## *EH&S Lessons learnt from the Southern African Context*

*Debbie Donkin – Mott MacDonald (Deborah.donkin@mottmac.com)*
*Magnus van Rooyen – Jeffares & Green (Pty) Ltd (vanrooyenm@jgi.co.za)*

### *Abstract*
*Environmental Impact Assessors in developing countries are continuously challenged by the need to develop practical Environmental Management Systems; systems that are robust but flexible enough to adapt to the context within which the development is proposed. In the Southern African context, the perceived absence of Health and Safety considerations during Environmental Impact Assessments results in a separation of the Environmental from the Health and Safety issues. Conversely, during the construction/implementation phase of a project, the operational management plans are often slanted towards site safety, with minimal consideration of health or environmental requirements. Consequently, the practical implementation of an overarching Environmental Management System for a specific project is complex. Based on experiences in Lesotho, Namibia, South Africa, Botswana, Swaziland and Mozambique, the measures and systems that are often viewed as "best practice" in developed countries are not practical or possible to implement on construction sites in developing countries. This is compounded by the social, cultural, educational and historical differences between the Funding Organisations, the local Regulating Authorities, the Implementing Agents, the Contractors, the Labour Force and the Compliance Officers. An appreciation of the local context and a thorough understanding of the variables at hand are essential during Environmental Impact Assessments as it provides the baseline for the development of an Environmental Management System which is practical and possible to implement.*

### *Summary Statement*
An appreciation of the local context and the relationship between the role players is essential during EIAs as it provides the baseline for the development of practical EMS.

### *Introduction*
Environmental Impact Assessors in developing countries are continuously challenged by the need to develop practical Environmental Management Systems; systems that are robust but flexible enough to adapt to the context within which the development is proposed. While the need for flexibility is not unique to developing countries, it differs from that in developed countries on the simple basis that facilities, amenities, education and priorities differ. The challenges faced by EMS practitioners are often linked to the specific areas in which the projects are implemented. In this way the implementation of projects in Lesotho varies from projects in Namibia and South Africa which in turn varies from projects in Mozambique and Angola.

In many ways a phrase that was coined in the motion picture, *Blood Diamond* (2006), is very pertinent to this way of thinking. The lead character in the movie, played by Leonardo di Caprio, says to a fellow diamond smuggler, "TIA, This is Africa". It highlights the concept that things are done differently in Africa. Cognisance of this phrase when EMS practitioners draw up specific systems for implementation will result in practical systems that can be successfully implemented.

**Development Projects**

The nature of the majority of current development projects are mainly linked to civil infrastructural development or infrastructural development associated with the exploitation of new mining areas within the Southern African Developing countries.

An example of these projects is the railway line infrastructure that is being developed to transport coal from the Moatize and Tete coal fields in Mozambique that are now being actively mined. According to government records these coal fields will be worked by approximately 40 international mining companies. The major challenge that face all these companies is to transport their mined products to harbours for export. To this end, the need for the development of an extensive railway network has been identified. The government of Mozambique could however not fund a project of this nature and therefore many of the mining houses have taken it upon themselves to develop the required transport infrastructure.

In countries such as Lesotho and Mozambique the development of civil infrastructure is also underway. In Lesotho the infrastructure that is developed is providing potable water and access to areas that have never been serviced in the past. The funding for these developments is through International Non-governmental Organisations (NGOs) or grants from first world countries. In Mozambique the civil infrastructure development projects are linked to the expansion and upgrade of existing infrastructure that has fallen into disrepair following the post-colonial civil war years. The infrastructure is limited to the provision of sustainable potable water and upgrading existing roads to improve access to certain areas of the country.

In South Africa, many infrastructure projects are aimed at addressing the inequalities brought about through apartheid. Rural communities that were previously disadvantaged are receiving the services that many people take for granted. Potable water supplies, sanitation with associated waste water treatment works and access roads are common projects.

In Lesotho and Namibia, similar projects are being undertaken, often through local government funding, but as with Mozambique, many are undertaken with the aid from international funders.

***Environmental Health and Safety Requirements***

The majority of these development projects are funded by international NGOs, First World Governments or other organisations that require the implementation of their in-country Environmental, Health and Safety (EH&S) Standards, those of the International Finance Corporation (IFC) or similar such principles. The design and requirements of these principles are often very much in line with the EH&S standards that are implemented in Frist World Countries and are often in contradiction with what is implementable on projects in Developing Countries. This is not meant as a criticism on these EH&S standards as they are a good starting point for the compilation of specific Integrated Environmental Management Systems (IEMS) for development projects, but cognisance must be taken of possible shortcomings of these principles when project specific IEMS are evaluated or audited. It is often found that there are conflicts between the requirements of these principles and what is practically implementable.

