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AN INTRODUCTION TO THE

SOCIAL LEARNING TOOLS AND PROCESSES

INCORPORATED INTO A FRAMEWORK FOR THE RESILIENT LANDSCAPE APPROACH

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Under contract to the WWF Mondi Wetlands Programme

WWF is one of the world's largest and most experienced independent conservation organisations, with over 6 million supporters and a global network active in more than 100 countries.

WWF's mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

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LIST OF ACRONYMS

RLA	Resilient Landscapes Approach
WWF South Africa	World Wide Fund for Nature South Africa
WWF MWP	Mondi Wetlands Programme
CHAT	Cultural Historical Activity Theory
CEF	Community Engagement Facilitator
SuSFarMS™	Sustainable Sugar Farm Management System
SASA	South African Sugar Association
SASRI	South African Sugar Research Institute
AoH	Art of Hosting
BOCMA	Breede Overberg Catchment Management Agency
DoA	Department of Agriculture
WoW	Windows on our World: Wetlands
ALF	Active Learning Framework

EXECUTIVE SUMMARY

The Resilient Landscapes Approach (RLA) is being piloted by the WWF Mondi Wetlands Programme (MWP) through the Global WWF-Mondi Partnership. The RLA is a novel way of working with stakeholders in multifunctional landscapes to build resilience of ecosystems through collaborative learning and capacity for localised actions, on the ground, and through agricultural and forestry commodity value chains. The RLA is made up of 3 key concepts which are drawn from the academic literature: 1) resilience thinking; 2) creating shared value and 3) social learning (Cockburn *et al*, 2014).

This document includes examples and summaries of relevant social learning tools and processes used by the MWP over the past 10 years. The social learning tools and their use with various stakeholders which are shared include: the Active Learning Framework (ALF) with government officials; the Art of Hosting and Harvesting with the wetland community and Windows on our World: Wetlands (WoW) with plantation forestry community engagement facilitators. These tools are shown to be suitable for short engagements within-sector, cross-sector and up and down the value chain. The expansive learning process and its use with a plantation forestry company and sugarcane growers and extension services is shared as a social learning process that requires more investment and time and is suitable for within sector engagements while networks, trust and commitments are established. These networks and commitments are initiated through the shorter engagements.

An accessible and practical framework has been developed with real life examples shared by WWF staff for application of these social learning tools and processes in the implementation of the RLA, and to share with WWF staff within WWF-South Africa and the network offices within the Ecosystems Workstream of the WWF-Mondi Global Partnership. This framework links to the conceptual model of RLA and illustrates how WWF practically facilitates social learning, connects producers with stakeholders along the value chain and facilitates cross-sectoral dialogues, while building an understanding of the Social Ecological System, strengthening governance institutions and processes, and taking practical action to strengthen sustainability practices.

1 INTRODUCTION TO THE RESILIENT LANDSCAPES APPROACH

The Resilient Landscapes Approach (RLA) is being piloted by the WWF Mondi Wetlands Programme (MWP) through the Global WWF-Mondi Partnership. Cockburn *et al* (2014) define the RLA as a *"novel way of working with stakeholders in multifunctional landscapes to build resilience of ecosystems through collaborative learning and localised actions, on the ground, and through agricultural and forestry commodity value chains"*. The MWP team is working towards facilitating action on the ground, which will potentially lead to ecosystem stewardship. The RLA is based on three concepts rooted in the academic literature: resilience thinking; creating shared value and social learning. Stakeholders are being brought together to develop their understanding of the risk of degradation of ecological infrastructure, how they may be better understood and shared. And how shared value can be derived from a resilient landscape, and see where they can be involved in shared actions to reduce these environmental, social and economic risks.

Since 1991, the MWP has a history of engaging with private and communal landowners through various projects on wetland and freshwater stewardship. The MWP forms part of WWF South Africa's WWF Freshwater Programme of work. MWP has made a significant contribution to increasing the profile of wetlands as important ecological infrastructure. This has included expertise development in the wetlands community of practice in South Africa, the development and refinement of various natural science based tools and catalysing investments for rehabilitating and managing wetland ecosystems. Additional expertise has been developed in the social sciences through understanding social learning processes and approaches; the focus of which is on catalysing and supporting social change towards more sustainable livelihoods and business practices in relation to wetland management. In an effort to refocus and restructure its work, the MWP began to develop and test implementation of the RLA. This work will unfold over the next three years from 2014 to 2016. The RLA will be tested and implemented in three priority landscapes in South Africa; the uMngeni, Umvoti and Groot Brak catchments. In addition, the MWP team will be sharing the lessons and experiences of its work with teams involved in resilient landscape work being undertaken by WWF and Mondi teams in Eastern Europe and Russia, and other WWF priority programmes, thematic programmes, and advocacy platforms at a global level, for example the New Generation Plantations platform (http://newgenerationplantations.org), which forms part of WWF's Global Forestry programme.

One of the concepts forming the basis of the RLA is social learning, which will be the principal tool used in the RLA to promote transformative learning among multiple stakeholders. It is envisioned that social learning can bring about *"a better understanding of the risks and benefits which multiple stakeholders share, promote collaborative stewardship and governance and build resilient landscapes through action"* (Cockburn *et al*, 2014). The MWP's experience and understanding of the social learning processes and tools is to be taken up through the RLA.

2 STRATEGIC INTENT AND OBJECTIVES OF THIS REPORT

The aim of the first phase of testing the RLA is collaborative water resource stewardship. In order to move forward with this first phase, a consolidation and documentation of the social learning processes and tools historically used by the MWP, in a variety of contexts, is needed to inform efforts to achieve this aim. The tools and processes of social learning need to be available in an applicable format or framework as a strongly informed basis for promoting water resource stewardship in the RLA. It is intended that such a framework of social learning processes and tools will be shared with WWF staff not just within WWF, but also with the international network offices that the MWP will be working with in the Ecosystem Workstream of the WWF-Mondi Global Partnership. This document supports the implementation of objective 2 of the 2014 MWP's workplan:

"Best practice freshwater ecosystem stewardship and social learning tools supporting the resilient landscape approach are collated/developed and/or refined for adaptation in other landscapes & initiatives." Therefore the objectives of this document are to:

- **Collate, review and summarise relevant social learning tools and processes**, drawing on case examples in which they have been used by the MWP over the past 10 years.

- Develop an **accessible framework which incorporates these social learning tools and processes** for application within the RLA and to share with WWF staff within WWF-South Africa and the network offices within the Ecosystems Workstream of the WWF-Mondi Global Partnership.

- Explain the **suitability of the framework of social learning tools and processes for use within the RLA** generally and for contributing to specific needs for implementing the approach, e.g. engaging large corporate retail organisations such as Woolworths in developing partnerships with dairy farmers around stewardship of a particular catchment and changing sustainability practices.

This framework of social learning tools and processes is complimented by another report called an inventory of freshwater ecosystem stewardship tools.

3 METHODS

This document will achieve the above-mentioned objectives through the following methods:

- Identifying relevant social learning tools and processes used by the MWP in the last 10 years, summarizing and explaining these tools and processes using actual case examples as well as their usefulness to potential users within the Resilient Landscape work.

- Developing a framework of social learning tools and processes in an accessible format, which can be applied within the various contexts of the target audience within the Resilient Landscape work and shared with WWF staff within South Africa and the network offices within the Resilient Landscape workstream of the WWF-Mondi Global Partnership.

- Conducting interviews with key WWF South Africa staff members and a few other key stakeholders regarding their perspectives on relevant social learning tools and processes for the RLA.

- Compiling the final document that consolidates the outcomes of those activities listed above as well as the suitability of the framework for use within the RLA generally and for contributing to specific needs for implementing the approach.

4 THE PLACE OF SOCIAL LEARNING IN THE RESILIENT LANDSCAPES APPROACH

In working towards conserving South Africa's biodiversity sustainability, WWF South Africa through the MWP aims to work with landowners, farmers and corporates at various scales in multifunctional landscapes. *"Multifunctional landscapes are landscapes which are created and managed to integrate human production and landscape use into the ecological fabric of a landscape maintaining critical ecosystem function, service flows and biodiversity retention"* (O'Farrell & Anderson 2010, p. 59). In doing so, the programme aims to build the resilience of these ecosystems through collaborative learning that leads to change and localised actions, on the ground, of agricultural and plantation forestry commodity value chains (Cockburn *et al*, 2014).

4.1 Risk calls for social learning

The agriculture and plantation forestry industries face significant risks in terms of increasing water scarcity with growing demands by these sectors. Lindley (2014) highlights that the recently proposed revision of the South African National Water Resource strategy notes that *"in many parts of the country we have either reached or are fast approaching the point at which all of our financially viable freshwater resources are fully utilised"* (Department of Water Affairs, 2012, p.13). WWF notes that *"farmers will have to double their use of water by 2050 if they are to meet growing food demands using current farming practices. To avoid a crisis, water supply needs to be enhanced and water use efficiency increased"* (WWF, 2010). The health of freshwater ecosystems, such as wetlands, are under threat and the risks associated with the deterioration of these ecosystems have major implications for the economy and all industries (Lindley, 2014).

Ulrich Beck defines risk as *"a systematic way of dealing with hazards and insecurities induced and introduced by modernisation itself"* (Beck, 1992, p.21). The economy and these industries are part of this modernisation process. Beck further says that *"risks have something to do with anticipation and destruction that has not yet happened but is threatening, and of course in that sense risks are already real today"* (Beck, 1992, p.21). *"Water risk to business is real. Companies across several industry sectors should start to take the lead in quantifying their exposure to water risk, and should develop plans to mitigate these risks"* (Department of Water Affairs, 2012, p.21). Large scale societal change is required to deal with this risk. According to Beck (1992) we live in a risk society and unknown and unintended consequences are driving our society. In addressing the challenges posed by such a risk society, there are no ready-made solutions. Learning processes, which help us become more reflexive are needed where diverse people with different perspectives, knowledge and experiences are brought together to come up with new and creative solutions (Wals *et al*, 2009; Bailey, 2013). In being more reflexive, our existing routines, norms and values are shared, critically reviewed and open to change (Wals *et al*, 2009). *"Making use of and strengthening social learning is particularly important where it concerns jointly looking for meaningful, supported and feasible solutions for challenges with respect to which no one has a monopoly on wisdom"* (Wals *et al*, 2009 p5). Therefore social learning is seen as the way to enable improved

understanding of the risks and benefits which stakeholders share, promotes collaborative stewardship and governance and builds resilient landscapes through individual and social action (Cockburn *et al*, 2014).

4.2 The need for social learning in the WWF Mondi Wetlands Programme

The MWP came to realise the need and potential of social learning in 2005. After 15 years of groundbreaking work, catalysing and supporting government, industry and commercial and communal farmers to manage South Africa's wetlands better, the programme began to reach for coherent theory that was congruent with the grounded action that they and their project partners were involved in. It was at this time that the programme underwent a formative evaluation (Rosenberg & Taylor, 2005) and through this process the programme began to discover the importance of better understanding how adults learn, how to support social change, and the importance of having grounded theory to support their wetland conservation practice. The staff discovered that the theories of social learning resonated with their experiences of wetland conservation practice and recognized that meaningful and transformative learning that is change orientated is crucial to improved wetland management (Lotz-Sisitka, 2009). Their previous understanding that learning involved experts determining solutions to wetland issues, moved towards an understanding of learning as a social process of combining a diversity of opinions, beliefs and ways of doing things and co-constructing solutions to wetland issues.

4.3 The WWF Mondi Wetland Programme's approach to social learning

Lindley (2014)'s exploration of social learning found that the literature on social learning was vast and came from many different perspectives and disciplines. There are different definitions and meanings in both the social aspects and learning aspects of social learning (Wals 2007b; Pahl-Wostl, Craps, Dewulf, Mostert, Tabara, & Taillieu, 2007; Armitage, Marschke, & Plummer, 2008; Kilvington, 2010; Reed, Evely, Cundill, Fazey, Glass, Laing, Newig, Parrish, Prell, Raymond, & Stringer, 2010; Cundill & Rodela, 2012 in Lindley, 2014, p.47). An exploration of the authors' different ontological positions helped with engaging with the vast literature. Ontology is the philosophical study of the nature of being or reality. It is important to ensure that there is consistency between the literature's philosophical view of reality and their research and practice to prevent the "ontological collapse" of research and practice (Lotz-Sisitka, Mukute and Belay, 2012). Natural resource management has often borrowed from learning theories such as social learning without a coherent understanding of the social aspects of social learning, and the actual learning that occurs in social learning. An understanding of the theoretical and ontological origins of the 'social' and the 'learning' aspects of social learning prevents social learning being reduced to an instrument that achieves outcomes (Lotz-Sisitka, Mukute and Belay, 2012). Social learning should be used as a tool to engage people who will deliberatively and collectively determine a course of action.

The WWF MWP programme worked with resources and literature of social learning in the field of environmental education as their approach to understanding the 'social' and 'learning' aspects of social learning. This document captures their work as tools and approaches, which are solid and consistent in ontology, theory, methodology and practice. Wals *et al* (2009)'s resource *The Acoustics of Social*

Learning: Designing learning processes that contribute to a more sustainable world (available at http://edepot.wur.nl/108487) as well as Wals (2007)'s influential paper in the Southern African Journal of Environmental Education (available at http://www.eeasa.org.za/images/publications/eeasa_journal_24_2007/035_wals.pdf) were the initial influences in the MWP's early work and catalyzed Lindley's exploration of social learning literature in his own PhD research (which will be explored in more depth further on). Lindley (2014) found that the most important elements of social learning for stimulating the important conversations required between stakeholders holding a variety of values, beliefs, ideologies and assumptions, for finding better solutions to the complex social, economic and environmental challenges included the following:

- Changing values, beliefs, ideologies and assumptions
- Dissonance as a precondition for learning
- Facilitating important thought processes for social learning
- The importance of reflexivity
- The meaning of participation in social learning
- Importance of valuing social learning processes over products

4.4 Important elements of social learning

These elements of social learning are important background concepts and approaches for those wanting to facilitate and initiate projects of social learning in the RLA. They have been summarized and described, drawing on the explanations by Lindley (2014).

Changing values, beliefs, ideologies and assumptions:

We develop our values, concerns and attitudes, which make up our perception of reality through learning and so it is through participating in learning about new, different information that we can test our own perception of reality and re-orientate our values and actions (Glasser, 2007). In order to achieve the goals of a sustainable and multifunctional landscapes, we need learning in rich social contexts where people with a diversity of views, assumptions, values, and ideologies can discuss these views in a safe, trusting space (Wals and Heymann, 2004). Facilitation of these safe spaces is crucial to allow some disagreement and differing views to emerge, as they are triggers to learning. A safe space is an environment where the participants can present themselves (which includes their ideas, views, values etc.), take risks, be vulnerable and be creative (Wals *et al*, 2009).

