Strengthening community capacity to undertake conservation work

Sharing conservation skills and knowledge

Anna Johnson and Mariska Wouters

SCIENCE FOR CONSERVATION 287

Cover: DOC ranger with Te Hapua School pupils. *Photo*: Carolyn Smith.

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Anna Johnson[1] and Mariska Wouters[2]

[1] Opus International Consultants Limited, Dunedin Office, Opus House, 197 Rattray Street, Private Bag 1913, Dunedin 9054, New Zealand
Anna.Johnson@opus.co.nz

[2] Research, Development & Improvement Division, Department of Conservation, PO Box 10420, Wellington 6143, New Zealand
mwouters@doc.govt.nz

ABSTRACT

Working with communities to achieve conservation objectives is a key focus of the Department of Conservation (DOC). This report addresses how DOC can most effectively support communities to develop skills to carry out conservation work, particularly through sharing scientific and technical information. The study began with an international literature review. The results of this review were used to inform four case studies of successful practice of DOC working with communities. Finally, an action research approach was used to work with DOC to interpret the findings from the case studies and literature review and to identify actions to respond to the results. The results of the literature review were six best practice principles for working with communities as part of skill sharing. The case studies strongly supported the six principles identified in the literature and identified two further principles. The two action research forums supported the findings from the first two stages of the research and identified potential actions that could be explored by both DOC and community organisations to improve information and skill sharing.

Keywords: conservation with communities, skill sharing, technical skills, scientific knowledge, evaluation, monitoring, planning, participation, collaboration, experiential learning, community involvement, action research

1. Introduction

Working with communities to achieve conservation objectives is a key focus of the Department of Conservation (DOC), and is specifically addressed under the appreciation outcome in DOC's Statement of Intent 2006–2009 (DOC 2006).

The objectives and approach for working with communities to enhance conservation outcomes is outlined in DOC's Conservation with Communities Strategy (DOC 2003a). This strategy emphasises the importance of DOC understanding and building relationships with communities. It discusses a variety of ways that DOC can work with communities; for example, by leading projects that offer communities opportunities for involvement in conservation work; by developing partnerships with community organisations and tangata whenua to undertake conservation projects; and by supporting other organisations undertaking work that contributes to shared conservation outcomes.

The type of community-based conservation initiatives that are promoted by DOC depend on the conservation issues that are most important for the particular DOC conservancies and localities where the projects are based. For example, the Bay of Islands Conservation Programme focuses on predator and pest control, whereas the Motutapu Island Conservation Programme (Hauraki Gulf) assists with habitat restoration as well as work to reinstate the island's cultural and natural landscape.

One of the key methods identified by which DOC can support community conservation initiatives is through the sharing of conservation skills and knowledge in areas such as monitoring, pest control and habitat restoration. Methods currently used for sharing expertise include the provision of written information (such as pamphlets), tailored on-site training programmes, and large-scale knowledge-sharing events (such as the Kiwi Hui).

This study explores New Zealand and international research on working with communities as part of natural resource management to identify the current opinion on 'best practice' conservation skills training and capacity development. It then explores four case studies identified as 'success stories' of DOC working with communities to develop community capacity to undertake conservation work. These case studies are analysed in light of the literature to determine the key principles that DOC needs to follow when building conservation skills within communities. The case studies are discussed in terms of different models for how DOC can work with communities. Areas requiring attention that were identified in the case studies are also highlighted. The case studies are followed by action research which further explores the key principles identified in the case studies, areas requiring attention and potential actions to address these issues.

2. Literature review

The question addressed by this research is 'how can DOC most effectively support communities to develop skills to carry out conservation work, particularly through sharing scientific and technical information?

In order to address this question, a literature review was conducted. This set out to identify international best practice in working with communities, and what lessons it has for DOC in working with communities on conservation projects. The particular focus was how to effectively share skills and knowledge. The literature review was based on a broad search for material that could be relevant to addressing the research question. This search included keyword searches on the Internet, academic article databases (EBSCO host and the Web of Science/ Social Sciences Citations Index), as well as a 'snowball' method of identifying information sources through the reference lists of the documents reviewed. The final material reviewed included books, journal articles and Internet-based information on theory, best practice guidance and case studies in the following fields:
- Communication
- Adult education
- Environmental education
- Science communication
- Rural extension
- Collaborative and community-based conservation/natural resource management

In addition, several earlier DOC publications were reviewed, including those that addressed 'volunteering' or community conservation projects (CCPs).

For the purposes of this literature review, the various literatures on working with communities as part of 'rural extension', 'land management', 'wildlife management', and 'conservation' are sometimes referred to, collectively, as 'natural resource management'.

Once the review got underway, it quickly became apparent that looking at the practice of skills and knowledge sharing with communities in isolation missed some of the most important points that were being raised in the literature about how to best work with communities to build their capacity to undertake conservation work. Supporting communities to develop skills to carry out conservation work is more than just finding the best way to 'teach' skills or to impart scientific or technical information. It is about finding the most effective ways to work with communities to enable and encourage participation, commitment, learning, and practice.

Therefore, a broader approach was taken to identify the key principles which contribute to effectively supporting communities to develop skills to carry out conservation work. In the end, six interlinked themes or principles consistently emerged across the various types and sources of information reviewed:

Principle 1   The importance of careful planning and setting clear objectives

Principle 2   Understanding your audience

Principle 3   Information and knowledge sharing as a collaborative learning process

Principle 4   Using a variety of communication and participation methods

Principle 5   Using best practice group management and communication techniques

Principle 6   The importance of continuous learning through monitoring and evaluation

These principles are outlined in the following sections.

2.1   THE IMPORTANCE OF CAREFUL PLANNING AND SETTING CLEAR OBJECTIVES

The first best practice principle for supporting communities to develop skills to carry out conservation work is the importance of careful planning, including the setting of clear objectives.

This principle is closely linked with:

- Principle 2—*Understanding your audience.* An important aspect of developing an effective communication plan is understanding the audience you are trying to reach (Section 2.2).

- Principle 6—*The importance of continuous learning through monitoring and evaluation.* Setting clear objectives is also important in enabling you to effectively evaluate your work as part of a continuous learning process (Section 2.6).

Principle 1 transcends the literature reviewed and is applicable to both:

- The development of specific educational/skill development activities

- The process for working with communities on conservation projects

2.1.1   Planning your communication strategy

Firstly, from the point of view of communication theory, Jacobson (1999) emphasises the importance of good planning and outlines a process for planning, implementing, and evaluating a communications programme (see Box 1).

Jacobson (1999) also discusses the importance of undertaking strategic research as part of the plan development process. This includes:

- Defining constituent audiences or stakeholders, including their common interests, needs and behaviours

- Considering the accessibility of the audience and appropriateness of different communication media to both the public and the message

- Determining appropriate message strategies and selecting the communications media for target audiences (see Section 2.2).

Planning
- Review the mission of your organisation and the goals for the communication campaign
- Identify target audiences
- Determine specific objectives
- Identify resources and constraints
- Assess potential approaches and activities

Implementation
- Pre-test tools and messages
- Develop and implement selected activities
- Monitor and complete the communications programme

Evaluation
- Compare results with the objectives
- Make decision regarding programme changes and continuation

A UK guide on science communication (People Science and Policy Ltd and Taylor Nelson Sofres 2002) suggests setting objectives with the following questions:

- Why am I (or my organisation) doing this?
- What do I/we want to achieve?

