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AWARD
Tech Report
Series

Resilience: Questions of Language, Power and Agency

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November 2015



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Acknowledgements

The USAID: RESILIM-O project is funded by the U.S. Agency for International Development under USAID/Southern Africa RESILIENCE IN THE LIMPOPO BASIN PROGRAM (RESILIM). The RESILIM-O project is implemented by the Association for Water and Rural Development (AWARD), in collaboration with partners. Cooperative Agreement nr AID-674-A-13-00008.

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Executive summary

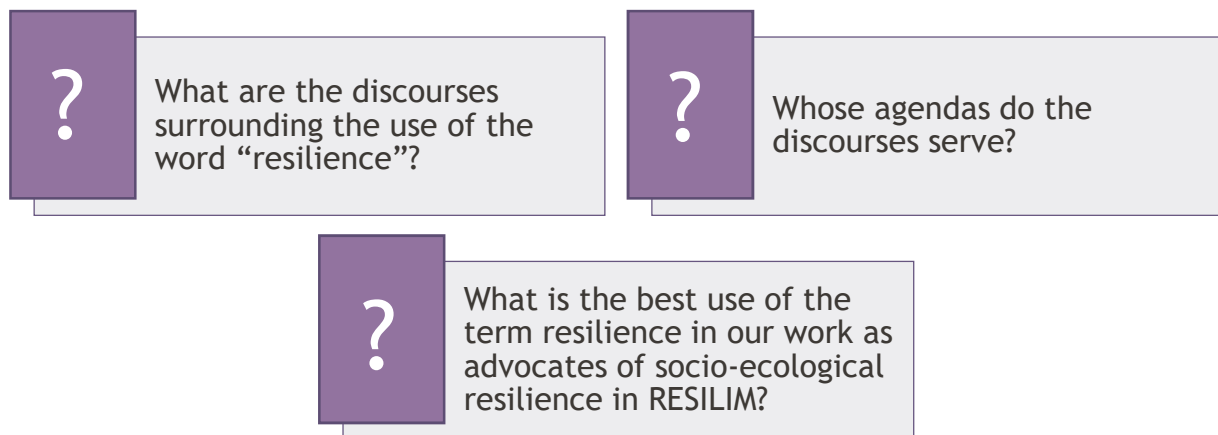
This report describes the discourses surrounding the use of the word “resilience”. It divides these discourses broadly into three groups: naturalistic discourses (positivistic, empiricist); anti-naturalistic discourses (hermeneutic, meaning, including interpretivist and postmodernist); and discourse mixtures, or third way discourses. It is argued that all of these discourses fail to supply the language/philosophical resources to support RESILIM in their efforts to improve the ecosystem or social equity. Naturalistic resilience discourses provide ideological tools to the elite which allow them to veil the way that they impose their own agendas on others whilst maintaining a façade of objectivity. Anti-naturalistic resilience discourses are guilty of ineffectuality by: a) distracting participants from activities that might effect change; b) sidelining discussions about the material reality, such as the environment, related to the loss of technical expertise in job function of professional in socio-ecological development contexts; and c) defusing social tensions which might motivate action by portraying elites as committed to fair and democratic representation in decision-making, when this is impossible given certain economic, social, institutional and legislative factors. Both naturalistic and anti-naturalistic resilience discourses prevent critique by denying the validity of theories which might explain the oppressive mechanisms of society or that might explain the mechanisms behind the exploitation of the Earth’s resources. Naturalistic discourses do this by denying the ontology of emergent realities which are the referent for critical theories, allowing the theories to be dismissed as non scientific. Anti-naturalistic discourses do this by refusing to engage with “grand theories”. Ironically, resilience is one of these “grand theories” and therefore there is a tension in the resilience literature around its legitimacy as valid knowledge. The tension is dissipated to an extent by the unnecessary concession that resilience is a heuristic, metaphor or mental model, rather than a valid rendition of reality. Third way discourse, unfortunately, merely provides practitioners with all of the questionable resources provided by the individual discourses. Given the ideological advantages provided to the status quo of these discourses, it is not surprising that currently much work around resilience plays into the neo-liberal agenda. This research uncovered the beginnings of a fourth discourse of resilience (resilience as agency) which is still fledgling, and needs intellectual guidance, but is nevertheless promising: this partially-formed discourse is to be found in the approach to resilience called panarchy, and in the approach to learning first advocated by Lev Vygotsky. The interdisciplinary organisation AWARD, and its associated literature, unsurprisingly demonstrates many characteristics of the three mainstream approaches to resilience, although it is perhaps most strongly associated with naturalistic discourse, of the socio-ecological variety, linked with the idea of ecosystems services. However, AWARD is showing signs of exploring the discourse of resilience as agency (human adaptive capacity) especially in its educational programme based on Cultural Historical Activity Theory (CHAT) and its use of mental models.



1 Introduction

Over the last decade, the use in the term *resilience* has increased dramatically (Google trends search, 6 September, 2015). RESILIM (Resilience in the Limpopo Basin Program) not only has the word resilience in their name, but in their (2013) programme description to USAID, they use the words *resilient*, *resiliency* and *resilience* 26 times; in their 2012 programme description they use the terms 97 times (AntConc, 2014). When a word such as *resilience* has a wide variety of contexts of use, it is likely that it also has different meanings for different people and that this can result in misunderstandings. Furthermore, critical discourse analysis teaches us that words are part of discourses, and discourses can be used to advance questionable agendas. It is important to ask whose agendas are furthered by our discourses, which are rarely politically neutral. Thus the aim of this report is to provide practical advice to RESILIM staff to ensure that their use of the term resilience is in the best interests of the people of the Limpopo and the environment and is properly within their USAID mandate. Given the centrality of the term for the business of RESILIM, it will be useful for them to have a comprehensive understanding of it in order to most benefit from its use and to avoid problematic usages.

Therefore, the research objective of this report is to answer the questions:



2 Methodology/methods

For this research I used Critical Discourse Analysis (CDA), specifically as it is described by the critical realist, Norman Fairclough (1992, 1999, 2000, 2001, 2002, 2003) but interpreted by Hilary Janks (1997). Fairclough is mainly influenced by the Foucauldian concept of the archaeology of knowledge (Foucault, 1969). The premise of which is that knowledge (“epistemes” or “discursive formations”) are governed by rules (beyond those of grammar and logic) which operate beneath the consciousness of individual subjects and define a system of conceptual possibilities that determines the boundaries of thought and language use in a given domain and period. Janks (ibid) describes how CDA considers language as a form of social practice. All social practice is tied to specific historical contexts and is the means by which existing social relations are reproduced or contested and different interests are served. It leads to research questions related to power interests: How is the discourse positioned or positioning? Whose interests are served by this positioning? Whose interests are negated? What are the consequences of this positioning?