Dissonance as a precondition for learning:

With differing views and disagreements being triggers to learning, they should be embraced and not avoided. Conflicts that emerge from discussing divergent views should be seen as a prerequisite for the type of learning required, rather than as a barrier to learning (Wals and Heymann, 2004). If used in a positive way, dissonance can prevent complacency and encourage innovative thinking (Glasser, 2007). Dialogue of contentious issues needs to take place in a safe and open learning space (Wals and Heymann, 2004) where participants will not face any backlash,

retributions, ridicule or contempt. Only then can the participants get to the bottom of any conflicts and understand their underlying sources. Dealing with the conflict requires dialogue as different views are deconstructed and preconceptions, assumptions and ideologies loosened. When people are able to unpack their own ways of seeing things, they are able to deconstruct the views of others, which results in them collaboratively reconstructing new views and solutions together. Social learning requires *"emergent awareness and collaborative deconstruction of one's understanding, and those of others, and the reconstruction of new understandings"* (Lindley, 2014, p.54). In enabling learning together, social learning processes promote people to live, learn and work in community with each other.

Through dialogue people are able to understand and exchange viewpoints with others. Deliberation is when people explore a common problem through the pooling of many perspectives on the problem. The facilitation of safe spaces for dialogue and deliberation requires careful consideration of the following aspects:

- **Deliberative democracy:** Conflicting values and interests are all acknowledged and people begin a process of reasoning personally and collectively (Benhabib, 1996). When deliberating matters of mutual interest and concern, the agenda should be open to everyone's input and not narrowly restricted.

- In certain cases not all people participate equally for various reasons. For example some participants may have access to a higher quality of education or some have certain cultural predispositions, which can enable or limit their participation. **Equal participation** must be considered in the facilitation of deliberations. Being aware of people's specific cultures is important, as some people may be at a disadvantage by not speaking and being seen to participate (Sanders, 1997).

- There may be a **common goal** during deliberations, such as conserving a wetland, but certain views prevent the pursuit of this common goal. There may be large inequities in power and status, which result in the suppression of the challenging views of marginalized groups. Facilitation of deliberations needs to be cautious and aware of power differentials, for example a group of large corporate leaders may overpower the voices of a local community (Sanders, 1997).

- The deliberations should be structured to **consider group dynamics** and a facilitator needs the skills to recognize and work with inequities and ensure a safe space for dialogue and deliberation. Group deliberations need to be structured to acknowledge and work with group dynamics and ensure that all have a voice. The common problem should be looked at with many different opinions, aiming for confluence rather than consensus and compromise (Kadlec & Friedman, 2007). Participants should be able to learn to cross their mental boundaries, explore a diversity of viewpoints, and through the deliberations develop mutual respect for each other. They should be able to work collaboratively despite disagreements and conflict. Deliberative democracy leads to social change and this needs to be understood by the participants.

Facilitating important thought processes for social learning:

Deep and meaningful individual and collective learning and the potential to bring about change is supported by thought processes such as *"empathic and alert listening; participants being aware of their own emotional responses to what others say; sharing perceptions of what they consider others to be saying as misperceptions; explicitly suspending their assumptions and opinions in the company of others; halting the impulse of necessity to argue on issues that one feels are not negotiable; being open, honest and collaborative in what one thinks and says; and revealing one's tacit thoughts in the open and exploring with others if these thoughts resonate with them"* (Selby, 2007 in Lindley, 2014). Participants need to understand these thought processes through the support of a facilitator who is able to ensure a safe social learning environment. The need for a facilitator should gradually decrease as coherence amongst the participants in the group develops with the facilitator becoming a participator in the social learning process.

The importance of reflexivity:

Social learning requires reflexivity, as stakeholders need to respond to growing environmental and social risks. These risks may not yet be known and as Beck (1992) highlights, we need to be moving towards becoming a more reflexive society. Wals (2007) describes reflexivity, as a critical property that encourages people to reflect and question their views or understanding and, if necessary, break away from existing paradigms and ways of doing things. Reflexivity in learning is not taking what is instructed to us by an expert who has predetermined solutions and has decided how things are and should be. It is learning which involves us as individuals or as a group developing our knowledge, values and participating in making our own choices, coming up with our own solutions by reviewing a number of options and being able to take collective action for complex and continually changing problems (Wals, 2007). We should be able to have a conversation in our own minds (Archer, 1995) and engage with different opinions and conflict and then determine new solutions and actions (Lotz-Sisitka, Mukute and Belay 2012). Social learning is thus an approach to learning that can allow us to engage with stakeholders in a way where they are not told what they should know and are able to *"recognise, evaluate and think innovatively around existing ways of doing things, preconceptions, social norms and personal biases"* (Lindley, 2014). All learners bring their own knowledge, skills and views of the world, which must be built on and from. Social learning as an open-ended approach to learning is more responsive to various contexts and situations allowing us to deal with the risks, which may not yet be known in this risk society.

The meaning of participation in social learning:

Social learning requires participation as an integral aspect of the learning process and not a tool to achieve a predetermined outcome. Often, participation is taken up in capacity development initiatives as participatory processes to improve practice, to achieve a preconceived purpose or objective of sustainability ideals (Lotz-Sisitka and O'Donoghue, 2008). Other people's knowledge, ideology, morals, ethics and standards are imposed on the target group with the existing contextualised historical knowledge, experiences, opinions, and existing learning materials being excluded. More careful thought needs to be made on the structure of capacity development frameworks in order to incorporate participation of stakeholders in determining what they want to learn and how the want to learn. However, Lindley (2014, p 66) warns against *romanticisation* of social learning by saying that *"social learning will not be the magic bullet to resolve all sustainability challenges, but it*

needs to be seen as one of the key approaches to learning that may be integrated into other orientations of learning and practice. In this way, social learning can provide a useful background to support collective decision making and action". Participation in the learning process needs to encompass the essence of social learning elements that have been described.

Importance of valuing social learning processes:

It is important to acknowledge that social learning should not be objectified and used as a means to produce and achieve certain outcomes, it should be seen as a learning process and the outcomes may not yet be known on an agreed goal. Wals and van der Leij (2007) emphasise that the crux of social learning is not what people need to know, but rather how people learn and what they want to learn, and how they will be able to challenge and transcend societal norms for a more sustainable future. One cannot formulate the intended outcomes of a social learning process beforehand (Wals *et al*, 2009). The learning process determines the outcomes and these may change as new insights develop through the process with time (Wals *et al*, 2009). As part of valuing the social learning process we need to acknowledge that social learning will not necessarily guarantee the outcome we necessarily envision, such as a sustainable outcome or healthy wetland. The social context that we may be working in; the manner in which the learning process is organized; as well as those determining what is considered the "sustainable outcome" all influence whether social learning will move us towards resilient multifunctional landscapes (Wals et al, 2009). We can influence the circumstances and context significantly though through suitable processes and tools which enable social learning and increase the probability of reaching "sustainable outcomes" (Wals *et al*, 2009).

Developing an understanding of these concepts of social learning and ensuring that we allow these elements to be upheld in the social learning spaces is important but how do we practically create these social learning spaces for stakeholders? This document does not include all of the processes and tools out there to support social learning, but the documented and tried methods used by the MWP to guide them in creating such spaces over the years have been incorporated into a framework for implementing RLA.

5 USING A FRAMEWORK OF SOCIAL LEARNING PROCESSES AND TOOLS FOR IMPLEMENTING THE RLA

5.1 Integrating social learning into the RLA model

The RLA is made up of three key concepts derived from the academic literature: resilience thinking, creating shared value and social learning. Each of these concepts adds value to the important work that will need to be done by WWF, however it is important to be aware of the different worldviews and ontologies that these concepts have. As mentioned previously, rigorous practice is grounded in consistency between ontology, theory, methodology and methods or tools. This document introduces social learning processes and tools that the MWP has tried and tested over the years, all of which stem from a similar worldview. There will certainly be others that should be incorporated into the framework in future. Cockburn *et al* (2014) acknowledge that using social learning, together with shared value creation, within a resilience thinking framework will be challenging. However, there is undoubtedly value in working with resilience thinking and creating shared value for the RLA and there are synergies with social learning processes. Cockburn *et al* (2014) recognize that resilience thinking focuses on catalysing dialogue among stakeholders; valuing diversity (in structure, function and response of the ecological and social system components) and promoting collaborative stewardship and governance. The RLA enables opportunities for recognizing shared values, risks, visions and actions through the facilitation of interactions between the stakeholders (Cockburn *et al*, 2014). Cockburn *et al*, (2014) envision that social learning will form the framework that knits the interactions, collaborations and dialogues together.

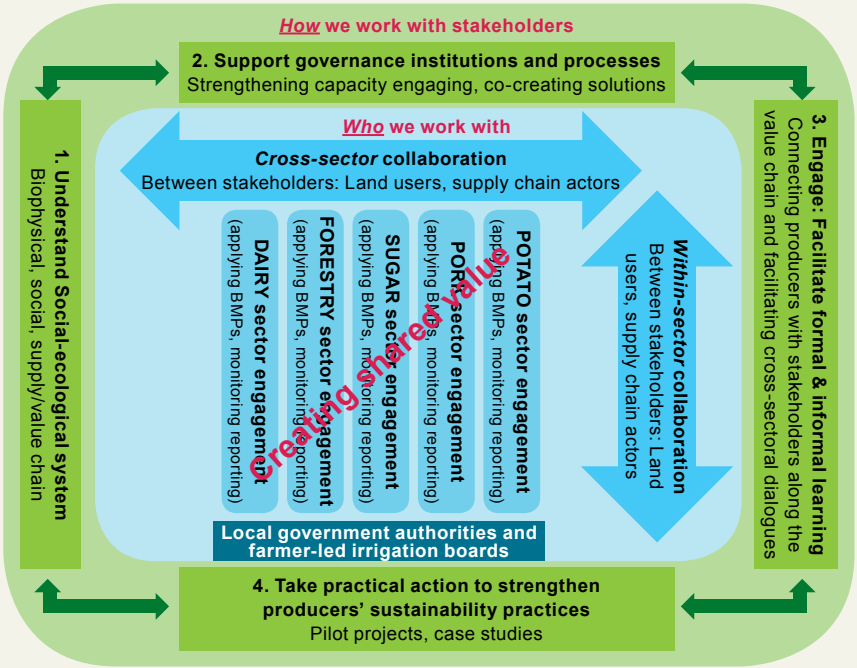

Figure 1: **Proposed conceptual model of the RLA in which various agricultural production sectors are incorporated within a framework of various actions (Cockburn *et al*, 2014)**

The diagram presented in Figure 1 from Cockburn et al (2014, p13) summarises the overall RLA. It illustrates four key processes that contribute to how WWF plans to work (taken from the green boxes):

- Understanding the resilience of the Social Ecological Systems (SES): mapping the linkages between the social and ecological components and understanding the drivers of unexpected change such as risk and degradation, and the leverage points to address these.

- Strengthening governance institutions and processes through co-development of an appropriate collaborative governance model and social learning processes for catchment stewardship. This model will provide a mechanism by which different market mechanisms and private finance institutions can co-operate to deliver large-scale change at a landscape level.

- Engaging stakeholders within and across sectors and up and down value chains through facilitating social learning (both formal and informal). SES and the impacts on them will be mirrored back to stakeholders. In this way, their understanding of the SES and the drivers of risk can be deepened, creating dissonance and creating the opportunity for transformative learning to be catalysed. Through this process, opportunities for creating shared value can be realized.

- Taking practical action to strengthen producers' sustainability practices, for example by co-developing and implementing shared value creation strategies and action plans to foster collaborative stewardship of freshwater ecosystems

(Cockburn *et al*, 2014)

WWF is attempting to enable collaboration within and across the plantation forestry, pork, sugar, and dairy farming sectors. The organisation plans to engage stakeholders up and down the value chains of these sectors with the value chain actors being insurers (eg. Sanlam, Santam, Old Mutual); financiers (eg. Nedbank, ABSA); consumers; retailers (eg. Woolworths, Massmart, Pick n Pay); buyers of commodities (eg. Coke, SAB, Nestle); private and communal land users.

With the understanding of the concept and vision of the RLA, we can begin the development of a framework of social learning that knits the necessary interactions, collaborations and dialogues between these stakeholders together. Over a 3-year period (2014 to 2016) WWF is testing the RLA in the uMngeni, Umvoti and Groot Brak catchments. Achieving all of the four key processes of the RLA with all of the stakeholders, in all of the catchments in 3 years may not be completely possible. Social change takes many years and many networks are being established for the first time. It will therefore most likely be achieved in a 7-10 year time span.

5.2 Establishing a framework of social learning processes and tools within the conceptual model of RLA

This framework aims to link to the overall conceptual model of RLA (figure 1) and illustrates how WWF is practically facilitating social learning (formal and informal), connecting producers with stakeholders along the value chain and facilitating cross-sectoral dialogues, understanding the SES, strengthening governance institutions and processes, and taking practical action to strengthen sustainability practices (see figure 2 below). The framework, like the RLA, will need to be altered as lessons are learnt through experience over the next 3 years. There are many other tools and processes which can support social learning other than the ones which WWF (through MWP) hastried and tested. New ways of working with social learning must be explored and integrated into this framework.

