ENVIRONMENTAL IMPACT ASSESSMENT CASE STUDY MKUZE RIVER CROSSING TO PHELENDABA

R. Millard and S. le Hanie (1999)

Objectives of the case study

The EIA used for this case study was conducted by Environmental Impact Management Services (Pty) Ltd (EIMS) for the South African Roads Agency, Department of Transport. Permission to use the EIA for the case study was obtained from Robert Millard, Director of EIMS and is gratefully acknowledged.

1. INTRODUCTION AND CONTEXT

A recent and important development in South Africa has been the introduction of compulsory EIA on development proposals through the implementation of Sections 21, 22 and 26 of the Environmental Conservation Act (1989) in 1997. The EIA regulations as they are dubbed, make provision for the assessment of a range of activities from the construction or upgrading of facilities for commercial electricity generation and supply to the reclamation of land below the high water mark. Included in these activities is the construction or upgrading of 'roads, railways, airfields and associated structures and activities outside the borders of town planning schemes' where 'roads' means:

- any road declared under section 4(1)(a) of the National Roads Act, 1971 (Act No. 74 of 1971), a national road and this includes a part of such road or route; or
- a 'toll road', by which is meant any road for which a fee is charged for the use thereof; or national freeways; or
- a provincial road numbered and administered by a provincial authority and arterial roads and major collector streets administered by a metropolitan or local authority, or
- any road in a designated sensitive area or in any area regarded by the relevant authority as sensitive.

In addition, the Constitution itself upholds the right of individuals to an environment that is not harmful to their health or well-being. Finally the recently promulgated National Environmental Management Act (NEMA) seeks 'to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment. It should be clear from the above that the environmental consequences of development activities have to be taken into account in the decision-making process.

The case study that has been chosen is a relatively small EIA that was conducted for a proposed road development in an area of extreme bio-diversity value. Paradoxically the area is also characterised by high levels of poverty and lack of development. The case

study has been chosen to reflect some key principles of EIA in respect of roads development including the following:

- How the EIA process should be tailored to the decision-making requirements
- The types of issues associated with a roads development of this nature
- The importance of public participation
- The importance of post EIA implementation of recommendations through an Environmental Management Programme (EMP).

2. THE SOUTH AFRICA EIA REGULATIONS

In essence the South African EIA process consists of three major components namely Scoping, the assessment itself and the finally the decision. Scoping is the process whereby the full scope of the assessment is determined and involves consultation with a broad group of stakeholders and the general public or so-called 'interested and affected parties' (I&APs). Once the scope of the assessment has been determined the assessment can commence to address all of the issues that have been identified. These issues are assessed to determine whether or not they will result in an impact and the magnitude, duration and resultant significance of that impact. The final stage of the process is then the decision which is a collective decision by all the relevant authorities, co-ordinated by the 'lead agent' and indeed by the developers themselves.

In terms of the case study it is not the intention at all to describe the regulations in detail but rather to highlight two important principles. The first of these is the need for public participation, described in the regulations as ensuring 'public involvement in the undertaking of identified activities'. A second important principle is that the process makes provision for decision-making on completion of the scoping phase, if the authorities deem the impacts to be well enough understood at that stage to allow for a decision. The significance of this latter component is that the EIA regulations become 'development-friendly' without compromising in any way on the protection of the environment'.

3. BACKGROUND TO THE PROPOSED DEVELOPMENT

The portion of the MR439 from the Lower Mkuze Crossing to Phelendaba is the last section of the tourist access from Hluhluwe to the Mozambique border, and ultimately on to Maputo that still has a gravel surface. The proposed development was to upgrade this road and the crossing over the adjacent Mozi Swamp in the following manner:

- Tar the existing road with minor deviations from its existing alignment
- Construct an entirely new crossing over the bottom of the Mozi Pan - (1 in 50 year flood design)
- Upgrade the bridge at the lower Mkuze Crossing to 1 in 50 year flood design
- Upgrade the crossing over the Mseleni River to 1in 50 year flood design

4. CONTEXT

4.1 Biophysical environment

Maputaland as the area in which the proposed upgrade would take place has long been recognised as an area of considerable biological diversity. It is also an area of considerable environmental controversy following an EIA on a proposal (subsequently unsuccessful) to extend dune mining operations in the area. Important hydrological considerations are the many lakes in the area including Lake St Lucia. Vegetation in the area is complex and interesting, characterised by a high number of endemic species and described as a southern African bio-diversity 'hot spot'. Included in the area is the Mozi Swamp which was once a shallow waterway linking Maputo with St. Lucia. Ilala palms proliferate and are a primary source of income to the local people who produce a palm wine called *injemane* or *ubusulu.*

Fauna is the area is significant with 112 reptile species of which 20 are considered inadequately protected and 7 threatened with extinction in the wild. No other area of South Africa possesses the variety of tropical birds for its size with 462 birds having been recorded. Of the 101 avifauna species in South Africa that are in need of protection 47 occur in Maputaland. Some 102 mammal species have been recorded in the area.

