The application of a risk-assessment approach to FSC certification in South Africa

Case Study – South Africa **Final Report – 28/08/2017**

1. Introduction:

In South Africa it was felt that certification could become dramatically more effective through a process of risk analysis.

In 2014 Forestry South Africa embarked on a study to identify ways to make certification more achievable for smallholders (Germishuizen, 2016, in prep). Part of this study explored how a risk assessment approach to certification could be applied to tailor certification requirements to the forestry landscape. In so doing small-scale and low-risk operations would be subject to fewer, more directed certification requirements. This approach was used by the South African FSC SDG in the transfer process in order to tailor the IGI's to the South African context.

The FSC, in its Global Strategic plan stated that it will be incorporating the concept of risk at various levels into its practice. In the strategy, risk-based is defined as "verification methods that calibrate auditing intensity against actual risk of non-conformance." However, there is an important distinction between this definitions, and how risk is applied in the work reported on in this case study. Risk in this instance is the risk of forestry operations on the environmental, social and economic values and effectively on the sustainability of the operation. Through this approach, the indicators themselves should be shaped by the risks and importance given to a particular indicator should be appropriate to the risk posed to the values. It must be acknowledged that the FSC Policy and Standards present a constraint to the implementation of this approach. In addition to describing the risk assessment approach, this study identifies the some policies and standards that would either have to be adapted or interpreted differently in order for this approach to be accommodated.

It is felt that this work could contribute substantially to the implementation of risk into certification practice by providing a methodology for objectively assessing the risks of forestry operations on the socio-ecological values in the landscape. This approach is useful both in developing or transferring a standard or applying it in a variety of contexts or landscapes.

The effectiveness of certification as an incentive for improved forest management could be greatly enhanced by assessing the risks plantation forestry activities pose to the sustainability of the operation.

This report describes how the risk-based approach was applied to the development of a national standard (or in the transfer process from version 4 of the PCI to version 5 of the PCIs.)

It then describes how it was used to adapt the national standard to different forestry landscapes resulting in a set of indicators which is tailored to the risk profile of forestry in that landscape.

2. The Development of the risk assessment

2.1 Identification of social, economic and environmental values for Plantation Forestry

It was the SDG's interpretation of the following criteria;

- 6.1, which in short, requires the organization* to assess environmental values*,
- 6.2, which requires the organization, assess the scale, intensity and risk* of potential impacts of management activities on the identified environmental values* and
- 6.3, which require the implementation of effective actions to prevent negative impacts of management activities on the environmental values,

which led them to conclude that if these criteria were complied with thoroughly, it would cover all the environmental requirements in the standard and effectively render a substantial portion of the standard redundant. It became clear that the environmental values* referred to in P6 could be defined for the entire plantation industry and could be equated to conservation values. Furthermore, it was understood that due to the regular nature of the plantation cycle, the impacts of management activities on environmental values are mostly predictable and can be avoided or mitigated.

The approach was to identify the environmental values as the asset base upon which sustainable plantation management relies upon.

Environmental values were identified using the following rationale:

- The FSC Definition of Environmental Values is as follows:

The following set of elements of the biophysical and human environment:

- *ecosystem functions ** (including carbon sequestration and storage);*
- *biological diversity;*
- *water resources;*
- *soils;*
- *atmosphere;*
- *landscape values (including cultural and spiritual values) (FSC Glossary)*

- Ecosystem functions** are commonly listed and categorized in a way similar to the schema outlined by Maynard, et. al., (2010):

- Regulatory functions: Gas regulation, climate regulation, disturbance regulation, water regulation, soil retention, nutrient regulation, water treatment and assimilation, pollination, biological control, barrier effect of vegetation.
- Supporting functions: Supporting habitats, soil formation
- Provisioning functions: Food, raw materials, water supply, genetic resources, provision of shade and shelter, pharmacological resources
- Cultural functions: Landscape opportunity.

It was noticed that in the FSC definition of Environmental Values the first bullet "ecosystem functions" encompasses the next 5 in the list, which are all ecosystem functions. It follows then that environmental values can equate directly to ecosystem functions.

