

This is the Author's version of the paper published as:

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**Year:-** 2007

**Title:** Exploring natural resource management with metaphor analysis

**Journal** Society & Natural Resources

**Volume:** 20

**Issue:** 4

**Pages:** pp351-362

**ISSN:** 0894-1920

**URL:** <http://www.tandf.co.uk/journals/tf/08941920.html>

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# **Exploring natural resource management with metaphor analysis**

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## **KEYWORDS**

Conceptual frameworks: natural resource management; metaphor analysis, watershed management

## **RUNNING HEAD**

Exploring natural resource management through metaphor

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## **Abstract**

In the following pages I reflect on the nature of natural resource management by exploring some of the metaphors used during planning, implementing and reflecting on two watershed management projects. Metaphors are used to understand one idea through another, and their use in everyday dialogue can provide a means to understand the conceptual frameworks that underpin behaviours. Within the case studies presented here natural resource management was conceptualized variously as journeying, revealing a picture and treating watershed illness. Understanding the world through each of these conceptual frameworks appears to have influenced the planning, delivery, and evaluation of natural resource management activities undertaken in the case study areas. The qualitative, interpretive study of conceptual frameworks presented here helps to explain participant behaviours, and could be used to predict the acceptance or otherwise of particular program approaches within these and similar projects.

## **Introduction**

For many of us natural resource management is an integral part of our lives: we do it, talk about it, and write about it in learned journals such as this. But how often do we pause to think about the assumptions behind these three words? In this paper I reflect on the nature of natural resource management by exploring the discourses of two natural resource management projects. Language both represents and constructs reality (Penman 2001), so exploring discourse in detail provides a means of understanding how people experience and shape their world. A feature of environmental discourse is that metaphors are common (Harris 2001) and it is the analysis of metaphorical language that I focus on here.

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Using a metaphor involves the projection of a source domain onto a target domain, for example love (the target domain) is like a journey (the source domain) (Kovecses 2002). In a literal sense we know that love is a particular physical or mental state; however by using the journey metaphor we are able to explore the complexity and illusiveness of love in an accessible way. To say of a couple ‘they’re on the rocks’ makes no literal sense, but within a shared conceptual framework of love being like a (sea) journey it is clear that the relationship being discussed is not happy. Metaphors, then, suggest that one thing is like another, but because that thing is not the other, a metaphor is really a way of understanding one reality *through* another (Romanyshyn 2001). This is an important distinction because it acknowledges that, rather than being mere linguistic flourishes, metaphors are fundamentally experiential in nature (Johnson 1987). Spoken metaphors can be considered an expression of metaphorical thinking, and metaphorical thinking is a central component of everyday reasoning (Fauconnier 1997). Indeed, Ramachandran and Hubbard (2001) suggest that the propensity to understand one thing by relating it to another is what gives humans our capacities in abstract thought and language; it is what makes us human, no less. Metaphors are so fundamental to human communication that metaphor use in everyday language is often unnoticed (Lakoff 1991). Because metaphors frequently operate at this subconscious level, analysis of the metaphors in everyday use can provide a means of accessing and understanding cultural constructions of realities (Lakoff and Johnson 1980). Understanding can be achieved by recognizing linguistic metaphors in dialogue and text, then developing theory about the conceptualisations behind those linguistic metaphors. A strength of using metaphor analysis is that it prompts a researcher to consider data afresh; it encourages doubt

about the appearance of the world in which we all live. This jolt from complacency is particularly useful for those researching within their own culture or paradigm, as the assumptions underlying activities can be recognised and examined. Metaphor analysis can thus complement thematic and other analysis of the meanings within conversations and texts.

The systematic analysis of spoken and written metaphor to explore human constructions of reality has been used by psychologists in both research and therapeutic settings for some years. For example, Levitt et al. (2000) examined the use of burden-related metaphors as a counselling tool, while Schoeneman et al. (2004) considered broader therapeutic and educational opportunities arising from the identification of the metaphors used by depressed and recovering patients. In the past two decades metaphor analysis has begun to be employed by social scientists from other fields. For Slingerland (2004), metaphor analysis informed a comparative study of understandings of 'self' in ancient Chinese and modern American culture, Oberlechner et al. (2004) used metaphor analysis to support a cultural description of the foreign exchange market, and Nerlich (2004) explored the metaphorical conceptualizations present in a newspaper's coverage of the recent Foot and Mouth Disease epidemic in Britain.

