

MY BIG PICTURE'S BIGGER THAN YOUR BIG PICTURE! AS IF SIZE MATTERS

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**Dr Richard Price National Manager, National Dryland Salinity Program; Managing
Director Kiri-ganai Research**

INTRODUCTION

We've all been there. We've all been to conferences, workshops, meetings of researchers, meetings of producers, meetings of catchment groups; nearly any sort of forum you care to think about. And we've just waited for it; waited for someone to stand up and say, "Yeah, well you've got to consider the big picture, see."

The sociologist in me (and believe me, I still pinch myself when I think that I am supposed to be one), always reacts when I hear this kind of statement. Indeed, it was at a workshop not so long ago that I heard in the space of two days, four different people stand up and say, "Let me paint the big picture....." or words to that effect. I was hardly surprised that there were indeed four big pictures presented, none of which remotely resembled the other.

If I recall correctly, a bureaucrat painted his big picture based on how catchment management fitted into a big, macro policy setting. A catchment manager showed how policy was only one perspective within a big, diverse view of community relationships. A researcher, newly acquainted with emerging tools to integrate economic, social and biophysical data, argued that policies, relationships and 'hard fact' could indeed be quantified and structured within complex systems models (generating, I guess, virtual big pictures) from which good policies, decisions and practices would flow. And finally, a farmer simply said, "This is the big picture: I've got to eat, got to pay bills, got to educate the kids, got to replace the machinery, got to second guess God about the weather and got to look after not just the farm, but the catchment and the rest of the country too!"

So, what has this got to do with salinity, and the PURSL conference in particular? Well, for a start, the conference I have just referred to was all about salinity. It reminds us that there are just so many perspectives that we are dealing with in managing this issue, and behind each perspective is someone to whom that perspective has equal legitimacy as compared to any other. In some sense, the PURSL community itself has a perspective that paints living with salt as a big picture: with National Land & Water Resources Audit data providing the artistic muse. At the same time, I'd bet many of us in the PURSL community has a different big picture. And herein lies the crux of the dilemmas that face managing salinity: the constant tension between gross aggregations and generalisations (for example treating a 'community' as if it was one body with one opinion and one voice) and recognition of the diverse nature of salinity and its impact on individuals.

So, in this paper, I want to talk about multiple perspectives, the concept of legitimacy and the need to more critically think about what it is we perceive. And I reckon it will come down to this: if art is expression, it is also interpretation. In other words, big pictures are an artist's interpretation of something, but so too a viewer places an interpretation on the artist's picture. It is these interpretations that shape a form of reality that have very real consequences. In

salinity, decisions and responses are made on a daily basis subject to individuals' perception of their big picture. The notion that there is only one big picture, whatever that may be, is counter to practice. This should not but help have consequences for government and industry policy, and for community leadership.

No doubt in this paper I will take a sociological viewpoint and run the risk of painting a sociologist's big picture. Ce sera sera. In pursuing this perspective, however, I will attempt to use the key messages emerging from the National Dryland Salinity Program as a means of demonstrating how analysing multiple perspectives can be used as a tool to considering ways forward.

SOME BIG PICTURE THEORY ON BIG PICTURES

You knew it was coming, so here it is: "Paradigms" (You don't need to be a sociologist to have ploughed this field to death!) Many of us know about Kuhn, so here's Patton:

A paradigm is a world view, a general perspective, a way of breaking down the complexity of the real world. . Paradigms are deeply embedded in the socialization of adherents and practitioners telling them what is important, what is legitimate, what is reasonable . . . [and] what to do without the necessity of long existential or epistemological consideration. (Patton 1975, p15)

The most widely discussed paradigm from a western cultural perspective is that of positivism. That is, the widely held view, sometimes referred to as a "scientific image" (Bernstein 1976), that there is a truth out there, and that the truth can be understood by applying logical techniques of analysis. You would do well not to interpret this as just a scientific phenomena or "scientific paradigm", for positivism is rife everywhere. Economics and most of the social sciences, including some of the fields of sociology, also hold the view that if we do enough digging for data and analyse it the right way, we can understand and resolve even the most complex problems simply because underlying these are "indispensable cores" of truth. If there is a truth 'out there', then there must be an answer! Or so a positivist would say. That we cannot yet explain (and resolve) some phenomena is only a temporary setback.

