

Setting Priorities: Documenting a Decision Process and its Design

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Introduction

This paper documents the processes and draws out our learnings from designing and running a priority setting process for a biosystematics science programme (hereafter referred to as the OBI) based at Landcare Research in New Zealand. The OBI was contractually required to set research priorities based on which science would have the greatest effect on environmental outcomes in New Zealand *and* be of scientific merit.

OBI structure and history

The OBI is a collaborative partnership set up to administer science research in the area of systematics of plants, invertebrates and fungi. At its inception in June 2005, the OBI administratively drew together three previously-separate biosystematics groups. These groupings were based around collections of national significance in New Zealand biodiversity. The three groups were:

- 1) the fungal systematics group who study fungi and bacteria,
- 2) the invertebrate systematics group who focus mostly on insect systematics and
- 3) the plant systematics group, the largest group, who study plants and ethnobotany.

These groups have previously had separate identities and have been administered separately. They are also geographically dispersed with the fungal and invertebrate systematists being based in Auckland while the plant systematists are based in Canterbury at Lincoln and in Wellington.

The new OBI structure also brought new partners in to administering the research. Partner groups include three government departments (end users of the research), iwi, one other research provider (a subcontractor), and Landcare Research, the main research provider. The Governing Body is comprised of representatives from each partner organisation, and the OBI science leader. The Science Leader is supported in management of the OBI by an Executive Management Group (EMG) comprised of research group leaders. Expert input from outside the programme is provided by an Advisory Group, which includes representatives from each partner organisation, plus universities, a biotechnology company, and a research provider in a different area of systematics.

Process overview

This process began after the OBI had been running for just over a year. Initially, the EMG had discussed how to set priorities in a way that elicited input from both the scientists and from the users of the science information. Most of these involved some kind of ranking using specified criteria. There were debates about how the ranking might be conducted, so for example, should individuals be sent a questionnaire to rank options on their own, or should ranks be assigned collectively after discussion? There were also questions about the criteria that should be used and how these might meet the needs of different stakeholder groups. Furthermore, the group were unable to locate

information about how other people had completed similar tasks with people from diverse backgrounds. This set of conditions pointed to the need to spend time agreeing on how the process would run, and on the criteria before actually trying to set the priorities.

After developing the terms of reference, the OBI leader formed a steering group comprised of a social scientist and someone familiar with the governance and administrative processes associated with the OBI. After some discussion about the process, a fourth person, an independent facilitator, was engaged to help with running workshops. This facilitator was chosen because of his familiarity with the New Zealand science system and with the issues associated with environmental science. All four people contributed significantly to the processes used in the five workshops.

The steering group wanted defensible priorities, which end users understood and, where possible, strongly endorsed. They also needed the process to be as efficient as possible, given both the tight timelines and the difficulty of getting a group of about 20–25 people together to meet. The priority setting process needed to focus on keeping demands on the time of participants to a minimum. This latter objective had to be balanced with the need for staff and advisory group members to be able to express their needs, interests and to be involved in the process enough to feel that their perspective had been included and that they were aware of the process and its outcomes.

Our overall process had two major stages:

- 1) agreeing on *how* to set the priorities, and
- 2) actually setting the priorities.

These stages are discussed in detail below after more background information is provided. This paper frames both the design process and the priority setting process as collaborative (or social) learning processes. Everyone in the process (including those facilitating it) learned something from it, whether about the process, the science of systematics or the perspectives of other stakeholders.

Background

This process was affected by a number of tensions which needed attention across the priority setting process. These included:

- the tension between OBI partners and the scientists in the programme (both groups were keen to ensure that they had a good say in what science was going to be completed in the coming years);
- the tensions between the different science groups all working in an environment of decreasing funding;
- tensions created by a lack of clarity in the contractual requirements
- the tension created as a result of company restructuring that meant the OBI leadership changed significantly soon after it was created;
- the tension created by time constraints.

The OBI governing body had expressed a strong interest in seeing that partner organisations had a say in setting the priorities. At the same time, some staff in the programme were anxious about allowing end users to direct their science whilst others saw that the process might open up new opportunities. For many, the memory of previous redundancies and the tensions within the OBI left people worrying about their

jobs. The steering group also wanted to ensure the buy-in of participants which meant that these emotional and historical elements had to be looked after as much as the more “rational” considerations that are required in any joint decision making process.

