

THE IMPACTS OF THE ISO 14 000 MANAGEMENT SYSTEM ON SUSTAINABLE FOREST MANAGEMENT IN SOUTH AFRICA

August 2000

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Abstract

The implementation of the *International Organization for Standards* (ISO) series of environmental standards (ISO 14000) within the South African forestry industry could, over time and given the correct circumstances, result in a forestry management standard equal to, or superior to, the levels demanded by the *Forest Stewardship Council* (FSC) certification. This is despite the fact that the two systems have very different philosophies and starting points, and despite the fact that ISO does not impose any pre-defined performance levels that must be met. Two aspects within the ISO system and the environment in which forestry operates within South Africa are the reason for this. ISO, as a management system ensures that there is discipline over the management of environmental issues, it also uses systems approaches to ensure continuous improvement. The combination of the South African forestry and environmental policy, the fact that we have a strong environmental NGO sector, and the fact that South African forestry is plantation forestry are all issues that will lead to a unique ISO implementation within the country.

ISO 14000 is not a product certification. As such it does not help companies market their products where 'green labeling' is becoming the norm. It is probably for this reason that ISO implementation is greater in companies supplying predominantly to the pulp and paper sector, with companies supplying hard wood timber to international markets opting for FSC. Unless market forces change, companies supplying saw timber will need a certification system other than ISO to satisfy market requirements. ISO may, however, still be implemented as a tool to reach and maintain other certification levels of environmental management.

ISO and FSC are not competing systems, but rather complementary approaches. FSC does not require an ISO *Environmental Management System* (EMS), but does require that companies have an EMS system. ISO could be a powerful mechanism to help companies both achieve and maintain FSC certification.

1. INTRODUCTION

This Study is part of a larger study on Instruments for Sustainable Private Sector Forestry. This work is a contribution to the certification theme, which aims to assess the impact of certification on forests, stakeholders, markets and companies. The ISO 14 000 environmental management system has been adopted by SAPPI, one of South Africa's leading forestry companies, with more companies planning to follow suit.

The study has been conducted through a series of interviews and reference to limited key literature.

2. WHAT IS ISO

The International Organization of Standards (ISO) is an international NGO established in 1947. Its aim is to develop industrial standards. The ISO 9000 set of standard for Quality Management developed in 1987 and the ISO 14000 set of environmental standards developed 10 years later, differ from most ISO standards in that they are generic management system standard rather than a specific product standard. ISO 14000 is a series of environmental standards, the following of which are important for sustainable forestry management (SFM):

- ISO 14001 Environmental Management Systems – Specifications and guidelines for use.
- ISO 14004 Environmental management systems – general guidelines on principles, systems and supporting technologies
- ISO 14061 Information to assist forestry organizations in the use of Environmental Management Systems standards ISO 14001 and 14004 (1998-12-15).

Appendix 2 gives a summary of the standards in the ISO 14000 series.

The ISO 14000 series is a procedure standard, not a performance standard. ISO 14001 certification certifies that a company has an environmental management system (EMS) in place that adheres to ISO requirements. As such it does not provide a "green label" or certification of a product or level of environmental performance. The ISO system can be applied to any industry and is not forestry specific. ISO 14061 gives guidelines on applying ISO 14001 and 14004 to forestry production.

ISO 14 000 is a systems approach to continual improvement in environmental management. In essence it consists of environmental policy; planning; implementation and operation; checking and corrective action; and management review (see figure 1). Management systems and documentation form an important component of ISO.

ISO 14001 provides guidelines on what must be contained within an EMS. The company being certified defines for itself the performance standards that will be

met; these are not defined by ISO. The company can choose to have self-declaration of ISO, in which case only internal auditing of the process is involved. Second-party auditing, for instance by a company to whom they are supplying timber, or full third party independent auditing which is required for ISO certification. Both ISO 9000 and ISO 14000 auditing and certification are carried out independently of ISO by certification bodies under their own responsibility. ISO *per se* does not carry out or provide certification. Within South Africa the SABS is able to perform third party certification of ISO 14000. International companies could also be used for conducting the third party certification.