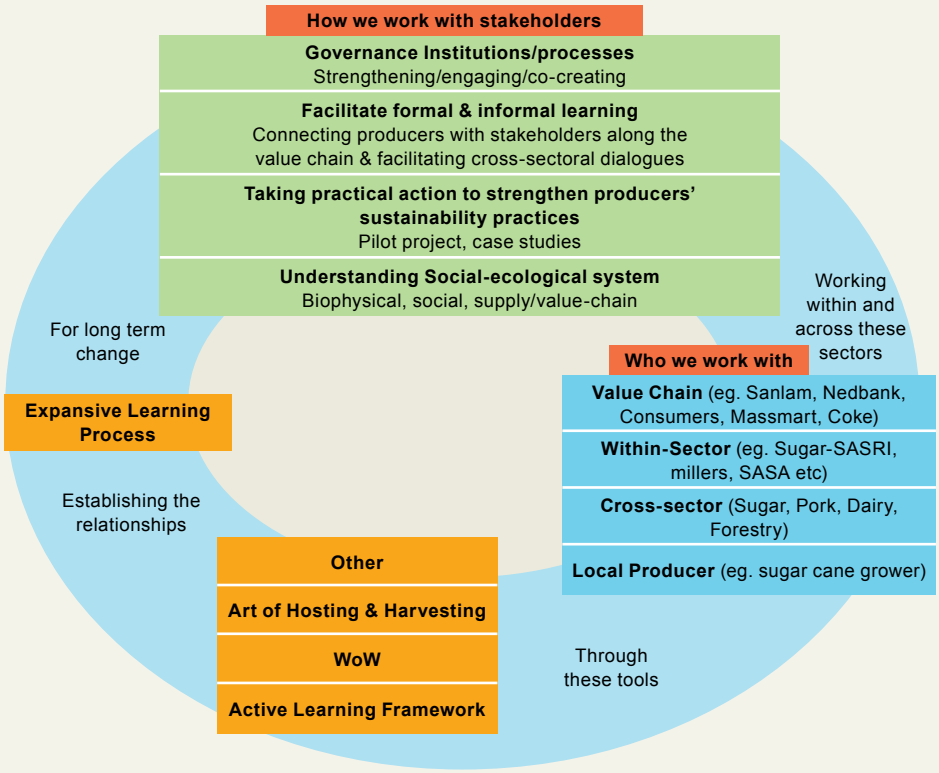

Figure 2: **Establishing a framework of social learning processes and tools within the conceptual model of RLA**

Social learning tools and processes are explored in case examples further in this document and these are consolidated into the framework to enable the intended RLA processes. Figure 2 illustrates the initial vision of a framework for implementing these tools and processes. The Active Learning Framework (ALF), the Art of Hosting and Harvesting and Windows on our World: Wetlands (WoW) are suitable for **short engagements** and are implemented at all levels of engagement in the RLA (producer, within-sector, cross-sector and up and down the value chain). **Other tools and processes**, which are not yet documented, can be integrated at all levels, where suitable. The expansive learning process requires more investment and time and is suitable for **within sector engagements while networks, trust and commitments are established** in the short 3-year time frame of the first phase of RLA implementation. These networks and commitments are initiated through the shorter engagements. After three years, investment into expansive learning process implementation at all levels of engagement should be considered to ensure long-term institutional changes.

5.3 Within sector engagements

At the level of "**within sector collaboration**", learning days can be facilitated for the producers and the sector institutions (eg. Small-scale sugar growers and SASA extension officers), using the ALF and WoW. The tables in Appendices A and B give an example of how the framework can be used to plan and apply WoW and the ALF within the RLA. A summary of the sequence of activities and processes taking place when combining the ALF and WoW during these learning days are illustrated in Figure 3. These learning days also offer WWF an opportunity to share catchment risk and degradation data.

Figure 3: **Sequence of processes and activities when applying the Active Learning Framework (circles) and Windows on our World: Wetlands (squares) during short engagements**

These short engagements within the sector can establish the relationships, interest and commitment of producers and relevant sector institutions to participate in an expansive learning process. In the next three years WWF will secure the commitment of one or two sectors in a catchment (eg. dairy and forestry in the uMngeni; sugar and forestry in the Umvoti or dairy and forestry in the Groot Brak). Undertaking the steps that Lindley (2014) used to complete a full expansive learning process would require at least two years in order to do the necessary interviews, change laboratory workshops; follow up interviews and a report back to industry. Appendix C gives an example of how the framework can be used to apply and plan the expansive learning process within the RLA and figure 4 below illustrates the sequence of processes and activities which would need to take place.

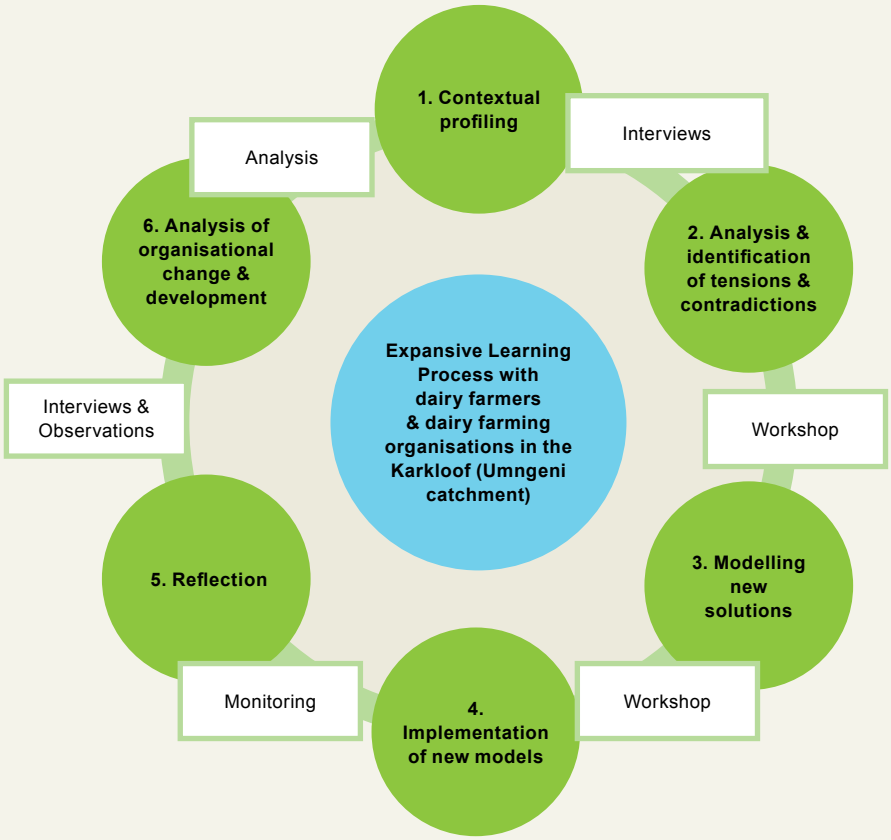

Figure 4: **Sequence of processes (circles) and activities (boxes) when applying the expansive learning process**

5.4 Cross sector engagements

At the level of "**cross sector collaboration**", learning days could be facilitated for champion producers and representatives from the sector institutions from pork, dairy, plantation forestry and sugar using the ALF and WoW as demonstrated in Appendices A and B and figure 3 above. These learning days offer WWF an opportunity to share catchment risk and degradation data. The different sectors will have an opportunity to experience, share and discuss the risks that they face and sustainable practices or solutions that they are undertaking while in the field.

5.5 Producer and value chain engagements

At the level of "**linking producers (from all sectors) up and down the value chain**", WWF could organize a large scale event using Art of Hosting and Harvesting with producers from the pork, dairy, plantation forestry and sugar industries and the value chain actors. During this event WWF could share catchment risk and degradation data and then use various methods to stimulate meaningful discussions and sharing between the stakeholders which results in solid actions for the future. Appendix D gives an example of how the framework can be used to apply the Art of Hosting & Harvesting and plan for this event. Figure 5 summarises the methods that are incorporated in such an event.

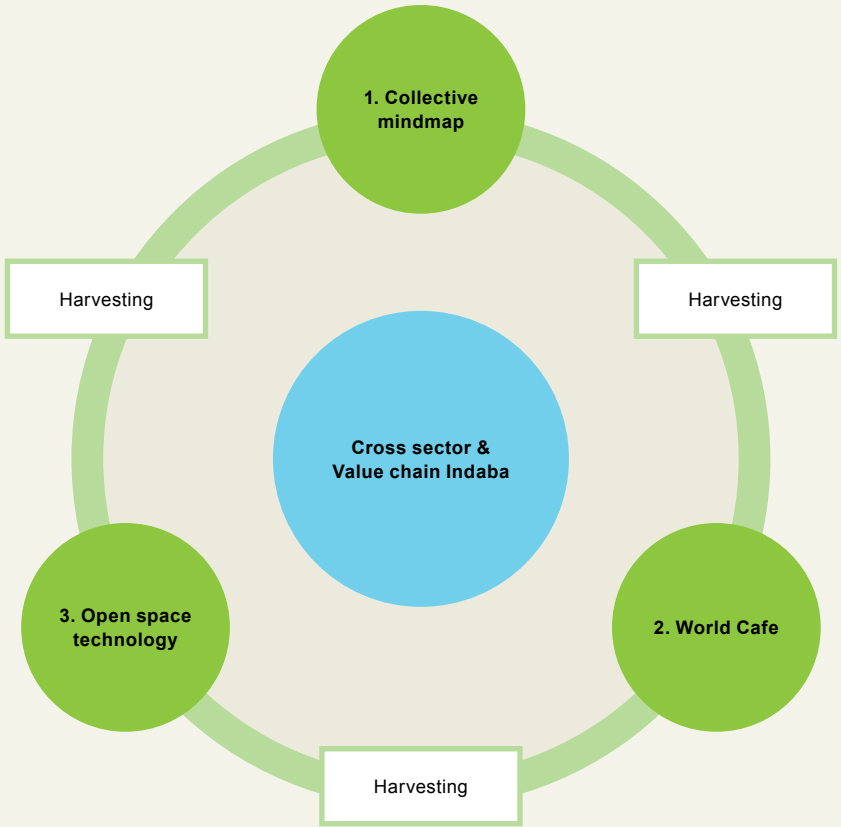

Figure 5: Sequence of methods when applying the Art of Hosting and Harvesting Meaningful Conversations

5.6 Keeping an open agenda

Organisations WWF need to be mindful of not seeing participation in social learning as stakeholders participating in the engagements that they have organised to improve the stakeholders' practice and achieve the preconceived purpose or objective of their sustainability ideals WWF. Cockburn et al (2014) describe in detail that the agenda of the RLA is to develop a governance model; secure catchment stewardship; initiate large scale change at a landscape level; create shared value; make the stakeholder aware of the length between the business risk and ecological degradation and strengthen sustainability practices. Participation in learning engagements needs to encompass the essence of the social learning elements that have been described in this document. Deliberative democracy means that the agenda should be open to everyone's input and not narrowly restricted by the objectives of WWF the organisation or any other stakeholder. Social learning should allow organisations to engage with stakeholders in a way where they are not told what they should know and in an open-ended learning experience. An organisation's objectives are one part of the agenda and the agenda may need change to suit all stakeholders. A crucial element of social learning is valuing the process over products. Organisations should focus on how people learn, what they want to learn, and how they will be able to transform through challenging what is seen as normal (Wals and van der Leij, 2007).

The following sections introduce the social learning tools in more detail and case studies of the MWP's use of the social learning tools and processes which are integrated into the framework.

6 TOOL 1: ART OF HOSTING & HARVESTING: APPLYING "HOSTING AND HARVESTING" WITH THE WETLAND COMMUNITY OF PRACTICE

The MWP coordinated an adult based wetland education programme which worked at supporting and strengthening the learning within the South African wetland community through the provincial wetland forums. In beginning to work with the forums, the MWP's coordinator, Michelle Hiestermann initially drew on the theory of communities of practice. Communities of practice are groups of people who share a passion for something that they know how to do and who interact regularly to learn how to do it better (Wenger, 2002). The provincial wetland forums have members from government, the public, wetland specialists, consultants, students, academics, conservation agencies, non-profit organisations and various others who come together as a **community** (defined as "the relationships among members and the sense of belonging") to discuss their **practice** of wetland management (defined as *"a body of knowledge, methods, stories, cases, tools, documents"*) (Wenger 2002). The **domain** of the community of practice is *"the definition of the area of shared inquiry and of the key issues"*, for example the Mpumalanga Wetland Forum's domains was: *"promoting the wise use, effective management and rehabilitation of wetlands in Mpumalanga Province through co-operative governance by engaging all public and private sectors"* (Wenger, 2002 & Mpumalanga Wetland Forum, 2010). The various provincial wetland forums around South Africa differ in domain as well as in numbers of members, leadership roles, momentum, activities and expertise.

The MWP began to communicate with the coordinators of the forums in 2009 to initiate dialogue and establish relationships between the coordinators in order to begin to strengthen the learning within and between the forums. The wetland forums come together as the broader national community at the annual National Wetland Indaba (NWI). The NWI is a formal gathering of scientists, government, academics, corporates, the general public and non-profit organisations from around South Africa. The NWI creates a national platform for participants to network, meet, discuss and exchange information on various wetland issues, work and research. From humble beginnings as an informal gathering of a few interested and concerned wetlanders meeting to discuss and share their work in wetlands management and conservation, the NWI evolved into a large formal conference of up to 200 delegates. In 2010 the forum coordinators raised concerns around the growing numbers of delegates changing the NWI to be exclusively an event of primarily academic paper presentations, at *"the expense of informal information sharing sessions where the provincial wetland forums and their members can share their successes and challenges and learn from one another"* (Cowden, 2010). The NWI programme was beginning to take a more controlled, rational information transfer stance of many traditional scientific and large academic conferences. An indaba, by African definition, is a council or meeting of people to discuss an important matter. According to the "Art of hosting and harvesting conversations that matter (AoH, 2010), *"It is common sense to bring more people together in conversation. It is the way we have done it in generations past, gathering round fires and sitting in circles. Conversation is the way we think and make meaning together. It is the way we build strong relationships that invite real collaboration"*. As we know, dialogue is the starting point for social learning. The MWP joined the 2010 NWI organising committee with the aim of shaping of the NWI as a social learning space by drawing on knowledge and experience of the different elements of social learning as well as the assumptions and methods introduced in the Art of Hosting and Harvesting

Conversations that Matter Workbook (further resources available at http://www.artofhosting.org/resources/reading-list/).

Providing technology infrastructure is an important support for communities of practice (Wenger, 2002) and the wetland forum coordinators and the MWP supported the formation of an interactive website to mobilise and encourage discussion within and between the forums. This created an opportunity for the broader community to have a say in the NWI programme. The South African Wetland Portal's Discussion Forum was used by the MWP to gain input into the development of the NWI programme of events which aimed to create the necessary spaces for social learning and innovation.