My corpus consisted both of international literature on resilience and official documents of AWARD (see Appendix 1 for a list of the AWARD documents). The international literature is referenced in the text and forms a large part of the references. Initially I explored these texts using the typologies of discourses of resilience by Olssen et al (2015). These were useful, but in the end I decided to develop my own typology. Janks (ibid) explains how CDA is not a linear methodology and that it is possible to start with a theory and then take this theory back to the texts (rather than starting with a text). By starting out with Olssen et al's initial typology, I did exactly this, but found their theory lacking. I then used the texts to arrive at an alternative theory of the kinds of discourses of resilient present in the literature and at RESILIM. In order to look for word concordances and collocations, I used the programme Ant Conc (3.4.4w, 2014).

3 Results & discussion

My survey of the literature revealed a large number of disciplinary discourses associated with the term *resilience*. To simplify things, I have focussed on the socio-ecological definitions.¹ Furthermore, it should be noted that these socio-ecological discourses are closely entwined with discourses associated with systems theory. Therefore much of what is written here reflects the developments in systems theory over time, from first generation systems theory to the present.

4 What are the discourses surrounding the use of the word “resilience”?

Broadly speaking, in the literature, there are three main discourses of resilience in a socio-ecological context:

- **Naturalistic resilience** (sub-sets are ecosystem resilience and sociological resilience);
- **Anti-naturalistic resilience** (sub-sets are interpretivist resilience and Foucauldian resilience);
- **Third way resilience discourse** (mixtures of the above two).

In this report, I argue that all three of these resilience discourses are inadequate and I advocate for a fourth approach - **resilience as agency** - that eschews the dualism between the naturalistic and the anti-naturalistic, and thus negates the need for hybrids of the two.

¹ In terms of the general usage of the term *resilience*, it may be interesting to note that most of the fascination with *resilience* online can be attributed to the psychological versions.



This dualism is based on a well-established dualism in philosophy, namely the dualism between naturalistic and anti-naturalistic approaches, such as hermeneutics and positivism, that is, between meaning and law. Furthermore, some argue that “resilience” simply and unproblematically means different things for different groups and that usefully it is this very lack of understanding between the groups that makes it possible for them to work together. This is the discourse of resilience as *boundary object* (Brand and Jax, *ibid*). I am also going to argue that resilience is more than simply a fictional boundary term and that it can, and I believe should, have a shared meaning between stakeholders.

In this report, I will also describe how these discourses are being used by Resilim. Amongst these discourses, there is one that particularly captured my attention: the idea of resilience and collapse as aspects of emergence in open systems, known as *panarchy* (Holling and Gunderson, 2001). Panarchy has a great deal of potential as a basis for socio-ecological thinking around resilience and I will try to underlabour for it, providing it with philosophical strength, especially in support of perhaps its most controversial claim, which is that it applies to human as well as ecological systems.

4.1 Resilience as naturalistic (positivist, law)

Resilience as description first enters mainstream ecological discourse in the 1960s and 70s as a challenge to the view of ecosystems as existing in relatively stable contexts, influenced by classical physics. It is typically associated with the work of Holling (1973) who, influenced by quantum physics, assumed that systems are continually confronted by unexpected events external to them. In this discourse, resilience is seen as the measure of the persistence of an ecosystem, specifically its ability to absorb change and disturbance and still maintain the same relationships between populations or state variables. It is assumed that greater complexity results in greater resilience. Holling suggests that discrete states are separated by ecological thresholds, and rejects the theory that ecosystems change smoothly and linearly along an environmental gradient. Holling explicitly contrasted what he called the stable view with the resilience view. He wrote:



The stability view emphasizes the equilibrium, the maintenance of a predictable world, and the harvesting of nature’s excess production with as little fluctuation as possible. The resilience view emphasizes domains of attraction and the need for persistence.

(Holling, *ibid*:21)

A key component of this discourse is the acknowledgment that systems are too complex to predict the future. We can never know enough. However, there is an underlying assumption that if we could know enough, then we could predict the future, seen as a necessary requirement for the ultimate aim, which is to maintain a healthy living environments and avoid catastrophe. Therefore this acknowledgement assumes a limitation, some might argue rather inconvenient but nevertheless unsurmountable one, such as how gravity limits our ability to fly. Later discourses of resilience are less pessimistic; we do not need such huge amounts of empirical information to understand complex systems and to maintain healthy living environments and avoid catastrophe.



Two quotes below are representative of this approach to the lack of empirical knowledge necessary to properly understand complex systems:



A management approach based on resilience, on the other hand, would emphasize the need to keep options open, the need to view events in a regional rather than a local context and the need to emphasize heterogeneity. Flowing from this would be not the presumption of sufficient knowledge, but the recognition of our ignorance; not the assumption that events are expected, but that they will be unexpected.

[Holling, *ibid*:21]



You are probably never going to have a mathematics that is fully representative of the complexity of reality, because either, we haven't invented the mathematics, or we don't have enough empirical information to know how to come up with coefficients and values of coefficients that really matter. Empirical information is infinite in the sense that empirical conditions are in a state of constant evolution. Moreover, even minor changes can cause a wide variation of results. Change the values and you suddenly get a chaotic response. Change them again and you get a whole different response.

[Schneider in Wells, 2013: 9]

In this discourse, resilience is simply a scientific way of describing socio-ecological natural processes. There is no inherent “badness” about a disturbed alternative state compared to an undisturbed state: “As far as nature is concerned, both are stable and able to carry on” (Gundarson and Holling, 2002: 18). Therefore, although these thinkers move beyond Newtonian physics to embrace complexity, they maintain their empiricist objectivity. Nevertheless, there is in this discourse an assumption that resilience is something that is “good” in the sense of it being a natural (but not normative) tendency of systems; that is, systems, specifically the *domains of attraction*, naturally tend to avoid shifting into an alternate regime. Significantly, this slippage of meaning (Fairclough 2000:152, 152) between good as *normative* and good as *natural* is a key way that positivists are able to achieve their agendas whilst pretending to be neutral, objective scientists.