A set of environmental values was adapted from the Maynard et. al. (2010) definition for the plantation environment, resulting in 21 environmental values categorized into regulatory, supporting, provisioning and cultural functions. The risk assessment considered all these values. After completing the risk assessment these were condensed into 13 values without sacrificing any useful detail. Further examination revealed that these Environmental Values could be also be aligned to the 6 conservation values designated by the FSC as HCVs. This process identified the following environmental values:

- biodiversity, (HCV1)
- landscape level ecosystems, (HCV2)
- ecological integrity (conservation zones), (HCV3)
- recreational and aesthetic values, (HCV 4)
- water quality, (HCV 4)
- water supply or quantity, (HCV 4)
- soil retention, (HCV 4)
- local climate and air quality, (HCV 4)
- carbon storage and the carbon cycle (HCV 4)
- water use locally, (HCV 5)
- grazing (HCV 5)
- spiritual and religious sites, (HCV 6) and
- Archaeological and historical sites (HCV 6).

The realisation that the FSC Principles and Criteria actually identify the values that should be managed allowed the project team to identify social values pertaining to workers' rights, indigenous people's rights and community relations from the P, C & I, and s. The following social values were identified:

- Indigenous people rights,
- Indigenous knowledge,

- Opportunities for employment,
- Economic development,
- Community harmony,
- Fundamental rights at work,
- Health and safety
- Wages
- Work performance,
- Workers accommodation,
- Working conditions, and
- Workplace harmony.

Principle 5 deals with the benefits from the forest or plantation and it is from these that the following economic value were identified:

- Reputation of the organisation
- Productivity of the plantation, especially for the long term

Twenty seven values were identified as important for the sustainability of plantation management

MANAGEMENT ACTIVITIES							ENVIRONMENTAL VALUES									COMMUNITY VALUES									WORKPLACE VALUES							EV	
				SEVERITY	PROBABILITY		CV 1: Biodiversity	CV 2: Landscape-le	CV 3: Ecological int	CV 4: Recreation/A	CV 4: Water qualit	CV 4: Water supply	CV 4: Soil Retentio	CV 4: Local climate	CV 4: Carbon stora	CV 5: Water use lo	CV 5: Grazing	CV 6: Spiritual and	CV 6: Archeologic	Recognition of ind	Indigenous knowle	Opportunities for e	Economic develop	Community harmo	Fundamental right	H&S	Wages	Work performanc	Workers accomod	Comfortable work	Workplace harmo	Reputation	EV - Long term pr
		SCALE		0-5	0-3																											
CATEGORY	ACTIVITIES	HAZARD	IMPACT (loss, damage, inju	S	P																											
Planning	Planning cycle *	lack of effective planning	Financial loss/bankruptcy	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Legality	Compliance with legislation	legal implications of lack of compliance	loss of license to operate	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Traceability	System for tracking and tracing	break in COC	loss of FSC market	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
Financial security	Financial management	corruption	Financial loss, damaged reputation	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Financial security	Silvicultural management	reduction in yields	Financial loss	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Financial security	Budget and costs management	Inability to manage responsibly	Financial loss/bankruptcy	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Legality	Establishing security of tenure	insecure tenure	Loss of access to FMU	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Certification	Maintaining certification	loss of certification	loss of FSC market	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
Employment	Mechanisation	loss of jobs (community)	Community unrest - arson	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
Employment	Own labour	increased labour costs	Financial loss	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Employment	Own labour	worker dissatisfaction	Low productivity/Financial loss	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Employment	Mechanization	community unrest (protests and arson)	Community unrest - arson	1	1	1	2	2	2	2	2	1	2	2	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Employment	Outsourcing	poorer working conditions	Low productivity/Financial loss	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	1	1	2	2	2	2	2	2

Figure 1. An example of the risk assessment matrix and the identified values.

2.2 Identification of the hazards which Plantation forestry activities pose to the social, economic and environmental values

An exhaustive list of potential management activities and the potential hazards associated with each of these activities, was developed by systematically working through the way plantations are established and managed in South Africa.

Each hazard was evaluated according to which value it affected on a matrix, with the values on the X axis and the management activities and their hazards on the Y axis. The following code was applied.

0 = The Management Activity is unrelated to the value.

1 = The Management Activity may influence the value indirectly but not in a way that can be managed.

2 = The Management Activity impacts the value and measures can be taken to avoid or mitigate the impacts.

3 = The Management Activity impacts the value in a potentially irreversible way and authorizations are required from government before the activity can proceed.

The resultant matrix provides a list of plantation forestry activities in South Africa and the values that are affected by each activity. The matrix provides guidance to SDGs for the development of indicators in the NFSS process.

Note – it was accepted by the SDG that there needs to consistency in the identification of activities, hazards and impacts applied in the development process.

3. **Linking Indicators to management activities**

The indicators as contained in the draft South African NFSS were linked to the management activities and their associated hazards by listing their number next to each activity. Many indicators were listed several times as the same indicator can apply to many activities.

