Technology Transfer and Cooperation

Context

Scientific knowledge and technology are essential to successful biodiversity management. Gaining these can be done in a number of broad ways:

1. Develop them yourself from scratch.
2. Develop them jointly with someone else who has similar needs.
3. Develop your own version, but using someone else's as a basic starting point.
4. Using someone else's, with minor modifications to adapt it.
5. Using someone else's, without needing any adaptation.

The relative amount of resource which you will have to invest generally decreases as you go from option 1 to option 5. So for resource-short biodiversity managers (most of them), using someone else's knowledge or technology is clearly an attractive option. Provided, of course, that:

- it is appropriate to your particular circumstances, so that "adaptation" doesn't involve completely reworking it
- it doesn't push management in an inappropriate direction (e.g. one that is culturally insensitive)
- it is lower cost to access and adapt the knowledge or technology than to develop it from scratch.

Transfer of Existing Knowledge or Technology

So how does a biodiversity manager access knowledge or technology developed by another manager? And what are the impediments to doing so at a low cost?

<u>Finding out what is out there</u>

You can't beg, borrow or steal what you don't know about. A lot of biodiversity management tools are not advertised in any way.

- They are usually produced by a biodiversity manager for their own use, and few managers will have the interest, mandate or ability to turn their product into a commercial item.
- Many managers do not publish their work in scientific journals, and scientific journals are often not interested in "technology".
- Most biodiversity managers have only a limited range of direct contacts with other managers.

There are, however, some successful processes that have been used to extend the knowledge of what is out there.

1. The Cooperative Initiative on Alien Species on Islands. A specific function of this initiative is to encourage cooperation and share technology. An important feature of the Initiative is the existence of a paid coordinator, who has the job of keeping abreast with developments throughout the world. He can then act as a "clearing house" to connect people, either in response to requests, or by observing a potential need and suggesting a way to fill that.

2. The AliensL listserv. This is run by the IUCN ISSG. It provides a forum in which people can ask for help and information, with over 800 potential experts available to respond. Most enquiries do seem to be answered by someone. There are undoubtedly other similar networks in other topics.
3. Polex. This is CIFOR's forest policy expert listserver. Unlike the AliensL listserv, it operates as a "fast and effective policy alert" mechanism. The manager advertises interesting studies. It does not provide an advertising or discussion forum.
4. Regular professional conferences. There are a number of international conferences that occur regularly in the biodiversity field, e.g. World Parks Congress, international ornithological conferences, etc. These provide a recognised venue in which experts can meet colleagues. In general, however, these are not multi-disciplinary and only facilitate sharing within the particular professional group.
5. Special multi-disciplinary conferences and workshops. Examples of these are the recent eradication on islands conference and workshop organised by ISSG and the island biology conference organised by Victoria University. This allowed experts to come together and discuss a particular issue, as opposed to discussing a particular scientific field.
6. Field days, open days and tours. These provide an opportunity for people to see technology and management on the ground. An example of this was the recent visit by the Chinese HOS and his entourage to NZ scientific institutions. Another is the visit that the Galapagos quarantine manager made to Chile, allowing him to see the Chilean system and talk to the managers of it.
7. Training programmes, staff exchanges and educational visits. Similar to #6, but focused on active training of the visitor in a particular field. The significance of these is the additional information about techniques that can collected at the same time. An example here is the staff exchanges between NZ and Australian park managers.
8. CHM Focal Points. In my role of CHM Focal Point, I act as a point of contact for people who want to know whether NZ has expertise in a particular field that might be useful to them. Examples of queries I have dealt with are enquiries from South Africa on thar management, enquiries from Chile on waste oil management, and enquiries from the Seychelles on pest eradication and cockle counting.
9. Cooperation studies. I have done this for Chile, and MFAT are looking at possibly doing similar studies for Peru and Mexico. The aim is to visit the country, look at what they are doing and what their main issues are, and identify the potential areas of cooperation/aid from NZ.
10. Regional bodies. SPREP and Valdivia are two slightly different types of regional bodies that can provide a forum for sharing information about what countries are doing.
11. Web sites that can be searched. This includes CHM web sites.