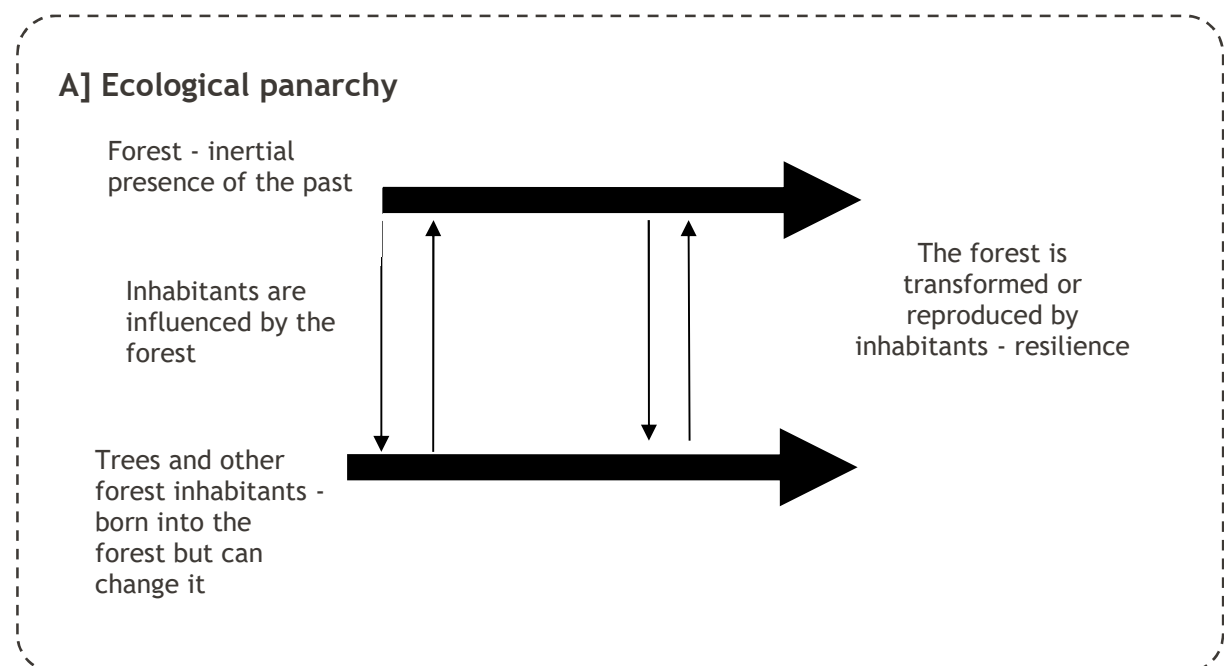
Typically, reference to human activities are well-established in this positivist/empiricist discourse, especially in more recent formulations (Gundarsen and Holling, 2002). However, although people are normative, evaluating beings, including the effect of them in a discourse does not necessarily result in including questions of values. We can simply include people and their activities as one of the factors that affect the ecosystem, without addressing the issue of meaning-making and/or value considerations. The human factor is a large part of this discourse, indeed “*it*” is admitted as being unusually influential and as being the one factor that the natural resources manager has most control over through behavioural interventions, such as education, taxation or legislation.

For example, a fisheries manager using this discourse of resilience will refer to the activities of the fishermen and women and their fishing quotas. Notice that here it seems natural to refer to people as “*its*” rather than as “they or them” as they are objectified - they are simply a particular kind of object - another factor amongst factors.



Given the important role given to human factors in this discourse, it is not surprising that ecosystem scientists soon linked up with sociology discourses taken from sociologists also influenced by systems theory. For example, Olsen et al (2015) note that resilience thinking resembles the theoretical approach of the systems theory-inspired sociologist Talcott Parsons [1902-1979]. Gundarson and Hollings (2002: 35-37) explicitly draw parallels between human and natural systems and suggest that both are subject to the same universal laws characteristic of complex systems; although they assume some differences, such as that humans differ from non-human components because they can reason and change their behaviour according to projected futures. In an opposite move, some sociologists and economists have borrowed language from the ecological resilience literature. Adger (2000) describes the capacity of groups or communities to survive external stresses and disturbances due to social, political, and environmental change. Perring (2006:418) describes the capacity of the economic system to survive either market or environmental shocks without losing the ability to efficiently allocate resources. Another key phrase associated with resilience discourse - 'natural capital' - which admits the close connection between human existence and ecology, was coined by E.F. Schumacher in 1973 in his book *Small is Beautiful*. The term 'environmental services' was introduced in a 1970 report of the Study of Critical Environmental Problems, by Massachusetts Institute of Technology (MIT). This listed services including insect pollination, fisheries, climate regulation and flood control. Variations of these terms linking economics to ecology have become popular but 'ecosystem services' is now the standard in scientific literature (e.g. Folke et al. 2002:14). In terms of AWARD's resilience discourse, their use of the term 'ecosystems services' is frequent in their writing, both in their VSTEED reports and their more official documents.

In Figure 1A&B below I have provided an example of this kind of *resilience as naturalistic* discourse. The excerpt is from a document developed to support of the USAID Southern Africa-funded Resilience in the Limpopo River Basin (RESILIM) Program. It aims to provide guidance as to how higher levels of resilience can be achieved in ways which protect the basin's natural resource heritage and livelihoods (Petrie *et al*, vi).