Despite the agricultural example provide above, examination of the metaphors used in discussions and texts about natural resource management is infrequent, and is mostly based on examining overarching metaphorical concepts rather than analysis of the metaphors used by a particular group of people. For instance, Michael (1995) touched on the persuasive power of metaphorical talk in public resource management debates, and Harré et al. (1999) discuss the power of metaphor in environmental discourse in a general way. Specific, but

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individual, environmental metaphors are examined by Proctor and Larson (2005), who considered ‘complexity’ as a family of metaphors which can transfer meaning and understanding between the disparate discourses of ecological and everyday language; Foster (2005) in his exploration of the stewardship metaphor; and Jelenski (2005), who questioned the usefulness of invoking the Mother Nature/Balance of Nature metaphors in environmental discussions.

I used metaphor analysis to explore the everyday planning and implementation of land management activities in two watershed management projects in south eastern Australia, and present some of the results here.

### **Data creation and analysis**

The analysis of metaphor discussed in this paper contributed to a larger research project which sought to better understand the under use of adaptive management in watershed scale natural resource programs. The details of the purpose and outcomes of that project are peripheral to this paper, but interested readers should refer to Allan & Curtis (2005). Briefly, the research focused on two watershed management projects located in south eastern Australia, each of which was initiated and funded by Federal and State government partnerships. In each case the project aimed to encourage changes in land management practices on privately owned farming land in areas impacted by dryland salinity. Each case involved a project that offered financial incentives to encourage landholders (predominantly farmers) to plant native trees and shrubs, and /or perennial pastures, in strategic landscape positions on their land. Anticipated outcomes from these plantings were reduced groundwater accessions, decreased soil erosion and protection and

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enhancement of regional biodiversity. Each project was managed by regional organizations working with a number of local volunteer watershed (Landcare) groups. The regional organizations managed the planning, promotion and financial aspects of each project, provided technical and moral support to individual land managers, and reported to their constituencies and funding bodies.

I explored the cultures of the two watershed projects within a qualitative, interpretive research paradigm. This approach understands realities as social constructions, and acknowledges the benefits of drawing on multiple subjectivities to understand those realities (Denzin 2004). While not generalizable except by analogy, the interpretive approach can provide deep insights into particular cases. A variety of data creation methods were used for this exploration because one watershed project was commencing concurrently with the study, while the other was being reviewed after five years of operation. All data were created by me through review of 29 published and unpublished documents related to the projects; audio-taped, in-depth interviews with 22 government agency staff, scientists and farmers; a group interview with six watershed-group facilitators; and peripheral participant observation of project activities for the younger case study (Table 1). Review of public documents accesses contemporary accounts of project activities (Silverman 1993), in-depth interviews create a space for the construction of meaning through conversation (Miller and Crabtree 2004), and participant observation involves the researcher making detailed observations of a situation in which they are involved (Spradley 1980; Angrosino and Mays de Perez 2000). Each of these forms of data creation provides opportunities for close examination of verbatim 'text', in this instance in the form of orthographic transcriptions of interviews and

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observations, and published and in-house documents. Thematic analysis of these texts provided much information about the operation of the projects, but I was also seeking a way to access some of the unspoken assumptions underneath the activities being undertaken; for this I chose metaphor analysis.

[Table 1 about here]

To begin the metaphor analysis I used an inductive approach to category construction. This involves having no pre-conceived category structure before the analysis to allow categories to emerge from the engagement of the researcher with the data (Sarantakos 2005). Steen (2002) suggests there may be considerable variation in the ways in which researchers describe and identify linguistic metaphors. The stepped process I used was similar to that described by Oberlechner et al. (2004). I highlighted words or phrases which made no literal sense to me, but instead evoked one reality through the idea of another. I did not include rhetorical flourishes such as the idioms which make Australian speech so lively (“I’m flat out like a lizard drinking” is powerful, but not metaphorical), but did include genuine analogies. I gradually built up categories and sub-categories of metaphorical words and phrases based on source domain attributes, verifying my categorization by reference to a metaphor dictionary (Renton 1990) and a metaphor thesaurus (Wilkinson 2002).