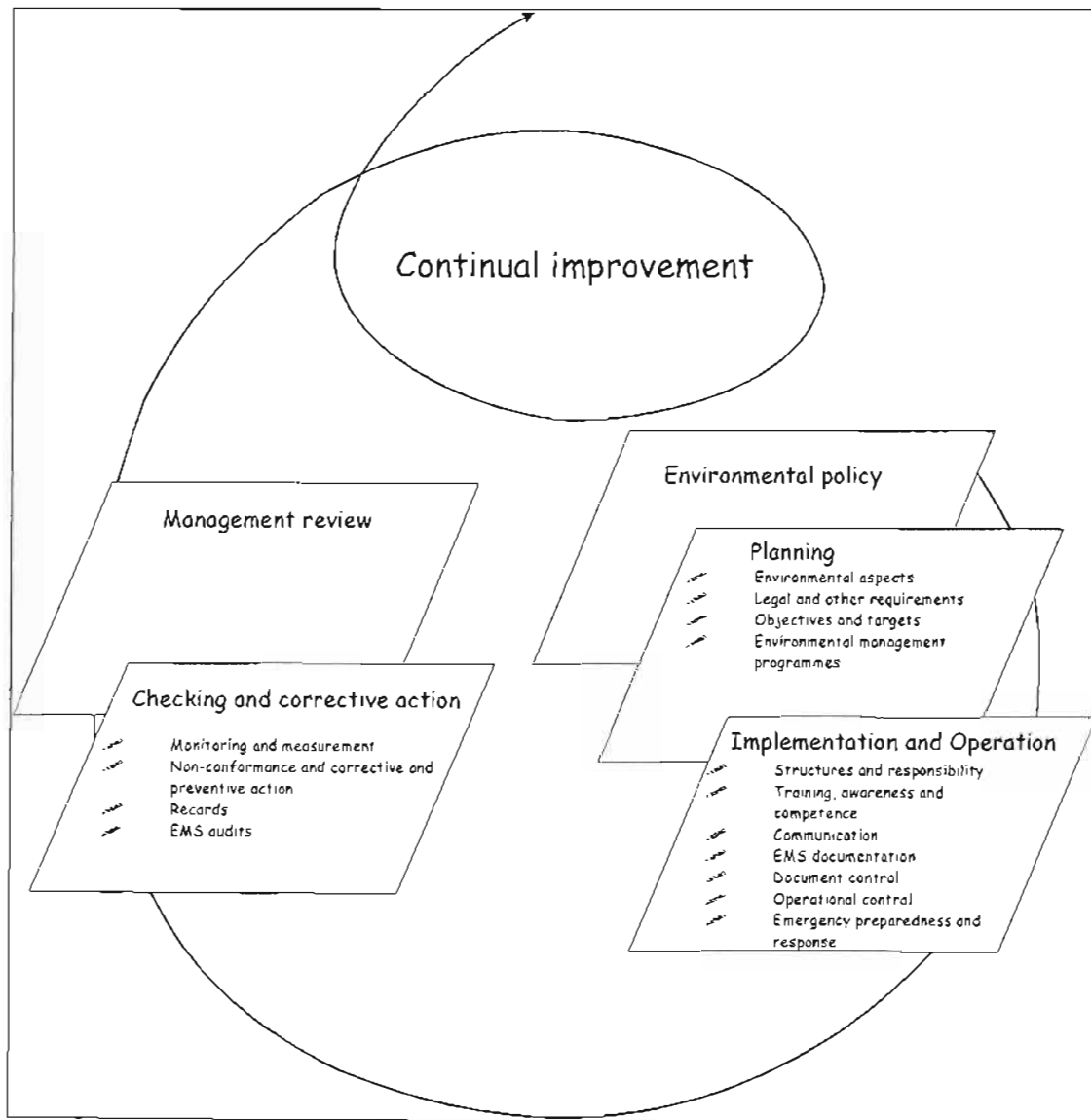


Figure 1. An overview of the ISO EMS system

ISO need not be applied to an entire organization, instead the organization can “ring fence” activities that are included or excluded from ISO. For instance within SAPPI timber the long-haul transportation section has been excluded from what is otherwise a total ISO implementation. The fact that a company can claim that it is ISO certified, when in truth only sections are ISO compliant can be misleading to the public and is a potential weakness in the forestry context.

3. THE ISO 14001 SYSTEM IN BRIEF

ISO 14061 gives detailed guidelines on how ISO should be implemented within forestry organizations. This section will draw extensively on data provided in the ISO 14061 documentation (ISO 1998).

An initial issue in setting up an ISO system is defining the scope of the implementation. A company can only establish systems for aspect of the forestry process where it has control. In South Africa where most commercial forestry is on privately owned land this is far less complicated than where there are a mix of tenure systems. There is likely to be greater complexity if companies form community partnerships for forestry implementation. Inclusion of outgrower schemes into company ISO systems will also provide additional complexities. ISO can be applied to an entire organization or specific components.