This guide also adds that these objectives must be realistic, of high importance and measurable:

> *The twin pitfalls are setting objectives that you believe are important, but against which you can't measure your success and setting objectives because you know they are measurable, but are actually of little importance.*
> (People Science and Policy Ltd and Taylor Nelson Sofres 2002, p. 4)

A useful guide to setting clear objectives which comes from the evaluation literature is that objectives should be SMART:
Specific
Measurable
Achievable
Relevant
Time-framed

The importance of careful planning based on clearly defining the purpose and objectives of the programme, as well as understanding the needs of your audience and evaluating your performance, is also emphasised in the education theory and best practice guidance reviewed (see, for example, Findsen 1996).

2.1.2   The importance of careful planning for achieving success in conservation with communities projects

In addition to its role in communications and educational activities, the importance of careful planning and setting clear objectives is also a major principle in working with communities on conservation projects.

The importance of programme planning in the development and the successful implementation of conservation with communities projects is outlined in the DOC guide '*From seed to success. Ruia te kākano, kohia te kai rangatira. Guidelines for community conservation partnerships*'. (DOC 2003b). This report states (p. 29): 'organisation is the key to success' and outlines the content of a good plan, which includes:

- The community and the environmental results wanted (your vision, goals and objectives)
- Actions that will be taken
- What needs to be done first (priorities)
- What resources are required
- How resources will be provided
- Who will take which roles and responsibilities
- How coordination, communication and decision-making will take place
- Timelines
- How progress will be monitored

In a later guide on developing effective partnerships between DOC and community groups, Wilson (2005) emphasises the importance of, as part of project planning, ensuring the roles of DOC and the community group are clearly stated and regularly reviewed, and being direct with community groups about the level of involvement and support that DOC can offer.

The importance of careful planning and the setting of clear objectives are also highlighted in much of the other literature on working with communities as part of natural resource management. For example, Gooch (2003, p.10), in a study of catchment volunteers in Queensland, Australia, recommends that 'clear goals, processes and procedures should be articulated so that individuals and groups are aware of the goals towards which they are striving.' Gooch (2003) also notes that 'using a calendar to schedule time commitments can help reduce the likelihood of burnout'. Likewise, Campbell & Vainio-Matilla (2003, p. 426) discuss community-based conservation in developing countries and highlight the importance of setting programme goals with communities. They cite several examples where this has not been done and the ensuing failure of community development and community-based conservation projects. These projects suffered poor design (particularly from a socio-economic perspective), a lack of attention to local circumstances, a lack of buy-in and support for the conservation effort and actions to undermine the projects (by poaching, for example). The authors state:

> … the concerns for the urgency of conservation activities cannot preclude the importance of community control over these activities. To lock the community into a passive, object-like role in the discourse on conservation will directly undermine the long-term sustainability of conservation activities. (Campbell & Vainio-Matilla 2003, pp. 428–429).

Unfortunately, past research indicates that planning has been an area of challenge in DOC's work with communities. For example, in a study of volunteer involvement in DOC projects, poor quality of organisation and management and failure of training or educational opportunities to match participants' expectations is identified by Cosslett (1997, cited in Bell 2003) as a significant disincentive to volunteers. In the same study, Bell (2003) also finds that because DOC sometimes needs to move from a role as leader in a project to one of partner or supporter, it is important that skills training is provided not only in conservation, but also in general project planning, organisation and project management.

2.2   UNDERSTANDING YOUR AUDIENCE

The second principle is the importance of understanding your audience. Once you have identified who your audience is/will be as part of programme planning (Section 2.1), it is important to find out a bit about that audience to understand how conservation programmes need to be shaped, not only in terms of what you say (message) but also how you communicate it (method/technique).

Important things to find out about your audience include:

1. Which messages are likely to 'hook' your audience and inspire them to act? For example, what will make them get involved in a programme or change the way they currently manage pests? To discover this you must have an understanding of their interests, attitudes and motivation.

2. What does your audience want to know? What information or skill development activities are required?

3. What are their learning styles? What types of methods and techniques are likely to work best with them?

2.2.1   Knowing which messages are likely to 'hook' your audience and inspire them to act

The first part of understanding your audience is understanding which messages are likely to 'hook' them and inspire them to act; for example, to get involved in a programme or to change the way they currently behave. Social psychologists have noted that opinion is usually determined by self interest. A communication will affect public opinion primarily if its relationship to the audience members' interests is clear. Therefore, if a conservation organisation is wishing to influence public opinion, it must ask, 'what is in this for the individuals whose opinions we are trying to change?' (Jacobson 1999, p. 15). In other words:

> *Communicators must deal with the real needs and desires of their target audiences if they expect to achieve their conservation goals.* (Jacobson 1999 p. 16)

Figure 1.   Maslow's hierarchy of needs (based on a figure in *www.ruralhealth.utas. edu.au*).
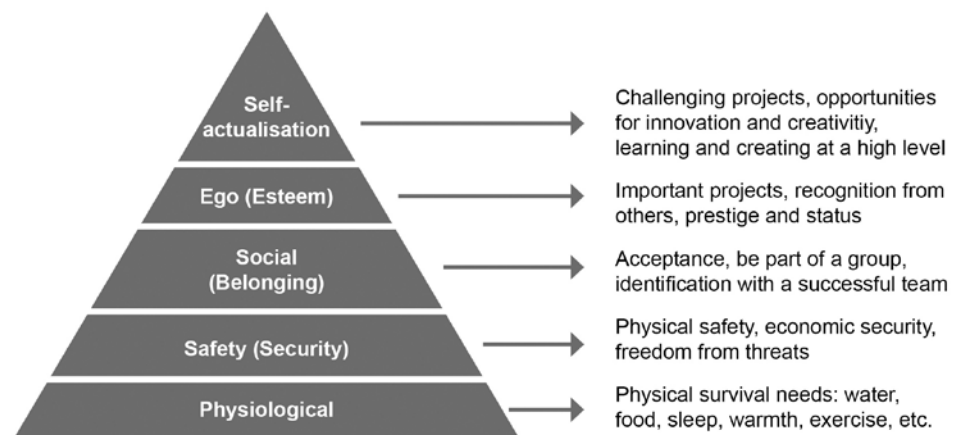
Maslow's Hierarchy of Needs is shown above. The pyramid illustrates the five levels of human needs. The most basic are physiological and safety/security, shown at the base of the pyramid. As one moves to higher levels of the pyramid, the needs become more complex.

One way of identifying the key messages that might link into the perceived interests is to better understand the nature of needs. Jacobson (1999) discusses Maslow's hierarchy of needs (see Fig. 1). According to this theory, there is a hierarchy of human needs in which the primary physiological needs for food, warmth etc. and then safety and security need to be satisfied before people will be concerned with satisfying their higher-order needs for social belonging, self-esteem and, ultimately, self-actualisation.

Jacobson states:

> *Knowing where your target audience fits in this hierarchy can help you develop appropriate messages to influence their attitudes. A wildlife refuge offers recreational opportunities that may appeal to someone seeking to meet needs for esteem or fulfilment, while opportunities for hunting could appeal to needs for food or safety for subsistence hunters or a sense of belonging or esteem for sport hunters. Framing messages to appeal to people's specific needs can reinforce positive attitudes about your conservation agenda.*   (Jacobson 1999, pp. 15–16)

A similar point is made in the literature on science communication. For example, Weigold (2001, p. 184) points to the need for science journalism to 'provide more background information and provide perspectives on what a story implies for broader society. Effective science journalism should provide new information and connect science to everyday life'.