4. **Risk Rating**

The risk for this assessment was the product of the probability that an activity will result in injury, damage or loss and the magnitude or severity of the loss.

Risk rating = Probability x Severity

Probability was simply scored on a scale of 1 to 3 where:

1 = unlikely to happen,

2 = even chance that the loss will or will not happen and

3 = almost certain that the loss will happen.

Probability must be viewed in the context of the frequency that the activity takes place and the mitigation in place by management and the conditions on the FMU.

Severity is the probable magnitude or seriousness of the injury, damage or loss and was scored on a scale of 1 to 5. As impacts to environmental, social and economic values need to be described differently, these are set out in table 2.

Table 1. Description for each score of the magnitude or severity of the losses to the four categories of values.

Magnitude or severity of loss				
ENVIRONMENTAL	COMMUNITY	WORKPLACE	ECONOMIC	SCORE
Impact Irreversible or over a large scale (FMU and beyond)	Destruction of entire community	Inability of individual or workforce to work	Bankruptcy or inability to continue with land-use activity	5
long term impact(5yrs or more) over large scale (FMU and beyond)	Severe impact on livelihoods of many in community	long term impact on worker (s) (< 1 yr)	Major loss and disruption of business processes – requires reorganisation of business plans or a major change in land-use activities	4
Medium term impact (1-5yrs) over area of occurrence or adjacent areas within the FMU	Moderate impact on livelihoods of the people affected	Moderate impact on workers for medium term* (1-12 months)	Loss impacts profitability and may require adjustment of plans but without disruption to normal processes	3
Short term) impact (>1 yr) at site of occurrence	Inconvenience but easily rectified	Short term impact on affected workers (>1 month)	Loss inconvenient but absorbable – no re-planning required	2
Easily reversible impact over limited area*	Acceptable inconvenience***	Acceptable inconvenience	Small loss which considered business as usual	1

Risk Tolerance is defined as the degree, amount, or volume of risk that an organization or individual will withstand

The following risk designations were assigned to numerical values resulting from the risk assessment after consultation. We thought that this could be a source of controversy but we encountered very little disagreement between stakeholders on what constituted the top risks in South Africa plantation forestry. In reality the risk assessment provided a very useful tool for debating the relative risks of activities as was done in workshops during the development

of the National Standard. High risks are effectively keystone indicators on which a number of factors depend.

Table 2. Risk rating scores that relate to the 3 risk designations

Risk designation	Value
High	8 -15
Medium	4 -7
Low	1- 4
Not applicable	0

The resultant risk matrix along with the associated indicators forms the template for conducting risk assessments for plantation forestry in South Africa.

