

## **ISO 14001 Certification in Zimbabwe: Experiences, Problems and Prospects.**

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### **Abstract.**

The need for sustainable development has become paramount, whereby there is a need to satisfy the needs of today, without compromising the needs of tomorrow with the aim of improving the quality of life now and in future. Environmental management systems need to be integrated into the overall management systems in order for society to develop in a sustainable manner. ISO 14001 has the effective elements for such an environmental management system. It is systematic structured, effective and verifiable. This paper examines the implementation of ISO 14001 in Zimbabwe and the response from various organisations to standardisation. The environmental laws in Zimbabwe are discussed and the need to improve their enforcement. The role of computers in environmental management in Zimbabwe is suggested as well as the driving forces for better environmental management and the solutions to the main constraints to ISO 14001 certification.

### **Introduction**

The ISO 14001 standard emerged as a result of the Uruguay Round of the General Agreement on Trade and Tariffs (GATT) negotiations and the Rio Earth Summit held in 1992. It was published towards the end of 1996 and it sets out the main requirements for a certified environmental management system. The implementation process of ISO 14001 helps organisations to improve their operating practice, save costs, demonstrate active corporate responsibility and help to improve the environment. These and other benefits have been indicated by authoritative sources like Kuhre<sup>1</sup>, Tibor<sup>2</sup> and by the ISO 14000 series of standards. Since its inception, many countries have been certified to ISO 14001. There were 36 001 organisations certified to ISO 14001 and 3982 certified to the European eco-management and audit scheme (EMAS) as of 31<sup>st</sup> October 2001.<sup>3</sup> The developing countries like Zimbabwe have lagged behind in this respect. The problem is that, irrespective of the benefits and widespread implementation of ISO 14001, it has not been easy to implement similar systems in Zimbabwe. A number of problems and constraints have inhibited larger scale adoption of ISO 14001 certified environmental management systems. The purpose of this paper is to discuss these problems and suggest a way to resolve them, with a view of improving the environment in Zimbabwe, through the promotion of the implementation of ISO 14001 in individual organisations in the country.

The paper discusses the status of ISO 14001 certification in Zimbabwe, based on studies carried out by the Standards Association of Zimbabwe and by Mbohwa and Madzinga in the year 2000. This study benefited from a study carried out by the Standards Association of Zimbabwe.<sup>4</sup> The results obtained were in some cases similar to the latter study. The driving forces for organisations to that initiated environmental management systems, particularly according to ISO 14001 requirements and ISO 14004 guidance standard are examined. The environmental legislation, rules and regulations of importance to companies that want to get certified in Zimbabwe and their adequacy are discussed. Compliance with applicable legislation is a major requirement of ISO 14001. The possible role and benefits of using information technology in ISO 14001 systems is discussed following on a review of some specialist services that can be used by organisations implementing the systems. The mains constraints identified are noted and the way forward suggested with a view to address the wider problems faced by companies that want to implement environmental management systems in Zimbabwe,

## **Certification to ISO 14001 in Zimbabwe has taken off slowly**

A survey conducted in April 2000 by Mbohwa and Madzinga<sup>5</sup>, on 80 Zimbabwean companies showed that only 3 companies had established ISO 14001 certified environmental management systems. Thirteen companies had introduced environment management systems by that time. This finding was similar to the Standards Association of Zimbabwe finding, indicating very little progress in the setting up of environmental management systems in Zimbabwe. Out of these, 7 were doing so in accordance with ISO 14001 certification requirements and using ISO 14004 guidance standards. The three ISO 14001 certified companies were the only companies certified in Zimbabwe at that time. Only one company was in the final stages of implementing the requirements of the standard. The companies faced a number of limitations in the process of improving environmental management systems. When asked to respond on resource adequacy, many sited lack of information (70%) and management technology (70%) as the main inhibition factors in setting up ISO 14001 certified systems. (See Table 1)

Table 1 Responses on Resource Adequacy for ISO 14001 Implementation

Questions on Adequacy of Resources for ISO 14001 Implementation	% Responding No
Do you have adequate Financial Resources for ISO 14001 implementation?	27
Do you have enough trained staff for ISO 14001 implementation?	18
Does your company have management technology in EMS implementation?	70
Does your company have access to information ISO 14000 series?	70
Has your company had access to Environmental Management Consultants?	60

There is a clear need to disseminate information on ISO 14001. More education, training and awareness-raising is necessary. Consulting companies, the Standards Association of Zimbabwe, universities and research institutes in Zimbabwe have a big role to play in this respect.