There are other paradigms; alternatives to positivism. The ones discussed in this paper include interpretivism and critical theory. These play on an already tiring adage that there are multiple realities, or truths, 'out there'.

First, interpretivism deals with reality as a social construction; hence interpretivism is also commonly known as constructivism. In this paradigm, truths exist only as individuals' interpretation of what they are dealing with, constructed within the context of a mental framework that makes sense to the individual. In this sense, the concepts of truth and meaning become interchangeable. As Robottom and Hart (1993, p9) argue, the "reality of meanings (intent and purposes) is found in the interpretation which is influenced subjectively by the values and purposes of the interpreter. Whereas positivism attempts to overcome the limitations of subjectivity by using 'objective' methods of analysis, interpretivism argues that this is simply not possible. At the very least, argue interpretivists, there are very often alternative methods and instruments available to positivists, and the very choice about which to use is a value-laden choice. Those who operate within an interpretivist paradigm reject reductionist experimentation and abstraction, and eschew approximation-based modelling in favour of interactive, field-based methods that are embedded in practice and context. What an interpretivist does, in other words, is attempt to find meaning by interpreting the different perspectives of participating 'actors'.

Second, critical theory deals with a world somewhere different to that of the positivists and the interpretivists. Like interpretivists, critical theorists don't really accept that there is one truth out there. Instead of just suggesting that truth has different meanings according to the subjective values of the interpreter, however, critical theorists argue that truth is a picture painted by the ideological strokes of the interpreter. As such, they consider factors of power and relationships during their analyses of social, economic and environmental interplay. Critical theorists have a desire to not just understand interpretation of truth, but also to do something about it to improve the quality of human existence. Green (1990) expresses this as a desire to develop practical, action oriented knowledge that enlightens and, thereby, catalyses social and political change, while LeCompte (1990) says that "what counts is what changes, and truth is whatever leads to achievement of what is good, right, responsible and empowering" (quoted in Robottom and Hart 1993, p11).

No doubt these three interpretations of truth leave the layman baffled as to their significance in dealing with the everyday problems they face, including dryland salinity. The next section aims to tease this out in terms of practice.

THEORY TO PRACTICE

The following three views of salinity reflect the paradigms dealt with in the preceding section. These views are discussed as a precursor to reflecting on the lessons said to emerge from the second phase of the National Dryland Salinity Program.

A positivist view of salinity

Salinity has come about because we didn't understand the relationships between rainfall, vegetation systems, geology and groundwater hydrology. What were we thinking? How ignorant we were! But if we get the scientific understanding right, then surely we can fix the problem!! What we need to do, therefore, is identify the right questions, choose the right methodologies and throw enough money at our science system to enable us to know what happens to one part of the system when we tweak another. OK, cause and effect relationships are difficult to come to grips with, but understanding them need not be insurmountable. If we can't get a full understanding of the system, then we can model it to the best of our ability. After all, everything boils down to one equation or another, so if we can get the right algorithm working for us, we're home and hosed.

Yes, we accept that there is a social side to salinity, and we positivists can address this too! What we need to do is shape the development of knowledge, skills, attitudes and motivations so that actions are taken to restore the balance according to the simple biological truths about salinity. If we can get the right planning processes in place, the right values dominating our thinking, the right relationships going between planners, funders and doers, then we can perfectly align our social catchments to our physical catchments. No worries mate!

What? Change isn't taking place quick enough? That's really only about simple economics. Everyone has their price, and the right incentive, or the right punishment, will find the point at which we'll get behavioural change. There's always an optimal point or a threshold we can work to. Oh, yeah, and we can model these things too!

