A2
Project management

In developing or replacing infrastructure, regardless of the size of the project or the type of infrastructure, sound management skills are needed, including:

■ good information-gathering

■ effective planning

■ strong leadership

■ clear communication

■ a wide knowledge base

■ sound relationship building.

Project management is about applying these skills to a specific group of activities and goals.

Stages of infrastructure project management

The components (or steps) in good project management are outlined in the following sections.

Developing the concept

A project can evolve from a concept associated with a funding decision, strategic plan, architect's design, or simply from a good idea. The content and duration of this early phase may be informal and will depend very much on whether the project needs to seek funding.

Some design work may be required, and the building and testing of a model or prototype may be needed.

Ensure that:

■ funding is sought at appropriate times; submissions should be aligned with regular budgeting cycles of funding organisations

■ community members (such as the beneficiaries of the project) understand the level of commitment to the project from influential stakeholders to avoid raising unrealistic expectations on the part of the community and loss of credibility on the part of the project's promoters.

Building on experience

If the outcomes of similar projects are available for consideration, learn from them. Other strategies that build on experience include:

■ research and background reading at an early stage

■ wide consultation with stakeholders, colleagues, peers and others who have been involved with past projects

■ development of a trial or pilot project to gain knowledge without the commitment of large budgets.

Consider:

■ conducting and evaluating a trial or pilot before full-scale implementation, particularly if the project is based on a new concept.

Establishing clear objectives

Objectives help to clarify and publicise the thinking around the project. They also provide a benchmark against which the success of the project can be measured.

Ensure that:

■ objectives are explicit enough that they can be measured, preferably numerically.

Building the project team

The size and composition of the project team depends on the nature and size of the project. A project team might consist of only one person, the project manager. Teams may change as projects evolve.

For larger projects, **consider**:

■ providing oversight by a steering committee of senior stakeholders who are independent of day-to-day project activities.

Engaging the stakeholders

It is essential that stakeholders are involved, but the number of stakeholders will vary depending on the complexity of the project. For example:

■ stakeholder positions in a project to build a new subdivision may be relatively simple, including only

- the developer's team (which is guided by the developer's objectives)

- the municipal authorities (who are guided by a clear set of established rules on what developments are permissible)

■ stakeholders in a project to establish a tourist route on Indigenous land might include

- the traditional owners (who may not be resident in the community)

- residents who stand to gain income from the venture

- residents concerned about the intrusion into their privacy

- tourism authorities who are promoting the concept

- other authorities who may have an interest in potential environmental impact.

In the past, the model of project delivery in Indigenous communities has focused on the supply side, with residents being unengaged recipients of services that are often developed away from the community they are intended for. However, if resident stakeholders are engaged throughout a project and their concerns are heard and addressed, a project can become more 'demand responsive'. This can, in turn, make a project more sustainable because residents have a personal commitment to the outcomes.

Commitment can also be encouraged by regularly informing all stakeholders with progress updates.

Ensure that:

■ sufficient time is allowed, particularly in the early stages of a project, to build stakeholder relationships and trust

■ project decisions are explained clearly — be prepared to modify them if stakeholders raise legitimate criticisms.

Being conscious of time and budget

Most projects have an upper limit to available funds, which compromises the ideal of allowing unlimited time for consultation and decision making.

Consider:

■ trying to anticipate the time and effort involved in consultation and decision making

■ that funders are usually more sympathetic if the case for allocating greater resources is well presented in advance, so that there are no surprises later in the process.

Developing the project plan

A complete project plan should contain at least:

■ a statement of objectives

■ a scope

■ an implementation plan

■ an operation and maintenance plan

■ a budget

- resources (such as people, equipment)
- a timeline.

More complex projects may also include:

- a cost–benefit analysis
- testing, inspection and quality assurance
- a risk management strategy.

Managing risk

The classical approach to project risk management has three elements:

- prediction of potential threats (such as extra cost, delays, failure to meet outcomes) and their consequences
- assessment of the probability of occurrence for each predicted threat
- identification of appropriate measures to prevent occurrence or to lessen effects.

Risk management becomes more formal as the size of the project increases. For large projects, the consequences and probabilities of threats are estimated as accurately as possible in advance, so that an appropriate level of resources can be directed to prevention and mitigation measures. For small projects, it is usually sufficient to identify the risks, factor in mitigation action where it is judged to be necessary, and allow a contingency in the budget and time schedule.