There are a number of companies, at least 50, implementing a variety of activities like waste management, pollution control, energy management, water management, cleaner production/green manufacturing, material/resource conservation and environmental management in Zimbabwe. The Department of Mechanical Engineering at the University of Zimbabwe has conducted more than 20 cleaner production assessments in Zimbabwean companies. Studies in the sugar and meat processing industries have been done in more detail under a Danish International Development Agency (DANIDA)- Southern African Network for Training and Research on the Environment (SANTREN) supported project. The UNEP Cleaner Production Manual, which is used by its Cleaner Production Centres was used by the Cleaner Production Centre in Zimbabwe, to assess another 30 companies in Zimbabwe. What they need to do is to exert a little more effort and to structure their systems if they are to fully conform to ISO 14001 requirements. The companies can easily identify environmental aspects and their impacts based on these activities. However, a majority of companies have not put in place any environmental management systems at all. A variety of policy instruments can be used to encourage their participation in improving environmental performance. The policy instruments that can be used are regulatory, voluntary, incentive-based, informational and cooperative instruments. Information-based, voluntary and cooperative instruments are recommended as the most effective for the promotion of ISO14001 certification.

One of the major challenges identified in certified Zimbabwean companies, is the need to ensure that the requirements of ISO 14001 are met all the time. The temptation is for the management to let the company operate outside the requirements most of the time and then temporarily reset systems in preparation for an audit or for a management review. This defeats the original purpose of the management system and organisations need to be educated to commit themselves to continuous compliance to the system requirements. Conformance activities done only in preparation for an audit or for a review will not help in improving the environment.

### **The driving forces in the setting up of environmental management systems**

In Zimbabwe it was found out that the three ISO 14001 certified companies were subsidiaries of compliant mother companies. Subsidiaries of certified companies in Europe have tended to take a lead in setting up environmental management systems. This can be classified as the main driving force for certification. In addition, in the Survey that was conducted in on 80 companies, the 13 companies that had set up environmental management systems responded as shown in Table 2 about their reasons for setting up environmental management systems.

Table 2 The Reasons for Setting Up Environmental Management Systems

Reason for setting up EMS	% Response
Setting up the EMS in anticipation of tougher legislation, the Environmental Management Bill	69
EMS being set up to demonstrate good corporate citizenship( Social Responsibility)	54
Pressure from international customers and or insurance factors driving EMS setting	7.7
EMS for supply chain demand and or as public procurement demand	15.4

It is clear that expectations of tougher legislation and social responsibility are among the major drivers for the setting up of environmental management systems. This again emphasises the need for more training and education in order to promote informational, cooperative and voluntary policy instruments, which normally give better results. Market demands in the export sector have been another driving force. At least one company has been forced to implement ISO 14001 by overseas customers. The survey showed that 62% of the companies embarking on ISO 14001 certification were exporters to Europe (8%), Southern African Development Community, the Preferential Trade Area and to other parts of the world (8%). The other main drive has been the motivated ISO 9001/2/3 certified companies, which want to maintain excellency and leadership by moving on to being certified to ISO 14001. This way the process became a natural progression of continuous improvement of the company's management systems. They benefited from the experience of setting up a similar structured management system. It was easier for them to set up a more demanding and more difficult system like ISO 14001.

#### **The environmental laws need updating and better enforcement**

The Zimbabwean companies have operated under obsolete environmental laws, by-laws and regulations for a long time. Most of the environmental laws were enacted between 1946 and 1977 and most of them need urgent updating. The need for more stringent environmental legislation and clear economic policies in order to improve corporate environmental management is urgent for some organisations that fail to assume corporate responsibility and avoid polluting the environment.