And the great thing about salinity is that it works in scales – at the local scale, sub-catchment scale, catchment scale, regional scale and national scale, each cascading and interacting with the next. Perfect! Indeed, it almost aligns to our political system, so that if we can set cascading forms of governance in place from the Commonwealth level right down to the local level, we'll be able to make great progress. If we can get the national frameworks right, then everyone else below will know what to do, have a sense of purpose and direction, see how they fit within the big-picture. Best of all, we might at long last align our central control of science, education, community capacity building, agricultural and natural resource management policy.

An interpretivist view of salinity

Salinity is only a problem if we perceive it as a problem. After all, the natural environment itself is a human construct. That is, landscapes are constructed by cultural groups as reflections of themselves and in this process, “the social, cultural and natural environments are meshed and become part of the shared symbols and beliefs of members of the groups” (Greider and Garkovitch 1994, p8). We need to take into account that changes in the natural environment take on different meanings depending on the social and cultural symbols affiliated with it. As a group's definition of itself is renegotiated, so too is the definition and the conception of the environment around it. One group may look at saltland and see a wasteland; another may look at it and see a form of artistic inspiration; while another may see a source of production.

Learning about the management of salinity is something that we need to do through experience, and in our own context. Traditionally science (and economics) may have its place but probably won't cut the mustard (we reckon its methodologies are not suitable to dealing with complex, non-linear systems that are as much about interactions with and between people; moreso than interactions between organic and inorganic matter). We also understand that others, within their own scale and their own timeframe, need to learn through experience too. And yes, this will be frustratingly slow, but at least we will learn from our interpretation of the problem itself, and not from shallow and uncritical acceptance of others' interpretations. Hence, we will be truly committed to courses of action.

Does this mean we will only do what we want to do and bugger the rest? That is certainly not the case! When we learn, we do not restrict our learning to generalisable and systematic knowledge about the environment, but also take into account the perceptions of others about what we are dealing with. This makes us more prepared to act morally in the way we move forward.

The socially critical view of salinity

It is simplistic to say that salinity is caused by inappropriate landuse, the result of which is an imbalance between rainfall, vegetation systems, geology and groundwater hydrology. The problem is not so much inappropriate landuse, but the factors that lead us to the act of inappropriate landuse. These factors have been encouraged by increased consumption, extractive resource use and the accedence of efficiency over sustainability. The ideology of productivism has been the cause of salinity – we need to produce, we need to grow, we need to support natural resource management only in the context of supporting agriculture. This is all we hear about (or worse, this is what's happening and we don't hear about it!) And so how do we deal with issues of salinity if we do not deal with issues of ideology?

What we need to do is gain a commitment to work cooperatively towards agreed ends in a way that is open and honest. As true partners, we must make our agendas and values explicit, and only then, like the interpretivists, start to unfold the issue of salinity so that we may deal with it in a way that not only overcomes the problem of salinity, but makes us stronger as a society.

To take a critical approach to dealing with salinity, asking ourselves the following questions ought to be a good starting point:

- How is our understanding of salinity produced and reproduced by our research and education institutions?
- What are the sources of salinity knowledge acquired by those dealing with the issue on the ground, and what are the sources of salinity knowledge acquired by those one or more steps removed?
- How do practitioners contest the kind of knowledge about salinity that is conveyed through the lived experience of interactions with institutions conveying such knowledge?
- What impact do institutions in salinity management have on those that interact with them? Is impact assessed and interactive behaviour modified appropriately?
- Whose interests are being served by the perspectives and values immanent in the policies, organisation and practice of institutions active in salinity management?
- Are these served interests more consistent with emancipation, equity and social justice, or with the movements in the opposite direction?
- How can salinity management practitioners be moved toward greater liberation, equity and social justice? (These questions are modified from Robottom and Hart 1993, 25)

Reflecting on NDSP messages

The National Dryland salinity Program has supported salinity management research since 1993. In 2003, the program will report that an analysis of all its research leads to six key messages:

Salinity costs are significant and rising: Protection must be strategic

Profitable options for reversing the trend are lacking (but are under development)

There is no one salinity problem: As the ultimate in diffuse pollution, it challenges us to look beyond traditional policy instruments

Integrated catchment management must be seen as only one approach to deal with dryland salinity

Vegetation management remains the key to managing water resources, although the benefit-cost of revegetating catchments requires careful analysis

Lack of capacity is an important, but a secondary constraint, to managing salinity
(NDSP 2003)

These messages offer an opportunity to test how an appreciation of multiple perspectives might lead to more robust means of analysing their implications. Table One attempts to do so drawing upon the perspectives of positivism, interpretivism and critical theory.