4.2 Development

Spatial Development Initiatives (SDI's) are an important development driver in South Africa and are concerted programmes to encourage rapid investment in designated areas. The Lubombo SDI is 'a strategy to convert the mix of human and natural resources of the wider Lubombo territory into an internationally competitive zone of economic activity and growth. The MR439 forms a key infrastructural component of the Lubombo SDI with the following objectives:

- Unlock the economic potential of the area
- Improve access within north-east Maputaland for local people, tourists and commercial activities
- Effect a direct link between northern KwaZulu-Natal and Mozambique

The area has high eco-tourism potential and with peace in Mozambique and the normalisation of political relations between that country and South Africa, the road between Hluhluwe and Farazela (on the Mozambique border) had become increasingly utilised by tourist traffic. The existing road surface was not adequate to cope with the increase in traffic. The road upgrade was also seen as assisting the improvement of one of the least developed communities in South Africa.

4.3 Social environment

Maputaland is one of the poorest and most underdeveloped areas in southern Africa. Unemployment in the economically active population runs at about 38%, with formal

employment being mainly associated with Government services. Most people practise subsistence agriculture. The economy is not well differentiated with agriculture and forestry accounting for almost 40% of the GDP of the region. The area is richly endowed with ecotourism attractions including game parks, marine reserves, wilderness areas and estuarine environments. Tourism has the potential to reverse the slow pace of development.

5. ENVIRONMENTAL ISSUES

5.1 Alternative routing

Because of the eco-tourism potential of the Mozi and Yenguenie Pans and the area between the pans and the proximity of the existing roadway to the Sodwana State Forest, the KwaZulu-Natal Nature Conservation Service (KZNNCS) proposed an alternative routing for the roadway. They also argued that the alternative routing would provide greater access to the Kwa-Jobe Tribal Authority a poor community with extremely low annual average incomes (R311 pa) and high dependency ratios (15 dependants per economically active member). This alternative routing was dubbed the western alignment.

5.2 The Eastern (existing) Alignment

The major benefit of using the existing alignment was that the bulk of the area to be occupied by the road was already cleared so linear developments and other disturbances were already in existence. The existing route was also cheaper because it was shorter. However, negative effects of passing through the state forest are hazards to game and game hazards to traffic, opportunistic poaching and noise from the road.

5.3 The Western (alternative) Alignment

The major disadvantages of this route was the need to clear some 140 hectares of mature Sand Forest. At the same time there was also concern about providing enhanced access to woodcutters with a resultant deterioration of the Sand Forest. Some of the benefits included expanding the width of a migration corridor that had been established between the Mkuze Game Reserve and the Sodwana State Forest. The western alignment would also have negated the need to provide a crossing over the Mozi Swamp to access Kwa-Jobe.

5.4 Upgrading of the crossing of the Mozi Swamp

The proposed upgrading of the crossing would result in several positive impacts including removing barriers to fish migration, improving access to Kwa-Jobe, increase the frequency of water exchanges, reducing the hypersalinity in LakeSt Lucia and improved fish yields. Negative impacts included constricting water movement, possible

embankment collapse during heavy floods and a reduction in hydrologic pressure on the Mkhuze Swamp during floods.

6. CONCLUSIONS OF THE EIA

The conclusion drawn was that the eastern (existing) alignment was preferable especially given the vehement opposition expressed by Tribal authorities to the western (alternative) alignment. This was not to say that the negative impacts identified for the eastern alignment would be ignored especially the potential negative impacts of the Mozi Swamp crossing. For this reason strict recommendations were included in the EIA as to the adoption of a stringent Environmental Management Programme (EMP) that would govern all construction practises.

7. CONCLUSIONS IN RESPECT OF THE CASE STUDY

1. Highlights the complexity of EIA in terms of the dynamics of social and natural systems
2. Indicates the importance of public participation to take into account both the wants of the local people and suggested alternatives
3. An extended Scoping study proved adequate for decision-making, despite the complexity of the issues without invoking an intensive, detailed study that would have had significant time and resource implications.
4. Provides an indication of the issues that could typically be associated with road building in a rural and ecologically sensitive setting
5. Emphasises the importance of implementing an Environmental Management Programme (EMP) to ensure that the recommendations contained in the EIA are put into practise during the execution of the project.

Source: **Millard R and S le Hanie (1999). Mkuze River Crossing to Phelendaba, Environmental Scoping. Report Project SAPR S58-040-01/1. Johannesburg: Environmental Impact Management Services.**