Table 3 Zimbabwean laws related to the environment

Title of the Law	Year Enacted
1. Natural Resources Act	1941
2. Mines and Minerals Act	1961
3. Atmospheric Pollution Prevention Act	1971
4. Parks and Wildlife Act	1975
5. Water Act (Amended in 1998)	1976
6. Factories and Works (General) Regulation	1976
7. Regional Town and Country Planning Act	1976
8. Hazardous Substances and Articles Act	1977
9. Forestry Act (Amendment)	1981
10. Communal Lands Act	1982
11. Communal Land Forest Produce Act	1982
12. Rural District Council Act	1988
13. Draft Environmental Bill	In consultation

There are a few more laws with a slight relation to the environment. These are the Bees Act, Trapping of Animals Control Act, Noxious Weeds Act, Plant Pests and Diseases Act, Urban Councils Act, District Councils Act and the National Museums and Monuments Act.

The level of noise in factories, is controlled by the Factories and Works (General) Regulation 1976. This limits the continuous sound level to 90 dB. Otherwise ear protection is required. It is illegal to expose employees to 135 dB continuously without ear protection and to an instantaneous sound pressure (impulse noise) exceeding 150 dB. This is at variance with the requirements of ISO 99, which recommends an exposure level of 85 decibels for impulse noise. A number of factories in Zimbabwe generally operate in the range 88 to 105 decibels of continuous noise. The

same law has a section, which deals with thermal heat loss. Suitable heating and cooling appliances should be installed to maintain reasonable temperature and air condition to the satisfaction of the inspector. The law is not specific enough and sets ambiguous requirements. This law has a section that covers fumes like solvents, poly-vinyl-chloride and other volatile substances. Dust fumes, smoke and offensive gases have to be reduced. Air channels, exhaust fans and other suitable extraction systems have to be installed to avoid concentration of fumes in the work place. Finally, the Factories and Works (General) Regulation further stipulates that dust containing arsenic, lead and other substances injurious to health should be extracted with efficient fans or extractors in suitable rooms. The activities causing such dust can be carried out in open-air operations and employees should put on dust protection covers.

There is a Draft Environmental Bill in Zimbabwe, which deals with solvent fuels, energy and water supplies and general rubbish and metal scrap. The bill requires that there be a reduction and minimisation in the use of solvents, which contribute to ozone depletion. It requires that there be efficiency in resource usage, particularly in water and energy usage. Measures to minimise waste through resource efficiency, reuse and recycling are advocated for. It requires that companies put in place an environmental management system integrated with other business management activities in order to comply with the environmental regulations. Even though the draft bill does not stipulate the need for ISO 14001 certification, it is clear that certification to this standard will satisfy all its requirements. For water effluent, grease oil and lubricant spillage there is the Water Act. The Water Act Amendment (1998) requires that all agencies, authorities, private or individual that wish to discharge effluent into the water body, whether surface or ground should seek a permit to do so. The maximum discharge levels allowed are as follows:

Table 4 Maximum Discharge Levels Under the Water Act Amendment

Parameter	Quantity	Parameter	Quantity
Temperature (degrees Celsius)	45	Magnesium	10 mg/l
Grease and oil	60 mg/l	Chemical Oxygen Demand (COD)	1500 mg/l
PH	6 to 10	Asernic (As)	5 mg/l
Detergent	30 mg/l	Total Suspended Solids (TSS)	600 mg/l
Biological Oxygen Demand (BOD)	1000 mg/l	Lead (Pb)	10 mg/l
Tin (Sn)	10 mg/l	Chloride	1000 mg/l
Iron	25 mg/l	Sulphate	1000 mg/l
Calcium (Ca)	5 mg/l	Sulphide	1 mg/l
Phenol	5 mg/l	Cyanide	5 mg/l
Total Metals	20 mg/l	Total Dissolved Solids (TDS)	2000 mg/l