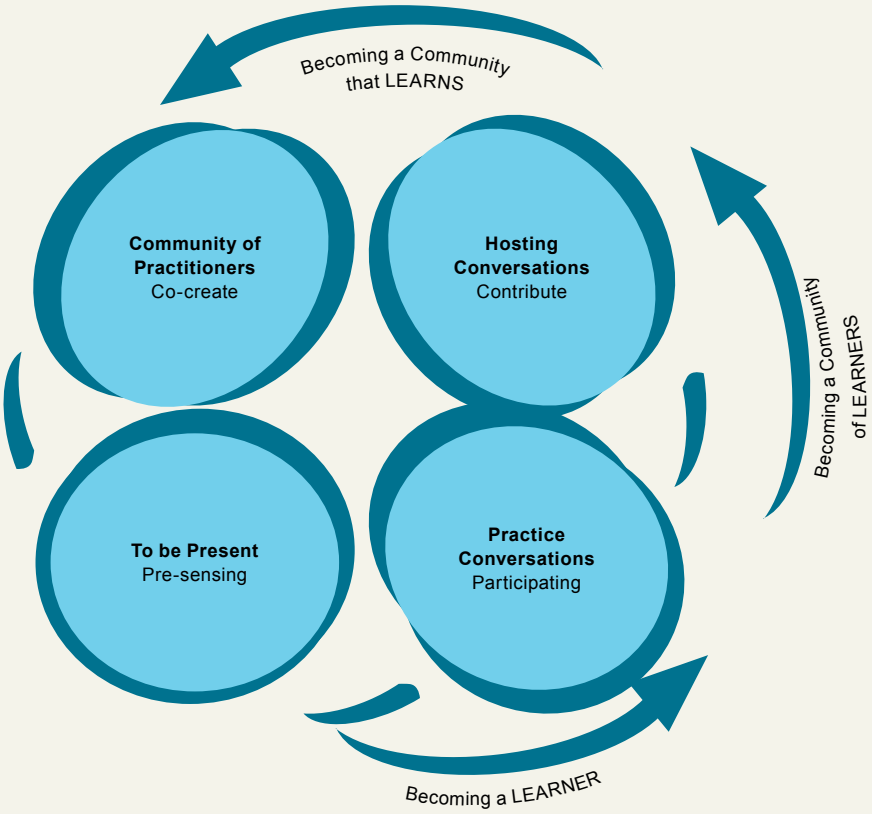

Figure 6: Four basic practices to the Art of Hosting (AoH, 2010)

According to the Art of Hosting and Harvesting Conversations that Matter (AoH, 2010), there are four basic practices which are key to being part of meaningful conversations that lead to wise actions: "being present (pre-sensing); engaging in conversations (participating); hosting conversations (contributing) and becoming a community of practice (co-creating)". Creating opportunities for these practices to take place was a priority. These opportunities included:

- A panel discussion headed up by the wetland forum coordinators which focussed on strengthening the forums; different approaches to addressing forum challenges and re-evaluating the role of the forums and creating a shared vision for the role of the forums. The broader wetland community also contributed to the discussions.

- Round table discussion sessions were used as an alternative to the traditional academic presentations and allowed presenters to use the space to gather meaningful input and stimulate discussion around their work, research or interests. Some of these sessions included breakaway smaller group discussions around key problems.

Figure 7: **Participants engaged in group discussions during round table sessions at the National Wetlands Indaba**

- Workshop sessions were scheduled around mining, wetland governance, long-term wetland monitoring and learning. The workshops allowed delegates to not only gather expert information around an interest, but to actively participate in working on an issue of interest with others (AoH, 2010).

- The field excursions offered the opportunity for delegates to go into the local natural areas as a community of experts and with experienced specialists in those areas.

Although the above activities were placed on the agenda to create opportunities for learning and dialogue, there are specific methods in the Art of Hosting and Harvesting Conversations that Matter which would have been better suited to what the MWP was trying to achieve. However, as this was the first intervention into changing the traditional format of the NWI, participants were comfortable with the above activities as a start. Other methods which the Art of Hosting and Harvesting introduces as creative spaces to bring a community into conversation are summarised (the detail of each can be explored further at www.artofhosting.org) as the following:

Method 1: The World café

The World Café is a method for creating a living network of collaborative dialogue around questions that matter in real life situations. The general flow of this method includes:

- Seating 4-5 participants at café-style tables or in conversation clusters.

- Setting up progressive rounds of conversation, usually of 20-30 minutes each.

- Asking one participant to stay at the table as a "host" and invite the other table members to move to other tables as ambassadors of ideas and insights

- Asking the table host to share key insights, questions, and ideas briefly with new table members, then letting folks move through the rounds of questions.

- After you've moved through the rounds, allowing some time for a whole-group harvest of the conversations.

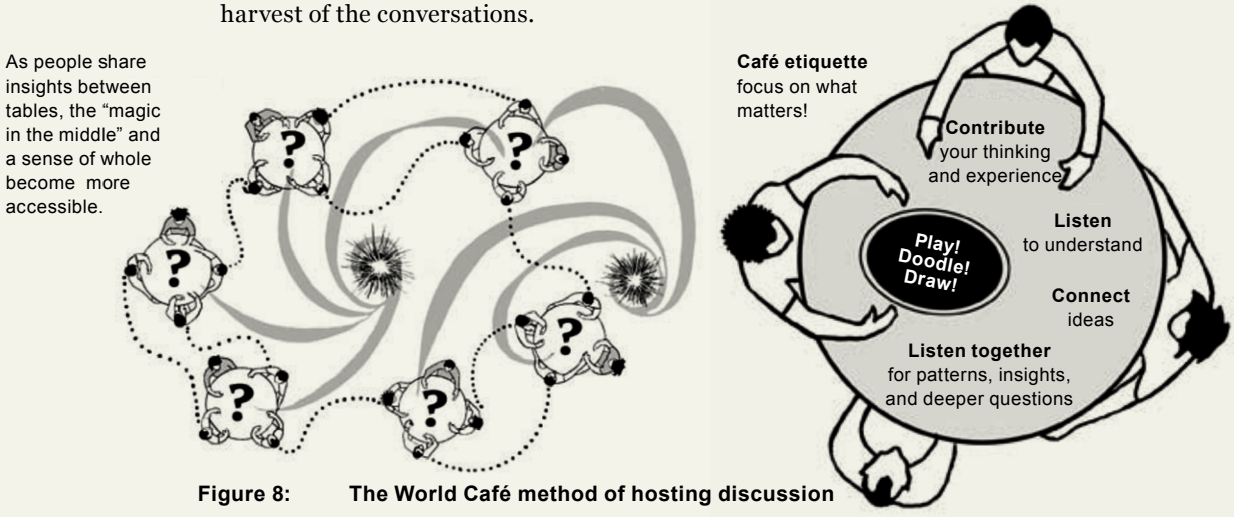

Figure 8: The World Café method of hosting discussion

Method 2: Open space technology

Open space allows people the space to deeply interrogate issues. The general flow of this method involves the following (AoH, 2010 p. 27):

- The group convenes in a circle and is welcomed.
- The facilitator provides an overview of the process and explains how it works. The facilitator invites participants with issues of concern to come into the circle, write the issue on a piece of paper and announces it to the group.
- These people are “conveners.” Each convener places their paper on the wall and chooses a time and a place to meet. This process continues until there are no more agenda items.
- The group then breaks up and heads to the agenda wall, by now covered with a variety of sessions. Participants take note of the time and place for sessions they want to be involved in.
- Dialogue sessions convene for the rest of the meeting. Recorders (determined by each group) capture the important points and post the reports on the news wall. All of these reports will be harvested in some way and returned to the larger group.
- Following a closing or a break, the group might move into ‘convergence’, a process that takes the issues that have been discussed and attaches action plans to them to “get them out of the room.”
- The group then finishes the meeting with a closing circle where people are invited to share comments, insights and commitments arising from the process.

Method 3: Collective mind map

A collective mind map allows participants to create a shared view of a matter. The focus is clear and guided by the overall question, which is made central in the mind map. A facilitator leads the process and participants use post-it notes to present their ideas. Once all issues or ideas are on the map the group votes on priority issues or ideas using sticky dots as most important to address further or develop action towards.

Method 4: The Art of Harvesting

The Art of Hosting and and Harvesting Conversations that Matter (AoH, 2010 p 36) also introduces the art of harvesting the learning that takes place during meetings. This is more than just taking notes and the following elements were considered during the NWI:

- Creating an output or some form of evidence and making knowledge visible through notes or a mind map or some means of recording conversations.
- Having a feedback loop where what is harvested is used and shared.
- Being aware of both intentional and emergent harvest.
- The more a harvest is co-created, the more it is co-owned. People should be invited to co-create the harvest.

During each session different people were responsible for harvesting the outputs of the discussions through a template document, which they filled out. The harvest of documents from the various discussion sessions were consolidated by the organising committee and presented to the delegates who then worked at adjusting and prioritizing these into the final resolutions of the NWI with priority actions going forward. These were shared on the National Wetland Portal, through the forums and with the organisers of the next NWI.

Using innovative and dynamic approaches to structuring and facilitating conversations during meetings, seminars, conferences etc. is an efficient use of stakeholders' time. Often stakeholders are willing to commit to these traditional meeting spaces and these meeting spaces can provide the opportunity for learning.

7 TOOL 2: ACTIVE LEARNING FRAMEWORK (ALF): APPLYING ALF WITH GOVERNMENT OFFICIALS

For many years the MWP found that taking stakeholders into the field to experience a multifaceted environment together firsthand is a rich learning experience. Various stakeholders such as government officials, foresters, local community members, students, corporate representatives, farmers and many others have physically experienced the real issues and dynamics of wetlands within catchments with the MWP. However, simply visiting a wetland and seeing some of the impacts or uses of this wetland is only one part of the learning experience. The MWP drew on tools to deepen learning and catalyse social change with stakeholders in catchment contexts. These tools include the Active Learning Framework (ALF) and an educational resource called Windows on our World: Wetlands (WoW).

Figure 9: **Government officials doing a wetland delineation exercise in field**

There are key elements of any fieldtrip or training exercise, which ensure a meaningful learning experience. The ALF has provided MWP staff with the structure to develop activities that can be combined for meaningful environmental learning in the field (O'Donoghue, 2001).

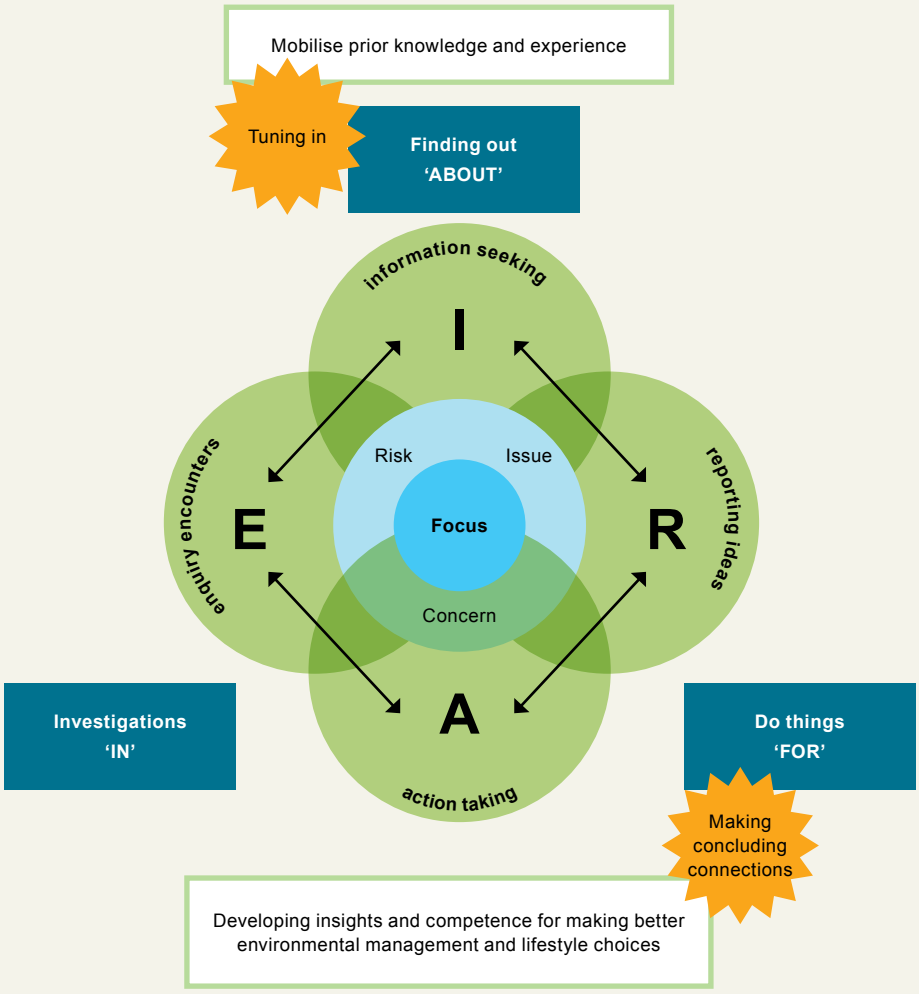

Figure 10: The Active Learning Framework (O'Donoghue, 2001)

The ALF was used to guide and then evaluate field experiences in a wetland conservation project in the Western Cape province of South Africa. The MWP worked with the conservation authority Cape Nature, the Breede Overberg Catchment Management Agency (BOCMA) and the Department of Agriculture (DoA) to train staff in assessing and developing action plans for wetlands. Examples of how the elements of the ALF were integrated into the learning experience will be explored.

7.1 Tuning in, mobilizing prior knowledge and experience, finding out

Cape Nature, BOCMA and DoA staff came together at the Cape Nature offices where introductory presentations on local wetland dynamics were provided. The presentations had ample time for discussion, which provided participants with the opportunity to **tune in** and **find out** about the foundational concepts and information. The presentations were interesting and concise, yet not too long, with lots of pictures and maps (especially local examples) which kept everyone engaged. Knowing the audience beforehand (their job descriptions, skills or interests) assisted the facilitators in asking questions and relating the information to the participants' contexts. The participants were able to **mobilise their prior knowledge** by using their skills in GIS to interpret and work with local biodiversity maps and data in preparation for doing fieldwork. In the field, the participants were able to seek information and find out about how to delineate a wetland and the tools and methods used to do this from a wetland specialist. Resources such as a wetland delineation manual and plant identification materials were provided so that participants were able to access relevant information.

7.2 Enquiry and investigation

The participants worked in groups to identify the boundary of the wetland (delineation). The groups had to **try out** the methods that were demonstrated to them by the wetland specialist, and conduct their own **investigation** in order to make a decision on where the wetland boundary was. Participants also had to **enquire** and evaluate the human activities in the wetland's catchment that may potentially be impacting upon its ecological state.

7.3 Action taking and doing things

Participants were able to use their recently acquired skills to **do** the wetland delineation themselves (auguring, looking at the soils against the *Munsell* colour chart, discussing and making decisions regarding the zones of the wetland and wetland vegetation). The groups then developed **actions** for a draft wetland management plan in response to the wetland impacts that they had investigated and the boundary of the wetland.

7.4 Reporting ideas and making concluding connections

Groups had to **report back** their decisions about the wetland boundary and the actions within the wetland management plan which they had developed in response to the impacts they had identified and what they had based their decisions on. The report-backs provided a useful point for the facilitators to offer feedback and for the participants to engage in further discussion. The resident farm manager and wetland conservation manager were part of these discussions. The participants were then able to make **concluding connections** with regards to the roles and management of the wetland and the relevance to their own workplace and institutional roles.