Because of their separate history, people in the three groups of the OBI came with different perspectives on the process. At the start, the new leader noted that there were some very different ideas across the three groups about strategy and the ways in which biosystematics work was characterised and categorised.

The terms of the research contract were a significant element in this priority setting process. Specific allocations of resources went into the three work areas – fungi, invertebrates and plants. Within the three work areas, a set amount was allocated to managing the collections and databases associated with each group, and a set amount was allocated to the research which sits alongside the collections. All of the collections were considered nationally significant and most had to meet the standards of international collections. No collection was currently able to complete all of the work required of a collection of international standing based on the current funding levels. Likewise, at current funding levels, the groups struggle with the research that end users want from them. In such a climate, priority setting is important for building some collective vision, for finding new funding and for making sure that what science is being done is the most important. As the overall process proceeded it became obvious that the different groups and perhaps some individuals within the OBI had very different expectation about *what* priorities were being set. This arose, in part, from the geographical separation of the three groups, which resulted in different levels of communication and some elements of distrust between some individuals in the OBI. It may also have arisen from a simple lack of knowledge of what was required by the wording in the contract.

To add to the complexity of the situation, during the first year of the OBI Landcare Research staff were restructured. The original OBI science leader left the company in early 2006. This person was not associated with any of the three groups, but was a senior manager in the company and took an overview of the OBI. It took some months for the company to appoint a new OBI leader and that person was the leader of the plant systematics group and based at Lincoln. The new OBI leader was aware that she was not familiar with the work of the invertebrate and fungal groups and this was part of the reason she enlisted help with the process from people outside the OBI.

The process was constrained by time. The contract had specified that priorities should have been set by the end of year one (June 30 2006) but because of the leadership changes in the OBI, nothing had begun. The GB therefore had set very tight timelines around the process requiring the OBI leader to run a participatory process in a very short time. This represented another significant challenge that had to be met.

Designing the priority setting process

The design process involved all OBI science staff and partner representatives on the advisory group, except one or two who chose not to attend the meetings, or who were away at the time the meetings were run. The geographical distance between the groups meant that it was not practical to get all the OBI staff into one place for a workshop. Bringing them together may also have been ill-advised given their separate histories and

their lack of experience of working together. Instead, we conducted three separate 3-hour workshops with each of the three systematics groups.

The workshops with each biosystematics group varied slightly for a number of reasons. The workshops were run sequentially and as we learned what worked and what didn't work so well, we changed the process slightly. First, feedback from the first group suggested we would be wise to remove the two ice breaker activities from the beginning of the workshop and replace them with a shorter, more formal introduction. Second, the three groups were different sizes, so the workshop sessions needed adjusting to account for this. All workshops had a mixture of full-group discussion and small group discussion but the relative balance of these shifted, since with the smaller groups it was easier to have full-group discussion that involved all or most participants. Third, each group had its own set of dynamics and interests, and tended to discuss different aspects of the issues.

Although we have called these 'design workshops,' these workshops actually served a number of functions in addition to designing the process. First, they allowed people to discuss their feelings about priority setting and the OBI. Second, they were used to inform those working with the OBI how the OBI is structured and how it works. Third, they provided opportunities for the new OBI leader to get to know the OBI staff that she did not already know. Fourth, they showed OBI staff how their interests might be included in the priority setting process. From a social science perspective, it was important to make sure that all stakeholders involved in the process could contribute meaningfully to it and that the perspectives of all groups were explicitly accounted for in the priority setting process.

In each workshop, participants were asked to discuss questions including:

- What happens if the priority setting process works well (i.e. what is the group's vision of where the process might get to)?
- What fears do you have about the priority setting process and its consequences?
- What are your hopes/ what are the opportunities in setting priorities?
- What are the tasks that the OBI group does?
- Who should have input in the priority setting?
- What are the potential models or principles for priority setting?
- What are the potential criteria that might be used to set priorities?

Once the three workshops with the OBI staff had been completed, the information in them was summarised and sent out to all participants. Notes were taken at all workshops and any notes or diagrams that were produced in the course of the workshops were put into electronic form and sent to participants.