Conducting progress reviews and meetings

Progress in a project can be followed through meetings, typically working meetings of the project team and progress reviews.

Working meetings may be conducted at regular intervals or as necessary, depending on the requirements of the project and the location of team members. Decisions involving changes to the project plan are not normally made at these meetings.

Progress reviews are less frequent, and are usually planned into the project time schedule from the outset. They involve both information updating and decision making, as necessary. Steering committee meetings and stakeholder meetings are of this type.

Key components of infrastructure project management

Project management in infrastructure and elsewhere should include flexible planning and detailed documentation and should strive for sustainable outcomes.

Flexible planning

Few projects proceed entirely to the original plan. Even if all of the factors under the project manager's control are managed perfectly, the external environment may change unpredictably. Weather events, accidents and changes to the funder's or community's priorities may make it necessary to adapt the project plan.

Consider the following points:

■ If the project is divided into stages, with identified milestones to be met and signed off at review meetings before proceeding to the next stage, all stakeholders will be alerted promptly to any unforeseen events or delays at a time when their impact is relatively limited. Consequently, planning changes can be made as adjustments, rather than large and disruptive changes of direction.

■ A contingency budget, based on realistic past experience can provide a cushion for unforseen events.

■ Allowance should be made in the schedule for the effects of extreme weather events.

Documentation

It is important to document the project because this process formalises the flow of information. The larger the project, the greater the risk that ambiguity will arise as information is passed on verbally, or that some stakeholders will miss out on essential information.

Documentation also provides 'corporate memory' (the body of knowledge held by an organisation), which may otherwise be lost as personnel changes occur.

Some projects leave behind only the bare minimum of information, which may consist of the financial accounting data only. This is not helpful for individuals or organisations in setting up similar projects in other locations.

Ensure that:

■ project documentation includes sufficient detail to pass on knowledge about the project's strengths and weaknesses.

Sustainability

Although it might be easier to package a project and measure its success solely in terms of outputs or deliverables that are clearly visible — funders and implementers can then acquit and tidy away the project files and move on to the next assignment — projects should instead be designed to achieve sustainable outcomes. With this aim, 'completing' the project can be more complicated and can take longer because outcomes only become evident after a period of time (and may be only loosely linked to specific project activities).

Ensure that:

■ an independent, built-in evaluation stage occurs at a realistic interval after the active implementation period; this should concentrate on measuring sustainable outcomes.

Consider:

■ planning in two ways — separate the expected results into practical outputs and sustainable outcomes, and look for ways in which they can be measured independently.

The planning sequence

A general approach to sequencing the various steps that are involved in project planning and execution is shown in Figure A2.1 as a flow chart.