Structuring short field based learning experiences using the ALF has strengthened the work that the MWP has done with different stakeholders. However, it is only a start and further exploration and understanding of the broader catchment impacts and systems can be undertaken through additional learning opportunities. A complimentary educational resource has been developed which supports this learning.

8 TOOL 3: WINDOWS ON OUR WORLD: WETLANDS (WOW): APPLYING WOW WITH PLANTATION FORESTRY COMMUNITY ENGAGEMENT FACILITATORS

The Windows on our World: Wetlands (WoW) pack (WESSA, 2008), is a sophisticated education resource developed by the MWP that has been developed to support teaching and learning about wetlands at a landscape and catchment scale. It does this by encouraging learners to develop deeper understanding of wetlands and rivers, and their relationships to people. Lindley's (2009) critical review of WoW provides more detailed insight into the development and use of the resource.

Figure 11: The Windows on our World: Wetlands poster

The resource consists of a poster that graphically illustrates three different catchments from the mountains to the coast. One catchment is represented as being used by communal land users, another is in a relatively natural condition, and the third one is highly developed by commercial agriculture, urban and industrial development. The poster *"demonstrates key issues affecting wetlands and water resources in South Africa, showing clearly how land use and water use activities in the catchment affect water quality, resource quality and water availability downstream"* (WESSA, 2008,p. 1, facilitators guide). Almost all issues affecting wetland use and health have been included on the poster. A pack of scenario cards show real life scenarios of the relationship people have with wetlands. A pack of smaller game cards can be used as an "ice-breaker" activity which participants always enjoy. A CD containing over 2 100 pages of additional resources on wetlands and wetland impacts, which are hyperlinked to activities in the poster, is also included.

Points for discussion and questions for debate are provided on the back of each card to encourage deliberation of the catchment issues. Examples of ways WoW can be used for social learning include:

- To assess the learners prior knowledge and understandings about water and wetlands or to find out what their work in the water sector involves.
- To help learners to develop the skill of identifying and analyzing environmental problems.
- To encourage people to share information with each other.
- To demonstrate connections, interdependencies, and cause-and-effect relationships within catchments.
- To teach about the legal environment within which wetlands are protected, used, developed, conserved, controlled and managed.
- To clarify roles and responsibilities of various stakeholders and decision-makers.
- To explore values and conflicting interests in the use of water resources.
- To help learners develop an appropriate vision for the future.
- To encourage people to debate and negotiate appropriate actions for social and environmental transformation.

Figure 12: **Mondi staff using WoW to discuss local wetland issues and solutions in the Piet Retief area**

The MWP ran formal training with Mondi's Community Engagement Facilitators on environmental learning (including the ALF) and the use of WoW to support them in facilitating learning with the different stakeholders that they work with when dealing with natural resource use issues on Mondi land. For example, many rural communities living on Mondi land use open areas, including wetlands, for grazing cattle. WoW is now used as a tool to discuss the effects of grazing on the wetland and catchment, the roles of different people and the possible solutions for sustainable use of the wetland grazing areas, which meet the needs of all involved. Often these discussions are conducted in isiZulu. The resource can be used with participants from different backgrounds, ages, languages, levels of literacy and perspectives. The MWP often use WoW and the ALF jointly during field days or other engagements. WoW is often used to structure the discussions that take place and the ALF is used to structure the activities. These activities enable social learning but cannot be used alone to bring about long-term change. Expansive learning is a social learning process that the MWP turn to, to ensure long-term change can take place in the work with stakeholders who are willing to commit to further engagement.

9 EXPANSIVE LEARNING PROCESS: APPLYING EXPANSIVE LEARNING IN THE PLANTATION FORESTRY AND SUGAR INDUSTRIES

9.1 Applying the expansive learning process in a plantation forestry company

Mondi is an international forestry, pulp and paper company that manages over 300 000 ha of land in South Africa. WWF through the MWP has worked with Mondi for over a decade to improve its wetland management and sustainability practices with some cases of successful wetland rehabilitation. However, integration into the broader forestry operations had still not taken place and so Lindley (2014), led an interventionist practice-based research project to explore the factors inhibiting improved wetland management. His exploration of social learning literature led him to CHAT and expansive learning as a social learning theory, which provided him with a rigorous framework to strengthen organisational learning and development within Mondi to overcome these factors.

9.1.1 A brief introduction to expansive learning

Most standard theories of learning focus on learners or organisations acquiring stable knowledge that is reasonably defined from a more learned teacher who knows what needs to be learned, and this results in some lasting change in behaviour Engeström (2001). However, much of the learning that takes place in organisations violates this presumption, as in the workplace people are often learning knowledge that is not stable or known beforehand . The combined training of individual staff to develop new skills and knowledge will not help face these learning challenges. The problem is therefore an organisational learning one that cannot be solved by training individuals only. Engeström says that it is important to learn new forms of activity that have not yet been identified, resulting in learning as the new forms of activity are being created, without a more knowledgeable teacher who knows the answer, although external knowledge of the activity may exist elsewhere. Engeström is also adamant that "theories of organisational learning are typically weak in spelling out the specific processes or actions that make the learning process" (2001, p.150). He therefore put forward the theory of expansive learning to understand the type of learning required to learn new knowledge and new forms of activity that are not previously known, and the expansive learning cycle as a methodology for empirically researching how learning and change takes place in organisations.

Through using expansive learning processes, Lindley revealed how informal adult learning can support organisational change to strengthen wetland and environmental sustainability practices, within a corporate plantation forestry context. He also explored how individual and/or group-based learning interactions translate to the collective, at the level of organisational change. This project offers an approach to facilitating social learning with stakeholders identified in the RLA work. How such a project was undertaken will be explored in more detail.

9.1.2 The expansive learning cycle

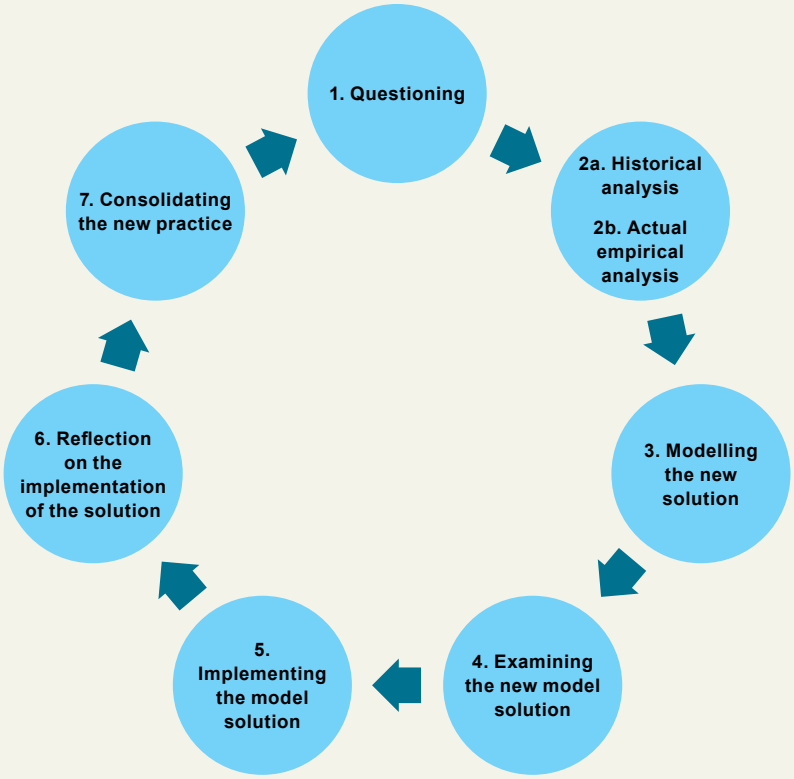

Figure 13: **Sequence of actions in the expansive learning cycle (Engeström, 1999, p. 384)**

The expansive learning cycle is a methodology for applying activity theory and the theory of expansive learning in the world of work and organisations. Engeström has developed a series of seven actions within an expansive learning cycle (see figure 13). The first action is the **questioning of current practices** based on evidence presented. Due to the multiple viewpoints of participants, this questioning of current practices could lead to a bit of conflict (which is a trigger for learning) as it supports practitioners to focus on the root causes of the problems that are preventing transformation from occurring. This vigorous questioning leads to the second step of **deeply analysing the cultural and historical origins of current practices** following onto more detailed questioning of the existing practices. The questioning and analysis are aimed at identifying and defining problems, and most importantly the **tensions and contradictions** that lie behind them. Tensions and contradictions will be described further on. It is out of this dialogic questioning that new opportunities and more informed practice potentially begin to emerge. The third step or strategic action, is **modelling of new solutions** and alternative ways of working and learning. The fourth step in the expansive learning cycle **examines the new model** through critical discussion to better grasp its viability. The fifth step relies on **implementing the model** and monitoring the effectiveness of it, and the sixth step involves reflecting on the process of the expansive learning cycle and its outcomes. Lastly, the seventh step revolves around **consolidating the practice**. It is important to note that although the seven steps of the expansive leaning cycle may appear to occur in a logical sequence, they do not necessarily follow each other.

9.1.3 Foundational concepts

Some of the foundational concepts within the theory guiding the practice-based research have been introduced below as they form the backbone of the project.

i) The Change Laboratory

Engeström and co-researchers also developed a workshop intervention toolkit called 'Change Laboratory' as a method or tool to implement the theory of expansive learning, which is typically conducted in an activity system that needs significant transformation. See Appendix E for further explanation of activity systems. The Change Laboratory has been designed as a method to implement Engeström's methodological expansive learning cycle, and has been fine-tuned by Engeström over the past 20 years. Workshop sessions take participants, such as farmers or extension officers, through the seven different steps of the expansive learning cycle.

ii) Tensions and contradictions

Participants analyse historically emerging **tensions and contradictions** in the interacting activity systems. According to Engeström *"Contradictions are tensions, which have accumulated over time within and between activity systems"* (2001, p.137). Virkkunen and Kuutti expand on this definition by explaining that *"contradictions are fundamental tensions and misalignments in the structure that typically manifest themselves as problems, ruptures, and breakdowns in the functioning of an activity system"* (2000, p.302). An example of a contradiction could be that a farmer must implement more sustainable farming practices in order to meet international standards and sell his crop, but he does not have access to examples and demonstrations of such sustainable farming practices. Contradictions are important as they inhibit change and new practices. When analyzing these tensions and contradictions participants look at the past, present and future periods of time, and develop solutions to deal with the contradictions in an effort to expand and co-construct a new reconceptualised object (e.g. improved wetland management) of the interacting activity systems.

iii) Mirror data and double stimulation

In a typical Change Laboratory setting, participants are seated specifically in a horseshoe arrangement all facing the data projection screen where mirror data is presented and events and ideas are recorded from the past, present and the future. **Mirror data** is data that has emerged from reflection and analysis of an activity system or interviews with participants, which is then 'reflected' back to the workshop participants. The foundation of the Change Laboratory is built on the data gathered from the activity setting (Engeström, 2008). Drawing on Vygotsky's concept of double stimulation, the mirror data, which is derived from the context and covers the issues at hand, provides the participants with a first stimulus. This first stimulus is when the participants are presented with a problem that they cannot solve on their own with their current understanding and knowledge. The second stimulus is when they are provided with a tool, or a set of questions, that can be used as an instrument for better understanding the problem and participants are able to develop solutions to it (Mukute, 2010). An example of such tools that can be used could be a workshop. The concept of **double stimulation** is crucial. This concept supports participants to bridge what Vygotsky calls the **zone of proximal development (ZPD)**, where the potential that each person has for learning is shaped by the social environment in which the learning occurs. Through acting on things in the world, learners engage with the meanings. Individuals bring some knowledge into a learning context and this knowledge can be increased by expanding learning. The zone of proximal

development is defined as the distance between *"actual development level as determined by independent problem solving and the level of potential development [the higher level] as determined through problem solving under adult guidance or collaboration with more capable peers"* (Vygotsky, 1978, p.86). Vygotsky sees people being able to move from lower to higher mental functions through the use of **mediated activities and psychological tools**. Our thoughts and actions are mediated at an individual and social level, by both psychological tools or signs (such as language) and technical tools (such as computers or a map).

9.1.4 Phases of application

Lindley followed Engeström's Change Laboratory method and the key processes closely, but slightly adapted its use to the context. He therefore altered the name of 'Change Laboratory workshops' to 'interventionist workshops'. The project was conducted in five phases to undertake 7 steps of the expansive learning cycle, as seen in figure 14:

- Phase 1: Contextual profiling to identify and describe three activity systems in Mondi responsible for wetland management.
- Phase 2: Analysis and identification of tensions and contradictions through a first interventionist workshop. Modelling new solutions to deal with contradictions, and examining and testing new models in and after the second interventionist workshop;
- Phase 3: Implementing new models as wetland management projects and monitoring the effectiveness of implementation.
- Phase 4: Reflecting on the expansive learning process, results, and consolidation of changed practices, through nine reflective interviews and field observations;
- Phase 5: Analysis of the organisational change and development catalysed via the expansive learning process (or not).

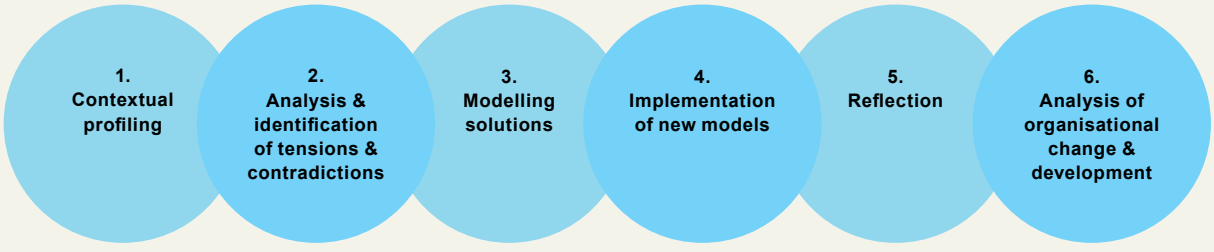

Figure 14: Phases of the project in Lindley (2014)

9.1.4.1 Phase 1: Contextual profiling

Contextual profiling is a way of developing relationships and trust with stakeholders while also gathering information. Lindley looked at three related activity systems in Mondi that are key to influencing the management of wetlands. These were the activity systems of the silviculture foresters who manage and take responsibility for the plantation estate and all its land including wetlands; the environmental specialists who advise the forester on wetland and environmental issues and guide Mondi's environmental compliance; and the community engagement facilitators (CEF) who are the 'relationship managers' between Mondi and neighbouring communities, and who facilitate the use of wetland and other natural resources by communities. The three activity systems were also surrounded by the institutional setting of Mondi. Lindley interviewed staff from these three activity systems and analysed this data using second generation CHAT (Appendix E) to understand and describe each of the activity systems, and a contextual profile of each was developed. This process formed the basis for exploring how the foresters, environmental specialists and CEFs were learning and practicing wetlands management. Appendix A illustrates these activity systems in detail.