## What are the challenges faced?

The implementation of one holistic system that manages environmental, health and safety impacts is ideal. However, more often that not, more emphasis is placed on safety, with environmental and health issues trailing a poor second and third, respectively. And while this is normally the case when a project is being implemented, the reverse is often true during the EIA. The EIA is usually heavily environmentally focussed with little or no consideration of health impacts and a passing glance at safety. The need for a holistic system therefore starts with project inception, when an all-encompassing approach is needed to identify the impacts of a development with respect to environmental, social (health & safety) and economic issues. This needs to be carried through to the implementation phase when once again, all three aspects are balanced such that the development is completed with (preferably) no environmental damage, loss of life or health impacts to workers and affected local communities.

*Safety first and foremost?*
In South Africa, especially, the legal requirements governing the management of safety on construction sites are gaining importance. It is a subject that is being increasingly monitored by the relevant government departments and as such requires a firm financial commitment from the Employer. Some of the benefits of a safe site are slowly being witnessed by the Employers who see that a site with good access, well managed stockpiles, controlled supplies etc leads to better managed construction processes and hence improved schedules.

However, the converse is also true on some sites where so much time is spent on implementing systems and keeping paper trails that the "real" work comes second. An extreme approach is taken where impractical measures are enforced in the name of safety, measures which result in accidents and reduced progress. In these cases, it is clear that a good dose of common sense would go a long way! There is a need for a balanced approach which ensures the safety of employees and the general public while not stopping work from taking place. Enforcing steelworkers harnessed to a 20m high framework in the boiling SA sun to wear gloves, glasses and a mask is clearly an example of over cautious, yet dangerous enforcement. The example is a point in case where the workers' productivity dropped dramatically because they couldn't see through their steamed up glasses and the gloves were so ill-fitting that their control of their tools and steelwork was threatening to themselves and those working around them.

*Education*
The above example leads on to the next challenge faced; that of education. Clearly, if the workers and those doing the enforcement were educated in the ways of practical safety and were aware of their rights, they could ensure that the measures being implemented were actually working to their favour. A worker told to wear gloves will do so. But without being educated as to which gloves to wear for what activity, the act is pointless. This may seem like a simple example, but it is just one of the challenges faced. If measures that should be common sense cannot be implemented properly, how does one ensure the mitigation of environmental impacts on site?

Environmental impacts are often viewed as more abstract and difficult to quantify and manage. After all, surely "Mother Nature" takes care of herself? Again, education

plays a major role. One needs to understand the background of general labourers in Africa. Often, these men (construction being male-dominated) have had little formal education. Their view of the environment is limited to the trees over there or the river that runs past the house. There is no understanding of the importance of managing construction-related impacts so as not to damage the environment. There is a huge need to improve this situation and while something like "toolbox talks" have a role to play in changing the situation, the problem stems back to primary education needs. A simple talk every week may get people thinking about what the environment is and how valuable it is to protect but it is not going to have the dramatic change in thinking that is required. The concept of protecting ground water is foreign to a man who lives in a 40m² home, gets up at 4am to start work at 7am and will never own a vehicle or go to a nature reserve on holiday.

*Amenities*

Education and amenities often go hand-in-hand. In Mozambique, school attendance is not compulsory. Travel to northern Mozambique and you will see a class of 40 children sitting under a tree receiving elementary education. At lunch time, these children go home so that the next group can attend. There are an insufficient number of schools and teachers to meet the needs of a growing population. Under these circumstances, how can one expect someone coming out of this system to have an appreciation of the requirements of a first world EMS? And why would they require an understanding? Consider the current investment in Mozambique. With the discovery of the coal seam in the Tete province, a large number of investors are moving in to mine the coal. Related to this is the need to transport the coal to a port for export. And when one considers that the transportation will be across a possible 1000km, the development of new railway lines is inevitable and is in fact happening. All of this necessitates large work forces drawn from the local communities. There is a huge demand to uplift local communities and promote skills and knowledge transfer. How this should be achieved, is often not clear.