Figure A2.1: General model for a community infrastructure project
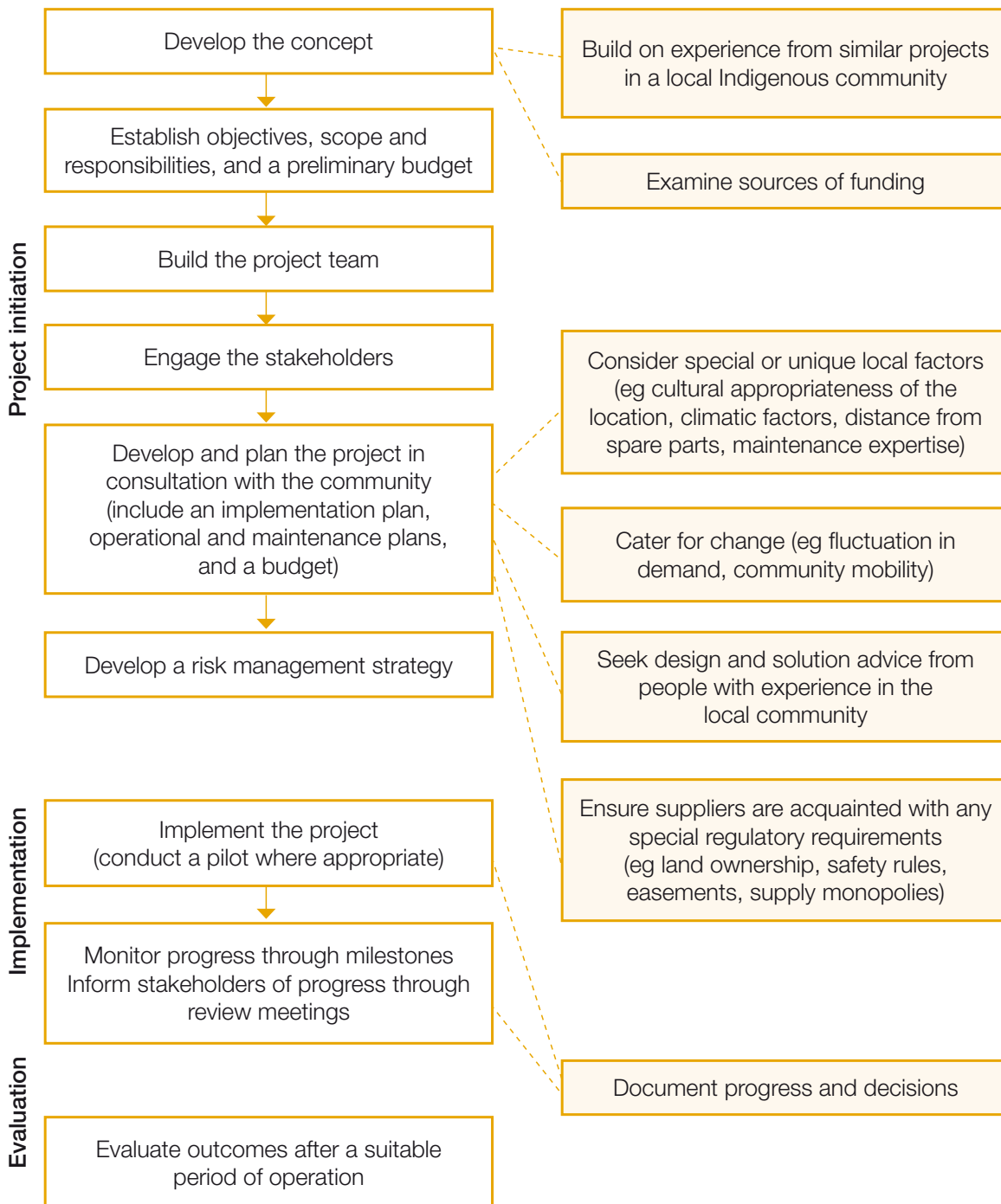
Source: Centre for Appropriate Technology, 2009

Incorporating statutory and community planning

Project managers need to be aware that most land in Australia is covered by a statutory planning scheme, requiring approval for developments. Each state and territory has its own planning schemes and lease arrangements for communities and outstations — these must be understood and incorporated into any infrastructure development. State and territory departments of planning and infrastructure will be able to assist with any development-related enquiries.

All infrastructure development and management projects with Indigenous communities should give consideration to long-term community plans before work begins. At the least, this process will involve gaining understanding of community priorities and objectives for the next year, and for five and ten years into the future. Refer to the principles of community involvement outlined in Chapter A1, particularly as they relate to working with families, kin groups or relevant agency groups. This approach increases the potential for creating or strengthening livelihood opportunities in communities. It can also give project managers a valuable context in which to locate their projects more sustainably.

Useful terms

Consultation	A discussion with a project stakeholder in which advice is taken from the stakeholder and acted upon.
Contingency	A plan or allowance in the project budget to cater for unforeseen circumstances.
Evaluation	A project stage that measures the successful outcome(s) of the project. Evaluation is preferably conducted by someone other than a stakeholder.
Pilot project	The first stage of implementing a larger project in its near-to-final form before extending it to a full implementation.
Prototype	A working model, usually of a device or process, that may be used in a trial project to test the concept but is not intended to be the final form.
Quality assurance	A process built into all stages of a project by which the quality of the project outcome is assured, rather than simple inspection or testing of the end result.
Risk mitigation	Planned steps that are taken in advance to reduce or eliminate foreseeable risks to the successful outcome of a project.
Stakeholder	Anyone who has a stake in the outcome of a project.
Strategic plan	A longer term plan (usually for the next 3 to 5 years) that describes an organisation's objectives for that period, and how and when they will be achieved.
Trial project	A small-scale project to test, learn from, and fine tune a new approach before implementing it on a large scale.

Further reading

Centre for Appropriate Technology (2006). How to develop a project for your community. *Bush Tech #31*, CAT, Alice Springs. www.icat.org.au/default.asp?action=article&ID=28

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