In essence ISO has 5 components as illustrated in Figure 1 and described in greater detail below.

3.1 Environmental policy

The company must develop an environmental policy and have management commit to the policy. Dr Dave Everard of SAPPI confirms that merely having a formalized policy that management has committed its self to is a powerful tool in guarding against environmental mis-management.

The policy must commit the company to complying with national legislation, but could in addition commit the company to national and international voluntary standards. For example the forest industry in South Africa has developed an internal set of forestry standards, and SAPPI in their environmental policy, commits to these. A vast number of international standards and sets of criteria and indicators have been developed for the forest industry and the companies could also commit to any of these. Committing to these standards is the companies choice, but once committed they would be audited against this commitment.

3.2 Planning

Planning relates to the following EMS elements: environmental aspects, legal and other requirements, environmental objectives and targets.

- Environmental aspects

Environmental aspects are a list of the aspects of activities that are likely to have an environmental impact. For instance the aspect of harvesting will have impacts of change in forest extent, species composition, *etc.*

ISO requires that aspects are identified, and then a rating system (developed by the company) is used to assess the significance of the aspect in term of its likely impact. This rating will be a function of potential impact, extent, probability, and frequency. Normally some form of severity index is developed. Although ISO does not enforce stakeholder involvement, this would greatly enhance the vigor of this process. When conducting a certification, the SABS employs forestry specialists to ensure that the most relevant aspects have been included.

Although it might appear that a company cannot simply select the aspects that it is comfortable with including in its ISO implementation, this is not true as the accrediting agency will use specialists to ensure that all the major aspects are included.

- Legal and other requirements

ISO specifies that the company must identify and have access to all the relevant national and local legal requirements and legislation. If there is sound environmental legislation in a country, then ISO certification is a sound mechanism to ensure that companies are adhering to the national legislation. National legislation is therefore the minimum standard set by ISO. If national legislation is good, or if national legislation enforces companies adherence to some national or international industry standard then ISO will have the effect raising forestry operations to these minimum standards. It is conceivable that legislation could set guidelines on how the industry and stakeholders could jointly set up national standards that must then be adhered to be industry. This would mean that the standards need not be legislated, but rather the process to develop and maintain them could be legislated.

- Environmental objectives and targets

Environmental objectives and targets are set internally by the company. ISO does not insist on instant conformity, but rather a series of realistic targets to close the gap between current non-conformity and the company's ultimate environmental objectives. Consideration of legal requirements is important in setting targets. In this section taking into consideration views of stakeholders is a

requirement. The system does, however, not insist on stakeholder participation. These objectives also need not be shared with stakeholders. It is obvious that this section must be in line with the stated environmental policy.

An interesting permutation comes in when the company's policy and objectives specify that the process will be open and participative. In this instance the company's adherence to its own defined policy and targets for participation is audited for compliance. If this is part of the ISO implementation then it starts to move to a truly powerful process of ensuring stakeholder regulation of the organization's environmental policy.

National environmental criteria or targets can easily be included at this point and would have to be included if they were legal requirements.

- Environmental management program

This is defined simply as a program for ensuring that the organization establishes and maintains a program to achieve its targets.

3.3 Implementation and operation

ISO requires that the organization implements a number of systems and procedures to ensure that it meets its environmental policies and targets. These include:

- Structure and responsibility
- Training, awareness and competence
- Communication
- EMS documentation
- Document control
- Operational control
- Emergency preparedness and response.

3.4 Checking and corrective action

Procedures must be established to ensure that there is:

- Monitoring and measurement. This means that monitoring and measurement procedures must be established, and these must be consistent with their policy, objectives and targets
- Corrective action for non-conformity and preventative action
- Records.
- EMS audits.

3.5 Management review

Management review of the EMS must be conducted to ensure that the system is still meeting its objectives, is up to date with legislation *etc.* This feeds back into the system to ensure it is up to date and effective.

4. ISO 14001 IMPLEMENTATION IN SOUTH AFRICA

With the exception of small quantities of indigenous hardwood being harvested in the southern Cape and Amatolas, all timber and pulp production is from planted plantations of exotic species such as pine, eucalyptus or Australian acacias (wattle). Indigenous forests are not components of the production systems on forest estates, and are usually totally conserved. Depending on the plantation, production is used predominantly either for pulp and paper or for saw logs. In the case of SAPPI, most production is for pulp and paper as this is SAPPI's core business. SAFCOL and Mondi have a far greater saw log production.