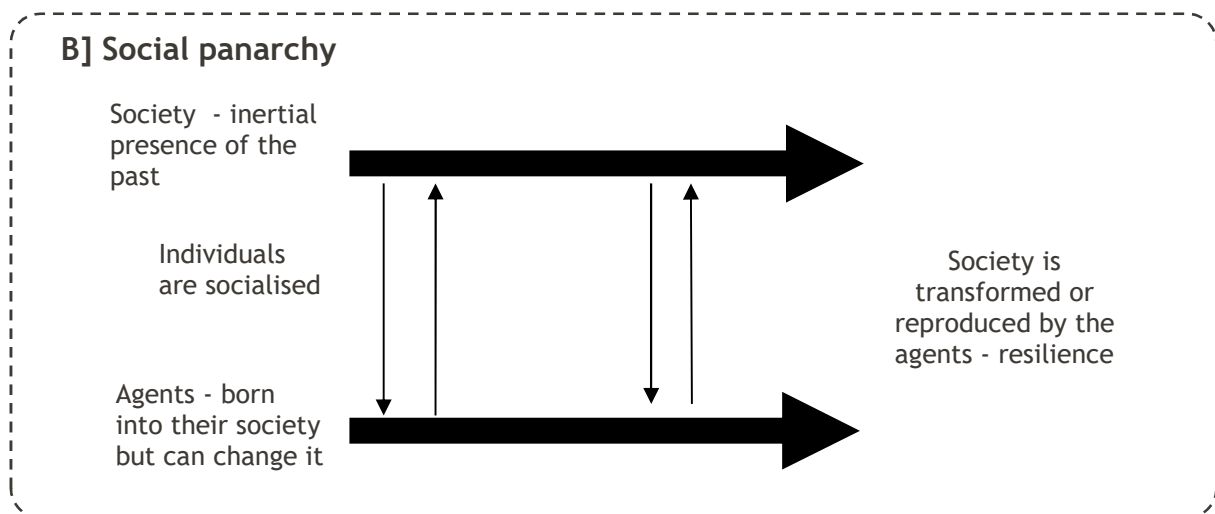


Figure 1: Panarchy as the Transformational Model of Social Activity, modified from Bhaskar (1998[1979]: 40)*

*Note that in Bhaskar's later work he combined these two diagrams to form a model that he called Four Planar Social Being (Bhaskar, 1993).

Looking closely at Figure 1, some of the language is taken almost word for word from the resilience literature. For example, the objective of the programme is to “strengthen the basin’s ability to recover quickly from disturbances and shocks” and to “avoid tipping points”. Note the use of language associated with empiricism, such as the phrase “cause-and-effect” which implies linearity.

As adherents of the discourse of resilience as naturalistic, these authors well understand the dangers of reductionism, but attempt to avoid it by simply admitting that there are a myriad, linked instances of “cause-and-effect”, yet the very notion that cause-and-effect knowledge (correlational, constant conjunction knowledge) is the only way that we can know about causal structures and mechanisms is problematic. Another characteristic of this discourse of resilience, exhibited here, is that it is considered that human systems are governed by the same laws as natural systems, such as when they assume that the economic system in the river basin is vulnerable because it is “undiversified” (in this discourse of resilience, the more diversified an ecosystem, the more resilient it is). They also consider that objectified human factors add “further complexity to the system”. The text is itself highly normative, and assumes the goodness of resilience as a goal, but this is due to the positivist assumption that what is good is what is natural. Whilst this normative position is at odds with the explicitly non-normative approach advocated by the key academic thinkers associated with this discourse, it is nevertheless representative of this discourse in general, which has positivist overtones. This is especially true in policy texts such as this one. Since this policy text was written by scientists, the contradiction is explainable simply because the scientists would have been aware that they were writing this report for policy-makers and would thus have adjusted their writing identity accordingly (it would be interesting to interview them and find out a) whether they do believe that resilience is normative and b) if they do not, why they wrote in this normative way. Most mainstream academic scientists are empiricists rather than positivists, and this issue of the normativity of science is a key difference between the two identities. Since we cannot act without the guidance of values, and since applied science’s whole raison d’être is to guide action, the lack of normativity (values) maintained by scientists is aporetic (nonsensical, untenable). Values therefore have to be smuggled in somehow but by smuggling them in secretly, via the policy-makers, there is a loss of transparency as to how the values are achieved.



Another way of putting this is that the policy-makers cannot be held accountable to their values by the facts, since supposedly there is no relationship between facts and values anyway. It means that they can, without any sanction by the scientists since the scientists are complicit in this duplicity, pick and choose which facts to act upon and which facts to ignore. Herein lies a likely reason for why this naturalistic discourse of resilience, despite its glaring contradictions, remains dominant; it bestows a great deal of decision-making power upon authorities who can simply choose an explanation for a problem that best suits their agenda. For example, it is to be expected that a business owner will prefer the explanation of climate change as unrelated to human activity since their agenda is to continue business as usual.

4.2 Resilience as anti-naturalistic (hermeneutic, meaning)

4.2.1 Resilience as interpretivist

Ironically, both empiricists and anti-naturalists phenomenologists/hermeneuticists/postmodernists) agree that we cannot move from facts to values, despite coming from opposite poles of the methodological spectrum. Divorcing our decision-making processes from reality is problematic and contrary to simple common sense, but nevertheless it is a powerful legacy passed to us by the empiricist David Hume and more latterly by anti-naturalists. I am not here suggesting a return to the extreme position of positivism/empiricism but I will argue later that it is possible to use facts to achieve values, albeit through a process of democratic meaning-making. Nevertheless, the quantitative, empiricist scientists associated with the discourse of resilience as description deal with the injunction against using facts to develop values by simply denying that resilience is normative, leaving it up to the less scientifically astute - the policy makers - to slip normativity back in, as we saw in the text in Figure 1.

However, the qualitative interpretivists deal with the issue directly, and I would argue in an overly extreme way, by overly emphasizing meaning -making and normativity without grounding these in reality. This approach leads to our second discourse of resilience as anti-naturalistic and heralds the advent of second generation systems theory.

A key text in understanding the move from first to second generation systems theory is “Dilemmas in a General Theory of Planning” (Rittel and Webber, 1973), coincidentally published in the same year that Holling produced his first generation systems theory paper on resilience. Rittel and Webber essentially put the nail in the coffin of first generations systems theory as a planning tool for human and natural resource managers. They argue that science-based policy cannot cope with the pluralistic, open-system nature of what they term “wicked” problems. Instead of adjusting the science to make it appropriate for open-systems (an option that I prefer) they claimed that when it comes to wicked problems scientists must not assume that they can, or even ethically should, influence the values and beliefs of communities. Or as it has been put more recently, when it comes to policy issues, planners should admit that: “consensus beats reality” (Fullana et al, 2011). A useful contribution of Rittel and Webber’s paper is that they candidly admit the point that I made earlier, that scientists are not held accountable to their policy choices by the facts. They state that (p145): “everybody picks that explanation of a discrepancy which fits his intentions best and which conforms to the action-prospects that are available to him”. Notice the assumption that there are numerous “explanations” and that choosing the best one is not related to choosing the most truthful one, but the most convenient one. Rittel and Webber thus admit that whilst scientists might seek truth, planners (every single one of them, apparently) are not bound by such a concept.



What is remarkable is that Rittel and Webber are not criticising this situation, but rather want to broaden its reach. Their idea of fairness is not to avoid such contradictions, but to extend the right to this power to communities. According to them, we should let communities make decisions in the same way that “everyone” makes decisions, based on whatever suits them as an outcome. One has at least to acknowledge Rittel and Webber for their commitment to empowering communities.