5. The Process

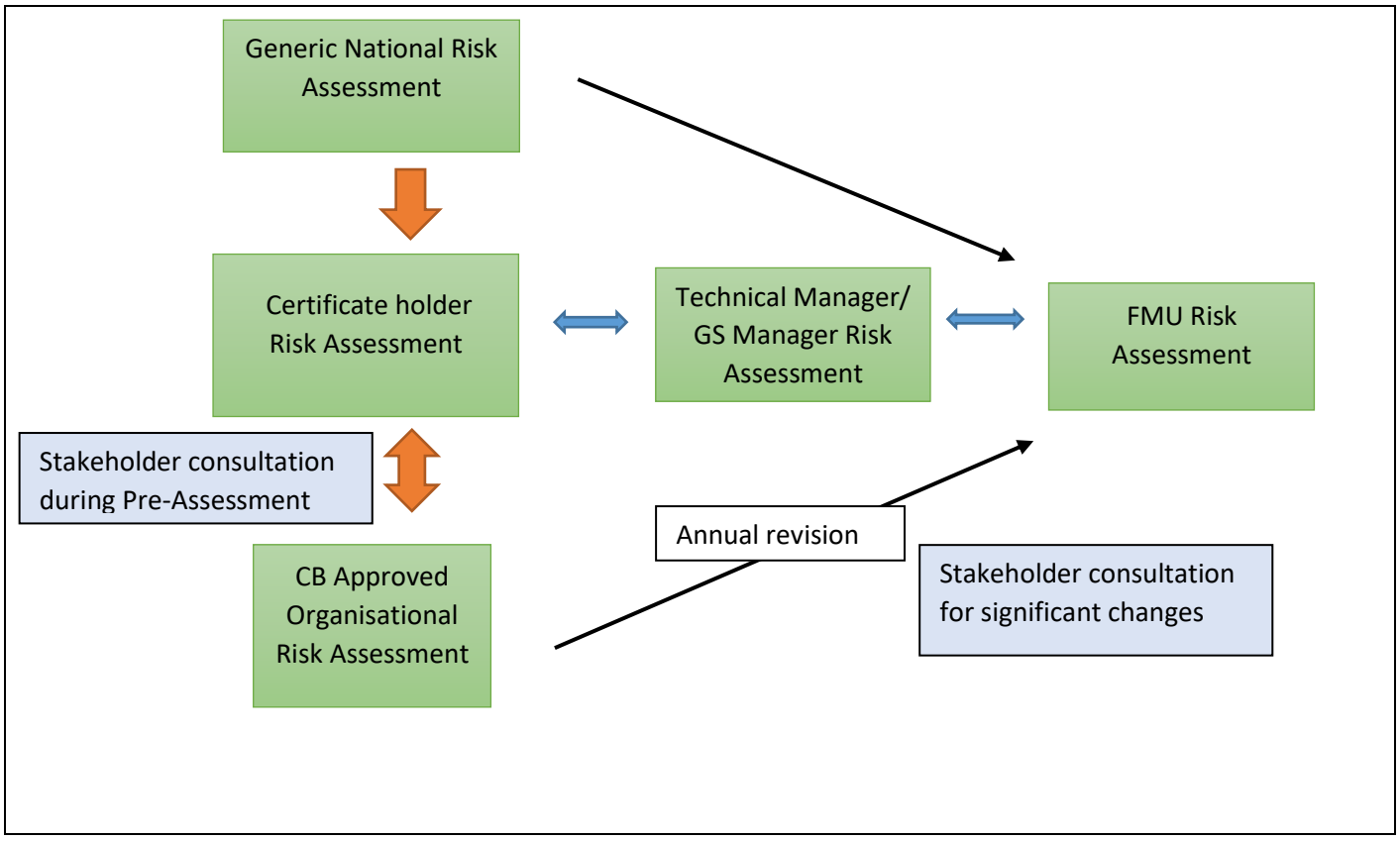

Figure 2: Process Flow for Proposed Implementation of the Risk Assessment

6. National Risk Assessment

For the purposes of this case study the national risk assessment used for the development of the NFSS was reviewed by the working group, who then assessed the risk score of each hazard. This was done, firstly to explore whether the methodology for completing the risk assessment worked and how consistent the scoring is when completed by different experts. Secondly, it was done to check that all indicators in the NFSS are linked to a plantation management activity and thus are indirectly assessed during the risk assessment.

During this exercise it quickly became evident that the process worked well, agreement was easily reached on which activities are relevant, and it was easy to agree on a score when the correct information was available. The resultant national risk assessment revealed that of the 111 hazards, 23 were assessed as high risk, 31 as medium risk and 57 as low risk. All indicators in the NFSS are linked to these 115 hazards.

This national risk assessment formed the starting point for the case study to assess the risks in the two chosen situations.