A fourth workshop was held with the Advisory Group, the Executive Management Group and other staff members. At this meeting there were at least two representatives from each systematics area in the OBI and the advisory group included representatives from all the major OBI partner organisations. In all, 22 people participated in this full day workshop. Initially, participants worked on the questions outlined above, and then they finalised the priority setting model and developed a list of criteria.

For this fourth workshop in particular the steering group aimed to talk with participants before the event to ensure that their expectations of the day were accurate. It was clear

that some individuals in the group would need convincing that the two stages (setting the process and setting the priorities) were both necessary. We also noted that many staff came to the workshops feeling that they were wasting their precious research time. We did note that by the end of the workshops, no participants complained that it had indeed been a waste of time for them.

Design workshop results

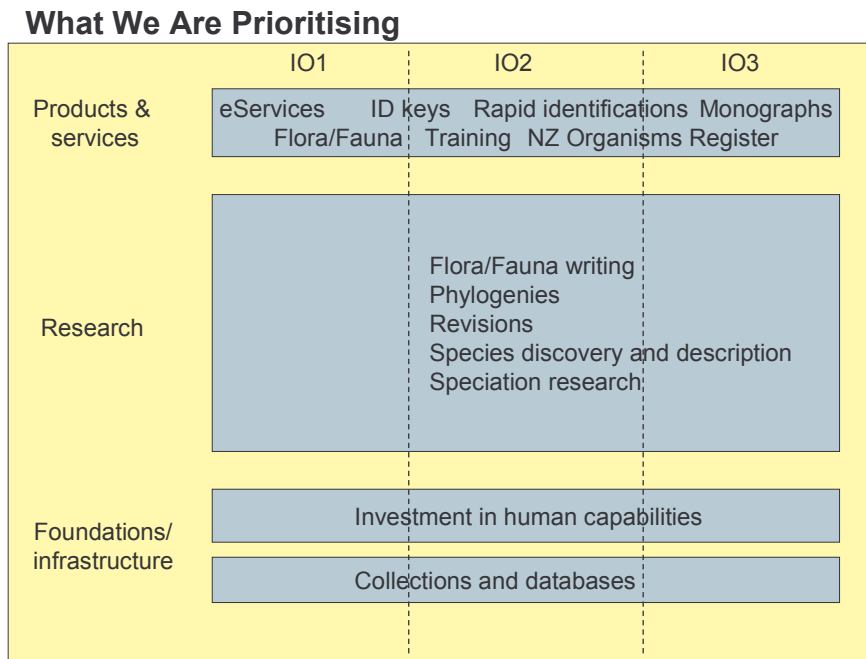
Participants considered that consensus was the ideal way to reach agreement. Most people (researchers and end users alike) wanted to be able to explain their perspectives to others. Implicitly this indicates a sense that discussion and learning would be an important element of the process. This kind of collaborative learning process is central to many tried and tested forms of decision-making used across the world such as the Delphi technique (Dick 1991), the integrated systems for knowledge management (Allen et al 2001), and the other forms of deliberation such as citizen's juries. The process enabled all groups to understand the needs of the others and the reasons for them.

While many workshop participants felt that the priority setting process should involve a wide range of stakeholders, tight time lines and the partnership nature of the OBI meant that consultation for this process was confined to partner organisations and the people advisory group representatives were able to contact during the information gathering phase. However group leaders were able to refer back to previous discussions with end users outside the advisory group in discussing and writing up priorities.

Participants indicated that the roles of scientists and end users in this process would differ slightly, since each group would bring different knowledge to the discussion. While each group contributed to all discussions, it seemed that the role of end users was to represent their needs, the outcomes to which systematics contributes and they would also have useful perspectives on what products and services on which the OBI should focus. In comparison the role of the scientists would be to ensure good quality science that would stand up to international scrutiny. The OBI leaders' (EMG's) role was to ensure the contract specifications could be met.

An important part of designing the process was learning how we might most profitably split up the work of the biosystematics OBI. The way in which we eventually did this is illustrated in Figure 1.