Within South Africa ISO 14000 has been fully implemented by SAPPI forests and SAPPI's experience with ISO will be used extensively as a case study for the rest of the discussions. In addition to ISO, SAPPI has FSC certification on two of its plantations where predominantly saw logs are produced. SAFCOL, which has FSC certification on all its forests has largely implemented ISO, but as yet has not applied for certification due to uncertainties of the current re-structuring process. Mondi, the third large forestry company within South Africa has chosen to use FSC for its plantations, but has drawn from ISO in developing some of its EMS. Mondi does not intend moving to ISO certification.

5. WHAT ARE THE REASONS FOR ISO 14000 IMPLEMENTATION?

Forestry as an industry has a large environmental footprint. In South Africa it is typically relatively pristine grassland or in some instances woodland that are converted to plantation forestry. In addition to bio-diversity loss from these habitat types, afforestation impacts negatively on stream flow from mountain catchment areas. These habitat modifications, impacts on biodiversity and changes in hydrology have resulted in forestry coming under increased public pressure from environmentalists.

5.1 Market forces

In the pulp and paper market, product certification is less of an issue than for hardwood saw timber, and only a very small percentage of the world's pulp comes from certified forests. There is however increasing demand from end users that can show that environmental standards are being met. SAPPI reports increasing demand for statements relating to their environmental practices and policies from clients and the end users of their products. In this regard they find that their ISO implementation adequately meets consumer requirements. They

feel that at present ISO certification is more likely to provide market access than a price premium on pulp.

The international hardwood market is starting to demand environmental certification of timber. Although certification does not give a price premium, it does provide market access to markets closed to uncertified timber. The ISO standard does not provide certification or "green labeling" of products and therefore in its self does not meet market requirements for certification of timber. The ISO EMS systems will, however, assist companies both reach and maintain the environmental standards needed for certification. SAPPI has chosen to obtain FSC certification for forests involved in hard wood production for the export timber market. Their ISO implementation has made obtaining FSC certification relatively simple, and ensures that their forests maintain the FSC standard.

It would appear that market forces within the pulp and paper industry are a greater incentive for companies to adopt the ISO route, whilst in the saw log industry where some form of product certification is being suggested FSC certification is more beneficial.

5.2 Easy to sell to management

ISO 14000 is a management system, and operates in a similar manner to other business systems such as financial systems. As such management within an organization easily understands the ISO concept. John Scotcher of SAPPI argues that in organizations with as large an environmental footprint as forestry it is just as important for the organization to have an environmental management system as it is for it to have a financial or personnel management system.

5.3 Environmental legislation

There is increased government legislation for sustainable environmental management. When SAPPI conducted a legal review it found that there were 26 pieces of legislation that had relevance to environmental aspects of their management. Prior to the discipline imposed by the ISO process they had been unaware that they had been in violation of some environmental legislation.

5.4 Green movement pressure

Within South Africa there is a strong anti forestry lobby from some elements within the environmental movements. SAPPI has found that ISO implementation has reduced this pressure, and they now claim that many of the environmental groups recognize the effort they are putting into sound environmental management. Obviously ISO implementation will not stop reactions from groups that are fundamentally opposed to any form of afforestation, but can certainly help enhance the industries profile with groups seeking sustainable development.

5.5 Internal efficiency

The structure and discipline imposed by ISO on a companies environmental activities can lead to increased efficiency of the use of resources in environmental management. The clear structured approach applied to environmental management focuses resources on important issues. For instance in SAPPI they now have a policy that weed (alien) eradication will only be started in new areas if they are able to fully control aliens in already cleared areas. SAPPI is also in the process of reviewing their traditional environmental budgetary process so as to gain greater efficiency between plantations.

5.6 Risk reduction

Clear environmental policies aimed at reducing environmental mishaps clearly reduces the risk of expensive environmental disasters. The SABS suggests that ISO implementation can drastically reduce the cost of insurance payments, and SAPPI confirms that Lloyds were willing to reduce their premiums as a consequence of ISO certification.

5.7 Maintenance of FSC certification

The three main South African forestry companies all confirm that maintaining FSC certification is more difficult than obtaining the certification. FSC also requires an EMS to be in place. The well thought out ISO system and its mechanisms for continuous improvement are an effective mechanism for maintaining a forest at FSC levels. Since ISO is a highly formalized system it is unlikely to simply disappear through lack of maintenance or due to a champion leaving the company.

5.8 Continuous improvement

The ISO process has two mechanisms to ensure continuous improvement. Firstly it is an iterative process where analysis of results and policy review takes place on a regular basis. Secondly, the system monitors non-conformance and has a process in place to review how preventative issues can be improved to prevent a re-occurrence. All reported non-conformances should be reviewed during audits to ensure that they have been effectively dealt with.