Metaphor use was not spread evenly through the various conversations I observed or shared. While categorising and coding transcripts I read many pages of literal conversation without a hint of the metaphorical (except in the sense that all language is metaphorical; words represent, but in ‘literal’ speech the word signifies the object directly). The literal sections of the transcripts usually related to the organisation of activities, or were recounts of

events. However, at times, particularly when planning was underway, or explanations or persuasion were required, metaphorical language was used generously. I identified over one thousand separate metaphors (words and phrases) used during the interviews, meetings, and documents associated with the two case studies, which I initially organised into twenty-one source domain categories, including 'journey', 'vision' and 'health' (Figure 1). [Figure 1 about here]

What did this prolific use of metaphor reveal about the case study discourses? To understand this I explored the way case study participants were able to communicate with these particular metaphors by re-examining each metaphor in its original context, on a category by category basis. Consider the following extracts from the 'journey' category, in which I have shown the metaphors in bold:

Extract 1: And then a lot of those trees **conked out**, didn't they? They had blue gums planted on the break of slope. (Interview with farmer a, discussing a vegetation project in another area.)

Extract 2: ...the panel at the time wasn't in favour of that approach, and would rather have seen maps within the planning scheme, using a salinity overlay; we chose **not to go down that path**. (Interview with local government planner.)

Extract 3: ...there was a problem here, it was surfacing, like with our bores and the water and things; people realised, they knew it, but there was no strategy no funding no anything so it had to be sort of **pushed along** for

something to happen. (Interview with farmer b, discussing the genesis of one of the projects.)

Extract 4: I guess a lot of trees were planted in the wrong spots for example,... and I'm using trees just as an example, or pastures; at the same time you've got all the other benefits that those things bring, so ...it's a matter of constant improvement but if you're not prepared again to take that **first step** and do something then you'll live inside your cocoon, you won't extend yourself, you won't get new experiences, you won't acquire new knowledge and you won't **move forward**, you might just **stay where you are** while everyone else **moves forward**, so in effect you're **slipping behind**. So you have to be prepared to take that **first step**. (Interview with agency staff member a, discussing incomplete technical knowledge.)

Extract 5: ...you've got to actually lobby, and you've got to have the sort of backup from the CMA [Catchment Management Authority] and local community working for you all, **all pushing in the same direction...**(Interview with agency staff member b.)

For these metaphors to make sense in the conversations there must be shared understanding among those communicating; a shared conceptual framework. Extract 1 is an example of a metaphor used within the conceptual framework of 'life is a journey'; dead trees are described (and understood) by a phrase that shows that the journey has ended abruptly. The journey metaphors in Extracts 2 and 3 make sense within a conceptual framework that has individual natural resource management activities or projects as vehicles

for a journey. Extracts 4 and 5 are examples of journey metaphors used within the conceptual framework that has natural resource management itself as a journey.

It is conceptualizations of natural resource management, such as those from extracts 4 and 5, which I explore in this paper. Complex target domains are often structured by a set of source domains with a wide metaphorical scope, but all strongly grounded in experience (Semino, 2005). This appears to hold true for the target domain of natural resource management; as well as conceptualizations of journeying there were at least eight other conceptual frameworks for natural resource management that emerged from the metaphor categories. These were that natural resource management is like revealing a picture; treating watershed illness, solving a puzzle; playing sport; waging war; running a business; operating a machine and, in a few rare instances, gambling and religious observance. In the following discussion of three of the most frequently invoked conceptualizations of natural resource management the phrases shown ‘*in italics and quotation marks*’ or block text are verbatim quotes from case study participants or documents.

### **Some Metaphorical Descriptions of Natural Resource Management**

#### ***Natural resource management is a journey***

As touched on above, case study participants at times referred to the act of natural resource management as if it was a journey. Below are some more examples, in which I have again shown the metaphors in bold text:

But if people will pick up and run with the program,... and with small levels of subsidisation, I think we can **come a hell of a long way**, but I don't think you can

do it just for salinity or just for rabbits or just for something else. (Interview with farmer c.)

...and we'll certainly be open to modifying the projects **further on down [the track]** if...the research does shows us **different ways to go** etc. (Watershed group facilitator, during group interview reflection on project success.)