Figure 1 The aspects of systematics work that were prioritised

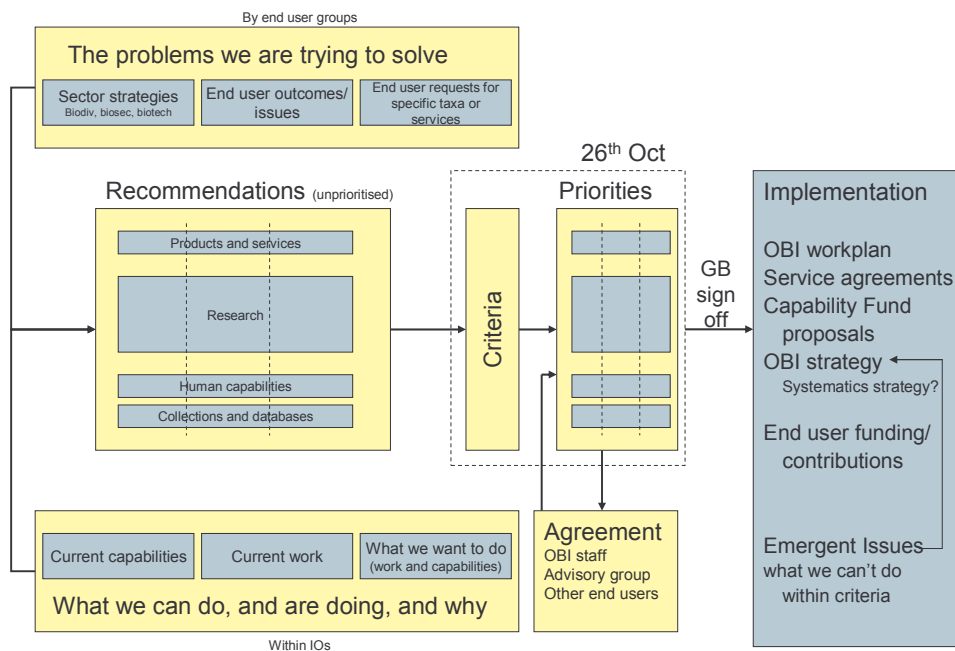


The main groupings of the work conducted in the OBI were 1) the development of products and services, 2) a range of research, 3) maintenance of capability for end user groups to call on and 4) maintenance/ development of the collections and databases.

Agreed process

The priority setting process was agreed on the 4th October 2006 and is illustrated in Figure 2. All groups agreed to provide information and suggestions for priorities as a first step in the process. End users would focus on sector strategies, end user outcomes and issues, and requests for specific taxa or services. Science staff had to provide information about current capabilities, work, and gaps. After this, information would be collated, and a fifth workshop would allow participants to learn more about the different perspectives on what was of highest priority for systematics research. After that meeting, the priorities and the reasons for them (based on the criteria) would be written up by the science leaders in each OBI group and the steering group and sent out to all participants for further comment.

Figure 2: The Agreed Priority Setting Process



An outline of the intended process was circulated to the Governing Body for feedback. Overall the process did not change however a few questions were raised and addressed as part of the ongoing process.

An individual on the governing body questioned who would finally decide the top priorities. He suggested it must be by vote or by recourse to an independent and knowledgeable individual, thus highlighting some tension in the process between those who felt priorities should be decided by consensus and one or two people who were uncertain that priorities could be decided by consensus. As we set out on the 26th October, our aim was to build a consensus as much as possible through discussion and learning about the issues. Observations indicated that much learning went on throughout this process in discussion and debate. The fall-back position agreed with the facilitator on the 26th October was that if there were issues that could not be resolved through consensus, we would use a voting system. However, as it eventuated, this was not necessary.

In retrospect, it is worth noting that neither voting nor external adjudication may have been appropriate depending on the issue concerned. In fact, other strategies that emerged through discussion were to agree to differ and to continue discussion on some topics because they simply needed more information and time to resolve. In a dynamic world where needs and interests shift and change, such a flexible approach would seem to have the potential to work better. There was also much agreement in the room about what the priorities were because the OBI staff had a history of working with their end users groups. The process essentially built on these existing relationships and previous discussions. This process may not have worked as well in the time we had if the OBI staff had not already had some familiarity with the interests of their end users.

Criteria

Articulating criteria before the process began was useful for helping people focus their thinking. However these criteria were used more to help the group reflect on what was important to them in considering priorities. The criteria were therefore more a record of the values people expressed and at times they provided a checklist for individuals to run through to see if they needed to add any more to their arguments. As such the criteria were not used to direct discussion.