5.9 Low entry barriers

ISO can be implemented in an organization with limited resources. It can initially be implemented with no, or only internal auditing, and over time be grown to full scale certification. Since targets are internally set the organization can slowly improve its performance whilst still having realistic short-term targets. A criticism of the FSC method is that although certification is an incentive for well managed

forests, the gap may be too big for poorly managed forests and they may give up rather than try for the FSC certification.

6. COST OF ISO IMPLEMENTATION AND CERTIFICATION

It is difficult to calculate the real costs associated with ISO implementation as many of the environmental management cost would be born regardless of ISO implementation. In addition there are efficiency gains, reductions in wastage and reductions in environmental mitigation costs as a result of ISO implementation. This is recognized by the insurance industries who may also reduce insurance costs. Although difficult to prove, the ISO implementation could result in a net saving over the long term.

Box 1 incentives for ISO certification. Source: Tim Cadman M.A. - Will timber certification deliver sustainable forest management?

Clearly the advantage of ISO over other forms of accreditation schemes is its reliance on organisations defining their own management systems, and relying on government processes that, while moving towards ecological sustainability, may not actually deliver such an outcome. There are other advantages as well. The following is a list of some of them identified by industry consultants:

- * Companies certified under ISO 14000 may point to this certification as evidence of progressive environmental policy and thus gain a competitive edge in marketing their products;
- * Although ISO 14000 implementation is voluntary, certification under the standards may become a legal prerequisite to bid on contracts and maintain market shares in the European Union and other parts of the world;
- * An ISO 14000 EMS may help to save corporations time and money by improving operations and facilitating relations with government agencies;
- * ISO 14000 certification may relieve corporations of some regulatory burdens. Under Washington State Department of Ecology guidelines, for example, facilities required to prepare Pollution Prevention Plans or Five Year Plan Updates may fulfill these requirements by showing that they have an ISO 14000 EMS in place.
- * Certification under the standards may also encourage greater leniency in government enforcement actions following an accident or environmental violation, as such certification could be held up as evidence of a firm's efforts to be environmentally responsible (EI, 1997).

In the case of SAPPI, ISO implementation resulted in the environmental section expanding from a staff of 4 to a staff of 12. These staff manage the bureaucratic aspects of the ISO system, though most implementation takes place on the

individual plantations and is managed by the plantation managers. The bigger cost was, however, the cost of additional infrastructure and structures needed to meet legal requirements for sound environmental management. For instance cost were incurred in constructing suitable infrastructure for the storage of toxic chemicals, and all their fuel depots needed expenditure to ensure that they would contain accidental fuel and oil spills. Waste disposal sites had to be constructed to legal requirements.

The actual costs incurred in the initial third party certification audit and subsequent re-audits are relatively trivial, at about R100 000 per year with the initial assessment about twice that amount.

A number of other costs have been incurred in ISO implementation. These include the use of an external consultant to facilitate and advise on the ISO implementation process, and the use of an external consultant to conduct a stakeholder scoping exercise. SAPPI has a continuous ongoing stakeholder participation process.

7. SAPPI'S HISTORY IN ISO 14 000 IMPLEMENTATION

SAPPI's history of formal environmental management dates back to about 1988. Prior to this conservation was considered an activity limited to the areas of natural vegetation. Foresters are, however, often people with a conservation ethic, as it is their love of the outdoors that drew many to the profession in the first place. About this stage SAPPI employees were realizing that SAPPI and forestry in general had a poor environmental image with the public. An internal workshop was convened to investigate this problem. This resulted in the industry setting a set of industry environmental practices. Forestry estates were also graded on an environmental rating system and there was a competition for plantations with the best rating. The Wild Life Society of South Africa donated a trophy.

The first SAPPI environmental policy was set in 1990 and in 1993 they appointed John Scotcher as their first full time environmental manager. He started to implement a systematic approach to dealing with environmental management. For instance internally conducted impact assessments were made compulsory for all plantings including re-plantings. SAPPI investigated international standards and in particular the British BS7750 standard. This was prior to the introduction of ISO. SAPPI believed that a structured process was needed and linked environmental issues to their foresters Key Result Areas (KRAs).

