADDITIONAL READING



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