In the wake of the paper by Rittel and Webber, the question for ecosystem managers was: if not science as a guide to planning, then what? Epistemologically-speaking the change-over was a simple one. It was not that one needed to throw out truth altogether - one still had to choose an explanation upon which to base one’s actions - but that one needed to change how one found the “truth” (one’s epistemology). Second generation systems theorists, whether inspired by Emmanuel Kant (Checkland’s soft systems methodology SMM) or Michel Foucault (Taket & White’s Pragmatic Pluralism PANDA) agreed that truth was what people, as groups or individuals, believed was true and that there was little ontological grounding for that truth (hence I have termed this discourse anti-naturalistic). Truth was therefore *relative*, and planners and policy-makers no longer needed to be accountable to the facts, which we have just seen was always a bit of a deceit anyway. Instead, policy-makers were now tasked with finding out what communities believed to be truthful. Similar to the positivists, interpretivists influenced by, for example Checkland, are required to be ideologically neutral and objective in the sense that their particular agendas or beliefs are irrelevant to the situation. However, they differ from the positivists in that they submit to the truth of their participants’ version of reality, whereas positivists supposedly submit to the “facts”.

Unlike the naturalistic discourses of resilience, questions of participation, communication, power, agency and politics (often subsumed into discussions of institutional capacity building) are extremely visible and important in the anti-naturalistic discourses. Whose version of truth is going to be used to make decisions becomes the key issue that holds the attention of practitioners. Ultimately, no matter how carefully and accurately a researcher represents the community position on certain issues, it will be a wasted effort if this interpretivist research is not given a channel into the decision-making processes of the relevant governing institutions.

The consequences of this paradigmatic shift have been far-reaching. Organisations involved in ecosystem management have carried out a dramatic make-over of their staff profiles and job descriptions. In one example, a comprehensive literature review of research on water resource management institutions published between 1997 and 2011 (Meissner et al, 2012) showed that most of the research on resource management in South Africa is now carried out by natural scientists, rather than, as one might expect, social scientists. Essentially, these natural science- trained staff have changed their job description from empirical researcher to interpretivist researcher. In another example, prior to 1994, South Africa’s Department of Water Affairs and Forestry had been a highly technical, empirically-based department but this is no longer the case (Schreiner 2013: 241). Schreiner blames this simply on a lack of technical expertise due to apartheid educational legacies, but another and not exclusive possibility is that it also reflects the global tendency towards a reduction of technical staff in development agencies, arguably associated with the switch over from natural science based management to participatory management (Mayers, International Institute for Environment and Development, pers com. 2005).

A major problem with this discourse is that early proponents were mistaken to think that giving people a voice - or a space to speak - would automatically lead to their empowerment. Foucault was correct to claim that truth is whatever the powerful think is true.



Natural resource managers, realising that this was the case, have therefore dedicated themselves trying to understand power issues as “barriers to participation” - so much so that this preoccupation with questions of power, politics, agency, enabling intuitional arrangement, enabling legislative arrangement, and economic empowerment have become hallmarks of this discourse. Furthermore, it is significant that those institutions most likely to be threatened should participation truly empower the marginalised and the poor have wholeheartedly embraced the concept. A recent World Bank report looking to strengthen their processes of participation concluded with this statement.



Local participation works when it has teeth, when it builds on organic movements, when it is facilitated by a responsive center, when it is adequately and sustainably funded, and when interventions are conditioned by a culture of learning by doing.

(Mansuri and Rao, 2013)*

However, local marginalised groups do not have “teeth” (power) and they are not well funded. Most participants are volunteers, busy trying to survive their poverty, and relatively unskilled and therefore are unable to form “responsive” centers. The fact that participatory processes are therefore designed to fail gives us the answer to the question as to whose interests are served by the discourse of resilience as anti-naturalistic; it is those groups and individuals who currently hold the greatest power. Hodge and Kress (1988: 4) were discourse analysts who described what they called the logonomic system.² Essentially, the logonomic system is a set of rules about who can say what when and how (i.e. rules of communication and truth-making) which are designed to hide the contradictions of society; specifically the contradiction that sectional interests (in this case the interests of the powers-that-be) are the same as universal interests (everyone). In other words, the elite need to be able to avoid challenges to their authority by somehow convincing the oppressed that they (the elite) are on their side. The discourse of participation, closely entwined with the resilience discourse as anti-naturalism, is just such a logonomic system. It allows people to speak, appearing to give them power, but in fact this is a distraction, a simple illusion: people are given the feeling that they are being empowered, but in reality they are not. People are told that if they follow a certain set of procedures, then they will achieve their goals. However, the procedures are set up to fail. Thus the creative, transgressive, rebellious energy of the participants is used up and directed away from activities that could truly create change. Participation as a logonomic system hides the contradiction that the disempowered, whilst always on their way to empowerment, never quite get there. On top of this, the power of the participants (their power to do, based on knowledge) is further curtailed because, according to the logonomic system of participation, knowledge from experts is disallowed. In fact, it becomes a professional indiscretion,

² A logonomic system is therefore a set of rules which prescribes who can produce/communicate messages, who can know (receive, understand) messages about what topics, under what circumstances and with what modalities (how, when, why). Logonomic systems cannot be invisible as they would not work. They are highly visible, such as politeness conventions, etiquette, industrial relations, professionalism and legislation (Price, 2007: 159-161).



especially if it comes in the form of a suggestion for action (axiological knowledge).³ This leaves the people disempowered, with no analytical back-up from experts. Participation is almost the perfect antidote to Marx's recipe for social change. Marx felt that the revolutionary power of the people, mixed with the knowledge of the Bourgeoisie, was what was needed for change. In "participation", the power of the people is harnessed, de-teethed and redirected to wasteful exercises of interminable talk shops, and the bourgeoisie, the experts, are banned from sharing their knowledge with them, although they are allowed to facilitate this process. It seems that many mainstream ecosystem managers have escaped from the questionable logonomic system of positivist science, only to commit themselves to an equally disempowering logonomic system in the form of participation.