In terms of participation in conservation activities, an important part of understanding your audience is understanding the motivation of people involved in conservation activities. There have been a few studies in New Zealand that have looked at participants' reasons for being involved in such activities. For example, in a study of conservation expectations of Aucklanders, James (2001a) found that participants' reasons for being involved in conservation activities tended to stress personal, social and cultural reasons, rather than just wanting to achieve environmental outcomes. She found that reasons could be summarised as:

*   Recreational opportunities
*   Personal satisfaction
*   Skill development
*   Doing something that would benefit the community
*   Doing something that would benefit future generations

Two other studies (Cosslett 1997 and Bayliss 2000, both cited in Bell 2003) of people who volunteer for DOC also discussed these and other reasons for people volunteering. The reasons included:

*   Enjoyment, recreation (the opportunity to spend time in attractive outdoor settings) or personal interest in the environment

*   A personal concern for the environment/conservation

*   A desire to improve the environment for the future so that future generations can enjoy it

*   A desire to improve an amenity that the volunteers do not currently use, but may wish to in the future, or that they would like others to have the opportunity to use

*   A chance to learn new skills and increase personal knowledge and awareness

- To assist DOC to achieve its objectives
- To contribute to the community they live, work, and play in (to give something back)
- For work experience for career or study
- To keep mentally stimulated and physically fit
- For a sense of achievement
- To make people aware of conservation issues and to teach others about conservation
- To socialise, meet people with the same interests, to develop a sense of group identity, for companionship
- To improve the link between DOC and the community

2.2.2 Determining what information or skill development activities are required: what people want to know

The importance of understanding your audience is also discussed in the rural extension literature. For example, Andrew et al. (2005, p. 3) outline a number of strategies for fostering involvement in skill-sharing activities, including the importance of identifying what people want to know:

- Understanding what the audience wants to know and expressing the benefits of learning in terms that have meaning for the audience. The value placed on the learning opportunity must be such that other demands are put aside in order to participate.
- Identification of opportunities should come through an understanding of how different communities interact and communicate.
- Localising learning in terms of issues, organisation and responding to communities' time and relevance demands, through involving local people in the development of learning opportunities.
- Building up relationships over time to develop a genuine understanding of what the communities want to know.
- Monitoring the situation and adapting to changes in circumstances.

Wilson (2005) also emphasises the importance of identifying what skills training and resources specific community groups want.

2.2.3 Understanding how to best communicate with people by understanding how different people learn

Another key theme in the literature is the importance of understanding how different people learn. Mills (1996), in reference to the experience of adult learning, states:

First, even when two people are engaging in the same learning task, in the same setting and at the same time, their experience will be unique at an interactive, perceptual, cognitive and affective level. Second, a person's learning experiences from one learning event to the next may have little in common with each other. In other words, learning must be viewed as individually and contextually situated. (Mills 1996, p. 287)

Similarly, Webb et al. (2006), in their review of learning theory, conclude:

> … *individuals have different learning styles, and therefore the methods and means by which they learn best will depend largely on factors relating to learning styles and preferences.* (Webb et al. 2006, p. 32)

Boyle's (2005, cited in Webb et al. 2006) concise typology of influences on learning styles, based on his review of the learning theory, is particularly useful for understanding how different people learn. Boyle describes six elements in people's preferences for learning, which differ from person to person. These are:

- Perceptual elements
- Sociological elements
- Psychological elements
- Physiological elements
- Environmental elements
- Emotional elements

The essential aspects of the first three of these are summarised by Webb et al. (2006):

Perceptual elements affect the way we learn and retain information. Individuals tend to have personal preferences or strengths in one or more learning styles (see Fig. 2).

Figure 2. Perceptual Elements of learning styles (taken from Webb et al. 2006).

AUDITORY: Those with auditory strengths learn by listening

TACTILE: You learn best when physically involved—e.g. by note-taking in a meeting

VISUAL PICTURE: You learn best by creating images in your mind's eye

KINESTHETIC: You learn best when employing your whole body—e.g. by role playing

VISUAL TEXT: You learn best by reading the written word

VERBAL KINESTHETIC: You learn best when discussing information with others

Sociological elements refer to people's preferences for learning with others and strengths in terms of working as part of groups and include preferences for:

- Working or learning alone
- Working or learning alone but then interacting with others after having had time to think things through
- Working in pairs
- Working in small groups or teams
- Working under the guidance of a supervisor and being critical of peers
- Working with an expert (authority-oriented)
- Varied preferences

Psychological elements refer to the different ways in which people absorb information and include two variations:

- Analytic processors—learn facts sequentially, with one fact following the other

- Global processors—require the big picture and a real-life application

and

- Impulsive processors—are likely to shout out the answer as soon as they think they know it

- Reflective processors—need time to think about and reflect on their answer before sharing it

2.3 USING EXPERIENTIAL AND COLLABORATIVE LEARNING PROCESSES

Much of the literature on working with communities as part of natural resource management emphasises that information and knowledge sharing works best when it is:

1. Experiential

2. Part of a two-way collaborative learning process

2.3.1 Experiential learning

The theoretical roots of this principle are grounded in educational and learning theory, particularly the experiential learning approach developed by John Dewey, David Kolb and others and the related (participatory) action research (Kurt Lewin, Paulo Friere, Antonio Gramsci) and action science approaches (Chris Argyris). Briefly, these theories advocate an approach to learning/research based on a cyclical process of planning–acting–reflecting.

Experiential learning is different from traditional models of teaching, as it encourages 'participants to make sense of and learn from their own experience rather than casting staff in the role of expert or teacher' (Ringer & O'Brien 1997, p. 6).

It does this by encouraging 'learning by doing' through a learning cycle which includes experience, express, examine and evaluate, as illustrated in Fig. 3.

Figure 3. Experiential Learning Cycle (taken from Ringer & O'Brien 1997.
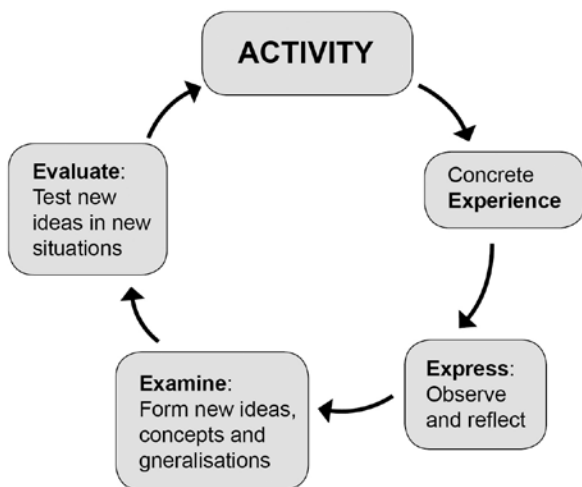
Kolb (1973) describes the cycle in the following way:

Immediate concrete experience is the basis for observation and reflection. These observations are assimilated into a 'theory' from which new implications for action can be deduced. These implications or hypotheses then serve as guides in acting to create new experiences.

(Kolb 1973, p. 2, cited in Webb et al. 2006, p. 31)

Kolb's learning cycle became an important theoretical construct for several authors working in the area of organisational learning. They saw that, in order to be successful, organisations had to learn to become adaptive 'learning organisations' which encouraged and supported employees to reflect on their experiences and adapt to changing circumstances.

The learning cycle has its roots in a constructivist interpretation of learning. The theory of constructivism is attributed to Jean Piaget, who argued that knowledge is created by learners through experience in two processes:

- *Assimilation*—occurs when individuals' experiences are aligned with their internal representation of the world. They assimilate the new experience into an already existing framework.

- *Accommodation*—is the process of reframing one's mental representation of the external world to fit new experiences. Accommodation can be understood as the mechanism by which failure leads to learning. When we act on the expectation that the world operates in one way and it violates our expectations, we often fail. By accommodating this new experience and reframing our model of the way the world works, we learn from the experience of failure (see, for example, http://en.wikipedia.org, keyword: Constructivism).

In a similar way to experiential learning, Participatory Action Research (PAR) integrates the information creation process (research) with the process of taking action to change the situation. It also adds the principle of community empowerment to the concept of cyclical learning.