9.1.4.2 Phase 2 and 3: Analysis and identification of tensions and contradictions, modeling solutions

During the interviews, the challenges and difficulties the foresters, environmental specialists and CEFs may have experienced that inhibited their learning and practice of wetland management were explored. Lindley used CHAT to develop a better understanding of the activity system, which allowed for the tensions and contradictions to emerge within and between the three activity systems. He grouped tensions that emerged from interviews with Mondi staff according to their similarity of theme, and then analysed the root causes to allow contradictions to emerge. For example, some of the tensions revealed in the interviews were that staff lack wetland management knowledge or information and do not have the time to learn. The contradiction that emerged is between the expectations of staff to improve wetland sustainability practices, and no recognised informal and formal learning plan or structure and learning materials in place to strengthen staff learning. Twelve contradictions emerged which were then shared as mirror data with those interviewed at the first interventionist workshop. They deepened their understanding of each contradiction before prioritising which contradictions they would work on. During this workshop, the mirror data gave participants an opportunity to see the anonymous concerns that others had raised, together with their own, which collaboratively allowed for a rich discussion of the tensions and contradictions.

Figure 15: Mondi staff participating in the first interventionist workshop

During the interviews, potential solutions were discussed to deal with the challenges and difficulties that Mondi staff thought might strengthen their wetland learning and practice. Examples of such solutions were holding more workshops and courses to improve communications; more field days to excite and motivate staff and managers or developing a toolkit of learning materials to support foresters and CEFs in their work with communities. During the interventionist workshop they began to develop possible solutions during explorations of the root causes of tensions and contradictions. A second interventionist workshop was then held a few months later with the aim to model solutions to deal with the prioritised contradictions. Participants had enough time in between to reflect on the first workshop. Further questioning was used as a tool to continue to probe the root causes of two prioritised contradictions and their associated tensions. This facilitated a deeper analysis of the data by the participants, identifying additional tensions as well as their root causes. Engeström (2008) termed this the second stimulus, which was used to challenge participants to reconstruct different ways of engaging with the arising tensions and develop potential solutions leading to more meaningful designs of the activity systems they were aiming to transform. Consequently the workshop encouraged participants to begin expanding the object of each activity system, and develop new tools, rules, and division of labour to provide new solutions overcoming the factors inhibiting improved management of Mondi's wetlands. Through this process participants were supported to develop an action and implementation plan, which modelled new solutions in the form of projects and alternative ways of working and learning that the participants thought would lead to new practices. As the fourth step in the expansive learning cycle, workshop participants examined this plan through critical discussion to better grasp its viability. The action plan included activities such as developing an induction programme, field days and development of a toolbox of ideas to support informal learning.

9.1.4.3 Phase 4: Implementing new models

The next step or action of the expansive learning cycle relies on implementing the modelled solutions and monitoring the effectiveness of their implementation. After the second interventionist workshop participants went back to their workplaces and worked on implementing the projects and initiating the new ways of working and learning that formed the combined action and implementation plan. At the end of the eight-month implementation period, five progress review workshops took place to share experiences of the expansive learning research, project implementation with all staff and to gain further views on the tensions and contradictions. It was also an opportunity to mobilise any additional support needed for implementing projects. Feedback was also given during a Mondi senior management meeting and seminar.

9.1.4.4 Phase 5: Reflection

The next step or action of the expansive learning cycle involved reflecting on the process of the expansive learning cycle and its outcomes with some of the participants through reflective interviews. These interviews were designed to encourage the participants to reflect on the expansive learning process and what it had meant to them. The last step of the expansive learning cycle revolves around consolidating the new practices. This step was also part of these reflective interviews.

9.1.4.5 Phase 6: Analysis of organizational change and development

Phase five was purely an analytical phase that drew on the data generated and analysed in all the previous phases. Realist social theory and the morphogenetic framework, was used to analyse and explain the details of how the change resulting from the change laboratory method had happened, or why change had not happened in some instances. The process resulted in change in many areas such as: 1) changes in institutional structures, 2) changes in wetland management practices of staff, 3) changes in approaches in how staff did their work, 4) changes in discourses when staff spoke to each other, and 5) changes in knowledge, values, and thinking of individual staff who participated.

i) Changes in organisational learning and development

It was also found that the expansive learning process supported organisational learning and development for improved wetland management in Mondi by (Lindley, 2014 p. 358):

1. Strengthening the scope, depth, and sophistication of participant **understanding**;

2. Expanding the ways staff **interact and collaboratively work** together;

3. **Democratising decision making** between staff;

4. **Improving social relations** between staff, reducing power differentials, and creating stronger relationships;

5. Enhancing participant reflexivity through deeper understanding of social structures and cultural systems, and changing them to support **improved wetland and environmental practice** of staff, and **developing the**

organisational structures and processes to strengthen organisational learning and development; and

6. Using the contradictions identified as generative mechanisms to **stimulate and catalyse** organisational learning and development for changed wetland/ environmental management.

i) Organisational changes

Changes which took place in the organization during the expansive learning process included (Lindley, 2014 p. 317):

- **Improved knowledge** in understanding technical aspects of wetlands and their management.
- Participants placed a **higher value** on the diverse roles of the different professional disciplines required for wetland management, and the importance of their **collaboration**.
- Participants **changed the way they thought** about: how they learnt about wetlands; how they worked and interacted with colleagues; how they understood their colleagues; and how they realised wetland management was important to their specific job descriptions.
- An increased intent to implement **more sophisticated solutions** developed collaboratively by the participants.
- Conversations on how wetland and environmental learning now took place become more **structured, longer term, and beginning to be institutionalised** in Mondi.
- Conversations were more **collaborative, interactive and inclusive** of each professional discipline.
- Conversations of what meaningful learning processes were, and which processes were important for **scaffolding a change in wetland and broader environmental practices**.
- Participant interaction between professional disciplines became more **collaborative, personal, empathic** of the other, and orientated to learning from each other.
- Change in practice of how participants **discuss/plan/implement wetland burning** with staff across professional disciplines.
- Change in the practice of how the **cattle of neighbouring communities graze wetlands** on Mondi landholdings.
- Change in the practice of **developing wetland plans together** across professional disciplines.
- Change in the practice of **communicating new environmental procedure and policies, and specialist report** backs.

- Development of **environmental training matrix** listing training options begins to institutionalise staff environmental learning, and contractor environmental training developed and implemented

- Development of **innovative induction structure and processes** begins to institutionalise environmental learning for new staff.

Exposure to Lindley's research and the emerging findings influenced MWP staff member Koopman (2015) to use the expansive learning process in the work that he was doing with the sugar industry.

9.2 Applying the expansive learning process with sugarcane growers and extension specialists

In South Africa sugarcane is an important commodity whose growth is supporting many livelihoods. Sugarcane agriculture can have a significant environmental impact when not farmed responsibly using sustainable farming practices. The industry is under pressure to conform to international standards of sustainable production by large corporate buyers like Coca-Cola. A response to this pressure has been a partnership between WWF and the sugar industry to develop and adopt a Sustainable Sugarcane Farm Management System (SuSFarMS™) as a sustainability decision support tool for sugarcane growers. However, the implementation of SuSFarMS™ required an unprecedented level of integrated action in the value chain. Sugar cane farmers, millers, the South African Sugar Association (SASA) and the South African Sugar Research Institute (SASRI) are all part of this value chain with the latter two being the dominant players in sugarcane extension. Historically SASA's and SASRI have used traditional top-down technology transfer approaches but an approach, which encourages collaboration, was needed. Koopman, who has worked with the industry for over a decade, initiated expansive learning project to examine the professional learning needed to foster multiagency partnerships supporting sustainability practices among SASRI extension specialists and large-scale commercial sugarcane growers. This project explored whether sugarcane growers and extensionists can be supported through the expansive learning process to identify and address inhibiting factors relating to sustainability, learning and understandings of SuSFarMS™. Similar to Lindley (2014), the project surfaced and identified tensions and contradictions related to the implementation of SuSFarMS™ which could then be further examined and probed for their root causes and possible solutions. Koopman (2015)'s project was conducted in 3 phases illustrated in figure 16.

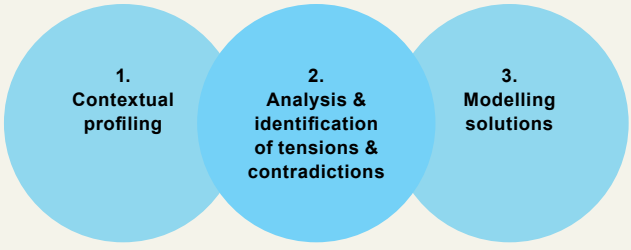

Figure 16: Phases of Research in Koopman (2015)

9.2.1 Phase 1: Contextual profiling

The first phase of contextual profiling identified and described two activity systems within the sugar industry that influence the management of terrestrial and freshwater natural resources. These are the extension and grower activity systems. The extension specialists provide capacity development support to growers on better management practices. Sugarcane growers focus on growing and supplying sugarcane to the mills as efficiently and profitably as possible. Although there are other activity systems that interact with, and play a role in the growers and extension activity systems, the project focused on the grower and extension activity systems (see Appendix E).

9.2.2 Phase 2: Analysis and identification of tensions and contradictions, modeling solutions

In the second phase, Koopman conducted 3 workshops modelled on Engeström's (1996) Change laboratory and examined data of how learning and implementation of SuSFarMS™ was taking place, from interviews with growers, extension specialists and industry managers. During the first workshop the participants discussed the tensions (for example "the challenge for the extension services to maintain and strengthen their skills base") and the contradictions (for example "between the expectations on extension staff to support sustainability practices and no learning plan or materials to strengthen learning") identified in the mirror data, focusing on its historicity and root causes together with the problems or difficulties that arise from it. This created the opportunity for the participants to share perspectives and probe the issues more deeply and allowed for rich discussions and the deepening of individual and collective understanding.

The reframing of the tensions and contradictions was followed by prioritizing 3 contradictions for deeper analysis. Due to limited time they were only able to work on one contradiction at the first workshop and focused on the other 2 at the second and third workshops. Each workshop was split into two sessions. The first session addressed step 1 and 2 in the expansive learning cycle, namely questioning current practices, examining their historicity and empirical evidence. Presentation of the data was supported by explanations of Engeström's activity system depictions and terminology. The second workshop session addressed step three in the expansive learning cycle, namely modelling new solutions or practices. Ultimately six model solutions were developed. An example of one of these was 'to prioritise action research that strengthens grower, extension and researcher understanding and develops quantifiable evidence relevant to applying SuSFarMS™ and implementing on-farm sustainability practices".

9.2.3 Insights on factors inhibiting learning

The project was able to reveal the following insights as factors that inhibit sustainability learning:

1. **No formal learning plan**, at a grower group level, in relation to SuSFarMS and its concept of sustainability, for growers and extension staff.

2. **Weak participation** from growers in formal learning opportunities related to SuSFarMS and sustainability practices.

3. **A lack of quantifiable evidence** as to the benefits of using SuSFarMS and implementing a holistic on-farm sustainability practice approach hinders broad grower and extension support.

4. **Strategic leadership** from industry governance structures on SuSFarMS and the concept of implementing a holistic on-farm sustainability practice approach is not evident to people on the ground.

5. The **efficacy of extension services** to support SuSFarMS as an approach towards achieving holistic on-farm sustainability is hampered by scope, structure and budget.

9.2.4 Solutions developed

The participants also developed the following model solutions:

1. **SASA's position and methodology** towards using SuSFarMS and achieving holistic on-farm sustainability needs to be made clear to all relevant internal and external stakeholders.

2. Ensure **communication and dialogue** occurs with all relevant internal and external stakeholders.

3. Identify and respond to grower and extension staff **knowledge needs**.

4. Strengthen informal grower and extension learning using appropriate **social learning processes**.

5. Strengthen organisational learning through **developing and implementing formal learning plans**.

6. Prioritise **action research** that strengthens grower, extension and researcher understanding and develops quantifiable evidence of the cost-benefit risks associated with SuSFarMS and implementing a holistic on-farm sustainability practice approach.

Koopman's (2015) project was of a smaller scale and depth to Lindley's (2014) project, however a comparison of the two projects offers us insight into the applicability and development of a project using expansive learning in the future.

9.3 Applying the expansive learning process within the Resilient Landscapes Approach

Koopman's (2015) project using the expansive learning process with growers and extension officers in the sugar industry revealed useful findings for the MWP and the industry, but did not reveal such clear evidence of change as Lindley's (2014) research with Mondi. The project would need to apply steps 4 to 7 of the expansive learning cycle with the participants. The model solutions would be examined and validated during the workshops, the relevant solutions selected and implemented and then the participants could critically reflect on the process. There would also be a step of consolidating the new practice. By completing the process the project could explore whether transformation of sustainability learning occurred through the expansive learning cycle.

Even in a smaller project like that of Koopman's, one of the limitations identified in this project was time required from participants for the Change Laboratory workshops. It may have been difficult for Koopman to secure commitment from the participants to complete steps 4 to 7. Lindley was able to secure Mondi's commitment and support for the process at all institutional levels. This is very important to note as we engage with stakeholders in the future and lay down the foundations of relationships, which will potentially secure commitment to such a process if we want to achieve the long-term social change required for resilient landscapes. A full cycle of expansive learning usually takes place over two or more years.

Engeström et al (2007) found that large cycles of expansive learning may take several years, and out of these, new forms of learning and working are developed. These large cycles emerge from many smaller cycles of new innovative learning and working which occur one after the other. The smaller cycles may be represented by one expansive learning project ending and a new one starting. However, the occurrence of many of these smaller consecutive cycles of new ways of learning and working together does not guarantee that a larger cycle of expansive learning is happening. Breaks happen between the ending of one small cycle, or project, and the beginning of the next. If the breaks are not bridged, then the larger cycle may not materialise and long-term change does not occur.

There may have been some findings of change in Mondi through the small cycle of expansive learning facilitated by Lindley, but there will need to be ongoing cycles of learning for major institutional change to happen in terms of sustainable wetland management. The bridging between these small cycles of expansive learning is important. The work of Koopman has possibly initiated a small cycle of expansive learning, however it is incomplete. Wals (2007) has also stated that sustainability is an ongoing cycle of continuous improvement. Therefore, if the RLA involves embarking on and committing to initiating and facilitating expansive learning processes with stakeholders, the bridging of these small cycles needs to be considered and established with the correct levels of control within the activity systems in order for long-term change to occur. In Mondi, the organisation's senior management needed to acknowledge and commit to this bridging process. Long-term social change will be a commitment that stretches far into the future.