A lack of amenities is not only related to education, but also to the things that we often take for granted such as access to potable water, a constant power supply and sanitation. Take the above-mentioned example of building a railway line across Mozambique. The majority of the route is under natural vegetation or scattered rural settlements with associated subsistence agriculture. There are no taps, no lights at the flick of a switch, no flushing toilets. How does one implement an EMS under these circumstances, especially if that project is being funded by an international funding agency with requirements to meet Equator principles and first world standards? One has to take a practical approach which prevents environmental damage, promotes understanding by local work forces for compliance with these requirements but does not incur exorbitant costs. After all, there does need to be a balance between the circles of ecology, social impacts and economy.

Areas of conflict that typically occur for many projects in developing countries are linked to the key aspects of IEMS such as sanitation, waste management and access to water.

<u>Sanitation</u>

In general, the requirement for the provision of sanitation on construction sites is acknowledged by both the Principle and the Specific IEMS. Where there is conflict however, is when the standard of provided sanitation is assessed as well as the measures for disposal. In general, the minimum standard for sanitation facilities

provided to on-site employees is portable chemical toilets that are serviced by registered service providers. The availability of these types of toilets in Southern African developing countries are irregular to say the least with only South Africa fully equipped for regular supply and servicing. In countries such as Mozambique a requirement for these types of toilets and their servicing is impossible as firstly the toilets are not available nor are registered service providers available for their operations. In these cases it is therefore common practice to establish a French drain system or septic tanks associated with fixed ablution facilities.

Added to the challenges of the lack of sanitation, it is also often difficult to educate the employees to use the sanitation facilities as often they do not have access to these facilities in their own homes. These employees come from a culture where their ablutions are done in the bush surrounding their homes or within rivers and streams that will drain away any waste generated either by washing or sanitation. This cultural aspect is not catered for in the required EH&S Principles that are required by the funding organisations.

Waste Management

The standard EH&S Principles usually calls for on-site waste management to be conducted by separating domestic, construction and hazardous (mainly petrochemicals) wastes and disposing of them in a responsible manner. In the case of the first two waste streams, disposal should be at registered landfill sites and in the case of the latter, by a registered service provider.

Very similar to the situation with the servicing of the sanitation facilities discussed above, it is difficult or impossible to make contact with a registered service provider to collect and dispose of hazardous waste such as petrochemical spills at remote locations. The best that the contractors can achieve is to contain and collect the materials affected by the spills and have the materials treated by the local waste management departments.

As for the registration of landfill sites used for disposal, relatively developed countries such as South Africa are only now in the process of registering their landfill sites in accordance to their National Waste Act. Having registered sites in any of the other developing Southern African countries are virtually impossible.

Another popular waste management strategy that is included in the EH&S Principles is the requirement for recycling of waste materials. This is a very commendable practice in first world countries where the infrastructure and markets for recycled waste are in place, but a near impossibility in developing countries where no such measures exist. Contractors have often found that in an attempt to comply with this requirement of the EH&S Principle they would separate the waste on-site only to find that when the government-managed waste collection occurs, all the waste streams are disposed of at one mixed landfill site.

Water Supply

As with sanitation systems, the supply of potable water to site, especially remote sites, is not commonplace. Water has to be abstracted from watercourses or via boreholes. Given the remote location, constant management of this resource by an outside body is virtually impossible resulting in unknown volumes of water being drawn from unmanaged and unauthorised water sources.

The impacts on these water sources as a result of unmanaged run-off from the sites is also often poorly managed resulting in downstream pollution which affects the local communities relying on these sources. While measures are being implemented to improve the situation, it is a difficult path with challenges that need to be addressed on a legal, compliance and education level.

**Conclusion**

In the Southern African context, the perceived absence of Health and Safety considerations during Environmental Impact Assessments results in a separation of the Environmental from the Health and Safety issues. Conversely, during the construction/implementation phase of a project, the operational management plans are often slanted towards site safety, with minimal consideration of health or environmental requirements. Consequently, the practical implementation of an overarching Environmental Management System for a specific project is complex.

Apart from the imbalanced approach towards EIAs and then EMS, there are also a large number of interacting variables which influence the practical implementation of an EMS in the developing country context. Achieving a balance between environmental, health and safety requirements without compromising standards of any is achievable but requires a change in mindset of those doing the implementation. The contractors carrying out the work need to realise that all three elements are of equal importance. The funders financing the projects need to realise that while a certain level of compliance can be achieved, it is not on the same level as a developed country. The workers doing the labour need to be educated on their rights as well as the need to protect the environment. The bottom line for the successful implementation of EMS, is to develop a holistic system that takes into account the local environment, i.e. ecology, culture, economy, and incorporates the vital health and safety issues that ensure a safe environment for people and nature alike.