... the Ovens River site is... it's critical. ... **if you want to get anywhere over the long term** you've got to have that sort of information. (Agency staff member c, explaining why salinity monitoring sites should be established.)

So what? Why does it matter if natural resource management is spoken of as if it was a journey? It matters if the metaphorical expression of an idea reflects a genuine understanding of that idea, because that understanding will influence behaviour. When one idea is conceptualized through another the range of responses to the target idea is shaped by the range of responses that exist for the source idea (Fauconnier 1997). Lakoff (2003) refers to this as framing, purporting that every time a word invokes the frame, related concepts and images are also invoked.

If people are really understanding natural resource management as a journey one could anticipate that planning and evaluation of natural resource management projects will also be influenced by the travel motif. The case studies provide evidence that this is so; in one project meeting the planning process was described as '*looking at where we're going in the future*', and, in another meeting, a project planner wanted to "*keep emphasising that we should bring the community along*". Additionally, government strategies, plans and guidelines that provide context for the two case studies refer frequently to '*milestones*'; for

example the eight page New South Wales (NSW) Salinity Strategy (NSW Government 2000) states:

“The NSW Salinity Strategy is the NSW Government’s response to the Summit’s recommendations. The Strategy marks an important **milestone** in the Government’s long-term commitment to this complex issue” (p.2).

Policy analysts are becoming aware of the power of metaphors in various policy discourses (Kochis 2005). Given the frequency and power of the journey metaphor, it is not surprising that much project planning time in the case studies was used to determine how to pass milestones quickly, and for the identification and removal of ‘barriers’, leading to comments such as: *My committee felt it important to look at **barriers** to adoption and triggers for adoption.* (Agency staff member b, during an early project planning meeting.)

When people understand natural resource management as a journey they naturally expect activity and motion in any projects in which they are involved. Accolades and rewards go to the ‘leaders’ and ‘drivers’, of projects. I suggest that this emphasis on activity influences the types of projects chosen and the ways in which project participants. For instance, the high value placed on activity (movement) promotes the search for, and removal of, obstructions, hence the common search for ‘barriers to adoption’. If movement were not so highly valued managers may consider a pause in the movement as an opportunity to review the journey and even the destination. The ‘barrier’ may possibly be seen as a valuable warning about the direction of the project and its activities. However, the high value placed on movement as a purpose in itself suggests that reflection-based learning would not be a favoured approach: when the purpose of the project is to pass milestones as

quickly as possible, ‘pausing’ to reflect and adjust becomes an irrelevant (obstructing?) activity. Within the journey framework **movement** is the important element to monitor and measure, and evaluation of natural resource management activities often involves nothing more than measuring movement through auditing- have the milestones been reached?- has the money been spent? Broader reflection on any lessons learned from the activities is simply not necessary within the journeying framework. Questions about whether the ‘journey’ is even right or sensible may get lost in the excitement of passing project milestones.

There were many different travel related metaphors used to make up what I have called the journey conceptual framework for natural resource management, prompting the question whether people shared a common destination? Within these case studies the journey was implicit and accepted, with many vehicle, driving, pushing, leading and moving metaphors used, but none were obviously related to a stated destination. My impression was that, when invoking the journey metaphor for natural resource management, participants were embracing the activity of journeying, or travelling, for its own sake. The endpoint of any journey was invoked through the use of another metaphor category, most often that of the big picture, or the vision:...*down the track the bigger vision is what you’d like to see; you know a renewed landscape.* (Interview with scientist a.)

### *Natural resource management is revealing a picture*

That the endpoint of natural resource management was, on some occasions, conceptualized as something that could be seen, is exemplified by these extracts:

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... observations made by landholders and ourselves, if we get out in the field, can really help **build a picture**. (Interview with scientist b, on understanding salinity processes in the project area.)

I don't know where they're at, whether they're still bringing in that expertise to try and get a **bigger picture**. (Interview with farmer d, referring to the project technical advisers.)

So that's a really good example of everyone getting together, but it's very **focused** and from the **salinity big picture stuff** we're going to need a lot bigger than that. (Interview with agency staff member e, reflecting on an on-ground activity.)