9.3.1 Conclusion

Although the two projects were conducted as research they were interventionist and change orientated. Both contributed and were part of the work of the MWP with its major stakeholders. The expansive learning process provides a platform to shape and support open-ended environmental learning that can lead to reflexivity, deliberation around shared risks and catalyse the changing of practices to reduce these risks. It enables a safe learning 'space' with associated tools to act as the starting point for the interaction which will lead to points of confluence around shared value from the landscape. Change Laboratory workshops catalyse the participants engaging with the structures and cultural systems, which have created these risks.

Laying down the foundations of relationships, in order to secure commitment to such a process by industries, institutions (other than the sugar industry and Mondi) and stakeholders along the value chain, requires meaningful engagements which allow dialogues that spark action. The MWP has more than often had to make use of shorter learning experiences for engagement with stakeholders. Most people are extremely busy and have limited time, making commitments to longer learning processes difficult. However, it is these shorter engagements that often build the interest, relationships and trust needed to establish the commitment to the longer learning processes. These shorter engagements can have a significant impact if structured correctly. The MWP have used tools such as ALF, WoW and the Art of Hosting and Harvesting to structure and enhance the shorter opportunities for dialogue and learning activities with various stakeholders.

10 MONITORING AND EVALUATING SOCIAL LEARNING

It will be critical for the MWP to capture and monitor the learning that takes place in the implementation of the RLA over the next three years. A quality evaluation will be needed in order to share the lessons and experiences with the WWF and the WWF Mondi partnership teams and advocacy platforms. A well developed monitoring and evaluation plan would encourage ongoing reflexivity of staff and participants, with openness to incorporating new and innovative social learning processes and tools when required.

The intended outcomes of a social learning process cannot be formulated beforehand and should value the social learning process (Wals et al, 2009). In the context of the working world today this may seem difficult to apply in practice. We are programmed to be results driven and be able to measure our intended outcomes. Social learning allows for softer results, which are difficult to measure. These softer results are those such as the social capital which is built with a diverse group of people who seem to have the social cohesion required to work together constructively through tensions and conflicts. The trust within a group in creating a safe space for learning and sharing is also a softer result. In working or evaluating these 'softer results', reflection on the process of learning is important. Learning is ever-changing and uncertain and occurs at various levels- within individuals, within the group and within the broader network that these individuals and groups operate in. Personal relationships also change. And so evaluating the contribution of social learning to achieving set goals, such as resilient multifunctional landscapes, is difficult. One needs to focus on the degree to which individuals, groups and networks have developed and used their capacity to contribute to the social learning process within the context of resilient multifunctional landscapes (Wals et al, 2009). It is possible to illustrate this and provide concrete results through a mix of hard or instrumental approaches and the softer results of the change process and the use of sustainability indicators.

Lindley (2014 p 109)'s research with Mondi led him to develop criteria for what constitutes learning in the organization. The criteria took into consideration the type of learning that the research was interested in so that he could define what expansive learning looks like to see it when analysing the data. He determined the learning progression of the participants involved in the research project. Engeström and Kerosuo consider the outcomes of expansive learning as being very different, even contrary, to the outcomes of traditional theories of learning: "theories of learning typically speak of the outcomes of learning in terms of knowledge, skills and changed patterns of behaviour. In expansive learning, the outcomes are expanded objects and new collective work practices, including practices of thinking and discourse" (2007, p.339). Lindley used the following criteria, which he developed through an indepth analysis of the expansive learning literature, to help to clarify what constitutes learning in the context of his study:

1. Participants are able to deeply interrogate the sense, meaning and their understanding of the context in which they work, and through this questioning they begin to co-construct a broader context collectively with the other participants (Engeström, 2001).

2. Participants are able to develop an understanding of the historically changing character of the work done in their organisation (Virkkunen and Kuuttti; Daniels, et al., 2007).

3. Participants develop a broader orientation, perception and understanding of the activity than that which was initially conceptualised, and additional possibilities are developed that had previously not been thought about (Engeström, 2001).

4. Participants are able to develop new knowledge and create new collective work practices (Daniels, et al., 2007), including practices of thinking and discourse (Engeström and Kerosuo, 2007).

5. Participants are able to co-construct new professional practices that cross traditional professional 'tribal' boundaries (Warmington, et al., 2007).

6. Participants are able to collectively look at problems in new ways, and develop new tools to work with these problems, empowering the subjects to transform the activity system and collectively expand the object of the activity (Daniels, 2008).

Lindley then looked at the organisational and professional learning changes that took place during the expansive learning process using a table which organises the data against the 6 learning criteria listed above, an example of which is provided:

Changes at end of research (with supporting evidence referenced)	Status quo at beginning of research (with supporting evidence referenced)	Learning criteria satisfied
Participants placed a higher value on the diverse roles of the different professional disciplines required for wetland management, and the importance of their collaboration	Participants across the different professional disciplines (foresters, CEF's and environmental specialists) did not value each others roles in wetland management.	1,2,3
Participants changed the way they thought about: how they learnt about wetlands; how they worked and interacted with colleagues; how they understood their colleagues; and how they realised wetland management was important to their specific job descriptions.	Participants had a simplistic understanding of how they learnt about wetlands, who should be responsible for wetland management, and the importance of collaboration across professional disciplines for improved wetland management.	1, 2, 3, 4
Change in practice of how participants discuss/plan/ implement wetland burning with staff across professional disciplines.	The poorly managed burning of wetlands was seen to be a key issue of wetland health due to foresters making unilateral decisions.	4, 5, 6

Table 1: **Summary of the organisational and professional learning changes that have taken place during the expansive learning process**

The development of similar criteria, which clarify what constitutes learning in the context of the RLA, could be used to monitor change over time through facilitating social learning in the RLA. An overall evaluation that incorporates this means of capturing the "softer" results combined with harder evidence and products which funders often seek, would prove valuable and should be explored further by the MWP in testing of the RLA.

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APPENDICES

Appendix A: An example of a case of applying the Active Learning Framework within the RLA

Framework for applying social learning tools and processes within the Resilient Landscape Approach					
Catchment	uMngeni				
Tool/Process	Active Learning Framework				
Elements of process	Tune in, mobilize prior knowledge & experience	Find out	Enquire & investigate	Take action & do things	Report ideas & make concluding connections
How the elements will be integrated	Stakeholders introduce themselves and what their expectations are. Gather around the poster & identify, discuss issues on the poster they have experienced.	The fieldworker shares data on local risks & degradation. The group uses SUSFARMS to find out more about some of the practices used in response to these issues.	Go into the field to see some of these environmental issues. Eg. Wetland erosion. Sample soil to find the boundary of the wetland.	In smaller groups the stakeholders select an issue and develop a plan using SUSFARMS and their own experience to develop a sustainable farming practice that they can use on their own farmland	The groups come together to share & discuss their plans using the poster to make connections to the issues they identified earlier.
Time frame	8:00-8:30	8:30-9:00	9:00-11:00	11:00-13:00	13:00-14:00
Stakeholders	10 sugar cane farmers and 2 extension officers from SASA				
Activity Description	A fieldworker from WWF plans on running 1-2 day formal training session with 10 sugar farmers and 2 of the SASA extension officers who work with these farmers, near Noodsberg in the province of KwaZulu-Natal. The aim of the learning is to deepen the understanding of the environmental problems in the farmer's local area and potential sustainable farming practices drawing on SUSFARMS, a sustainable sugarcane management system developed by WWF and farmers. The fieldworker hopes to ensure that the farmers are able to share their own knowledge and practices, making the experience as relevant and useful to the farmers as possible. He will be combining the use of ALF with WoW.				
Resources	• O'Donoghue, R. (2001). Environment and Active Learning. NEEP guidelines for facilitating and assessing active learning in OBE. Share-Net, Howick. • SUSFARMS. (2012). Sustainable Sugarcane Farm Management System. Version 2 – November 2012.				

Appendix B: An example of a case of applying Windows on our World: Wetlands within the RLA

Framework for applying social learning tools and processes within the Resilient Landscape Approach						
Catchment	uMngeni					
Tool/Process	Windows on our World: Wetlands					
Elements of process	Identify & analyse environmental problems	Identify roles & responsibilities	Demonstrate connections, Interdependencies & cause-and-effect	Explore values & conflicting interests	Develop actions for social & environmental change	Develop a vision for the future
How the elements will be integrated	Gather around the poster & identify, discuss issues on the poster they have experienced. The fieldworker shares data on local risks & degradation.	They discuss who is involved in the various issues they have identified.	The fieldworker uses a pen to draw the connections upstream and downstream in a catchment between issues and roleplayers.	The stakeholders share the issues most important to them and the fieldworker shares the issues most important to WWF	In smaller groups the farmers select an issue and develop a plan using SUSFARMS and their own experience to develop a sustainable farming practice that they can use on their own farmland	Once the stakeholders have shared their plans they decide on a way to further develop and share their sustainable farming plans and learn further.
Time frame	8:00-9:00	8:00- 9:00	8:00- 9:00	8:00- 9:00	11:00-13:00	14:00-15:00
Stakeholders	10 sugar cane farmers and 2 extension officers from SASA					
Activity Description	A fieldworker from WWF plans on running 1-2 day formal training session with 10 sugar farmers and 2 of the SASA extension officers who work with these farmers, near Noodsberg in the province of KwaZulu-Natal. The aim of the learning is to deepen the understanding of the environmental problems in the farmer's local area and potential sustainable farming practices drawing on SUSFARMS, a sustainable sugarcane management system developed by WWF and farmers. The fieldworker hopes to ensure that the farmers are able to share their own knowledge and practices, making the experience as relevant and useful to the farmers as possible. WoW is used in combination with ALF.					
Resources	• WESSA. (2008). *Windows on our World: Wetlands: An education resource for wetland focused education and training*. Howick: Wildlife and Environment Society of South Africa. • SUSFARMS. (2012). Sustainable Sugarcane Farm Management System. Version 2 – November 2012.					

Appendix C: An example of a case of applying the Expansive learning Process within the RLA

Framework for applying social learning tools and processes within the Resilient Landscape Approach						
Catchment	uMngeni- Karkloof					
Tool/Process	Expansive learning Process					
Elements of process	Contextual Profiling	Analysis & identification of tensions &contradictions	Modelling solutions	Implementation of new models	Reflection	Analysis of organisational change & development
How the elements will be integrated	Identify and describe the activity systems of 3 Dairy farmers, the KZN Milk Producers Organisation and DoA Extension Officers involved in exploring sustainable dairy farming practices through interviews.	Analysis and identification of tensions and contradictions inhibiting change and new practices,kl through a first interventionist workshop.	Modelling new solutions to deal with contradictions, and examining and testing new models in and after a second interventionist workshop.	Implementing new models as sustainable farming practices projects. Monitoring the effectiveness of implementation.	Reflecting on the expansive learning process, results, and consolidation of changed practices, through reflective interviews & field observations.	Analysis of the organisational change and development catalysed via the expansive learning process (or not).
Time frame	January -July Year 1	August Year1	October Year 1	Nov -Oct Year 1-2	November Year2	December Year2
Stakeholders	3 Dairy farmers in the Karkloof area, 2 Department of Agriculture Extension Officers, Chairman of the KZN Milk Producers Organisation					
Activity Description	WWF's Mondi Wetlands Programme has formed a relationship with a champion dairy farmer in the Karkloof area who has been exploring no-till farming practices and working with Karkloof Conservation & Tourism. Two neighbouring farmers in the catchment have also shown interest in working with the MWP to explore sustainable farming practices. The farmers have met with the Department of Agricultures Extension Officers on better practices but feel that the extension officers need some form of capacity development in sustainable farming. The KZN Milk Producers Organisation is representing the farmers in the area and is potentially interested in promoting sustainable farming practices and they play a crucial role in the uptake of new ideas by most dairy farmers in the catchment. An expansive learning cycle has the potential to deeply explore the different activity systems and the issues that they face in achieving more sustainable farming practices. As well as coming up with solutions to the issues and developing projects around sustainable farming practices.					

Resources	
	• Lindley, D. (2014). Can expansive (social) learning processes strengthen organisational learning for improved wetland management in a plantation forestry company, and if so how? A case study of Mondi. Unpublished PhD thesis. Grahamstown, Rhodes University. • Koopman, V. (2015). Exploring expansive learning in sustainable agriculture: A case study of commercial sugarcane farmers and extensionists in KwaZulu-Natal Midlands and South Coast. Unpublished Masters thesis. Pietermaritzburg, University of KwaZulu-Natal. • Engeström, Y. (2001). Expansive learning at work: toward an activity theoretical reconceptualisation. *Journal of Education and Work*, 14(1), 133-156. • Engeström, Y. (2008), September. From *Design experiments to formative interventions*. ISCAR conference, San Diego, California.

Appendix D: An example of a case of applying The Art of Hosting & Harvesting within the RLA

Framework for applying social learning tools and processes within the Resilient Landscape Approach				
Catchment	uMngeni			
Tool/Process	The Art of Hosting & Harvesting Conversations that Matter			
Elements of process	Harvesting	Collective mind map	World Cafe	Open space technology
How the elements will be integrated	A representative from each sector will volunteer to play a role in harvesting the issues and discussions. Capturing the key outcomes from each activity. At the end of the day the team of harvesters will come together to consolidate the main outcomes into a set of resolutions with actions. These are shared and further adjusted and prioritized with the broader audience after dinner.	The day starts with a collective mind map to identify and vote on the key issues to tackle during the day.	Using the key issues identified in the collective mind map, the stakeholders form groups (a mix from all sectors) to further discuss through the world café technique. This takes place just after a finger lunch where people eat as they work.	After a tea break, this method will be used to allow the different stakeholders to introduce any further issues or needs to the groups. The conveners of these discussion groups will schedule meetings into the evening and try to get to a point of convergence where a few actions are developed. After dinner the group will come together again to share the final outcomes in a closing circle.
Time frame	Ongoing	9:30-11:00	11:00-13:00	14:00-17:00, 19:00-20:00
Stakeholders	Representatives from: Nestle, Coke, Nedbank, ABSA, Santam, Woolworths, SASA, SASRI, Illovo, UCL, Clover, South African Pork Producers Organisation, Eskort, Milk Producers Organisation, Forestry SA, Southern African Society of Dairy Technology, WWF Mondi Wetlands Programme staff, Mondi Ltd.			
Activity Description	Mondi and the WWF Freshwater team are coordinating an event to discuss the integration of sustainable agricultural practices and introduce the concept of New Generation Plantations with different sectors-Sugar, Dairy and Pork. They are wanting to create a space where the different sectors can share what they are doing while also allowing retailers, insurers, financiers and buyers the opportunity to gain more insight into these sectors and their sustainable practices and add their insights into the discussions. This large and high profile gathering is limited to 1 day. An independent facilitator is used to guide the day with assistance from MWP staff.			
Resources	• AoH. (2010). The Art of Hosting & Harvesting Conversations that Matter Workbook 2010. MSLS, KaosPilots, Team Academy, Karlskrona, Sweden. www.artofhosting.org			

Appendix E: Three generations of Cultural Historical Activity Theory

First generation CHAT

The **first generation CHAT** is based on the work of Vygotsky and mediated action. The figure 17 below shows the subject working towards the object or problem (not the objective) through the mediation of tools of practice or cultural artefacts reflecting a history of past learning by others.

