

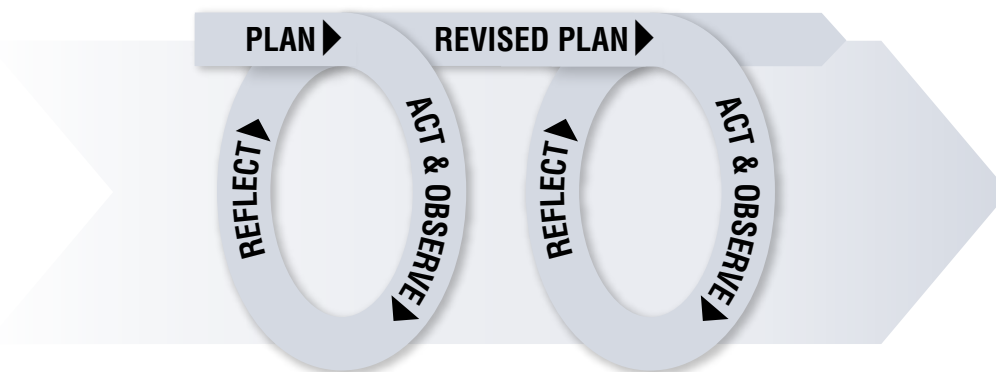
# Adapting to change

**Adaptive management is one of the key elements of forest landscape restoration**

by Don Gilmour

## Moving forward

The action-learning spiral



Source: Redrawn from Kemmis and McTaggart (1988)

**T**HIS ARTICLE proposes the adoption of an adaptive management approach to enable forest landscape restoration practitioners to respond to the dynamics found in natural and socioeconomic systems.

FLR initiatives typically have the following characteristics:

- multiple stakeholders with multiple interests (local, regional and national);
- complex ecological systems across a large landscape, with a variety of land-uses;
- the interface between large-scale natural systems and social systems; and
- a high level of uncertainty and many unknown factors.

Given the diversity of the FLR context, and the generally high level of uncertainty, FLR practitioners should employ what is called adaptive management; this is an approach to the management of complex systems based on incremental, experiential learning and decision-making, supported by ongoing monitoring of and feedback from the effects of decisions. The approach has elements of trial and error but it is much more than this, as it incorporates explicit learning as part of a process of building social capital among multiple stakeholders. This involves elements of:

- collaboration and learning;
- combining the learning and action that take place within a group of people (capturing both knowledge generation and the application of this knowledge in action); and
- knowledge-sharing among group members.

Adaptive management offers three important benefits:

- it can avert crises in conditions of uncertainty and surprise by increasing the societal capacity to 'roll with the punches';
- it offers a social steering instrument that can complement market, fiscal, regulatory and other measures to strengthen broad-based, multi-stakeholder engagement in the evolution of more sustainable relations between people and their environment; and
- it offers a way in which scientific-based technologies, alongside an understanding of people's perspectives, values and meanings, can contribute to collective learning and the motivation for action.

## Key components of adaptive management

It is convenient to think of adaptive management as a series of interrelated processes:

- **understanding the social and biophysical context** at multiple levels. This involves identifying stakeholders and dealing with multiple (and sometimes conflicting) interests;
- **negotiating objectives and outcomes** for different levels;
- **applying action-learning** (plan, act, observe and reflect) to facilitate the implementation process; and
- **monitoring and impact assessment.**

These processes should not be thought of as a series of sequential steps in which you complete one management task before moving on to the next. Rather, the processes should be thought of as interrelated and overlapping. For example, collecting and updating information to understand the context will be a process that continues throughout the life of an initiative. Likewise, monitoring and impact

## Context specific

Examples of the context of an FLR initiative

<b>BIOPHYSICAL</b>	Type, condition and location of forest patches
	Type and location of non-forest land
	Presence or absence of degrading influences
	Trends in forest condition—for example, increase or decrease in forest area
	Drainage pattern and slope characteristics
	Land-tenure patterns (legal and de facto)
	Geological and soil patterns
<b>SOCIAL</b>	Location of settlements
	Dependence of local people on forest resources for livelihood support
	Existence of local social institutions (including NGOs)
	Conflicts over land or resource use
	Stakeholder groups (inside and outside the landscape) that have an interest in the FLR initiative

## 1: The action-learning cycle

### Step 1: plan

The action-learning cycle starts with planning to take action on some pre-defined issue or problem situation. Planning is built on the experience and ideas of all partners because learning is enhanced when it is derived from day-to-day work and experience.

### Step 2: act

The results of the planning are put into practice, using timeframes agreed to in the planning sessions.