Table One: Three Interpretations of NDSP Key Messages

Message	Positivist interpretation	Interpretivist interpretation	Critical theorist interpretation
Salinity costs are significant and rising: Protection must be strategic	Costs can be used as a basis for resource allocation decisions. But because salinity costs are mostly unrecoverable, they should not have a large bearing on policy responses. Given the limited resources available, the focus should be on preventing future damage to assets of highest value. Cost benefit analysis should be the tool for determining future salinity expenditure.	Costs of salinity are perceived differently by different sectors of society, different communities and different cultural groups. The costs may or may not be perceived in terms of monetary values. Resource allocation should be on the basis of negotiation after a range of values and perceptions are revealed.	Salinity costs ought to be debated by the people who experience these costs within their context, and within the context of doing something about it. If their context is a major part of decision making, then practical responses will be realised. It will not be possible to objectively deal with multiple perceptions, so those involved in the debate need to be honest about their agenda. Is this about a government agenda to deal with salinity at least-cost? Is it about a community agenda to show the costs are spread, so the response should be shared?
Profitable options for reversing the trend are lacking (but are under development)	Salinity can be overcome by restoring the biophysical balances within nature and agriculture's use of natural assets . . . but not just yet.	There are other ways to interpret profit, and indeed, individuals often have conflicting meanings about such concepts. How much profit is enough profit? Is profit the real driver of action, or only one of a number of motivators. What are the other motivators and how are they perceived?	There is an implicit assumption in the message that agriculture is the answer, and that it is just a matter of getting the right agricultural system in place. Is this a fair assumption, and how does it hold with other ideologies about what it is we want from our landscapes?
There is no one salinity problem: As the ultimate in diffuse pollution, it challenges us to look beyond traditional policy instruments.	Salinity has many forms of expression, and each form call for a different (but rationale) response. While we may not have the right policy instruments in place at the present time, better analysis based on our improved understanding of salinity should lead to improved policy.	There is no one salinity problem, not just because the biophysical models tell us that, but because each individual and each community will interpret the nature and meaning of salinity within their context. Understanding gained through talking with individuals who are experiencing the impact of salinity will generate a deeper comprehension of the challenges it poses. We should not limit our thinking about salinity simply within a policy framework, although if we do, then let's look beyond traditional policy instruments.	Salinity represents a problem for many sectors of Australian society, but we need to consider whose agenda is really being addressed by resolving the issue. Let's debate this with different sectors leading the debate so that issues are dealt with consideration of practical, real contexts.