ISO 14 000 was in line with a lot of SAPPI's thinking and they gradually moved toward it. A private consultant was used to facilitate ISO implementation in the organization. A bottom up approach was used where there was a lot of consultation with the staff and foresters in setting up of the system. In 1996 they realized that they needed greater public involvement and the Institute of Natural

Resources (INR) was contracted to conduct a stakeholder review. Drafts of their ISO system were also sent out for stakeholder review. This level of stakeholder involvement goes beyond the level required by ISO and is not a pre-requisite for ISO. If, as is the case with SAPPI, a company has made it its policy to have an open process of stakeholder involvement, then the ISO review will audit that they are adhering to this (self imposed) policy.

As a consequence of ISO implementation SAPPI has developed a stronger and larger environmental management team, which has as one of its main objectives the implementation of ISO. At present this consists of 12 people. SAPPI has found that maintaining the system requires greater effort than the initial implementation.

SAPPI forests has chosen to have total ISO 14000 implementation across all its divisions and activities. At present this excludes long haul transportation, which was included as a component of SAPPI forest after ISO implementation.

SAPPI maintains a live database of I&APs and runs a consultative and process regarding its environmental policy.

8. HOW EFFECTIVE HAS ISO 1400 BEEN IN ENHANCING SFM IN SAPPI?

8.1 Changes to company policy

ISO implementation has resulted in a major change in SAPPI's policy toward environmental issues, and the development of a formalized policy. There is strong management team commitment to their environmental policy. Some of this is likely to have happened regardless of ISO implementation as the organization was moving in that direction and had already implemented an environmental policy in 1992.

8.2 Changes to company business practices

ISO implementation has had widespread impact on SAPPI's business practices. Environmental issues are incorporated into all management policies and plans. There are twice yearly environmental third party audits and annual internal audits. ISO implementation has resulted in standardization in environmental practices across the organization. There is a move to integrate environment with health and safety issues, which are looking to implement some of the ISO thinking.

SAPPI is placing pressure on suppliers for increase environmental accountability. SAPPI is looking to provide a price premium for wood from small growers who conform to environmental standards, and may in time make this a requirement for purchase. This in time will also be taken to the 'Project Grow' (out growers in

the former QwaZulu). All contractors working within the plantations must meet the standards.

The environmental group were rewarded as the group with greatest impact on SAPPI forests business last year.

Environmental issues are becoming entrenched as a way of life. The bureaucratic checks and controls ensure this. Incentives such as competitions between the plantations, and environmental news letters have also been introduced.

8.3 A system of continuous improvement

Any employee or member of the public can report an environmental issue. These reports are sent through the head office and plantation manager. The plantation manager is obliged to deal with the incident, and compliance is checked during the next annual audit. For any incident it is also required that mechanisms for prevention or reduction in intensity of similar incidents in the future are also required.

9. STRENGTHS AND WEAKNESSES OF ISO

It is not the objective of this paper to discuss the definitions of SFM or the complexities involved in attempting to determine if SFM is being met. Discussion will be limited to the mechanism that would seem to indicate that ISO is acting as a tool to move companies closer to SFM.

9.1 Own targets

ISO 14000 has been criticized as a way where companies can set their own environmental targets and get certified for compliance with their own policy whilst still being environmentally irresponsible. Although there is a lot of validity in this criticism, a well-implemented ISO system in the forestry industry in South Africa will require high standards being met. By definition, the minimum standard that the company would have to be aiming for is the standards as laid down through environmental and forestry legislation.

It is true that ISO certification does not indicate that the company has achieved that standards, but rather than it has made commitment to achieving the standards through its own self defined annual targets. Therefore a ISO certified company may fall far short of FSC standards, particularly in their first few years of ISO implementation. This despite the fact that they have achieved ISO certification.

9.2 Certification of the EMS not the performance standards

ISO certification gives no indication on the standards being met, or the level of environmental performance. It purely certifies sound implementation of the system, and the organizations commitment to move to more environmentally sound management (that aims to comply at least to the minimum legal requirements, but does not mean these are currently being met).

9.3 Ring fencing of activities

A company can chose which of their activities to submit to ISO and which to exclude. This knowledge is seldom made public when companies state that they are ISO certified. Claiming ISO certification can give a misleading impression that this applies to the total companies operation.

9.4 Community and stakeholder participation

ISO does not require strong stakeholder involvement, though scoping of issues from stakeholders is required. What this means is that although stakeholders must be consulted, all their comments do not have to be accepted, and they are not directly involved in setting of management targets. If a company's policy requires stakeholder involvement and an open participative process then this will be required for certification. The problem is that a statement of ISO certification without an accompanying company policy provides no way for an outsider to know if this is the case. Pressure from policy, NGOs and even from within the forestry industry is likely to push at least the larger companies to a relatively open and participative process. SAPPI for instance has taken transparency and consultation way beyond the ISO minimum requirements.