This conceptual framework for natural resource management pre-supposes a large, possibly complete, picture that could be viewed if the right aids for clarity are used. This framework suggests that natural resource management activities are at least partly about revealing the big picture, or the vision. Within this framework monitoring and evaluation are actually measures of degrees of clarity, thus:

C: So what had you hoped would be able to do for you?

f: I thought it would have given us **a bit clearer picture of** ... the change or the variation in what was going on underground. Whereas it didn't ... well it only detected the watertable...(the author and landholder f, discussing electromagnetic soil mapping.)

Seeking clarity, or a better view of the big picture, has its own influence on how natural resource management projects are perceived and undertaken. I suggest that both complexity and uncertainty become problematic for managers, as singly or together they can

make the natural resource management picture fragmented and awkward, and altogether too complex to view easily. The desire for clarity may manifest in a preference for simple, reductionist project designs over more complex, or exploratory ones, and may encourage the avoidance of genuinely integrated projects.

Metaphor use in part reflects ‘the creativity and open-endedness of our constant grapple with emergent meaning’ (Foster 2005 p 34). The variety and fluidity of the metaphors used when discussing natural resource management suggest that people are still trying to make sense of natural resource management as an idea. So, although journey and vision metaphorical conceptualizations were in frequent use in the case study conversations, there were also very different discourses. One of the most frequently used drew on experiences of human health and illness.

#### *Natural resource management is treating watershed illnesses*

Landscapes were at times conceptualized by case study participants as living entities, as exemplified during a planning meeting by one ecologist’s description of a major patch of remnant vegetation as a ‘*big beating heart, pushing species out*’. One consequence of understanding landscapes as living beings is that the landscape can be considered to be well or unwell:

...to try and argue we need to protect that resource is more difficult than if you’re in an area needing repair, you know **the sicker areas of the state** where you’ve got to spend a lot of money to try and improve the situation, or **a healthy area** where you don’t need to spend quite as much money... (Interview with agency staff member a, reflecting on obtaining funding.)

The sickness at the centre of this and many other case study discussions was dryland salinity:

...you just can't see it it's, it's like a **cancer**, you just can't see it, it gradually creeps up on people, and...you're only preaching to the converted now, the ones that know about it, know about salinity but there's a lot of people that know about it but they don't want to know because they think 'oh it won't happen to me'. (Interview with farmer e, discussing salinity in the district.)

The conceptualization of salinity as a watershed illness was implicit in the many references to its symptoms and possible cures. For example:

...they're going to be always managing salinity; I don't think they'll ever **cure** it. (Interview with farmer d.)

...they'll have a vague idea of the processes involved, and no idea of really what is an effective **remedy**, if anybody does know that... I was an ignorant person and walking past it and I dare say a lot of other people, and I think a lot of our landholders still are, I know we think they shouldn't be but they just refuse to see the **symptoms**. (Interview with watershed group facilitator a.)

As with the journey and vision frameworks, behaviours relating to the target domain (that is, natural resource management) appear to be influenced by the range of behaviours available for the source domain. When natural resource management was thought of as making unhealthy landscapes better, some of the accoutrements of the modern, Western approach to health care appear to have been carried over into the projects. There was a tendency for participants to focus on specific symptoms of disease, and a reliance on expert identification of sickness so that it could be treated with the landscape equivalent of drugs or operations. As the watershed facilitator cited above noted in relation to a government funded

tree planting project, *'there's priority catchments, they're going to get their dose'*.

Monitoring and evaluation within this framework was generally related to measuring quantitative indicators of the health of the land, through piezometers (the landscape equivalent of blood pressure gauges?) and water sampling (urine tests?). Like human medical testing, salinity monitoring is initiated and interpreted by experts, in this case from government agencies, an approach that has the potential to separate the functions of immediately 'caring' for the land and that of understanding its 'health' status.