Message	Positivist interpretation	Interpretivist interpretation	Critical theorist interpretation
<p>Integrated catchment management must be seen as only one approach to deal with dryland salinity</p>	<p>New scientific information on groundwater systems suggests that there must be many approaches to addressing salinity, and that not all of these approaches are consistent with the integrated catchment management frameworks that have been established across Australia.</p>	<p>Just as there is no one salinity problem, there is no one perspective about what each response means to different individuals and communities. Indeed, different individuals and communities will not only have their own perspective about what catchment management is, but also each may very well have a different interpretation of the same catchment management process in operation.</p>	<p>Individuals and communities are impacted by salinity in different ways, with some not perceiving the issue as of importance in comparison with other pressing needs. The most appropriate responses will emerge from individuals and communities attempting to deal with salinity in a way that they can direct with support of government. Not in every case will catchment management be the way chosen to proceed.</p>
<p>Vegetation management remains the key to managing water resources, although the benefit-cost of revegetating catchments requires careful analysis</p>	<p>Natural ecosystems are very complex, and there are often trade-offs to be made when intervening with management responses. For example, in some catchments, increasing the percentage of a landscape's perennality may lead to reductions in run-off and stream flow. Management responses, therefore, should be based on careful scientific and economic analysis of a range of repercussions. Benefit-cost analysis tools do exist to help make these trade-off decisions.</p>	<p>The issue of trade-offs is a highly problematic matter, as each trade-off will be perceived differently by different individuals and communities. Moreover, how do communities and their respective members perceive their landscapes, and how does vegetation management fit into these perspectives of what is best for the catchment? The tools for dealing with these trade-off decisions are limited.</p>	<p>Again, whose agenda are we attempting to address by looking at issues of vegetation management, water management or trade-offs? Let's get these agendas on the table, and through debate, not just benefit-cost tools, find a pathway that will lead to solutions. For example, vegetation management may be seen by government and research organisations, from the comfort of their institutional lens, as the key to managing water resources, but to a farmer, managing water resources is important to their context in an entirely different way.</p>
<p>Lack of capacity is an important, but a secondary constraint, to managing salinity</p>	<p>The major constraint to managing salinity is the lack of economically and scientifically accurate viable options available to managers at all scales, but particularly at the scale of individual property response. Unless we have solutions, then we do not know what we are building capacity towards. Building planning and analytical capacity remains important, so that regional and other plans are rigorous, and so that people may be well prepared for when solutions do come along.</p>	<p>The concept of capacity building carries with it a strong sense of 'social engineering' that runs counter to how different individuals and communities may perceive their needs for awareness, education and training. Through exposure to different experiences and 'ways of knowing' individuals might see a need to improve their understanding and skills to help manage salinity.</p>	<p>For whose benefit are we building capacity? At most, frameworks should be put in place for communities to determine their own capacity building needs and actions. Capacity building will also arise out of exposure to and vigorous participation in debate.</p>

So what can be learnt from Table One? First, it shows that the key lessons from the NDSP have been derived largely through traditional positivist methods. This, however, does not mean that they cannot be analysed in light of their meaning according to other ways of perceiving. While some may present these key messages as the ‘big picture’ for dealing with salinity in future, the messages do two other things. First, they question some of the current notions about others’ views about the ‘big picture’. For example, issues about catchment management and capacity building fundamentally question the national policy position taken by the National Action Plan for Salinity and Water Management. Second, they challenge us to interpret what they will mean within different contexts. That is, while the messages are derived through positivist scientific and economic analysis, the key thrust of the messages that there is ‘no one salinity issue’ opens the door to considering not only alternative responses, but also to using different perspectives in how to derive alternative responses.

CONCLUSION

This paper does not advocate any particular means of analysing salinity (or any other) issue, but does suggest that in addition to there being different perspectives about what salinity is and means to people, there are also different perspectives of how to derive such understanding. In one sense the paper follows the path suggested by the interpretivist view. But in another, it deals with paradigms as tools in a positivist sense.

The intention, however, is not to constrain the reader to any particular perspective at all. Each of the perspectives presented has its own strengths and weaknesses. These particularly become apparent when they are put into practice. The interpretivist and critical theory perspectives, for example, can be time-consuming, difficult to enable and impractical to implement; but interestingly, many current approaches to salinity management dip their toes into these waters, often only to be found wanting as the waters become too unfamiliar and politically threatening. The retreat to positivism provides a level of comfort for which, although it got us to where we are today, we have institutional arrangements in place to assure us that things can be better if only we follow the right path.

From a practical standpoint, it might be useful next time you hear an interpretation of ‘the big picture’ to run the issues through the kind of sieve used in this paper. Such an exercise is not to choose between one paradigm and another (like tools), but to stimulate a process of seeing how one picture fits with another.

As the title of this paper implies, it is not the size of the picture that counts, but what meaning it has for those that care to interpret it.

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