		SCALE			0-5	0-3						
CATEGORY	ACTIVITIES	HAZARD	MPACT (loss, damage, inju									
Planning	Planning cycle *	lack of effective planning	Financial loss/bankruptcy		5	3	15	P7	P8	5.2.1	10.4.1	10.10.2
Legality	Compliance with legislation	legal implications of lack of compliance	loss of license to operate		5	3	15	1.3	6.3.4	6.6.2		
Financial security	Budget and costs management	Inability to manage responsibly	Financial loss/bankruptcy		5	3	15	5.5.3				
Legality	Establishing security of tenure	insecure tenure	Loss of access to FMU		5	3	15	1.1	1.2	4.1.2	4.2.1	
Workplace	Hazardous operations	Non-conformance with procedures	Fatality	n	5	3	15	2.3				
Workplace	Training	lack of skills	ow productivity/Financial los	n	4	3	12	2.5.1	2.5.3			
Growing stock	Transpiration	stream flow reduction	stream users leading to loss of l		4	3	12	1.3.1	1.3.2	6.7		
External threats	Uncontrolled fires	damage by burning	Financial loss		4	3	12	10.9.1	10.9.2	10.9.3	10.9.4	10.9.5
External threats	Spread of disease	Plantation diseases	Low productivity/Financial loss		4	3	12	10.9.6	10.9.7	10.9.8	10.2.1	
Afforestation	Land clearing infrastructure dev	Inappropriate clearing	ecological impacts/loss of biodiversity/disruptions of processes		5	2	10	1.3.1				
Afforestation	Land Occupation	loss of access to resources	Unrest/sabotage		5	2	10	4.2				
Afforestation	Establishing new plantations	Inappropriate establishment	transform, erosion, sedimentation		5	2	10	1.3.1				
Harvesting	Felling - chainsaws	Inappropriate methods	Fatality/Injury		5	2	10	10.10.3				
Workplace	Hazardous operations	Non-conformance with procedures	Injury	n	3	3	9	2.3				
Workplace	Engagement with workers	grievances and disputes	ow productivity/Financial los	n	3	3	9	2.6				
Workplace	Supervision	lack of supervision	ow productivity/Financial loss		3	3	9	2.5.2				
Financial security	Financial management	corruption	Financial loss, damaged reputation		4	2	8	1.7.1	1.7.2	1.7.3		
Employment	Mechanisation	loss of jobs (community)	Community unrest - arson		4	2	8	4.3.1	4.6			
Community relations	Consultation with community	Poor or no communication	Unrest/sabotage	n	4	2	8	4.1	7.5	7.6	4.1.3	4.5
Community relations	naging disputes within commur	Disputes not resolved	Unrest/sabotage		4	2	8	1.6	4.6			
Community relations	mote local economic developm	No opportunities for locals	Unrest/sabotage		4	2	8	4.3.2	4.4.1	4.6	5.4.1	5.4.2
Re-afforestation	Residue management - burning	soil erosion/sedimentation	ow productivity/Financial loss		4	2	8	10.5.1	5.5.2			
Re-afforestation	Residue management - burning	alter soil properties	ow productivity/Financial loss		4	2	8	10.5.1	10.5.3			
Traceability	System for tracking and tracing	break in COC	loss of FSC market		3	2	6	8.5				
Financial security	Silvicultural management	reduction in yields	Financial loss		3	2	6	5.5.1				
Certification	Maintaining certification	loss of certification	loss of FSC market		3	2	6	1.8.1	1.8.2			
Employment	Own labour	increased labour costs	Financial loss		3	2	6	4.3.1				

Figure 3. The subset of the national risk assessment showing the activities and their resultant hazards that were scored as being high.

7. Organisation-level risk assessment

In order to investigate how the national standard should apply to various landscape and plantation management conditions where the risks to the values underpinning sustainability may be very different, the case study chose two very specific situations. It is however, emphasised that the risk assessment can be applied in many different ways; for example:

- It could be applied to group certification scheme in its entirety or sub-sections of the group scheme.
- It could be applied to the entire forest area of an individual certificate holder
- It could be applied to the individual forestry estates of a large organisation with extensive forest areas.

7.1. Process in application:

Step 1. Identification of plantation management activities

Using the National Risk assessment the plantation management activities that were relevant to the plantation area under assessment were identified.

Step 2. Assessment of the risks

The risk of each activity on the identified values was assessed and scored using the methodology described in 1.4.

Step 3. Prioritization of indicators

The activities were sorted and ranked according to risk.

High risk activities are prioritized because they are typically keystones to sustainable forestry and if not managed would certainly result in damage or loss of the identified values.

Moderate risk activities are less critical than high risks but if not adequately addressed could lead to severe consequences in the medium term.

Low risk activities are risks that the management should be aware of and have measures in place to ensure the risk does not increase.

7.2. Application in 2 scenarios

Scenario 1: Karkloof forest management unit

This forest management unit (FMU) forms part of a large scale corporate plantation forestry operation in a relatively high production commercial agricultural landscape. It is a large unit of 10 696 ha in the Midlands of KwaZulu-Natal just north of the town of Howick. The plantation straddles the Karkloof range of hills varying in altitude from 1000 to 1600 meter

above sea level. The topography consists of flat land on the plateau and at the base of the Karkloof range and some quite steep ground on the hills. Approximately 60% of the land is planted with hardwood *Eucalyptus* species and hybrids and softwood *Pinus* species. The timber is largely grown for pulp wood. The unplanted areas consist of indigenous forest, grassland and wetland and includes parts of the proclaimed Karkloof Nature Reserve. These unplanted areas are important for conserving threatened ecosystems, vegetation types and a number of priority animal species. The management unit covers 4 important quaternary catchments which feed the Umgeni River which is the main water supply catchment for the Durban-Pietermaritzburg economic hub. Rainfall is relatively high (mean annual rainfall = 975mm) and falls mainly in the summer months.