<u>Deciding if it is Worth Acquiring</u>

This necessitates having access to enough information to be able to judge the difficulties of acquisition and adaptation. This will be greatly facilitated by direct contact with someone who is familiar with the knowledge or technology.

<u>Acquisition</u>

This may be by gift or purchase. There may be conditions on the transfer (e.g. that it won't be used for commercial purposes or passed to another party).

Adaptation

As the previous technology transfer paper points out, this may need involvement from the original developer.

Cooperation to Develop New Knowledge or Technology

Identifying Potential for Cooperation

Again, the first step is to identify a potential collaborator. In this case, the key is identifying someone with a similar or related need. Similar methods can be used as for transferring existing knowledge/technology.

There are broadly two types of shared need:

- Two managers who are trying to solve a similar problem. For example, two countries may have the same pest species and be seeking a better trapping method.
- Two managers who are trying to solve quite different problems, but need the same type of knowledge or technology. For example, one country may be managing a species as a pest, while the other is managing it as an endangered native species, and both need information on its reproductive biology (e.g. NZ and Australian marsupial research).

The first situation is probably easiest to deal with, as the two managers are probably working in the same field, and it is easy to advertise the possibility of cooperation.

The latter situation is more difficult. It is more likely that the two managers will be working in entirely different fields that do not normally connect (e.g. a business systems analyst and a biodiversity manager may both need new software to assist in decision management), or be in similar fields but be less familiar with the types of needs the other manager may have. There are less likely to be obvious forums in which need can be advertised.

Developing a Mechanism for Cooperation

Once the potential for cooperation is established, a mechanism for cooperation needs to be developed.

There are three broad mechanisms that can be developed:

- Establishing a joint research centre.
- Partitioning work between two separate entities which share results and periodically discuss their respective work.
- One agency funds the other to do work on their behalf.

Things that may need to be covered include:

- How the work will be partitioned between the partners.
- How any joint work will be managed.
- Ownership, control and use of any results.
- Who will fund what.

- Dealing with any third party interests (e.g. there may be a reluctance to work with someone who is seeking to kill animals, if the agency is vulnerable to pressure from animal rights activists, or there may be different ethical or cultural standards in the two agencies).
- Dispute resolution, including how to deal with any failure by one partner to complete their work.
- Timetables.

Impediments and Possible Solutions

Language Barriers

Language continues to be a serious barrier to cooperation. Unfortunately, languages are not distributed in ways that correspond to biodiversity problems. For example Chile and NZ share a lot of forest and marine biodiversity, but most Chilean forest and marine managers to do not speak good English, and few NZ managers speak any spanish.

There is little funding available for translation, except where that is built into a larger project.

There are four potential ways to overcome this problem.
1. Make small amounts of funding for translation work more readily available.
2. Fund a translation agency that will do work on request.
3. Find sources of voluntary translation outside the agencies. For example, universities might be persuaded to provide translation services as practical exercises for students. Organisations such as Alliance Francaise, embassies, foreign affairs training programmes, etc might also be able to contribute.
4. Have a system like the green dollars system, where agencies contribute translation in return for credits that they can spend on translations that they need.

Funding for regional and cooperative initiatives

Most funding goes to countries. The aliens AHTEG meeting (which included a GEF representative) recognised that there is a particular barrier to gaining funding for regional bodies or for multi-country initiatives.

The main solution to this is to change the policies for donors. For example NZ and Australia have accepted the importance of funding Pacific regional organisations. Bodies such as APEC may be able to play a role in encouraging funding for regional initiatives. The GEF should be encouraged to explicitly encourage multi-country applications.

NGOs can also play a role here, both as funders, and to provide security for funding of multi-country initiatives.