The criteria used in the decision making process outlined in Box 1 were mostly articulated before the priority setting was completed.

Box 1 Criteria used in setting priorities

Criteria articulated in first 4 workshops

Contractual

1. Falls within the scope of the OBI (e.g., is not operational research or “blue sky” research).
2. Is it being worked on by somebody else, outside the OBI?
3. Contributes to milestone achievements
4. Contributes to contracted achievement measure

End user driven

5. To what extent does it contribute to the biodiversity/ biosecurity/ biotechnology or iwi strategic outcomes/ expectations documents (High / Medium / Low)? (This includes national reporting commitments)
6. How much does it contribute to individual organisations’ outcomes/ objectives and workplans?
7. To what extent will the work be used or taken up?
8. Does this piece of work support critical capacity to respond as needed? (Services are included here.)
9. Is the research so important that end users would commit co-funding?
10. How much does it contribute to New Zealand biodiversity?

Science driven

11. Scientific merit
12. Economic impact for New Zealand (incl. primary production) (probably more end user driven)
13. Current research project in OBI (e.g., Seed Atlas)
14. Feasibility of the work – costs to do work versus value
15. Strategic linkages that it fosters
16. Contribution to global biodiversity knowledge
17. Current capability/ expertise
 - a. Does it exist?
 - b. Is it essential to NZ?
 - c. How unique is it?
 - d. Will it endure the life of the OBI?
 - e.

Criteria that emerged through discussion of priorities

18. Can/will end users contribute co-funding research activities?
19. How complex is the problem and how long will it take to get returns from research?
20. Does the priority contribute to integration with other teams/programmes/projects? .

Changes/ additions to the criteria occurred as the priority setting process proceeded. First, it was clear that any work prioritised had to fall into the scope of the OBI, both in terms of research topic, and type of research (e.g. OBI funding may not be used for operational research); Second, that the Advisory Group agreed during the process that prioritised work should not include work already being conducted by people outside the OBI. A third criterion that emerged was how projects might contribute information into another project. For example, revising the Cardamine group was a high priority, but

was put off until the results from another study were available since they would contribute to that revision.

Science staff provided information about the state of the science, work that other scientists were doing around the world and in New Zealand, and some insights into upcoming developments in science. Another factor that had to be kept in mind throughout in this process was the existing contract with specified output requirements.

Other criteria that emerged during the priority setting process were:

1. Leverage (would end users contribute co-funding research activities?). Having end users interested enough in the research to assist with funding ensures its relevance.
2. The complexity of the problem and whether the returns from tackling it justify making it a priority. For example the fungal group Glomales was a high priority for both scientists and end users, but because nothing is known about this group, there would be no outputs from any work on that group for some years. It was considered better for the priority to be on groups which are both important and which will produce useful outcomes in a shorter time frame.
3. Whether the priority would contribute to integration within the OBI, or with other teams/programmes/projects. This criterion was not used much in the discussion with end users, and is, perhaps, more likely to be used amongst scientists who have a better idea of the linkages between different organism groups.

We specifically refrained from weighting these criteria or reaching a decision through any kind of calculation process. In this situation, much of the planning was for future needs and demands and there was considerable uncertainty in terms of the information available for assisting decisions. **Where uncertainty and complexity are factors, a collaborative learning approach is more constructive.** In this approach, information is tabled as discussion around the topic requires, and the group and decisions emerge through increased mutual understanding, as long as there is a willingness to work together for mutual benefit.

Weighting implies a particular set of values prioritised in a particular way. In this situation, participants had a range of mandates, and interests and therefore they tended to prioritise these values/ and criteria in different ways. It was therefore important to keep the discussion open enough to allow individuals to express what was important and to introduce any relevant information without the risk of it being dismissed as unimportant. Our aim was to use deliberation and consensus building to allow collective values to emerge in a collaborative learning process.

Setting the priorities

There was only one day available for discussing the priorities in three different areas, so significant work was required before and after that workshop to keep face to face discussion as focused as possible.

Before the event, Advisory Group representatives were questioned (see Table 1) via email about priorities across a range of work types. They were also asked which taxa were most important to them. OBI group leaders were asked about their priorities for research with a slightly different set of questions (see Table 1). The responses of the

different representatives for each area were then collated and summarised along with the responses from the science group leaders.