Forestry activities include both labour intensive operations and some mechanised operations with approximately 570 people being directly employed to undertake plantation activities. Most of these are specialised contracted workers. Surrounding land use consists of either large commercial dairy farms, other plantation forestry units or is conservation land. The social landscape is dominated by the very active Karkloof Conservancy, however, the close proximity to the towns of Howick and Pietermaritzberg and the tourist attractions of the Midlands Meander results is this area receiving frequent visitors. The plantation hosts a number of very popular and highly rated mountain bike trails.

The risk assessment was initially done by David Everard, who has a detailed knowledge of the management systems and plantation activities carried out of this management unit. The resulting assessment was then verified by Gerrit Marais in his capacity as an experienced auditor and accreditation manager of a certification body. Again, the process of verification proved to be relatively easy and activities and their risk ratings were agreed upon. There were no cases where the two assessments resulted in significantly different scores.

The resultant risk assessment resulted in 13 hazards and their associated activities being assessed as high risk, 14 were medium risk and 55 low risk. 29 activities were not undertaken on this management unit and so can be regarded as not applicable. The ranking of the linked criteria indicates that of the 64 criteria in the NFSS, 14 criteria would be regarded as keystone on this management unit and these criteria measure the factors that are crucial to underpinning the sustainability of this operation. In this case all of the criteria in the standard were linked to activities that are conducted on the management unit and so none can be completely excluded from any form of assessment.

			?Which of these activities are done by RM or Manager. Perhaps this can be integrated into the auditing intensity?			SEVERITY	PROBABILITY	CB Rating						
				SCALE		0-5	0-3							
		CATEGORY	ACTIVITIES	HAZARD	IMPACT (loss, damage, injury)	I	S							
5		Legality	Compliance with legislation	legal implications of lack of compliance	loss of license to operate	5	3		15	1.3	6.3.4	6.6.2		
29		Workplace	Supervision	lack of supervision	Low productivity/Financial loss	5	3		15	2.5.2				
38	6	Growing stock	Transpiration	stream flow reduction	nstream users leading to loss of	5	3		15	1.3.1	1.3.2	6.7		
28	3	Workplace	Training	lack of skills	Low productivity/Financial loss	4	3		12	2.5.1	2.5.3			
83	11	External threats	Uncontrolled fires	damage by burning	Financial loss	4	3		12	10.9.1	10.9.2	10.9.3	10.9.4	10.9.5
84	11	External threats	Spread of disease	Plantation diseases	Low productivity/Financial loss	4	3		12	10.9.6	10.9.7	10.9.8	10.2.1	
48	7	Harvesting	Felling - chainsaws	Inappropriate methods	Fatality/Injury	5	2		10	10.10.3				
25	3	Workplace	Hazardous operations	Non-conformance with procedures	Injury	3	3		9	2.3				
26	3	Workplace	Interacting in the workplace	sexual harrassment and bullying	Low productivity/Financial loss	4	2		8	2.2.9				
27	3	Workplace	Engagement with workers	grievances and disputes	Low productivity/Financial loss	4	2		8	2.6				
30	3	Workplace	Labour relations	unfair discrimination	Low productivity/Financial loss	4	2		8	2.1.3				
55	8	Re-afforestation	Residue management - burning	soil erosion/sedimentation	Low productivity/Financial loss	4	2		8	10.5.1	5.5.2			
105	14	Estate Management	Road maintenance	soil erosion/sedimentation	poor water quality/ill-health/poor reputation	4	2		8	10.10.1				
9		Traceability	System for tracking and tracing	break in COC	loss of FSC market	3	2		6	8.5				
10		Financial security	Financial management	corruption	Financial loss, damaged reputation	3	2		6	1.7.1	1.7.2	1.7.3		
17	2	Employment	Own labour	increased labour costs	Financial loss	3	2		6	4.3.1				
34		Community relations	mote local economic developm	No opportunities for locals	Unrest/sabotage	3	2		6	4.3.2	4.4.1	4.6	5.4.1	5.4.2
47	7	Harvesting	Extraction - skidding	Inappropriate methods	soil erosion/sedimentation/compaction	3	2		6	10.11.1	5.5.2			
78	10	Fire Protection	Prepare tracer belts - herbicides	harming non-target organisms	loss of biodiversity	3	2		6	10.7	10.12.2			
86	11	External threats	Spread of incidental invasive species	invasion by incidental alien plants	Low productivity/Financial loss	3	2		6	6.6.2				
87	11	External threats	Drought	damage plantations	Low productivity/Financial loss	3	2		6	10.2.1				

Figure 4. The top twenty risks relating to the Karkloof management unit.