In the South African context a distinction needs to be drawn between stakeholder involvement and local community involvement, especially as this relates to rural, black communities adjacent to the plantations. SAPPI admits that true local community involvement is difficult and this sentiment has been echoed by SAFCOL and Mondi.

SAPPI, Mondi and SAFCOL all report that there are very few or none of their plantations against which land claims have been lodged. This does not negate company's community responsibilities, but does simplify some of the issue in dealing with local communities. The situation is however different on the DWAF plantations in the ex-homelands where communities have expressed strong claim to forestry land, both as formal land claims and as informal claims to historic access to benefits. Where there are true land claims this is going to force a change in policy in dealing with the local communities.

9.5 As a means to FSC

If companies have implemented a sound ISO 14 000 system then it should be easy for them to get FSC certification. SAPPI found FSC certification required few additions above what they currently do. ISO will also help maintain the environmental management at FSC levels.

SAPPI did report a problem with FSC in that it can impose limits that business practice demands cannot be met. SAPPI found this regarding harvesting practices for wet weather.

9.6 Bureaucratic

This is both a strength and weakness of ISO which, without a doubt, creates a large bureaucracy and an associated cost in effort. SAPPI sees this as one of ISO's strongest points, Mondi rejects these components of ISO in its EMS implementation. The bureaucracy enforces discipline and prevents the system from simply stopping. It also means the system is greater than the individual driving it and is less likely to be affected by staff changes.

9.7 No green label

The international hardwood market is starting to demand a green label. ISO does not meet this market need and hence companies who need labeling either have to use a different system or dual system. Green labeling has, however not taken off as rapidly as some expected and seems more a limit to certain markets rather than a mechanism of gaining higher prices.

9.8 Allows a company to start from a low environmental base

ISO 14 000 has no absolute performance standard since standards are self-imposed, though as a minimum the company must aim for legislated national environmental standards. ISO allows a company that is far short of national standards, or other self imposed standards, to set its targets in a way that annual improvements are at a level that the company can handle. This is different from FSC where it is an all or nothing.

9.9 The concept of continual improvement

ISO 14 000 is a systems approach that aims to get continual improvement. This means that although a company may start from an initial low base, over time it should meet national and other self imposed standards, but this does not mean that the company stops striving for better environmental performance. This could mean that over time ISO could give better environmental performance than FSC where a company simply strives to meet the minimum FSC requirement. How far a company takes environmental improvement is likely to be affected by the level

of environmental legislation in the country and the strength of the environmental NGO sector. Companies that adhere to an open participative process are also likely to be forced to high levels of environmental responsibility

10. CONCLUSION

Within South Africa, commercial forestry is almost exclusively industrial plantations of exotic species. The forestry companies also control most aspects of the forestry operation including the ownership of the land. As such, forestry companies have a strong industrial affinity and are well suited to the implementation of an industry derived ISO 14 000 systems approach to forestry management. FSC, though applicable to forestry plantations, is far more geared to forest exploitation of indigenous forests. It would seem that forestry companies involved in pulp and paper get the greatest benefits from ISO, whilst companies that produce saw logs may need a 'green label' such as is provided by FSC certification.

ISO 14000 as a management system does not have pre-defined environmental standards and targets that must be met by the organization. These standards and targets are internally set by the organization. ISO certification is certification that the company is implementing its EMS system and achieving its internally set environmental policy and environmental targets. As a consequence a criticism of ISO certification is that it does not guarantee that SFM is taking place. This is a very valid criticism, but as long as the following two criteria are met, the structure of ISO will automatically lead to ISO enforcing strong standards for SFM in the companies.

- ISO requires that a company set targets to achieve compliance with national legislation. If there is strong national legislation and/or legislated national standards, then these are automatically minimum requirements within the ISO system. At present there are no national forestry criteria and indicators and this potentially impacts on both ISO and FSC implementation. The company need not have met the standards to achieve certification, but must show that it has a process and targets in place that will lead to meeting the legislation. The state need not necessarily set the standards, but could simply legislate that companies follow specified approaches that include stakeholder participation in determining of their objectives and goals (see the point below).
- If there is a strong NGO environmental movement in the country, as in South Africa, and if the companies undertake in their policy to involve this sector in setting of standards and targets, then it is reasonable to assume that a high level of SFM will be achieved. An alternative is that the forestry sector set standards through a participatory and open approach and that companies make it their policy to adhere to these standards.