Table 1: Questions that end user representatives and group leaders were asked to answer in written form

End User Questions	Group Leader Questions
<p>What is your organisation/ group's interest in systematics? What outcomes/ strategic goals/ issues that your organisation/ groups works on are relevant to systematics work? What systematics work is needed to contribute to that work</p> <p>What priorities would you place on these needs and why?</p> <ul style="list-style-type: none"> • Which taxa are most important to you and why? • Which type of research is most important to you and why <ul style="list-style-type: none"> ○ Phylogenies ○ Revisions ○ Species discovery & description ○ Speciation ○ Flora/ Fauna writing ○ Smaller taxonomic issues. • Which capabilities are more important to you and why? • Which tools are most important to you and why? <ul style="list-style-type: none"> ○ E biota ○ E data bases ○ ID keys ○ Floras/faunas ○ (other?) • Which data are most important to you and why? <ul style="list-style-type: none"> ○ Distributions ○ Presence-absence ○ Names ○ Illustrations ○ Molecular data/ DNA barcoding etc • Which collection management tasks (why?) <ul style="list-style-type: none"> ○ Acquisitions 	<ul style="list-style-type: none"> • What do we already have: <ul style="list-style-type: none"> ○ What priority setting work has gone on already within your IO? ○ What were the outcomes/ findings of that? • What needs to you see now (or what are the major gaps or taxonomic issues that you cannot deal with) and why are these important? <ul style="list-style-type: none"> ○ Within databases ○ Within collections ○ Within research • What capability issues are there? <ul style="list-style-type: none"> ○ Upcoming retirements ○ Post docs/ fixed termers ○ Existing gaps ○ Future needs ○ (other?) • What do you see as the priorities within your study area and across the OBI • Why are these priorities – which science and end user outcomes do these contribute into?

<ul style="list-style-type: none"> ○ Curation ○ Databases ● Which services (why?) <ul style="list-style-type: none"> ○ Training and teaching ○ Identifications ○ Information delivery <p>What are we currently doing that you think is not a priority and why?</p>	
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Some difficulties emerged for the steering group from giving end users and scientists different questions. The answers were more difficult to put together within the time frame available. In retrospect it may have worked better to have science group leaders answer some of the same questions as end users – e.g. about what they saw as the priorities for taxa, research, databases and collections etc. However the written input was useful for setting up the workshop and starting the conversations on that day. It also proved to be useful through the process.

The information was collated according to each study area. Three documents went out to all of those involved in the priority setting process – one each for fungi, plants and invertebrates. These documents contained the responses from end users, a summary that collated the information by question, and the information from the group leaders. The very short time between meeting four (when the design process was finalised) and meeting five (when the priorities were set) meant that no recommendations were made in those documents as had been suggested by the model.

The process on the day

We had 7.5 hours to discuss the priorities in each of the three study areas, to discuss the issues that emerged during the day and to set up the process. Hence it was important to ensure no time was wasted and that conversation kept moving and was mostly focused on the areas of disagreement. To do this we used a series of post-it notes with potential priority taxa and tasks written on them. These post-it notes were placed on the wall under the headings set out in Figure 1. At the beginning of the day science group representatives were asked to sort the post-it notes into priorities and to add in any that they thought were missing.

Once this was completed, participants in the workshop were given dots and instructed to use the dots to indicate where they disagreed with the placement of any particular post-it note. Thus, the points of disagreement could be seen where there were most dots. From here, full group discussion focused on those post-it notes with dots placed on them. Post-it notes positioned such that there was general agreement about their placement were not discussed. This way discussion was kept only to those areas that really needed it.

This process tapped into the decision processes that researchers in naturalistic decision making have noted. They observe that experts make complex decisions by using their “intuition” to look at the whole situation and see what “feels” right. This is not a mysterious process but one in which many facts and ideas are put together at once. This is accompanied afterwards by a series of ‘checks’ in which the decision maker assesses

the decision against a set of criteria and may adjust it accordingly (Benner et al. 1996). It is also reminiscent of some of the rapid appraisal techniques used in development settings.