Scenario 2: Communal Smallholders in a multifunctional landscape

The land is tribal authority land under communal ownership. The tribal authority under the leadership of the chief administrates the distribution on land and assumes a governance role. This happens in parallel with municipal governance structures. The land comprises 10 000ha of homesteads, plantations, highly diversified small-scale farming, grazing, grasslands and indigenous forests. The flatter, agricultural areas have good fertile soils and high growing potential. The steep topography and deeply incised valleys ensure that much of the area is not suitable for production. A large grassland plateaux has been set aside for grazing. This area is important for biodiversity conservation in that it is one of the last remaining area of Sandstone Sourveld grassland in the country. There are a number of threatened species in the area. The South slopes have relatively large area of indigenous forest in fairly good condition. It is clear, from comparing this area to other similar landscapes in the vicinity, that the presence of a timber source is reducing the need to harvest from the indigenous forests. The area has high biodiversity, and potential for ecosystem services offering multiple benefits for local communities. Operations are low impact and manual.

Homesteads are scattered throughout the area and most homesteads have their own vegetable gardens and many have woodlots. Plantation forestry is the main employment opportunity in the area and local unemployment is very high.

Again the risk assessment was conducted in two stages, initially by Steve Germishuizen who has detailed knowledge of the site and the activities carried out there. This was then verified

by Gerrit Marias and again the process flowed smoothly with agreement easily being reach as to the rating of relevant risks.

In this case only 9 activities carry high risk hazards to the values that underpin the sustainability of the plantations in that landscape. A further 16 were rated as medium risk and 36 as low risk. 50 activities in the national assessment are not carried out and were regarded as not applicable. An analysis of the linked criteria indicates that there are 11 that are irrelevant to this situation and these should not be needed to be assessed.

		MANAGEMENT ACTIVITIES							INDICATORS IN SA FSC STANDARD						
						SEVERITY	PROBABILITY								
						0-5	0-3								
Item		CATEGORY	ACTIVITIES	HAZARD	IMPACT (loss, damage, injury)	I	S								
2		Legality	Compliance with legislation	legal implications of lack of compliance	loss of license to operate	5	3	15	1,3	6.3.4	6.6.2				
17	3	Workplace	Hazardous operations	Non-conformance with procedures	Fatality	5	3	15	2,3						
77	11	External threats	Uncontrolled fires	damage by burning	Financial loss	4	3	12	10.9.1	10.9.2	10.9.3	10.9.4	10.9.5		
78	11	External threats	Spread of disease	Plantation diseases	Low productivity/Financial loss	4	3	12	10.9.6	10.9.7	10.9.8	10.2.1			
16		Employment	Work	unacceptible wages	Low productivity/Financial loss	5	2	10	2,4						
41	7	Harvesting	Felling - chainsaws	Inappropriate methods	Fatality/Injury	5	2	10	10.10.3						
6		Financial security	Budget and costs management	Inability to manage responsibly	Financial loss/bankruptcy	3	3	9	5.5.3						
18	3	Workplace	Hazardous operations	Non-conformance with procedures	Injury	3	3	9	2,3						
94		MRU	Conservation of ES	collapse of ES	Financial loss/community disharmony	4	2	8	5.1.1						
3		Traceability	System for tracking and tracing	break in COC	loss of FSC market	3	2	6	8,5						
5		Financial security	Silvicultural management	reduction in yields	Financial loss	3	2	6	5.5.1						
8		Certification	Maintaining certification	loss of certification	loss of FSC market	3	2	6	1.8.1	1.8.2					
10	2	Employment	Own labour	increased labour costs	Financial loss	3	2	6	4.3.1						
19	3	Workplace	Interacting in the workplace	sexual harrassment and bullying	Low productivity/Financial loss	3	2	6	2.2.9						
62	9	Conservation	Grazing	Over grazing	loss of biodiversity	3	2	6	6.6.3						
63	9	Conservation	Grazing	Over grazing	Erosion	3	2	6	6.6.3						
68		Conservation	unting, fishing, trapping, collectin	Unsustainable utilisation	loss of biodiversity	3	2	6	6.6.5						
81	11	External threats	Drought	damage plantations	Low productivity/Financial loss	3	2	6	10.2.1						
101	14	Estate Management	Road maintenance	soil erosion/sedimentation	poor water quality/ill-health/poor reputation	3	2	6	10.10.1						
108	14	Estate Management	Worker accommodation	litter	poor reputation	2	3	6	5.2.8						

Figure 5. The top twenty risks associated with the Ozwathini plantation landscape.