mg/l is milligrams per litre

One of the companies that got ISO 14 001 certification had to benchmark significant environmental aspects using performance measures from outside the country. Laws rules and regulations applicable in the USA, Japan and Europe were used in some cases. An example is the use of the Environmental Protection Act (1990)- Vehicle Emissions (UK), which extends emission limits for small cars and establishes uniform limits for all sizes of cars. The company has used this to benchmark the performance of forklifts. Replacement of cars, plant and equipment are guided by the requirements of this law. Emissions of gases and fumes used limit values stipulated by the American Conference of Governmental Hygienists (ACGIH) and by the Occupational Safety and Health Administration (OSHA). Strict requirements in Japanese laws have also been used to set best practice emission levels.

The city councils, town councils and rural district councils in Zimbabwe have ineffective legislation and enforcement capabilities. They would need local policing structures in order to enforce regulations. The discharge of effluent in urban areas is loosely controlled. For example, one city council stipulated that the effluent pH should be between 6.8 and 9, without specifying the chemicals that are not allowed to be part of the effluent at all. It is necessary to have by-laws that stipulate specific control levels. Furthermore, laws enforcement should be made to be more effective. The notice procedures involve many memoranda and warnings, while the pollution continues unabated. Fines are rarely implemented and these are negligible, since most of them have not been updated since 1980. In the capital city, Harare the absence of a legally elected council and Mayor for the last three years has

further weakened enforcement of bylaws. In real terms, fines in the 1970s are much about 100 times those in place now.

Environmental legislation in Zimbabwe needs to be updated and to be enforced more effectively. Failure to have recorded penalties against companies operating outside regulatory requirements makes it difficult for auditors to assess their compliance with legislation for ISO14001 certification, surveillance or confirmation purposes. The Environmental Bill of Zimbabwe has been drafted and it has many provisions that legally force the companies to improve their environmental performance. In addition, the government can also consider incentives in order to facilitate EMS implementation. All major projects are now required to do an environmental impact assessment before they can be approved. The quality of these assessments needs to be monitored.

### **The full power of information technology in ISO 14001 still to be realised in Zimbabwe**

It has been found that it is useful to keep ISO 14001 manuals and documents in electronic form as well. Information technology's potential uses and an understanding of how it can be fully used in environmental management and decision making is still being learnt. Information usage in this area has gone beyond the traditional use of information to becoming decision support systems that can be used during top management evaluation, monitoring and review of the environmental management system. Information gaps need to be bridged and information availability improved. There is a need to improve the educative capacity of information technology in Zimbabwe in the field of the environment. There is room to explore new methodologies and innovative applications of information technologies to environmental monitoring, learning, raising awareness, training and decision-making. There is a role for using Internet technologies to enhance and support education and information dissemination. This can help to improve environmental participation, environmental governance and related decision making. The companies that are certified to ISO 14001 in Zimbabwe need to produce environmental reports that can be made available to the public through the Internet in order to improve accessibility and public awareness. Currently, there is no external environmental reporting and information available about certified companies is for the purposes of public relations and advertising.

Efforts to improve the environment at local, regional and international levels can be best harmonised using an information technology base. There is room to develop software, multimedia and information systems for delivering environmental knowledge and expertise to the stakeholders in Zimbabwe. This is lacking at the moment. It is imperative to train as many people as possible about ISO 14001 certification requirements and the related guidelines. This may entail conducting of internet-based courses for organisations in Zimbabwe. Every employee of an organisation that is implementing ISO 14001 environmental management systems must receive some training. Information technology applications are still limited in Zimbabwe. The availability of e-mail and Internet facilities is relatively high. This offers an excellent opportunity to disseminate environmental management information. Electronic documentation needs to be improved. Environmental management documentation can be mostly in electronic form. Document control, operating procedures and records can all be managed by using a database and a computer system.