There was no explicit reference to the list of criteria for these discussions, but the discussion revolved around the criteria. The criteria that end users tended to use most were those associated with the needs of their organisation, the capacity that they might need to draw on and the use of the information in achieving the organisation's stated strategic goals. Participants asked many questions during this discussion, indicating that participants needed specific information to fill gaps in their understanding of the issues.

At the end of the meetings the priorities on the wall were photographed. The notes recorded the discussions on the day were typed up and sent out to the group leaders. The EMG members and the steering group members then used this information to write up the priorities and the reasons for them in terms of the criteria.

Reflections on the process

A number of points emerged as the priority setting process was developed and executed. As a team, we found that it was important to keep returning to reflect on the contracted task as the process unfolded. Throughout the process considerable discussion, inquiry, debate and a trial and error approach was needed in response to the many questions and issues that arose. While the debate and discussion were very important we found that at times it could distract us from the task at hand.

Māori representation

The Māori representative on the advisory group was unable to participate in the priority setting process and we were unable to find another representative. However, efforts were made to get some information from Māori into the process and to reflect on previous, more thorough consultation with Māori groups. What we did would not have been adequate, had this previous work not been completed.

Whose priorities?

End user representatives noted that many of the potential priorities were very important to someone somewhere, so prioritising them was difficult. Reflecting this, the Advisory Group suggested that the aim of the priority setting process was "minimum dissatisfaction," since many end user needs and preferences could not be accommodated under the current funding levels. Another difficulty that emerged was in comparing very large jobs, which represent important long term projects over several years, with projects that may represent smaller pieces of work that produce results relatively quickly.

Maintaining capability

In some areas, some Advisory Group members professed to being less concerned about specific science projects or work on specific taxa, but more concerned to have capability in particular plant, invertebrate or fungal groups, so they were assured of access to experts as and when required. Most of the discussion of the invertebrate work, for

example, focused on priorities for increasing capability across different invertebrate groups based on end user needs.

This made it difficult to come up with a single list of priorities from 1-10. To maintain a range of capabilities would require a range of projects. Instead the decisions tended to be made in groups, e.g. the top ten priority taxa.

Balancing End User needs with Scientists needs

Advisory Group members also contributed significantly to discussions of priority taxa, priority research areas, and priority products and services and a great deal of information was exchanged between group members and scientists. Maintaining balance between the needs of end users and the needs of systematics as a science with international linkages and interests was important in this process. It is in searching for this balance that it is useful to have observers who are not stakeholders in the outcomes of the process.

Judgement of the balance is also a matter of perspective with end user groups being concerned that they are heard in the process and science groups also needing to be heard. This is an important tension in the execution of science relevant to end users that also has to sit alongside international science. This tension exists because research of most relevance to end users is usually operational in nature, whereas good science is often trying to answer some of the bigger theoretical questions.

Process as ongoing

Participants in this process felt that discussions about priorities should be ongoing through the life of the OBI and should not be confined to a 'one off' process. It is also clear that the process documented here rests on work done in previous years and probably would not have succeeded in the short time frames without that background work. Furthermore, ongoing discussion will be required as new developments happen both in the science and practice of systematics and in the needs of non-science end user groups. Likewise organisational needs change. Representatives from one organisation in particular were concerned to note that their organisation was working on its own priorities and that as they develop their needs in the future might change.

Representing organisations

Some Advisory Group members felt that they could not easily represent the range of views within their organisations. This was particularly problematic if they felt uncertain of their expertise relative to that of the person they were representing or if they disagreed with them. At the end of the day, one of the representatives noted that there may be individuals within their organisations who would disagree with the priorities set because their particular wishes had not ended up very high on the list for the OBI. Some participants found the tight time frames problematic, also because they were unable to have their written input into the process signed off.

Keeping focused

Throughout this process the steering group found that they had to keep coming back to the job in hand. Because priority setting is closely bound up with implementing priorities, it was easy to slip into thinking about implementation and arguing about priorities from that perspective, e.g. ‘that can’t be top priority because we don’t have the expertise to address it’. Likewise some individuals involved in the process were unable to refrain from discussing their lack of funding at some length. In grappling with this tendency, we also realised that we needed to think about implementation issues sometimes because, for example, one of the criteria was how feasible the work was and how long it would take to produce meaningful results. Also the size of the project might impact on how sensible it was to prioritise the project, particularly for those priorities that were not near the top of the list. This need to come back to focus on the immediate task at hand seems to be common in complex situations where everything is indeed connected to everything else. While it is productive to think at the “overlaps” sometimes we also found it constructive to frequently ask if we had our focus right for the task we were working on at the time.