The application of the National Risk Assessment template to a landscape was particularly interesting in that it highlighted clear differences between the two scenarios and underlined the importance of this approach in general.

8. Conclusions and future application of the approach.

The risk assessment process was extremely effective in differentiating the impacts and nature of these two different plantation forestry contexts. Essentially it created a graphic profile of the forestry operations which will greatly facilitated the audit process.

The risk assessment plays the role of a screening tool. By focusing on the important requirements in the standard early on in the process, results in a much more efficient audit. Effectively compliance with the associated criteria is determined during the risk assessment. This compliance can be reported on based on the risk assessment.

The risk designation provides the auditor with clear guidance on which aspects are most critical to the sustainability of the plantation. High risk indicators are typically keystones, in that a number of other indicators will be linked to these, and addressing these thoroughly automatically covers others as well.

If audits can focus on the key sustainability issues forestry management has to improve. If the certification process is seen to be addressing the most important areas it would enhance its reputation across the spectrum of its stakeholders.

It provides an objective basis for identifying low impact operations which would greatly facilitate the access of smallholders to certification. This is seen as possibly its largest contribution.

By applying the risk assessment to the landscape it can evaluate accumulated impacts of a number of FMUs.

It is useful for an organisation to apportion resources to risky areas, both geographically and to certain activities.

It provides a platform for using a number of alternative assessment technologies like remote sensing, public data sets.

It provide an objective basis for stakeholders to engage and negotiate. It can be modified to use as a platform to communicate impacts and challenges.

The outcome of the Risk Assessment could be utilised to estimate the time required by the CB for each audit in the cycle and could be used for the quotation process (subject to change during the cycle).

9. Changes in the Associated Normative Documentation

9.1. Sampling based on Risk (FSC-STD-20-007; FSC-STD30-005)

As mentioned above, the various Risk Assessments for each homogenous element can be stratified by the CB under a single certificate.

Note - The working group sees the value in removing indicators and criteria from the audit checklist linked to activities that are rated 0 in the CB approved risk assessment for each organisation during an audit cycle. This would allow for a streamlined assessment to be carried out for smallholders and low impact organisations and allow focus areas to be intensified during the verification process.

The formulation of applying the stratification was not considered further by the working group due to time constraints.

9.2. Report Template (FSC-STD-20-007a)

A major deviation in the suggested report is that of reporting conformance against sampled principles and criteria. The Working group suggests that the reporting of conformance for all

principles and criteria be done at the Pre-Assessment or Main Assessment as per NFSS. Reporting conformance against sampled criteria will be done annually.

Another deviation was the reporting of conformance for group scheme members. Currently, it is required that individual statements of conformance are recorded in the report. The Working group suggests that reporting of conformance be consolidated as currently applied to multi-site certificates. This is suggested for members within a homogenous group (stratified in the sampling method).

9.3. Corrective Action Requests (FSC-STD-20-007)

The issuing of corrective action requests was briefly discussed within the working group.

10. Challenges and Risks

Challenges

1. Approval of National Risk Assessment by FSC IC – lack of resources, practical experience, etc.
2. The biggest risk is the conservative approach of secretariat and membership of the FSC.
3. No political will within the FSC
4. Lack of support by CBs because it potentially effects their business. Ie. Conflicts of interest
5. Lack of buy-in from global NGOs who are divorced from forest management realities.
6. Training requirements for consistent application by auditors and certificate holders

Risks of not applying the system

1. The FSC becomes increasingly irrelevant to smallholders.
2. The FSC continues to fail to address key elements of sustainability and loses support of forestry management and NGOs
3. The FSC loses ground to more progressive certification systems. This is not a risk to forestry but to the FSC.

11. Conclusion

The implementation of these risk assessments will be of limited benefit to the application of FSC certification unless the supporting normative documents are revised accordingly, i.e. FSC-STD20-007, FSC-STD-20-007a and FSC-STD-30-005. Applying risk assessment approaches within these standards has the potential to improve the access and effectiveness of certification for all certificate holders and particularly for smallholders. The use of the risk

assessment will focus audits on the substantial high risk issues while reducing time spend on less significant aspects.

12. References

1. Mentis, M. 2010 Environmental Risk Management in South Africa published by Mike Mentis, Hillcrest, South Africa
2. Germishuizen, S. 2016 *In prep.* Certification of Smallholders in South African Plantations, report for the FSA Environmental Management Committee's smallholder committee.