### **Using third parties in meeting ISO 14 001 requirements.**

The companies in Zimbabwe have limited budgets and in many cases, it is difficult to acquire all the instrumentation and technologies needed to monitor environmental pollution. Operational control, monitoring and measurement are essential requirements of ISO 14001. These services can be outsourced from some specialised organisations in Zimbabwe. Global Occupational Health Consultants and Gomat Occupational Health and Safety Consultants can assist companies in preparing Occupational Health and safety reports, making heat stress measurements when working temperatures are high, making noise measurements and in inspecting furnaces, pickling plants, extrusion plants, boilers, canteens, sanitary facilities and a variety of plants that have potential health and safety problems. This is important for companies that want to have integrated management systems that incorporate health and safety. The Department of Chemistry at the University of Zimbabwe has adequate instrumentation and expertise in identifying significant chemical related environmental aspects and impacts. They can accurately measure the levels of chemicals like copper, graphite, charcoal, PVC, aluminium dust, acid fumes, volatile organic compounds, carbon, sulphur and nitrogen oxides. The Environmental Remote Sensing Institute (ERSI) at the Scientific and Industrial Research and Development Centre (SIRDC) also assists in chemical analysis. They have the capability to analyse dust and gas emissions and water quality. Companies implementing ISO 14 001 particularly small and medium scale

enterprises can call upon the services of consultants such as these ones in order to satisfy the requirements of the standard.

### **Main constraints to ISO 14001 certification**

The main constraints to ISO 14001 environmental management system implementation in Zimbabwe are technology limitations and the lack of information on the system. This is compounded by the fact that the fees charged by the consultants are not readily affordable in the current economic climate. A number of companies try to make it on their own. The current economic crisis has only worsened this position. On the average it cost US \$30 000 (\$Z1.65 million) to get certified. A number of companies mentioned cost as a prohibitive factor in their quest to set up an environmental management system. They could start a phased implementation process over a longer time span. Having an ISO 9000 systems in place might make the companies to benefit from quality improvement. The benefits of improvements due to ISO 9000 implementation can normally offset some of the costs of implementing ISO 14001.

As a cost cutting measure, some companies adopted a strategy to send employees for courses and to try to implement ISO 14001 by themselves with minimal help from consultants. This is a good way of putting an environmental management system in place, because it provides a fully home grown system that integrates system analysis, system implementation and system maintenance. Higher-level expertise is developed internally and such systems have a better chance of being accepted by the employees since they own it. The tendency in Zimbabwe has been to get certified and get accreditation from international certification agencies. This was in order to gain the confidence of the stakeholders through the use of world-acclaimed agencies. However, this has been difficult to maintain recently due to the shortage of foreign currency in the country. Obtaining foreign currency on parallel markets has become extremely expensive. Many companies are therefore using the local accreditation body, the Standards Association of Zimbabwe.

### **The Way Forward**

The corporate world needs to be proactive in protecting the environment and in the implementation of ISO 14001 certified systems, They should where necessary push for world-class legislation that promotes best practice operations and advise government on the best policies for protecting the environment. Such dialogue is limited at the moment. Information should be disseminated as widely as possible through organisations like the Confederation of Zimbabwe Industries and the Zimbabwe National Chamber of Commerce. A survey conducted in 2000, found out that some companies felt that ISO 9000 was more beneficial to them, since it assured the customers about the quality of their products. It would appear that getting certified to one of the quality standards paves the way for ISO 14001 certification. It was clear that many companies needed detailed information about ISO 14000 series and its differences and similarities with ISO 9000 series. There is also room for a project to help companies that want to implement environmental management systems in order to get ISO 14001 certification. This could involve partial funding by international organisations like the United Nations and assistance from world-renowned consultants in the field. However there is a glaring need for the companies in Zimbabwe to search for information through the media, the Internet and other resources. They need to be proactive in protecting the environment.

The Government of Zimbabwe should play a more facilitating role through the provision of policies and instruments that promote the implementation of ISO 14001 in organisations. Dissemination of information on ISO 14000 series of standards and its role in the improvement of the environment and of corporate sustainability would be beneficial. The role of organisations and their associations can be cleared outlined as a government policy. This will enhance the cooperative behaviour and stimulate voluntary activities of these entities in environmental improvement, protection and management, paving the way for increased certification to ISO 14001. A major challenge is how to take care of historical environmental pollution. There would be a need to de-contaminate the site from the effects of past bad practice. In many cases, dumping grounds within the company are subject to pollution. In extreme cases some companies cause pollution to neighbouring areas and to underground water. Clean-up operations may be necessary if a real improvement to the environment is to be made in such cases. The government should assume a leadership role in such activities and put in place the necessary legal framework that ensures cleanup of such facilities as a part of the certification process.