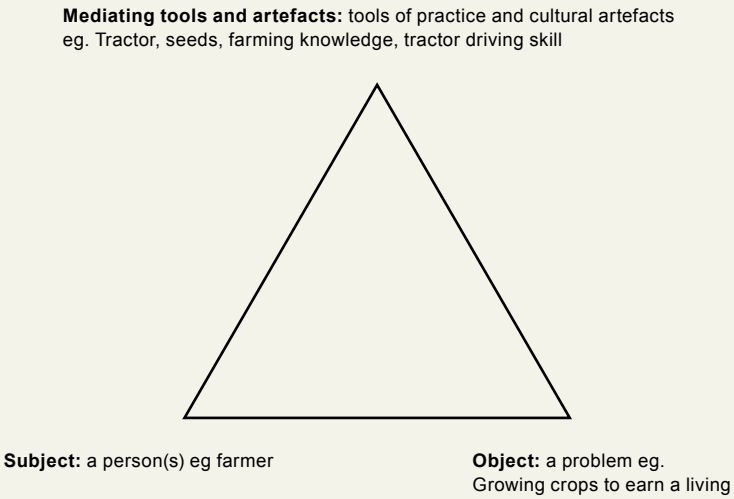


Figure 17: First generation model of mediated action (adapted from Engeström, 2001,p. 134)

For example, a farmer (the **subject**) is working on the growing his sugar cane crop and keeping his land productive (the **object**). In order to farm, he needs things such as seeds and tractors, as well as the skills and knowledge and these are his **tools of practice**. The focus is only on the individual and so second generation CHAT was developed to overcome the limitation of this.

Second generation CHAT

The **second generation CHAT** was developed through the work of Leont'ev and Luria. Leont'ev broadened first generation CHAT from the individual action to the collective activity, highlighting mediating tools of practice and its relationship with three new aspects. Engeström incorporated collective elements of an activity system as rules, community of practice, and division of labour into the diagram (Engeström, 2001).

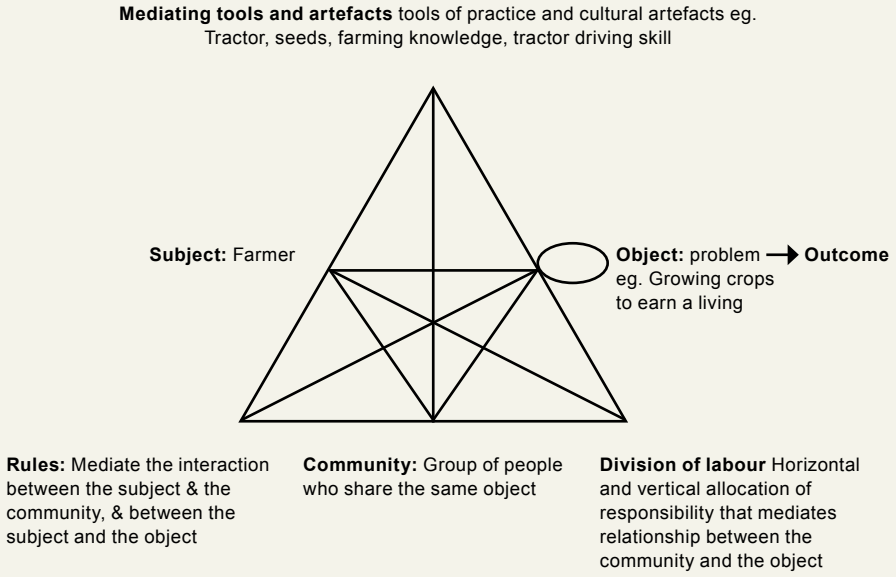


Figure 18: **A second generation mediating triangle of an activity system (adapted from Engeström, 1987, p.178).**

We learn and practice in social, economic and ecological contexts and there are rules within these different contexts which influence us. For example, environmental factors such as rain and soil; the law which dictates where a farmer can and cannot plant; or what pesticides he can use, all influence how the farmer (subject) grows his crops (object). The farmer is part of a **community** which includes his family, other farmers, extension, the agricultural association he belongs to, the market etc. The farmer also ensures that certain jobs to produce crops are undertaken by different people. He has tractor drivers, an accountant, people who plant the seeds and they are all part of his **division of labour**. The interaction of these divisions of labour, the community, the tools, the subject and the object make up the **activity system**. Tools, rules and divisions of labour are all different cultural artefacts. The activity system allows us to explore the interactions and relationships between subjects and the objects they are working on, mediating tools and artefacts that are used, rules that govern the use of the system, the community involved in the system, and a division of labour among those working in the system (Daniels, 2008).

Third generation CHAT

Third generation CHAT was developed by Engeström and colleagues and focuses on interactions that occur between two or more second generation activity systems, that are working on a shared object, and the complexities that arise when their boundaries meet and are crossed. Figure 19 is an illustration of the major components of third generation CHAT.

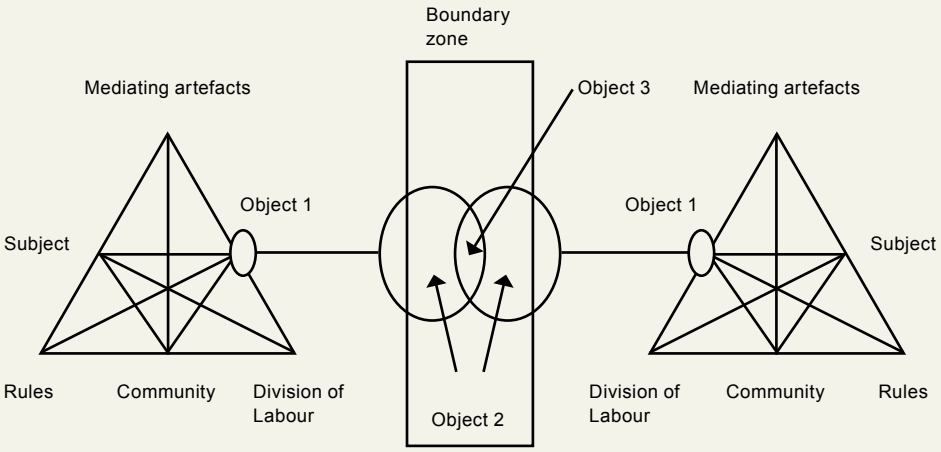


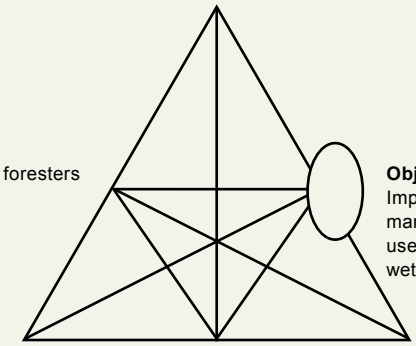
Figure 19: Third generation activity theory (Adapted from Engeström, 2008, p.14).

This could be the activity system of the farmer and the agricultural extension services, for example. Third generation CHAT focuses on the joint practice that the interacting activity systems act on, and so focuses on the contradictions occurring within and between these activity systems, which trigger social change. A methodology to explore this is offered through the expansive learning cycle.

Appendix F: Wetland management activity systems of silviculture foresters, environmental specialists and community engagement facilitators

Mediating tools: The tools foresters are using to mediate their wetland sustainability practices include: interaction with their Mondi colleagues and external specialists, past experiences, guidelines and reports, experimenting, and occasional workshops.

Subject: Silviculture foresters



Object: Implementing the management and use (regulation) of wetland resources.

→ **Outcome:** Healthy wetlands providing ecosystem services.

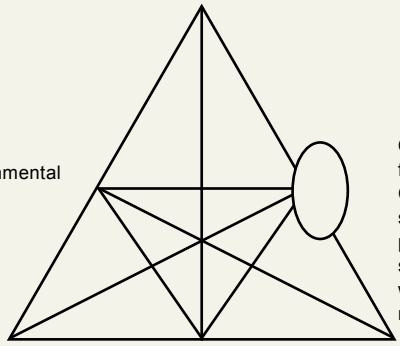
Rules: Mondi policies and procedures, community relations trust and beliefs govern how foresters manage the wetland resources.

Community: Foresters work with CEFs, communities, environmental specialists, conservation contractors and specialist consultants on wetland sustainability practices.

Division of labour: Foresters depend on CEFs to develop relations with communities and collaboratively manage wetland resource use by communities; contractors for clearing alien plants and burning firebreaks; and environmental specialists for conservation advice.

Mediating tools: The tools enviro specialists are using to mediate their work with foresters and CEFs on wetland sustainability practices include their past experiences, audits, management guidelines, infrequent courses and informal social learning.

Subject: Environmental specialists



Object: Advising foresters and CEFs on sustainability practices strengthening wetland management.

→ **Outcome:** Well managed wetlands and open areas.

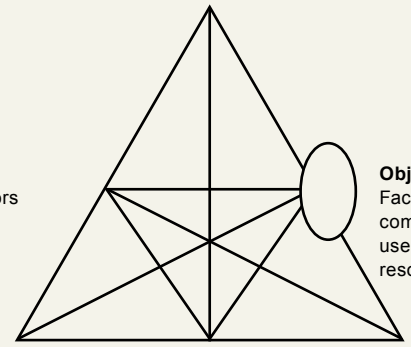
Rules: Mondi policy and procedures, legislation and global certification, community will and trust in staff, govern the use and management of wetlands.

Community: Environmental specialists work with foresters, CEFs, conservation contractors, communities and the Department of Agriculture on wetland sustainability practices.

Division of labour: The environmental specialist depends on contractors to burn firebreaks, clear aliens, and herd cattle; CEFs to work with the community on burning and grazing issues; and foresters to implement wetland delineation, manage impact of roads on wetlands, burning, grazing and to control wetland resource use.

Mediating tools: The tools CEFs are using to mediate wetland resources use by communities includes their past experiences, informal social learning with communities, colleagues and external specialists.

Subject: Community Engagement Facilitators



Object: Facilitating community use of wetland resources.

→

Outcome: Mondi and community working and learning together to better manage wetlands.

Rules: The cultural approach of working with communities is essential to developing trust and transparency for implementing Mondi's wetland resource use policies and procedures.

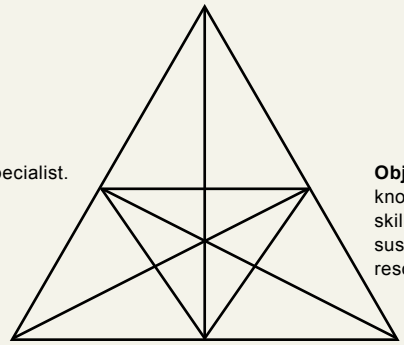
Community: CEFs work with communities, consultants, foresters and environmental specialists on wetland resource use.

Division of labour: CEFs depend on few other staff, but in some cases the forester to say where communities can harvest wetland resources and a consultant's advice on managing a cattle project.

Appendix G: Activity systems of sugar cane growers and extension specialists

Mediating tools: SuSFarMS manual, farmer days, demonstration plots, model farms, SASRI research bulletins, past experience, informal social learning, and occasional courses.

Subject: Extension specialist.



Object: Farmer knowledge and skills base, sustainable natural resource use. → **Outcome:** sustainable production, good land husbandry, adoption of BMPs & SuSFarMS.

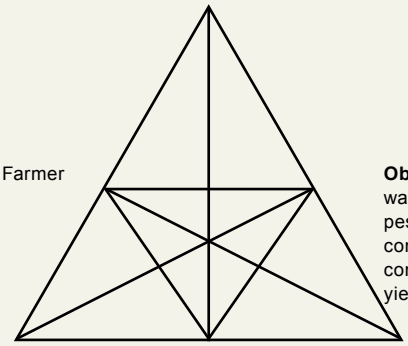
Rules: Agro-ecological conditions, national & provincial legislation, pest & disease rules, SASRI policy, farmer community will and trust.

Community: Department of Agriculture, growers, local Cane grower Association, Pest & Disease Committees, Local Environment Committee, regional extension manager & fellow colleagues, SASRI research scientists, & SASA, external provincial conservation.

Division of labour: Extension specialist depends on SA Canegrower regional manager to provide business/financial advice, SASRI researchers for technical advice/research & SASA, external provincial conservation department, WWF & WESSA for conservation & environmental advice.

Mediating tools: SuSFarMS manual, agro-chemicals & fertilizers, agro-machinery, look & learn farm visits, SASRI research bulletins, SASRI sugarcane certificate course.

Subject: Sugarcane Farmer



Object: Soil & water conservation, pest & disease control, alien plant control, sugarcane yield & RV. → **Outcome:** Ecological and livelihood resilience, enhanced productivity, risk minimisation.

Rules: Agro-ecological conditions, national & provincial agro-ecological legislation, industry pest & disease rules, Sugar Act, Mill cane supply contracts.

Community: Department of Agriculture, grower colleagues, local Cane grower Association, Pest & Disease officer, Local Environment Committee, extensions specialist, external provincial conservation department, WWF & WESSA

Division of labour: farmers rely on employees for land preparation, planting, harvesting, alien plant control, weeding, cane loading & transport, industry extension services and researchers for technology development & advice, SASA and external conservation stakeholders for ecological advice

WWF's work in the uMgeni River Catchment

1991

The year that the very successful WWF Mondi Wetlands Programme was established

5MIL

Number of people that reside within the Greater uMngeni River Catchment in KwaZulu Natal, South Africa

6

Number of sub-catchments where WWF and its partners are piloting and testing the Resilient Landscape Approach and strengthening water stewardship

495mm

South Africa's average rainfall per annum

20%

Total estimated gross national product of the country generated within the Greater uMngeni River Catchment

Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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