### Step 3: observe and reflect

Those involved observe the results of the action and reflect on the impact. Reflections need to be carried out explicitly and are best done as a group, ideally facilitated by an outsider in the early stages. This reflection is very important

because it enables the next steps in the cycle to benefit from the explicit learning that has resulted from the previous action.

### Step 4: draw lessons

Lessons are drawn from the previous steps of action and reflection. The experiences to date are linked back to the concepts and ideas that were used in the initial planning. This leads to replanning for the next cycle, building on the learning of the various steps of action and reflection and drawing lessons from previous cycles. In this way, planning and action can proceed incrementally with everyone participating in and contributing to all facets of the process. Thus, there will be a strong sense of ownership over the outcomes (both successes and failures).

assessment are not just one-off activities at the end of the initiative but ongoing practices that feed constantly into the action-learning cycle from the very beginning of the intervention.

Each of the four key components of adaptive management is now considered in turn.

### Understanding the context

The context of an FLR initiative comprises the social and biophysical conditions in which it takes place and which could have an impact on it (see table previous page). While it is never possible to understand everything about the context (particularly as it will change over time), it is important to know enough about it to make a start. An improved understanding of the context can be gained while the initiative continues.

### Negotiating objectives and outcomes

The objective of an FLR initiative will vary depending on the agenda of the group promoting it. A forest department, for example, might want to restore an area of degraded

forest land primarily to improve timber production, while a conservation agency or NGO might want to improve habitat for wildlife or restore an endangered biotype. Hence, the primary objective of the group initiating the rehabilitation or restoration activity may create different responses from different stakeholders. It is only by identifying the interests of the various stakeholder groups that negotiations can occur, and the initial objectives may need to be modified to take account of the interests of other stakeholders. This process inevitably involves trade-offs and requires compromises in order to achieve outcomes that will be socially acceptable and sustainable over the long term.

### Applying action-learning

The key idea behind action-learning is that a group of people with a shared issue or concern collaboratively, systematically and deliberately plan, implement and evaluate actions (see Box 1). It is a process of learning through experience in order to act more effectively in a particular situation and is well-suited to situations with a great deal of uncertainty and risk.

The process should be thought of as ongoing rather than a one-off event (see figure previous page). The participants continually go through the cycle, with each iteration improved by the knowledge and learning obtained in the previous cycles.

### Monitoring and impact assessment

An ongoing approach to monitoring and impact assessment is an essential aspect of adaptive management, because it enables stakeholders to build their social capital by sharing the learning that comes from such assessments. The next action-learning cycle of planning/acting/observing/reflecting is updated by realistic information, thus helping to maintain maximum adaptability and flexibility (see the example in Box 2).

The adaptive management process should be thought of as a series of action-learning loops rather than a straight line from planning to the achievement of planned outcomes. Managers should feel free to adapt and modify the approach based on the knowledge that comes from the application of action-learning throughout the process.

### Reference

Kemmis, S. & McTaggart, R. (eds) 1988. *The action research planner* (3rd edition). Deakin University Press, Geelong, Australia.

## 2: Monitoring for action-learning—case-study from Nepal

An attempt to rehabilitate the degraded hillsides of common land in a region of eastern Nepal was eagerly accepted by local people, as evidenced by discussions at village meetings. However, after the first year of planting it was noted that most of the planted trees had not survived. Discussions with a wide range of local people outside a formal meeting setting revealed that a group of poorer people (who were not sufficiently empowered to speak at village meetings) disagreed with the rehabilitation proposal. Their livelihoods were largely dependent on managing herds of grazing animals and they did not wish to lose their grazing land. The low survival rate of the planted trees was due to the graziers having allowed their

animals to graze the recently-planted hillsides. Their more wealthy and powerful neighbours were primarily sedentary agriculturalists and did not need much open grazing land. This finding enabled the original approach to be modified so that the economic needs of the graziers were taken into account, resulting in greater success in the rehabilitation initiative.

The lessons from this example are that:

- ongoing monitoring enabled problems to be identified before they became too serious, so that the next action-learning cycle could be adjusted based on the learning obtained in the previous cycle;

- even with what seems like thorough planning, there are almost always unexpected outcomes and unintended consequences that need to be explicitly looked for and learnt from before continuing with the next action-learning cycle;
- great care needs to be taken to identify all the stakeholder groups that will have an interest in the outcomes of the rehabilitation or restoration activities; and
- consensus at village meetings does not necessarily mean agreement by all interest groups, particularly where there are large differences in power relations between different groups.