Metaphors can be used to clarify, and to improve shared understandings, but they can also be used to persuade and manipulate because they suggest, and restrict, the range of responses that are available for an idea. Illness is an emotionally charged subject, and the fear, anxiety, guilt, hope and denial associated with human illness can be transferred to discussions about natural resource management, leaving people vulnerable to persuasion and manipulation, especially from the experts who have the training, knowledge and power to treat the perceived illness. I suggest that this was happening when, contemporaneously with the two cases studied, a federal natural resource management Minister promoted government funded aerial soil salt mapping in the two areas as *'the ultrasound of the earth'*, claiming it would facilitate the *'surgical removal'* of salinity problem areas via strategic tree planting (Parliament of Australia 2000). This presentation implied, subtly, that salinity could be understood as a cancer, which encouraged the feelings of fear and impotence associated with this disease to be mapped onto understandings of salty soil. While creating anxiety with the spectre of cancer, the surgical approach also offered hope; the 'ultrasound' suggested the

possibility of accurate diagnosis of the size and shape of the saline area, as well as implying that the illness was tumour-like, removable and suitable for a technological cure by experts.

The example above highlights the important role that discourse has, not only in reflecting social contexts and assumptions, but in creating and shaping them. Discourse is one of the principal activities through which ideology is circulated and maintained, so that every linguistic choice is in some way strategic (Johnstone 2002). This is not to suggest that all linguistic choices are made consciously, or that all choices are made to manipulate or persuade, but each time we speak, or write, we are selecting some words and phrases and not others. For the case study participants the act of choosing to use metaphor, and the selection of particular metaphors, shaped or reinforced the perceived realities of natural resource management for the participating communities. While we may smile when Lewis Carroll's Bellman claims that what he tells us three times is true (Carroll 1978), linguists suggest that reality is indeed created, shaped and shared through language (Penman 2001).

## **Conclusion**

By exploring the conceptual frameworks most commonly invoked by participants when discussing natural resource management in these case studies, I have developed some understanding of the social context within which these natural resource management projects occur. Summarizing the results above, the participants appear to accept that they are, and should be, hurrying toward some (rarely well articulated) destination. This destination is assumed to be some pre-existing big picture or vision, so that the task of participants in natural resource management projects is to get close to and/or expose that big picture. At the same time natural resource management is viewed as a process of caring for unhealthy

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landscapes, generally under the guidance of technical experts with technical solutions and monitoring systems. It is not surprising that the sorts of projects that are valued (and resourced) in this cultural context are straightforward, technically framed projects that promote and facilitate on-ground activity, rather than, say, complex, integrated projects that encourage reflection and learning, and multiple ways of knowing. Nor is it surprising that project audits are preferred to evaluations, as the latter may have complex and possibly equivocal findings. Understanding context in this way helps to explain why some project approaches are embraced by the case study participants, while others, even if good in theory, are never attempted.

It is not my intent to judge the value of the various conceptualizations of natural resource management invoked by the case study participants, nor to suggest that there are ‘right’ or ‘wrong’ ways to think. What I have offered in this paper is a brief example of how exploring metaphorical conceptual frameworks can increase our understanding of how and why natural resource management decisions are made and activities undertaken. I have also highlighted that the social contexts we explore and learn from are, even at the moment we are exploring them, undergoing continual reconstruction through discourse, including through the use of that powerful communication ‘tool’, the metaphor.

### **Acknowledgements**

I acknowledge the support received from the Charles Sturt University Academic Staff Writing-Up Award Scheme. I also thank Professor Allan Curtis for commenting on an early draft of this paper, and three anonymous reviewers and Dr Penelope Davidson for their recent constructive comments.

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Table 1 Sources of data for the metaphor analysis in this research

<b>Data creation method</b>	<b>Source</b>	<b>Number</b>
interviews	Watershed group facilitators	8
	Farmers involved with projects	7
	State agency field staff	6
	Government Research Scientists	4
	Head office agency staff	2
	Local government staff	1
Participant observation	Project steering committee meetings	10
	Project related community events including field days and open days	5
	Project sub committee meetings	3
	Project team building day	1
	Government steering committee meeting	1
Documents review	Locally specific technical and social research reports	8
	Government organization reports	5
	Project Steering committee minutes	4
	Government press releases	4
	State government strategic plan	2
	Project strategic plans	2
	Project performance reviews	2
	Federal government strategic plan	1

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	Project scoping document	1
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**Figure 1 Metaphor categories identified in the case studies based on source domain**

- Animals
- Boats
- Body parts
- Building
- Containers
- Commercial
- Domestic
- Food
- Gambling
- Hierarchy
- Journey
- Mechanical
- Medical
- Military
- Miscellaneous
- Nature
- Show Business
- Spiritual
- Sport
- Vision
- Wholeness