While the idea of PAR has been around for several decades, it is only relatively recently that it has been applied in the context of natural resource management (Lambert & Elix 2003). McTaggart (1999, cited in Lambert & Elix 2003) outlines three key attributes which distinguish PAR from conventional research:

- Shared ownership of research projects
- Community-based analysis of social problems
- Oriented towards community action

In PAR, the normal distinction between researcher and subject is removed and the researchers/experts engage collaboratively with the subjects/stakeholders in the process of inquiry, with the purpose of not only understanding the situation being studied, but also making positive change to the situation (Mordock & Krasny 2001). One of the benefits of this approach is that:

> *Individuals who are usually disenfranchised in a knowledge-based society may experience personal transformation and become knowledgeable catalysts of social change by participating in knowledge generation or research.* (Sohng 1995, cited in & Krasny 2001, p. 16)

2.3.2 Collaborative learning and action

The learning theories discussed above were used by several authors to argue for change in the way agencies work with communities. The approach whereby agency staff are seen as the 'experts' who provide information to members of the community needs to change to one where agency staff work *with* communities in a more facilitative role, helping to engage with them in a process of collaborative learning and action.

This new model reflects a change in the way of thinking about generating information, sharing information, and learning, and has implications for how community conservation programmes are conducted. According to this model, both problems and answers are identified through a collaborative process of information exchange, and scientific information is only one part of the exchange.

This contrasts with the traditional linear model of information exchange, where information on the 'problems' and the 'answers' is delivered from the experts to the community. Furthermore, in the new model, the process of creating information is integrated into the process of acting on the problem. This makes the stage of 'sharing scientific skills and knowledge', as conceptualised in this research project, difficult to distinguish and disentangle from the broader issue of how to work with communities to undertake conservation work; as the process of undertaking the work is part of the overall learning cycle.

For example, writing from the perspective of collaborative learning and collaborative management, Will Allen and Margaret Kilvington and others discuss the importance of working together with communities as part of collaborative learning, in which 'many viewpoints and sources of information can be shared among the different parties involved, and integrated to find solutions that will guide the way forward' (Allen & Kilvington 1999, p. 2). Working with communities to develop solutions collaboratively is important to not only finding the best solutions but also to ensuring the community 'buys into' and feels ownership over the solutions and their implementation. Allen & Kilvington (1999) emphasise that doing this successfully requires aspects of relationship-building, facilitation and conflict management. Allen et al. (2001) describe this collaborative approach as an 'Integrated Systems for Knowledge Management approach' which involves the following steps:

- Entry and contracting—scoping the goals and objectives
- Collaborative planning—iteratively accessing the relevant data, information and knowledge (science and local knowledge) and undertaking a community dialogue for (1) shared understanding and (2) development of action and monitoring plans
- Information capture and dissemination
- Implementation
- Ongoing feedback and problem reformulation

This perspective challenges the idea of 'information sharing' and, instead, reformulates it in terms of collaborative information creation through research and dialogue as part of a collaborative planning model. It also recognises the contextual nature of information where information is derived from a particular social, economic, and ecological setting as well as filtered through the information creator's personal world view. Allen et al. (2001) use an example to illustrate this:

> *An important consideration in designing field control operations is determining the appropriate spacing to use between traps. In this case study scientists suggested suitable grid spacing to ensure that the ferret's home range was well covered with control traps. However, North Canterbury farmers pointed out that a grid design for trapping may not be the most practical and cost-effective method in a commercial situation, where trapping often has to be combined with other farm operations. Both groups are correct in the context in which they are working.* (Allen et al. 2001, p. 6)

The papers and reports written by Will Allen and Margaret Kilvington provide a number of points or principles that are helpful in understanding how to work with communities as part of a collaborative learning process. They discuss how community dialogue is important for addressing and resolving debates and is an important part of the learning process. They state:

... negotiating through a conflict over differing viewpoints expands peoples' perspectives on the problem, leading to more lateral solutions. (Allen & Kilvington 1999, p. 3)

This is because access to a wide range of information and perspectives increases stakeholders' range of options, and the basis for comparing these options.

However, they also note the following points:

- While science is 'a main contributor', local knowledge also needs to be drawn upon.

- Stakeholders must develop a common language, but in a way which accommodates different viewpoints. This process can take time when stakeholders come from different (technical or cultural) backgrounds and/or draw on different types of knowledge.

- Michael (1995), cited in Allen & Kilvington (1999, p. 4), makes the following point: 'Accepting new information that challenges the way we think and the things we do, even with the best of wills, [is] difficult to undertake, to accomplish, and to sustain.' It is important, therefore, to create a supportive environment for those undergoing change.

A similar perspective is taken by Campbell & Vainio-Matilla (2003), who discuss the importance of valuing local knowledge and understanding existing relationships between communities and the environment in the context of community-based conservation in developing countries. They review the potential role of historic and culturally-specific management systems as part of species and habitat conservation, concluding:

The implication for community-based conservation is that knowledge that has been produced through long, mutually adaptive processes of human communities interacting with their environment can be valuable to conservation efforts. (Campbell & Vainio-Matilla 2003, p. 426)

Campbell & Vainio-Matilla (2003) point out that part of the problem is the 'normal professionalism' amongst conservation organisations and natural scientists who strongly rely on scientific information and consider it superior to local knowledge, as well as their lack of consideration of and skills in understanding community structure and issues.

The importance of establishing effective collaborative relationships, as key components to working with communities as part of land management, is also discussed in the rural extension literature. Rural extension involves communication and learning activities for rural people led by professionals from different disciplines, for example agriculture, environmental protection, or business. It often focuses on the transfer of new practices and scientific knowledge. There is extensive literature available on the experience with rural extension in Australia (Curtis 1998; Cary & Webb 2001; Lambert & Elix, 2003; Andrew et al. 2005) and other countries (such as the work of Moyo & Hagmann (2000, in Zimbabwe), relevant to this research. For example, Curtis (1998, p. 571) states: 'The community-agency partnership is a fundamental element of Landcare, and nurturing an effective, enabling relationship is critical to program success'. In his conclusions, Curtis highlights the following aspects of successful partnerships:

- Groups and agency staff have effective working relationships based on trust and a shared sense of purpose

- The agency has a firm commitment to establishing effective partnerships with groups
- Agency staff show respect for the skills and knowledge of most group members
- Agency staff have good levels of communication and technical skills
- Agencies provide adequate support in terms of information and advice
- Agency staff provide adequate coordination of on-the-ground activities

Similar conclusions are reached in a report by Allen & Kilvington (2002) on sustainable development extension practice in New Zealand. This report, which is based on extension theory, the authors' experience, and case study research on four examples of extension practice in New Zealand, stresses the benefits of taking a collaborative learning approach, including:

- Appropriate information flows that combine local and science knowledge
- Full involvement of different stakeholders in learning about the system in question
- Interaction between stakeholders to contextualise and develop a shared understanding of the information
- Creation of a favourable social environment which is open to different viewpoints
- Building trust between the different players and well-developed networking paths across the community and between communities and agencies.