A representative example of this anti-naturalistic discourse of resilience is reproduced in Appendix 2. This example - the abstract of an article by Hirsch et al (2010) (Appendix 3, TEXT A) - was republished by the Resilience Alliance. Although the word *resilience* is not present, this text is nevertheless typical of the discourse associated with resilience. A key characteristic is the absence of reference to empirical science as being a component of the management process or of validation of truth claims. Nevertheless, there are still markers of the early naturalistic resilience discourse, such as the reference to "adaptive management", the aim to "tackle complex problems" and the reference to "systems". There is angst about the level of empowerment of the community - whether or not the channels are present for the participatory processes to have influence - and whether or not the facilitators may merely have raised expectation that will ultimately be disappointed. Finally, the authors assert that "problem-oriented scientific research" has now become "participatory research" and that they consider it "crucial" that the local scientists be trained in participatory methods so that they could continue to apply the participatory research methods. This is an example of the change in job description of socio-ecological professionals aiming for resilience.

A quick note on the discourse debate between the terms resilience and vulnerability. According to McLaughlin and Dietz (2007) although this distinction is not absolute, resilience research tends to be influenced by a positivist epistemology but vulnerability research is mainly associated with the anti-naturalistic, although there are exceptions.

4.2.1 Resilience as postmodernist

A slight variation on the theme of anti-naturalism (hitherto analysed as interpretivist, the dominant approach) is associated with postmodernism. Anti-naturalist discourse of this type can be distinguished by its aversion to "grand theories" or unified theories and an up-front admission that there is no possibility of "truthfulness".

³ *The rules of politeness are also a logonomic system, designed to prevent challenges to the power-that-be. So, for example, it is considered impolite for an employee to bring up the awkward question of his low salary and his financial stress with the owner of the company, should they happen to have a conversation at the annual Christmas party. In a context of resilience building, it is considered unprofessional for a participatory facilitator to candidly share their personal view of the situation at hand. Invariably, challenges to the status quo are initially interpreted as challenges to the logonomic system. Rebels are accused not of being wrong but of being impolite, or unprofessional, and such an accusation is justification for them to be removed from their positions, and thus silenced. Of course, this does not mean that we throw out rules of politeness and professionalism; they have a dual function and their benign role is important (it is also why it is hard to question them). However, it is important to realise that sometimes, in the name of transformation, we may need to challenge such rules.*



The randomness and chaos of complexity theory is often likened to the postmodern idea of the randomness and disorderliness of truth claims. The discourse of resilience as boundary object is an excellent example of a post-modern discourse. It is assumed that since we cannot hope to achieve shared meaning about anything, let alone resilience, we should embrace this uncertainty and use it strategically.

In this case, the fact that different players have different understandings of resilience is useful because it allows them to come together in shared initiatives, whereas if they properly understood their differences this collaboration would be unlikely.

It is again a candid acknowledgement of how this discourse bestows questionable power - as presumably the people who really know that the understandings are incompatible are merely manipulating the situation to their own agenda. Even if this agenda is supposedly for the betterment of the environment it is nevertheless a) an abuse of power; and b) rather risky, as one assumes that eventually the participants will work out the deceit. An excellent example of this strategic misuse of power in the form of resilience as a boundary object is provided in Appendix 3, TEXT C.

4.3 Third way resilience

Third way resilience is a mixture of naturalistic and anti-naturalistic discourse. There are two approaches to Third Way discourse. The first approach is that preferred by the sociologists. It often includes a critique of the naturalistic discourse, especially its association with the sociological functionalism of such thinkers as Talcott Parsons. In this critique, the naturalistic discourse is accused of reifying the theory of resilience as a universal characteristic of both natural and social systems (Olssen et al, 2015). Third way discourse thus often demonstrates a characteristic of postmodernism in that it considers the overarching theory of resilience to be a questionable “grand theory”. Advocates, having denied the possibility of such grand theories, then draw on post-modernist pluralism to advocate for mixed methodologies, celebrating rather than problematising the incommensurability of methodologies (Olssen, *ibid*). See Appendix 4, for an example of the discourse as resilience defined as pluralism.

The second approach to third way resilience discourse is visible as a response to the “grand theory” critique of the first approach. This is a defensive response made in the naturalistic resilience discourse. In a way, the reification critique is a bit of a problem for naturalistic resilience advocates. One could say that they are hoist by their own petard. The problem is that their theory of resilience is not empirical and yet their empiricist ontology denies the ontological status of anything that is not empirical. Therefore, the naturalistic resilience advocates are contradicting their own epistemological rules by advocating resilience when it is not something that can be proven in an experimental way.

Fortunately for these scientists, there are significant similarities between the naturalistic and anti-naturalistic discourses which allow them to arrive at a truce around this question. Specifically, both elide the epistemological and the ontological and both are sceptical of a meaningful relationship between reality and our words or models. Therefore, the natural scientists can quieten the critique of the social scientists, to an extent, by referring to their theories as abstract metaphors, heuristics or “mental models” which they consider to be universal abstractions from reality and thus lacking in ontological status. In 2002, Gundarson and Holling published their seminal book on panarchy. It seems that they received some criticism of this along the lines of the sociological critique outlined about.



In 2003, they qualified their definition of resilience with this statement:



The terms ‘resilience’ and ‘adaptive capacity’ have both metaphorical and specific (empirical) meanings. Both have value, and making either term operational requires reducing the broad, metaphorical definitions to a set of “variables of concern” - the resilience of what to what - to justify their theory and then to justify the truth of their theory. It is often criticised for not playing out in a pure way in real life.

[Holling and Walker, 2003]

Another example of resilience as metaphor is from the paper: “A Handful of Heuristics and Some Propositions for Understanding Resilience in Social-Ecological Systems”:



The adaptive cycle does not apply to all situations and is not a useful metaphor for all system dynamics. Cumming and Collier (2005) describe various kinds of systems that do not fit this “meta-model,” as they call it.”

[Walker et al, 2006]

Matyas and Pelling (2015) also describe this problem, that resilience is not played out in a pure way, when they describe resilience as being caught between the abstract and the operational. They write:



Resilience is a ubiquitous term in disaster risk management and is an increasingly prominent concept in early discussions focused on elaborating the post- 2015 international policy landscape. Riddled with competing meanings and diverse policy implications, however, it is a concept caught between the abstract and operational.

[Matuas & Pelling, 2015]

This conflict between “the abstract and the operational” is a consequence of the scientists failing to underpin their theories with ontology. I would prefer to say that the theory of resilience is about something real, but not empirical; it is a theory about the real mechanisms and structures that emerge in ecosystems. Resilience scientists need be no more concerned that their theory is not true if it does not play out perfectly every time than they would be concerned that the theory of gravity is not true because they are not falling to the floor (in an open system, we counteract the gravity with our skeleton and muscles). In ecosystems, other factors may counteract textbook manifestations of resilience. Whilst it is of course necessary to account for the discrepancies (since the lack of it being operationalised may indicate that it is incorrect), nevertheless, in an open system, if a theory is not borne out it does not automatically mean that it is wrong, because of the possibility of counteracting events. Therefore, resilience is not a metaphor in the sense of not being true to reality.