Providing forums for exchange of information

There are a lot of forums that don't seem to quite do the job. Problems with them include:

- You often have to sift through a lot of chaff to get anything useful. For example the AliensL suffers from being a mix of advertising and discussion forum, and many people become frustrated with the discussions and leave.

- People may not feel confidence in the forums, and be unwilling to advertise their need or their knowledge through it. Again, I can cite concern from some members that there are too many subscribers to the AliensL server who are opposed to alien species control and use the server to get information on what the "opposition" are doing.
- Language again.
- The forums tend to connect people who are working in the same fields. There are few good ways to connect people who are working in completely different fields.
- Many managers do not have good internet access, and even fewer can afford to attend conferences.

Solutions include:

- More cooperative initiatives in which a person is paid to actively spread knowledge and connect people. This will greatly reduce the transaction costs and barriers of identifying potential for and initiating cooperation.
- More multi-disciplinary conferences and workshops that are designed to facilitate cooperation.
- Encouraging multi-disciplinary connections within countries, that can then become the basis for achieving the same thing across a wider network. For example in NZ we could actively use the CRI network, or universities and technical institutions, to identify potential areas of overlap between widely different disciplines (biology, business management, mathematics, computer technology, agriculture).
- More use of active study tours to identify cooperation potential, linked to aid programmes.
- Improving the usefulness of things like national reports, or building data bases of work underway, so that countries can easily find out which other countries are working on similar problems. For example the Islands Initiative is planning to develop a data base of island pest management work.

<u>Funding for small projects</u>

The administrative costs of getting funding for small projects often prevent people seeking funding for adaptation and cooperation initiation work. There are several possible solutions to this:

1. Reduce the costs of applying for funding from bodies like the GEF.
2. Have a fund specifically for this purpose, held by a cooperative initiative or NGO, with easily met requirements for small grants (e.g. under $4000US) where the recipient is providing an equivalent funding in cash or kind. This would allow them to get cash for airfares, and cover their contribution by providing accommodation etc for a visiting expert, who contributed their own time.
3. Encourage donors to include biodiversity cooperation in programmes focused on cultural exchange (e.g. the NZ Latin American Strategy fund).
4. Building this work into funding for broad projects (e.g. restoring an island, or managing a national park), where the cost of approving individual projects within the package are kept low.

Recommendations

Additional recommendations that would help are:

Scientific and Technical Cooperation

Recognising the importance of scientific and technical cooperation to develop and transfer scientific knowledge and technology:

Encourages donors, including the financial mechanism, to identify ways to improve access to small amounts of funding to facilitate the identification of potential areas of cooperation between countries, and to initiate cooperative programmes.

Requests the Executive Secretary to explore and report to COP 7 on ways to facilitate access to translation services for scientific and technical information, including by examining potential sources of free translation services and potential funding for translation;

Invites Parties, countries and relevant organisations to actively develop multi-disciplinary forums for the exchange of scientific and technical information;

Notes the successful operation of the Cooperative Initiative on Alien Species on Islands, *recognises* the value of such initiatives in providing a focused clearing house for facilitating cooperation, *recalls* the proposed cooperative initiative on marine biosecurity, and *invites* the Executive Secretary to identify and report to COP 7 further areas in which such initiatives would be particularly valuable for promoting implementation of the work programmes of the CBD;

Invites donors, including the financial mechanism, to review their policies and, if necessary, modify them to remove any unnecessary impediments to funding for multi-country initiatives, including both formal regional processes and multi-country cooperative initiatives.

Invites the Executive Secretary, in consultation with the IAC of the CHM, to explore ways in which the CHM can become a more active vehicle for facilitating the identification and initiation of further scientific and technical cooperation;

Encourages Parties to build their CHM focal points' roles to allow them to become an important and active first point of contact for biodiversity managers wishing to identify the potential for scientific and technical cooperation.