The importance of agencies taking a collaborative approach to working with communities in conservation and land management is also widely recognised in the literature because of its important influence on the experience of volunteering for community members. For example, Gooch (2004), in research on the experience of volunteers in catchment management groups in Queensland, Australia, states:

> *… empowerment leading to personal confidence by undertaking new or challenging tasks can boost self-esteem and lower rates of depression, ultimately improving the quality of life for volunteers, their friends and families. Empowerment through group learning and sharing skills, which are passed on to new members, can lead to positive and long-term environmental outcomes.* (Gooch 2004, pp. 11–12)

Gooch emphasises the importance of empowerment though genuine partnerships that are transparent, inclusive and based on negotiation. This includes:

> [fostering] *relationships among volunteers and between groups and agencies … based on understanding, appreciating and utilising the range of different perspectives, knowledge, skills and experiences held by individuals.* (Gooch 2004, p. 13)

Finally, the benefits of taking a collaborative learning approach have been raised in several DOC publications. Fitzgerald (1999) discusses the recognition within DOC, as far back as 1994, of the need to develop more effective strategies for working with communities. Fitzgerald's own research, (which utilised an action research approach to develop and implement an effective strategy for working with a case study community on pest control) advocates the use of a community-based approach. He states that:

*Community-based action implies working **with** the people of a particular area or district to address a problem or issue which **they** recognise, consider important, and feel the need to respond to **themselves**. To do this successfully with such a motivated community or group the outsider has to work through a process with the community (Chamala & Mortis 1990) to:*

- *identify its real problems and needs;*

- *develop a shared vision of what to do about these problems;*

- *build the capacity necessary to achieve the desired changes – including leadership, skills, and processes and organisational arrangements that enable people to be genuinely heard and to participate;*

- *initiate and maintain action; and*

- *monitor and evaluate action* (Fitzgerald 1999, p. 54.)

As part of this type of approach, Fitzgerald recommends the following principles for working with communities:

- Embracing, fostering and facilitating community action

- Valuing local knowledge and skills

- Working in a spirit of trust, respect and cooperation

- Being flexible and innovative in terms of methods

Another DOC publication—Ringer & O'Brien (1997, p.6)—advocates use of an 'experiential learning framework' as the best method for enabling DOC staff to influence participants to adopt pro-conservation behaviours as a result of their involvement in DOC experiential programmes.

The need for improved communication and building stronger relationships with community organisations and iwi was also raised by James (2001a) in her study of conservation expectations of Aucklanders and highlighted by Bell (2003), who states:

Education is more than information provision. For it to be effective it needs to integrate local knowledge, be action oriented and build on local ways of learning. In this sense, it is a partnership between volunteers and the department. (Bell 2003, p. 35)

Like Ringer & O'Brien (1997), Bell (2003) recommends using a collaborative approach to information sharing, based on an experiential learning approach.

The arguments for a collaborative approach are also explored in a report by Forgie et al. (2001) on facilitating community-based conservation initiatives (CBCIs). This report makes several of the same points discussed above, including the value of:

Participation

- Builds local skills, interests and capacities that are on-going

- Improves outcomes by extending the range of values and inputs

- Increases the probability of acceptance and successful implementation

- Results in the people who participate in decision-making being more likely to implement any resulting solutions

Collaboration

- Builds trust

- Shares responsibility and increases resources

Forgie et al. (2001) also advocate a collaborative approach, which includes two-way information exchange, stating:

> *… collaborative efforts are handicapped in situations where experts only provide a one-way flow of information in the form of technical expertise and advice. Ideally agency representatives should provide interactive exchanges of information to different levels of their own organisation and the wider stakeholder groups.* (Margerum 1999, p. 187, cited in Forgie et al. 2001, p. 73).

Furthermore, this approach is reflected in DOC's guide to developing effective partnerships with community groups (Wilson 2005), which recommends:

- Providing community groups with the opportunity to come together and share their experiences

- Inviting community groups to participate in DOC presentations, workshops and training opportunities, thus acknowledging the value in existing conservation knowledge from locals and/or experienced volunteers

2.4 USING DIFFERENT COMMUNICATION AND PARTICIPATION METHODS

A number of the reviewed reports discuss the best practice principles for choosing appropriate communication and participation techniques or made suggestions about useful techniques.

In terms of general principles, Wilson (2005) suggests sharing research findings and other technical information in accessible and user-friendly ways; for example, through community meetings or hui. Allen & Kilvington (1999) also advocate use of in-person information sharing, stating:

> *The richer the media of communication (e.g. face to face rather than printed material) the deeper the sharing, and the greater the potential for learning and behaviour change.* (Allen & Kilvington 1999, p. 3)

Fitzgerald (1999) recommends using a variety of communication techniques, particularly in workshop or group situations, including visual and non-verbal methods to foster inclusion and participation. These specific methods include, but are not limited to: mapping, drawing diagrams (e.g. Venn diagrams); modelling, matrix ranking and scoring, group brainstorming, and SWOT analysis.

Campbell & Vainio-Matilla (2003) also discuss a number of techniques for working with communities, including:
- Community mapping
- Transecting
- Sorting and ranking
- Venn diagrams
- Rapid Rural Appraisal (RRA)
- Participatory Action Research (PAR)
- Participatory Assessment, Monitoring and Evaluation (PAME)
- Participatory Learning Approach (PLA)

Finally, Allen et al. (2001) discuss the potential usefulness of the Internet as an information exchange medium. They argue that the highly fragmented and

constantly evolving body of relevant information (conservation knowledge) presents challenges to traditional extension practices and published guides and makes Internet-based information useful because of its ability to be updated easily. They also found the Internet to be a useful medium because of its ability to allow people to create, link and share a variety of types of information (including text, graphics, images, audio and video).

There are a number of resources which cover in detail various methods and techniques that can be used to inform, consult with, actively involve, and collaborate with the community. This information will not be summarised here.

Overall, the literature advocates use of a variety of techniques, with at least some interpersonal face-to-face communication. In line with the discussion in section 2.3, there is also a strong emphasis in the literature on the use of experiential and collaborative research techniques, particularly those that combine information creation/learning with taking action, such as PLA, PAR, and PAME. These techniques reflect the best practice principles discussed in section 2.3 by actively involving community members and other stakeholders in the process of research design, collecting information and deciding how to use information to achieve conservation outcomes.

As part of Community Conservation Projects (CCPs), PAR can be used in a variety of ways; for example, to gather monitoring information (e.g. conservation species numbers, pest numbers, other pressures) to:

- Understand the conservation issues affecting an area and identify the problem to be addressed and potential responses
- Explore the effectiveness of current conservation management practices
- Reflect on the processes used to achieve conservation outcomes, including partnership, communication, networking and skill sharing

2.5   USING BEST PRACTICE GROUP MANAGEMENT AND COMMUNICATION TECHNIQUES

Another key principle linked to the need to use a variety of communication and information-sharing methods is the importance of learning and using best practice group management and communication techniques. This principle overlaps with Principle 1: Understanding your audience.

Ringer & O'Brien (1997) provide guidance and examples of effective techniques that can be used for communication and group management as part of an experiential learning process within DOC. These techniques are summarised into six essential group skills in Table 1.

The significance of principles such as those in Table 1 to achieving positive outcomes in supporting communities to undertake conservation work is highlighted in a study of volunteer involvement in DOC projects by Cosslett (1997, cited in Bell, 2003), who found that poor group management and communications techniques were a significant disincentive to volunteers. Poorly managed volunteer groups where characterised by:

GROUP SKILLS	CRITICAL ELEMENTS
Telling important stories	Stories should: • Be relevant to the topic • Be related to the location being addressed/visited • Have an element of conflict to add interest, where appropriate • Provide a 'buzz' experience and capture the imagination of listeners • Be likely to influence pro-conservation behaviour • Be used at all stages of experiential learning process
Forming the group	An important part of forming the group is clarifying group boundaries and relationships, including: • Defining the purpose of the group and the task to be completed • Setting boundaries: when will the group be 'on-task' and when can they relate in a social way? • What is the task 'territory'? What restraints will there be on the use of different physical spaces? • What roles will people have? What responsibilities and authority will they and other group members have?
Being responsive	For group leaders, important aspects of being responsive include: • Building trust and emotional safety, so that each group member feels safe from attack or being shamed or ridiculed, and believes their needs will be acknowledged, and not dismissed • Demonstrating interest and curiosity in participants' points of view • Ensuring that, when communicating with group members, all relevant information is gathered (e.g. what is the speaker saying? How are others reacting? What do your instincts tell you?) • Reflecting back to a speaker what you took as the 'meaning' of what they were saying • Linking responses to individuals back to the purpose of the group • Assisting the group or individual to refine their activities to steps that are small, achievable, and identifiable
Modelling enthusiasm and commitment	The commitment, enthusiasm and integrity demonstrated by a group leader will, in part, determine the commitment, enthusiasm and integrity demonstrated by the group
Informing—passing on the facts	The key elements of being a successful informer for a group are: • Assessing the motivation and key interest of the group members • Assessing the group's current knowledge levels • Being clear about your own interests and the limitations to your knowledge • Encouraging group members to teach each other • In the case of voluntary conservation projects, describing how learning can assist the group in achieving its practical task
Coaching—passing on the skills	The basic steps in coaching include: • Gaining agreement to proceed (based on a common goal or purpose) • Assessing the learner's competence and learning needs • Providing new information • Allowing time for assimilation and practice • Re-starting the learning cycle for new tasks