It is an explanation based on empirical fact, but it refers to an emergent property of ecosystems and therefore it is not reducible to the empirical facts. Thus it is transfactual. Each of these three terms betrays a particular methodological commitment: *heuristic* is associated with phenomenology; *metaphor* with postmodernism; and *mental models* with the naturalistic discourse, but one that is tipping its hat to the anti-naturalists by ungrounding its models from reality and placing them into people's heads. Therefore, in this case, it is an example of third way resilience discourse.

4.4 AWARD's resilience discourse

AWARD engages with all three mainstream approaches to resilience, although it is perhaps most strongly associated with naturalistic discourse, specifically those versions that employ the concept of *ecosystem services*. In the corpus of their official documents, AWARD used the term 374 times (AntConc, 2014). However, they also use the terms *value* and *values* 154 times (AntConc, 2014) which suggests a strong commitment to the stakeholders and most likely the influence of the hermeneutic, meaning discourse of resilience. AWARD do not make the mistake of some resource managers, of concentrating on "participation" at the expense of the environment. Neither have they reduced the input of experts. For example, in their report: "Development of a participatory framework for understanding water-related ecosystem services within the context of Classification and the Reserve" (AWARD, 2013), the first half of the report focuses on the science around the ecosystem even though it is a report on participation. AWARD extensively uses of the concept of "mental models", but not always in the way that it is used by, for example, the Resilience Alliance and there is evidence of a contradiction in its use. This contradiction may be the understandable result of the extent to which AWARD is an interdisciplinary organisation which employs both natural and social scientists. Therefore, in AWARD (2008:7), they state:



It is important to note that this work is not aimed at understanding perceptions of compliance (or peoples' 'mental models') - although this will emerge - but rather on underlying causes.

[AWARD,2008:7]

In this comment it would seem that mental models are purely epistemological (just perceptions) and this is juxtaposed against ontological considerations (underlying causes). In this statement we see a connection to the idea of mental models as heuristics or metaphors associated with the anti-naturalistic discourse of resilience, but nevertheless adopted by the naturalistic discourse.

However, later in the same document, AWARD appear to allow that mental models may be more than epistemological, and thus they may represent real, ontological objects, relationships and dynamics. They state that (p52):



For the purpose of this analysis we conceived mental models to comprise human representations of objects, their relationships and dynamics as well as the attributes or characteristics of these and the person's valence (cognitive and emotional) to the objects, relationships and dynamics.

[AWARD]



Although perhaps arguable, it seems that in the last statement, AWARD's mental model represents real relationships and dynamics (it is not just about epistemology but about ontology too). This suggests the fourth discourse of resilience as agency, in which reality is layered and ontological status is admitted for relatively immaterial reality, which one could call structures and mechanisms but which here are called "relationships and dynamics".

If we look at the way that AWARD describes Activity Theory, we see a similar hint that they have at least in part, adopted a layered reality, as they admit the ontology of more than the empirical, such as structures and mechanisms. In the quote below, from AWARD (2013), notice how the author admits the existence of a reality which is emergent from (actual) discrete actions:



...if we take a prolonged look at any institution, we get a picture of a continuously constructed collective activity system that is not reducible to series or sums of individual discrete actions.

[Engeström]

To summarise, AWARD's discourse of resilience on the whole is naturalistic, with an ecosystems services bias. However, there are also well-established elements of the anti-naturalistic discourse, suggesting that they are best typified as reflecting third way discourse (having a mixture of discourses), along with the inherent contradictions therein. However, sometimes AWARD reflects a fourth, relatively unestablished, discourse of resilience as agency and in this way is able to transcend the dualisms of the naturalistic and anti-naturalistic discourses.

I explore this further below.

4.5 Resilience as agency (human adaptive capacity)

Key characteristics of naturalistic, anti-naturalistic and third way discourses of resilience are that they lack both or either: a conception of emergence; and an epistemology that allows for a layered ontology, which includes emergent, non empirical reality. The discourse of complexity and systems theory includes the concept of emergence but it does not have an epistemology to cope with it, and hence it has to assume awkward positions, such as that theories about the emergent reality are just metaphors and do not relate to reality.

Both CHAT (Engeström) and panarchy, somewhat incompletely, but nevertheless still usefully, adopt a realist ontology (see the quote by Engeström above). There is a fair amount of literature that underlabours for CHAT, to give it a supportive ontology and epistemology (such as Nunez, 2013; Mukute and Lotz-Sisitka, 2012). I propose that panarchy could benefit from a similar process of underlabouring, one which requires more attention than I can give it here. I will therefore only comment briefly.

The theory of panarchy (Gunderson and Holling, 2002) differs from complexity and systems theory in significant ways, related to their differing implicit ontologies. Earlier in this paper, I mentioned that complexity theory is associated with the cynical idea that we can never know enough to adequately manage for the future. If one has an ontology that allows only for the empirical, then one cannot admit the reality of theories that tell us about a real, deeper layer of structures and mechanisms.



We can only know about the deeper emergent patterns that make sense of the empirical events if we have theories about them. Therefore, if we only allow ourselves to see the empirical, it appears as if we are dealing with millions of random, chaotic events that require computational means far beyond our capabilities in order to analyse the probabilities of all the cause and effect relationships and their effectively infinite combinations. However, if we understand the structures and mechanisms involved in the empirical events, then things are greatly simplified. Take for example the simple process of walking. A huge amount of empirical events are generated by walking and if we tried to walk by basing our decisions on knowing such data we would be overwhelmed and fall over. Our bodies cope with this massive amount of data by simplifying things according to certain principles and key measurements. The brain co-ordinates key data from our inner ear and our eyes and this allows us to walk with ease.