Related to the need to remain focused was the need to separate out the work we were doing setting priorities for the OBI from the work that needs to be completed at national level by high level government agencies of building a national strategy. Frequently discussion had to be restricted to the OBI level. A national strategy may have made this particular process easier to complete.

Getting the right facilitator

Having a very good, independent meeting facilitator who was also familiar with the science system and to some extent with the science field was key to the success of this process. Facilitators are charged with designing and looking after the process of discussion. They can ensure that all participants get heard and are able to participate fully. Having some familiarity in the field has advantages although there is a balance that needs striking here – between knowing enough to understand what is going on and what is important, and knowing too much and being in danger of inadvertently stepping into the process as a participant. Without a good facilitator this process is very unlikely to have succeeded particularly in the light of the lack of time available for discussion in the meetings. Our facilitator was able to foster input from people, ensure that all participants had an opportunity to contribute, question and have their perspectives heard and, because he was independent, he was able to make demands of people that would have been questioned had this facilitator not been seen as independent.

Conclusions

Overall this process succeeded in setting priorities that were acceptable to all participants. Ideally it would be good to have longer time frames to allow participants representing large organisations to consult with others in the organisation and to allow for another round of discussion or evaluation of the priorities as they were finalised. Likewise, we could have done with more discussion time during the priority setting process itself because some important discussion did not occur and probably still needs to.

Deliberation was an important means of making decision processes transparent and acceptable to stakeholders. It seems that people can accept decisions that they do not find ideal, if they understand why those decisions have been made and can see how their views have been included in the process alongside those of other stakeholders. This process has highlighted the conversations that occurred through a mixture of face to face dialogue, telephone conversations and written documents and the way in which these conversations have influenced the priorities that have been set.

A tension that emerged during the process was the focus that some people involved had on finding ways to count or measure the relative importance of different topics, however this was not a good way to approach the process. Having clarified and agreed on the criteria that we would use to assess the priorities, we did not attempt to use them in any calculative way. Instead we relied on the principle that people are able to make decisions based on a lot of data if they can tap into a more “intuitive” way of working. This “intuition” has a distinct rationality of its own, and involves assessing many criteria at once. Naturally, there are also good reasons to check back on any decision by reflecting on the criteria, a process which happened in the workshop discussions and in the documentation of the priorities. Our priority setting process aimed to tap into both of these thought types and appeared to work relatively well under quite difficult conditions. Further experimentation around this would be beneficial.

Questions remain about the use of criteria in an *a priori* or *a posteriori* way. It is possible that we could have simply articulated criteria rather than trying to refine them to a point where we could rank projects as having high medium or low value relative to those criteria. As one of our end users noted, we simply did not need to go through the criteria systematically. They came up naturally in the discussion that we had. When the decisions became more difficult, it appeared that more criteria were raised and the discussion was broadened rather than that people wanted to shift to using a more systematic approach of ranking and thinking more in-depth about particular criteria. This pattern is worth noting as an important observation to take into further studies of decision processes.

This process was iterative and involved trial and error at a number of levels. Part of the success that we claim comes from the openness of the Executive Management Group to trying something different. Principles that appear simple in essence such as transparency, openness in participation, the idea of setting priorities or being strategic are not always so straightforward when put into practice. The different understandings people have of the process, and the language used in the process, the different ways they attribute meanings to actions, and the different organisational environments in which people work all contribute to the emergence of unintended outcomes. Throughout the process we were constantly working to gain clarity around the task at hand. It was almost never obvious what the best course of action was at the beginning of each step of the process – how we should structure a document, what questions needed to be asked, how we should structure a workshop.

Each of the activities involved in this process was thought through and planned, based on the ideal of good participatory practice. However, we made many changes in the process of carrying out the plan as we learned about how it was working in practice. In putting the plan into action, we learned new things that influenced then had to be incorporated into the plan. Much of the success of this work therefore arose from a

process of ongoing planning, monitoring, reflection and adjustment and to being open to the experience of not knowing with any certainty what might be required next to keep the process as open and participatory as possible without overloading people unduly.

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