• Insufficient sense of achievement

• Non-interesting, menial or pointless work

• Inadequate interpretation for volunteers on the relevance of the project to conservation

• Unfriendly or unwelcoming treatment by DOC staff

• Insufficient recognition of volunteers' contributions

• Personal discomfort about other people working on volunteer programmes

• A lack of fun

2.6 THE IMPORTANCE OF CONTINUOUS LEARNING THROUGH MONITORING, EVALUATION AND FEEDBACK

The last theme that was revealed in the literature review was the importance of continuous learning through monitoring, evaluation and feedback. This was a pivotal concept within the discussion on best practice information and skill sharing. It is, most importantly, an information- and skill-sharing tool in its own right, as highlighted in the continuous learning approach discussed in section 2.3. An example of this is where stakeholders are involved in active learning through an iterative process of collaboratively creating an action plan, implementing the action plan, gathering data, reflecting on the success of the actions and, finally, using lessons learnt during the process to redesign their action plan.

Speaking about the importance of monitoring and evaluation in the context of sustainable development extension practice (but equally applicable to conservation practice), Allen & Kilvington (2002) state:

> *Science alone is unable to deliver complete answers to many of the complex questions of interaction between ecology and production, and land managers and policy makers cannot rely on a unidirectional information system to provide answers to their management questions. Managers therefore need a learning process that involves finding out about complex and dynamic situations, followed by taking action to improve them, and evaluating the results of this action. How sustainable a system is ultimately becomes a measure of the learning capacity of the community in relation to its environment.* (Allen & Kilvington 2002, p. 35)

This continuous learning cycle is a critical aspect of the adaptive management process which has been advocated by several authors as the best way to approach natural resource management. The process of adaptive management has been equated with the concept of 'learning by doing' and has been developed by ecologists to address uncertainty and complexity in ecosystem management. Walters & Hollings (1990, cited in Lambert & Elix, 2003) state, in relation to adaptive management, that:

> *… its premise is that knowledge of the system we deal with is always incomplete. Not only is the science incomplete, the system itself is a moving target, evolving because of the impacts of management and the progressive expansion of the scale of human influences on the planet. Hence the actions needed by management must be ones that achieve ever-changing understanding as well as the social goals desired.* (Walters & Hollings 1990, cited in Lambert & Elix 2003, p. 5)

Monitoring and evaluation is also an important component of the action research approach discussed in section 2.3.

Finally, monitoring and evaluation should also be a critical aspect of evaluating the effectiveness of the information- and skill-sharing activities themselves. As will be discussed in the next section, while a great deal has been written about 'best practice' approaches to information and skill sharing as part of conservation and other natural resource management activities, there has been very little research to empirically and objectively test the methods and tools being

advocated. Monitoring and evaluation have a very important role in building the information base about 'what works, for whom, in what circumstances' in terms of conservation information and skills sharing.

To this end, it is important to define a set of indicators which can guide the collection of monitoring and evaluation data to help explore the effectiveness of different methods of communicating in various contexts. James (2001b) provides a number of generic performance indicators and performance measures to monitor the effectiveness of conservation advocacy programmes in increasing public awareness. Further work is underway in DOC to develop guidelines and resources that can be used to evaluate CCPs. Appendix 1 provides a list of basic indicators for evaluating conservation skills sharing activities.

2.7   SUMMARY OF LITERATURE REVIEW

Six interlinked themes or principles for information and skill sharing with communities as part of conservation were identified in the literature review:

Principle 1   The importance of careful planning and setting clear objectives

Principle 2   Understanding your audience

Principle 3   Information and knowledge sharing as a collaborative learning process

Principle 4   Using a variety of communication and participation methods

Principle 5   Using best practice group management and communication techniques

Principle 6   The importance of continuous learning through monitoring and evaluation

Overall, the recent theory, commentary and case study research on working with communities and sharing information and skills as part of conservation and other natural resource management projects is heavily influenced by the philosophies of collaborative and experiential learning. This influence reflects the 'shifts in communication theory from viewing data and information as commodities, towards viewing data and information as socially constructed knowledge' (Carr 1995, p. 1). On the basis of what appears in the literature, it seems that collaborative learning has largely taken on the role of a normative theory through its association with ideas of community empowerment (see, for example, Gooch 2003, 2004).

While, internationally, there has been a great deal of commentary and a few primarily self-reflective case studies of collaborative learning-based approaches as part of community-based conservation, there has been very little objective empirical research or critical reflection on the positives and negatives of this type of approach in the community-based conservation context.

Nonetheless, there are compelling ethical arguments for using a collaborative approach to information and skill sharing in conservation with communities projects, based on its inclusive approach. Furthermore, the evidence for the benefits of experiential learning is strongly established in other contexts; for example, in the field of environmental education (see, for example, Orr 1992;

Culen & Volk 2000; Volk & Cheak 2003). Likewise, the benefits of agencies (such as DOC) working collaboratively with communities has been widely defended in the research literature (see Wondolleck & Yaffee 2000 for a useful overview).

This study addresses (in part) the paucity of empirical research and critical reflection on collaborative learning-based approaches by exploring the following question: 'how can scientific skills and knowledge most effectively be shared by DOC to strengthen community capacity to undertake conservation work?'

Section 3 describes the approach used in this study to explore how well the six principles identified earlier are being implemented in four DOC community conservation projects. It will also explore how relevant these principles are for DOC, by assessing the factors which affect the success of the four case study projects from the point of view of DOC staff and community participants.

3. Methodology

3.1 CASE STUDIES

The first part of the case study research examined four projects involving conservation skills transfer to identify any key learnings that could be used to provide guidance on a 'best practice' approach to conservation skills transfer. The findings from the case studies were compared with the information gathered in the literature review to identify any similarities or differences in the themes identified, as well as to highlight any information that was not covered in the literature review.

A number of DOC offices were contacted and asked for examples of successful conservation with communities projects (some were self-nominated, some were nominated by others). The key DOC staff person involved with each project was contacted and asked some introductory questions about the project. Eventually, four case studies (which best fitted the project requirements[1]) were chosen. These are summarised in Table 2. The key DOC staff member for each project was also asked to nominate two key community people involved in the project. In some cases, they provided contact details for only one community participant, in which case the second community participant was identified by the first community participant. The four case studies used four different approaches or models for conservation skills sharing.

The data collection methods for the case studies included:

- A review of any relevant programme documentation
- Semi-structured open-ended interviews with DOC staff and two community participants (in the case of the Lake Alexandrina case study, only one community representative could be successfully contacted).

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[1] The projects that were not used as case studies were rejected because the work with the communities had not progressed far enough to allow an evaluation within the timeframe of the research.

TABLE 2.   SUMMARY OF CONSERVATION WITH COMMUNITIES CASE STUDIES.