A problem with ISO is that it needs to be read in conjunction with the company's environmental policy before an assessment of its value in terms of environmental

performance can be assessed. Since ISO places a lot of emphasis on national legislation, ISO certification between countries will not indicate similar environmental standards. At the company level, because companies set their own standards, ISO certification does not signify comparable standards between companies within a country, but the minimum standards as set by legislation will remain constant.

ISO is not a certification system. If the market wants environmental performance certification, or a 'green label', then forestry companies will have to have a certification system other than ISO in place. ISO can, however, be used in conjunction with a certification system such as FSC and is a powerful mechanism for reaching and maintaining FSC certification standards. This is particularly true for companies where there is a large gap between current practice and FSC requirements.

The strongest benefit of the ISO system is that it uses a systems approach to achieving continuous improvement. In product certification system there is no incentive for a company to be any better than the minimum standard for certification. The ISO approach on the other hand is open ended with the company continually striving to improve its performance. ISO, and a relatively bureaucratic system for implementation ensures that there is a day to day commitment to environmental issues, rather than environmental issues simply being implemented to gain certification.

**Appendix 2 A list of standards forming the ISO 1400 series of standards.
From http://www.inem.org/htdocs/iso/iso14000_intro.html**

ISO No.	Title of International Standard / Guideline / Technical Report	Publication Date	Subcommittee
ISO 14001	Environmental management systems - Specification with guidance for use	1 September 1996	SC 1/WG 1
ISO 14004	Environmental management systems - General guidelines on principles, systems and supporting techniques	1 September 1996	SC 1/WG 2
ISO/AWI 14004	Revision of ISO 14004:1996	To be determined	SC 1/WG 2
ISO 14010	Guidelines for environmental auditing - General principles	1 October 1996	SC 2/WG 1
ISO 14011	Guidelines for environmental auditing - Audit procedures - Auditing of environmental management systems	1 October 1996	SC 2/WG 2
ISO 14012	Guidelines for environmental auditing - Qualification criteria for environmental auditors	1 October 1996 Corrected and reprinted 15 October 1998	SC 2/WG 3
ISO/DIS 14015	Environmental management - Environmental assessments of sites and organizations	27 April 2000	SC 2/WG 4
ISO/CD.2 19011	Guidelines on quality and environmental management systems auditing	15 April 2000	JWG TC 207/SC2 & TC 176/SC3
ISO 14020	Environmental labels and declarations - General principles	1 August 1998	SC 3/WG 3
ISO 14020:1998/DAM1	Draft amendment 1 to ISO 14020:1998	16 December 1998	SC3
ISO 14021	Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling)	15 September 1999	SC 3/WG 2
ISO 14024	Environmental labels and declarations - Type I environmental labelling - Principles and procedures	1999	SC 3/WG 1
ISO/TR 14025	Environmental labels and declarations - Type III environmental declarations	15 March 2000	SC 3/WG 1
ISO 14031	Environmental management - Environmental performance evaluation - Guidelines	15 November 1999	SC 4/WG 1 & SC 4/WG 2
ISO/TR 14032	Environmental management - Examples of environmental performance evaluation	1999	SC 4/WG 3
ISO 14040	Environmental management - Life cycle assessment - Principles and framework	15 June 1997	SC 5/WG 1

ISO 14041	Environmental management - Life cycle assessment - Goal and scope definition and inventory analysis	1 October 1998	SC 5/WG 1
ISO 14042	Environmental management - Life cycle assessment - Life cycle impact assessment	1 March 2000	SC 5/WG 4
ISO 14043	Environmental management - Life cycle assessment - Life cycle interpretation	1 March 2000	SC 5/WG 5
ISO/WD TR 14047	Environmental management - Life cycle assessment - Examples of application of ISO 14042	1999	SC 5
ISO/CD 14048	Environmental management - Life cycle assessment - Life cycle assessment data documentation format	1999	SC 5
ISO/TR 14049	Environmental management - Life cycle assessment - Examples of application of ISO 14041 to goal and scope definition and inventory analysis	15 March 2000	SC 5/WG 3
ISO 14050	Environmental management - Vocabulary	1 May 1998	SC 6/WG 1
ISO 14050: 1998/DAM1	Draft amendment 1 to ISO 14050:1998	30 December 1999	SC 6
ISO/TR 14061	Information to assist forestry organizations in the use of Environmental Management System standards ISO 14001 and ISO 14004	15 December 1998	SC 5/WG 5
ISO/AWI 14062	Guidelines for integrating environmental aspects into product development	To be determined	SC 5
ISO Guide 64	Guide for the inclusion of environmental aspects in product standards	March 1997	SC 7/WG 1

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