The research institutes, universities, government departments, local authorities, public companies and consultants should take a lead by getting certified to the standard. They would then operate from a base of real experience, thus enabling them to offer better guidance to the other organisation that need their services. They need to disseminate information on the management system in order to close the current information gap, which has been one of the major constraints to ISO 14001 certification in Zimbabwe. There would be a need for government workshops and training courses to be conducted at minimal cost, in order to spread environmental management technologies very widely and promote the adoption and implementation of the ISO 14001. The government can further support certification initiatives through research institutes and universities like the Scientific and Industrial Research and Development Centre and the University of Zimbabwe. Incentive schemes through the taxation mechanism can also be considered in order to promote environmental protection. The government and local authorities can take a lead in the use of recycled material, environmentally friendly material for road construction and repair, develop cleaner and better drainage systems for rain water, prevent pollution of dams and enforce laws and by-laws for pollution control, particularly for sewerage and industrial waste. The Standards Association of Zimbabwe should be strengthened since it is the only local accreditation body. Seeking accreditation outside the country would be reduced if its reputation were enhanced, hence reducing the need for foreign currency expenditure for certification purposes.

The constraints to ISO 14001 implementation in Zimbabwe need to be removed as stated earlier. The environmental management technologies and management information need to be made readily available through various media, like government departments, universities research institutes and consultants. The cost of implementation, particularly for small and medium scale industries can be subsidised through creating a multi-stakeholder project that assists organisations to implement ISO 14001. Another effective and complimentary way would be the strengthening the currently existing cleaner production, green manufacturing and waste management activities in a number of Zimbabwean companies as launch pads for implementing the standard. The environmental laws, by-laws and regulations in Zimbabwe need to be updated and better enforced. The environmental problems in Zimbabwe are well known in a variety of sectors and those related to energy use have been well documented.<sup>6</sup> Structuring the environmental management systems according to the ISO 14000 series of standards will contribute towards addressing them. The suggestions made here can go a long way in removing the current barriers to ISO 14001 implementation, hence improve environmental management and hopefully the state of the environment in Zimbabwe.

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<sup>1</sup> The benefits of ISO 14001 are in Kuhre W. Lee's book "ISO 1400 Certification- Environmental Management Systems", 1995, Prentice Hall.

<sup>2</sup> For more information the book "ISO 14000: A Guide to the New Environmental Management Standards" published in 1996 by Irwing Professional Publishing can be referred to.

<sup>3</sup> This is based on the statistical data collected and provided by Reinhard Peglau and subjected to computer graphic process by ISO World. Many people all over the world contribute to the statistics. Accessed last on 5<sup>th</sup> April 2002. <http://www.ecology.or.jp/isoworld/english/analy14k.htm>

<sup>4</sup> A survey on the "Implementation of ISO 14001 and the use of ISO 14004 guidance standards in Zimbabwe" was done by the Standards Association of Zimbabwe in 1998. This was in response to a request by the ISO Technical Committee 207 at its fifth plenary in Japan in April 1997.

<sup>5</sup> Mbohwa C. T. and Madzinga A. in a research report on the "Implementation of ISO 14000 Environmental Management System at BICC CAFCA- A Lesson to Zimbabwean Industry". Project Research Report, Department of Mechanical Engineering, University of Zimbabwe.

<sup>6</sup> UNEP Collaborating Centre on Energy and Environment, Denmark and Southern Centre for Energy and Environment, Zimbabwe. (January 1997), Implementation Strategy to Reduce Environmental Impact of Energy Related Activities in Zimbabwe. This is one of the publications that addresses environmental issues in Zimbabwe effectively and encourages energy efficiency programmes.