NAME OF CASE STUDY APPROACH	LOCATION	DESCRIPTION OF CONSERVATION SKILLS SHARING
Case study 1: Lake Alexandrina Conservation Group	Lake Alexandrina, South Canterbury	DOC officer facilitates development of a new conservation group/work (using a collaborative process) and provides conservation skills training in association with workdays as well as advice on trust formation and group management.
		Officer leaves the group after a couple of years, at which time the group has ownership of the project and access (as required) to technical support from the local DOC office.
Case study 2: Kiwi Hui	Hui held in one location, projects spread throughout the country	DOC facilitates nation-wide networking and skills sharing across a particular area of work (in this case, kiwi recovery programmes) by organising, and providing staff time and financial support to, a national Hui for people working on these programmes. The Hui uses a conference-type programme with speakers, workshops and demonstration events.
Case study 3: Tongariro Natural History Society	Tongariro National Park, central North Island	The technical support officer from the local DOC office provides on-going support to a community trust either directly to volunteers or through a full-time director.
Case study 4: Otamatuna, core of the Te Urewera mainland island project and Puketi Forest Trust	Demonstration site: Northern Te Urewera National Park	Community conservation workers visit a successful DOC habitat restoration/species recovery project to gain inspiration on what can be achieved and to learn about techniques used to achieve the outcome.

The research examined the overall approach and specific processes (methods, techniques) used in the case studies to share skills and knowledge, and identified:

- How the approach compared with the principles identified in the literature review

- The perceived overall strengths and weaknesses of the approach used, from the perspective of both DOC staff and participants

A copy of the interview schedule for DOC staff and community participants is included as Appendix 2.

Each interview was summarised and the summary forwarded to the interviewee to ensure that it was an accurate reflection of their views and the discussion that had been held. A copy of each case study summary was also forwarded to research participants to enable them to review how the information they provided was used and to clarify any of the points made.

Section 4 presents the results of each case study. Section 5 provides a discussion of the findings from the research, including an analysis of how the results from this research compare with the literature reviewed in section 2. The discussion (section 5) also addresses other issues that were raised by respondents in the course of the case studies, which were not directly related to the conservation skills transfer process in the case studies. This includes issues relating to the different types of relationships that exist between various DOC offices and communities, and wider issues to do with DOC staff and other resources.

3.2 ACTION RESEARCH

The second part of the research involved a type of 'action research' where we worked with DOC, and other community-based conservation workers to explore the findings of the four case studies, including the six previously identified key principles for information and skill sharing with communities, as well as current aspects of DOC's practice requiring attention and potential actions. This took place in two processes:

- Working with a small group of DOC staff from around the country in a workshop held in Wellington in November 2006
- Holding a similar workshop with people working on kiwi recovery as part of the Kiwi Hui in April 2007

The focus of the action research stage (the two workshops) was on:

- Discussing the findings of the six key principles identified during the literature review (addressed in section 2). Encouraging these principles to be used as part of the community conservation project that the workshop participants were involved with

- Discussing examples of good and bad practice and potential actions to improve conservation skills sharing

4. Results of case studies

4.1 CASE STUDY 1: LAKE ALEXANDRINA CONSERVATION GROUP

4.1.1 Introduction

Lake Alexandrina is a small lake in South Canterbury. It is a popular holiday area, with 165 huts in three settlements around the lake shore and a camping ground.

The people interviewed for this project were the DOC officer responsible for setting up the community group and facilitating its conservation tasks for a two-year period; and one of the volunteers who has been involved from the start as part of the group's committee.

The DOC officer was employed on a two-year contract which started in April 2002. He was tasked with setting up a number of community conservation projects (CCPs) in the South Canterbury area. Initially, he carried out more than 20 feasibility studies. These eventually resulted in the establishment of three community projects at Lindis Pass, Lake Ohau and Lake Alexandrina. The Lake Alexandrina Conservation Group is the subject of this case study.

The objectives of the Lake Alexandrina project were to raise awareness amongst hut owners and regular campground users of the need for conservation work in the area, and then to form a community group to undertake this work. In addition, the DOC officer wanted to increase community knowledge about the natural history of the area and provide community members with an enjoyable

conservation experience. The conservation outcome of the project was to protect and enhance wetland areas around the lake shore through activities such as weed (especially briar, *Rosa rubiginosa*) control, and the protection of areas of fish habitat.

Setting up the group

In order to start the project and 'get buy-in' from the community, the DOC officer designed a questionnaire survey which was sent to all residences in the area, asking people for information such as:

- The number of times they visit the area
- How long they stay per visit
- Whether they would be interested in learning more about the natural history of the area
- What topics they were particularly interested in
- Whether they would be interested in taking part in a community conservation programme
- Feedback on the best way to involve the community in protection of Lake Alexandrina
- Whether they would be able to attend a meeting to discuss further
- What types of protection activities they would be interested in doing
- Whether they volunteer for other groups
- Whether they have any other comments

There was a good return rate (75%) for the surveys. The next stage was to hold a half-day workshop for community members to discuss setting up a community group, the aims of the group, possible tasks, and how to set up a committee.

The first meeting arranged by DOC was not well attended. After this meeting, the community representative interviewed for this case study reported that she and her husband were alone in thinking that the project was a good idea. To build support, they canvassed the people they knew in the area who were reasonably physically active and arranged a second meeting with DOC which was held at their home. This was better attended, and a committee was formed at this stage. She is part of this committee.

She explained that the poor reception to the initial DOC advances was due to a strong perception in the community that DOC would go ahead with their own agenda regardless of what the residents wanted. Most of the people in the area are fishermen and were worried that DOC or Fish & Game New Zealand wanted to stop or restrict their fishing opportunities. However, after this initial hurdle, the DOC officer reported that the committee demonstrated a high level of enthusiasm for the project.

The role of DOC staff

The first task for the DOC officer was to undertake a feasibility study. This covered several issues, including:

- The degree of training required for the community group to undertake specific tasks
- A potential work schedule

- The conservation values of the area
- The types of tasks that could be carried out to protect these values
- The local community characteristics and possible sources of volunteers
- Possible conservation outcomes
- A detailed procedure for developing the community group
- Explanatory maps and photos of the area

In the early stages of the project, the DOC officer attended every meeting of the community group committee and guided the process. He helped the committee set objectives and realistic goals. He also provided them with information on how to apply to become a charitable trust, and developed a memorandum of understanding between DOC and the community group.

The DOC officer saw his role in this project as facilitating the setting up of the community group and getting the group to a stage where they could be self-sustaining, requiring minimal input from the local DOC office. Other DOC staff were also involved in advisory roles.

The DOC officer described his role as being one of a facilitator, 'to make sure that expectations were realistic, and to provide advice'. The objectives for the group were decided through an iterative process building on the work that was completed by the DOC officer. The original feasibility study prepared by the DOC officer included a set of objectives. These were then refined by other DOC staff. The final set of objectives was then presented to the organising committee of the community group for final comment and agreement. The DOC officer and committee then determined the conservation tasks to be done in the area and the skill-sharing requirements and developed a programme around them.

Conservation skills training and workdays

The training provided by the DOC officer as part of this project included:
- Health and safety
- Administration
- Practical conservation tasks e.g. removing briar/wilding pine
- Project management training, including how to fill in grant applications, and organise and run meetings

McKenzie District Council was also involved in providing health and safety advice.

The conservation skills training was primarily delivered in conjunction with volunteer conservation 'workdays'. During the tenure of the DOC officer, there were roughly five community workdays each year. About 30 people would attend each workday. The training consisted of a 15–20-minute session covering the reasons why they would be working on a particular area that day, and any hazards to look out for. The approach was informal, and volunteers were free to ask questions.