Similarly, panarchy simplifies complexity by finding the basic principles that govern an ecosystem. “Behind the great complexity of socio-economic processes beats the heart of a simple operation” and this simple structure can be modelled recognising “just three to five key variables, and the significance of the speeds and spatial scales at which they operate” (In Gundarsen and Holling, 2002:3; see also Holling, 1987). The problem is that these principles are inconvenient for some who are committed to our current consumer-based society. Such principles are likely to include: the need to live within one’s means, the need to avoid wastage and the need to avoid a build-up of toxic substances that cannot be broken down or otherwise neutralised. We do not need decades of data correlating the incidence of cancer to the presence of toxins in our water to act on the transfactual knowledge that toxins cause cancer. Not only is this unnecessary, slowing down our reaction times to protect communities, but because of the open system, such transfactual theories may be true but the empirical results may be masked. For example, our research may look at a cohort of people who are exposed to the toxin, but whose lifestyles are much healthier than the general population. Therefore the increased risk of the toxin is offset by their lifestyle and thus the causal correlation is masked. However, if we have an understanding of how the toxin is dangerous, then we will also know that that it should not be in our water, and we do not need this to be confirmed by correlational knowledge. In terms of climate change, since we understand the mechanisms that cause global warming, we should not need to prove it empirically (and we cannot do this as we cannot subject a number of earths to CO₂ levels and compare the results to a control). However, to the best of our knowledge the release of large quantities of CO₂ results in global warming and therefore we should be reducing its release. Whilst we may use “mental models” to epistemologically arrive at these theories, these models are nevertheless about real, ontological but unempirical structures and mechanisms.

One of the current problems with panarchy, because it lacks an explicit layered ontology, is that proponents do not realise that they are doing several things at once. First, they are trying to provide this ontology of everything, without calling it an ontology. From quarks to universes, emergence and a layered ontology is the unavoidable norm. Panarchy is an internally related, emergent totality. We do not just find emergent systems in ecosystems or society, but everywhere. Secondly, panarchy advocates are also trying to arrive at a theory of emergence works in the specific case of ecosystems. Third, they are trying to apply their theory to on the ground examples of their theory. They will greatly relieve their angst if they separate these things out. In terms of expect the actual case of an ecosystems to perfectly mirror the transfactual theory of emergence and change in ecosystems, managers must realise that these cannot be identical because of the open system nature of reality, in which there are always mediating events.



Another problem with the naturalistic and non-naturalistic discourses, is that they have no way to adequately conceptualise agency or transformation. Either agents are determined by structures or the structures are fully explainable in terms of the agents (who supposedly create structure through collective behaviour based on their beliefs and social rules). In ecology, the equivalent is the idea that we can supposedly fully understand an ecosystem if we can just quantify and fully measure all of the activities and interactions of the individual organisms in the ecosystem. In an ecosystem, **resilience** is ability of the components of a system to respond to disturbance in such a way that the system continues to function.

This disturbance might be relatively external, such as a volcanic eruption (in open system, externality is always relative) or it may be internal (such as the build-up of dry scrub that eventually becomes a fire hazard). In society, **agency** is the ability of the components of the system (the people) to respond to events or disturbance in such a way that the system still functions. This is strongly reminiscent of the Transformational Model of Social Activity (TMSA) (see Figure 1). Holling and Gunderson and Holling (2002) illustrate this understanding of panarchy, illustrated in Figure 1, when he writes: “The social equivalent of ecological resilience, human adaptive capacity, resides in the ability to confront uncertainty and develop understanding of what contributes to loss of ecological resilience”.

4.6 A new logonomic system

AWARD’s work on mental models may be a step in the direction of developing a new, and hopefully more socially just, logonomic system. Essentially, through their processes of CHAT, their engagement with panarchy and their advocacy of collective mental model negotiation, they may be doing something quite remarkable. In naturalistic resilience discourse, the right to be a socially acceptable scientist or to “make knowledge” is placed in the hands of trained elites. In anti-naturalistic discourses, this right is given to the communities but it is never properly connected to reality and without this grounding, it often ends up as community wish lists or at best inadequate and shallow knowledge. Furthermore, there is no way for this knowledge to truly empower the communities. In AWARD, the use of CHAT and mental models potentially avoids these problems and creates a logonomic system (who can say what, when, where and how) which is not designed to hide contradictions but to face them and overcome them. For example, in Appendix 4, I have provided an excerpt from an AWARD document (AWARD, 2013). Notice how the unit of analysis is “the entire activity system”, which assumes the ontological reality of the emergent society, rather than only the ontological reality of the empirical individual people inhabitants. Furthermore, they state that “the activity and its actions need to be analysed historically”, thus they acknowledge the inertia of the past and the necessity to deal with this (Figure 1). Finally, they specifically refer to the need to explore “inner contradictions as the source of change and development”. This is the opposite of the logonomic systems associated with the naturalistic and anti-naturalistic discourses of resilience. The latter logonomic systems embrace and even celebrate the deceit that hides contradictions, thus preventing the action and challenges to the status quo that uncovering the contradictions might bring. Developing mental models does not have to be about coming up with personally-relevant representations, metaphors or heuristics. In collective contexts, it is about co-creating knowledge.



5 Conclusion

In this paper I have explored the three mainstream discourses associated with resilience, namely: naturalistic resilience; anti-naturalistic resilience; and third way resilience discourse (mixtures of the other two). All of these discourses fail to supply the language/philosophical resources to effect an improvement of either of ecosystem or social equity. Both naturalistic and anti-naturalistic resilience discourses also prevent critique by denying the validity of theories which might explain the oppressive mechanisms of society or that might explain the mechanisms behind the exploitation of the Earth's resources. AWARD has begun to explore a fourth discourse of resilience, which I call *resilience as agency*, based on Engeström's CHAT and the theory of panarchy. This discourse, however, is still not well-established and is in need of philosophical underlabouring.

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7 Appendix 1: AWARD corpus

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The Association for Water and Rural Development

AWARD is a non-profit organisation specialising in participatory, research-based project implementation. Their work addresses issues of sustainability, inequity and poverty by building natural-resource management competence and supporting sustainable livelihoods. One of their current projects, supported by USAID, focuses on the Olifants River and the way in which people living in South Africa and Mozambique depend on the Olifants and its contributing waterways. It aims to improve water security and resource management in support of the healthy ecosystems to sustain livelihoods and resilient economic development in the catchment.

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About USAID: RESILIM-O

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The content of this publication does not necessarily reflect the views of AWARD, USAID or the United States Government.

Acknowledgements: Project funding and support

The USAID: RESILIM-O project is funded by the U.S. Agency for International Development under USAID/Southern Africa RESILIENCE IN THE LIMPOPO BASIN PROGRAM (RESILIM). The RESILIM-O project is implemented by the Association for Water and Rural Development (AWARD), in collaboration with partners.

Cooperative Agreement nr AID-674-A-13-00008



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