Training on practical conservation skills was delivered using a 'hands on' approach where the DOC officer would demonstrate a procedure, answer questions (and the officer commented that often there were many), and then the volunteers would carry out the procedure with DOC staff on hand to help or advise as necessary.

Upon completion of the workday, the DOC officer would also run an interpretive activity, such as a talk on the history of the area. He also organised a barbeque at the end of the day to allow for informal social interaction and to show appreciation for the effort and time the participants had given.

In between the workdays, the DOC officer sent out a newsletter every eight months to keep them informed of workdays, projects pending, and progress. Community members were also invited to submit material for the newsletter.

Programme evaluation

No formal evaluation of this project was undertaken by the DOC Officer; however, at the end of each group workday, he would gather data on the number of people attending, type of work done, area covered (maps), number of hours completed, and feedback from volunteers. He would also meet briefly with the committee to discuss what they would do next time and how they thought the workday had gone.

Where is the project now?

Overall, the project has been successful. This is demonstrated by the community group continuing to be active in undertaking conservation work after the DOC officer's two-year contract finished. Today, the group has a good relationship with staff at the local DOC office in Twizel, who provide support when required. The group also works with Fish & Game, which calls on their conservation skills from time to time. The three organisations are working together closely to improve the Lake Alexandrina area.

4.1.2 Key learnings

This case study confirmed a number of the six key principles identified in the literature review for working with communities and sharing conservation skills; in particular:

Principle 2   Understanding your audience

Principle 3   Information and knowledge sharing as a collaborative learning process

Principle 4   Using a variety of communication and participation methods

Principle 5   Using best-practice group management and communication techniques

Two other key learnings were also highlighted:

• The importance of creating opportunities to build social capital

• The importance of DOC staff having key skills and personal attributes

Understanding your audience and using a variety of communication and participation methods (Principles 2 and 4)

The importance of understanding your audience came through as a key theme for the DOC officer in this case study. In terms of forming the group, he stated that it is important to get to know the volunteers as soon as possible. He felt that the questionnaire he sent out initially helped in achieving this, as it enabled people to give a lot of information about themselves. Identifying how much and what

type of help community groups need is also important. The DOC officer found that he had to be quite intensively involved with the committee at the beginning of the project, attending every meeting, and providing advice as needed.

He saw this initial involvement as helpful for focusing his conservation skills training, stating that it was important to be able to 'read' the group to see what sort of learning approach they would prefer and adjusting the teaching method accordingly. If he felt people were keen on reading information, he would provide them with written material; others, however, preferred the hands-on approach. He tried, therefore, to use a mixture of approaches to cater for these different needs.

Information and knowledge sharing as a collaborative learning process (Principle 3)

The DOC officer appeared to recognise the importance of taking a collaborative learning approach while working with communities by:

• Highlighting his role as a facilitator when helping the group to develop a programme of work, rather than telling them what to do

• Encouraging a two-way flow of information by asking a lot of questions of the community to find out what people were interested in and encouraging participants to ask him a lot of questions as he went through the conservation skills training process

Using best practice group management and communication techniques (Principle 5)

Building on the importance of 'understanding your audience', this case study also highlighted the necessity of using best practice group management and communications techniques. In discussing this project, the DOC officer reflected all of the best practice group management skills outlined in the literature review, including:

• Telling stories

• Forming the group

• Being responsive

• Modelling enthusiasm and commitment

• Informing—passing on the facts

• Coaching—passing on the skills

In particular, the DOC officer discussed the importance of treating volunteers with respect and empathy, and valuing their local knowledge. He discussed how, at the first meeting, he admitted that he did not know the area well. This admission provided a good starting point, as the group very quickly opened up and started to talk about the issues. The DOC officer's humility gave the community a sense of ownership of the project from a very early stage, and helped build trust. He also highlighted that being open about lack of knowledge or familiarity with places when fronting-up to local people was a skill acquired with time and experience.

The DOC officer also highlighted the importance of making community workdays social and fun events. He felt it was really important for them to be informal and for the volunteers to have a really good time. In order to achieve this, he would run an interesting activity such as a talk on the history of the area at the end of each workday, followed by a barbecue.

Other group management principles he discussed included:

- The importance of showing a positive attitude towards the work of the volunteers and appreciation of the effort and time they were giving

- Keeping things informal and simple and not throwing too much information at people at one time

- Having other DOC staff present on workdays to help share the work and to provide more interest for the volunteers by making a variety of skill and knowledge areas available to them

Creating opportunities to build social capital

The importance of the social aspect of community conservation emerged as a strong theme in this case study. The evidence from this project strongly supports the potential role of conservation projects in building social capital.

For example, the community representative interviewed felt strongly that being involved in the project had been a very positive experience for her, with a steep learning curve. One of the most positive outcomes, from her perspective, has been that people from huts in different parts of the lake area now know each other better because they have been working together, and they are making a real difference to the area in conservation terms.

The success in building social capital in this case was recognised as being partly due to the efforts of the DOC officer in ensuring that there was a social element to the workdays, by providing a barbecue and trying to make sure that people enjoyed themselves.

The importance of DOC officers having key skills and personal attributes

Some of the personal strengths the DOC officer felt he was able to bring to his position were:

- His 20 years working with conservation volunteer projects, plus three years of polytechnic teaching in Australia, which gave him experience in understanding different audiences and how best to engage with them

- His ability to build up trust with the community and be respectful of their ideas and local knowledge

The positive personal attributes of the DOC officer, including his knowledge and enthusiasm, were also highlighted by the community representative.

4.1.3   Areas for attention

Three areas requiring attention were raised by the DOC officer. These were: timeframe, training schedule and print resources. The community representative interviewed for this case raised the issue of community perceptions of DOC.

Time frame

The DOC officer commented that he felt it would have been better if he had had more time. He felt that he had to 'cram things in' as he was on a two-year contract. However, it was not too much of a problem in this instance because the committee members were 'very good'. The community representative also reflected that she was sad to see the DOC officer go at the end of his contract.

Training schedule

Another thing that the DOC officer thought he might change was the schedule of training, so that only one skill/subject was taught on each workday, rather than three.

Print resources

Another area for improvement that the DOC officer noted was the need for a more helpful volunteer booklet. He felt that the existing booklet is very complicated for what it achieves and should be cut back.

Community perceptions of DOC

An issue that came up in this case study and in some of the others was the negative attitudes towards DOC that sometimes exist within communities; in particular, that DOC does not listen well to what community people want or to community ideas. This was highlighted by the community representative who said that at the start of the project many people were reluctant to get involved because of perception that 'DOC would go ahead with their own agenda regardless of what the residents wanted'.

She felt that this attitude was responsible for the initial poor reaction from the community to DOC's advances to set up a community project in the area and it was only after she encouraged people to give it a chance that people came around. Having a community 'champion' in this way may have been critical to the success of this community group. Without this support at an early stage, the idea for a community group may have not have been realised.

She also thought that because most of the people in the area are fishermen, they were worried that DOC or Fish & Game wanted to stop or restrict their fishing opportunities. The DOC officer also felt that a key to his success was in building-up trust with the community and being respectful of their ideas and local knowledge.

4.1.4   Summary—the overall usefulness of this model

The DOC officer who set up the project was employed on a two-year contract to get the group to the point where it could be self-sustaining. As a model, this worked very well, as he did a good job in getting community buy-in (with the help of some members of the community) and was then involved in enough workdays to pass on key conservation skills. In terms of the sustainability of the trust, it is possible that the strong social aspect will help to ensure that it continues to attract volunteers and carry out conservation work. The community representative interviewed felt that the DOC officer who helped set up the project was really supportive and excellent to work with. She had no suggestions for improvements to the process or to the transfer of skills and knowledge. Overall, she felt that all the DOC staff involved in the project were fantastic and she was very sad when the DOC officer who set the project up did not have his contract extended.