

4 EVALUATION OF THE VARIABLES

Table 8 contains all the different variables. The variables are those listed by the Department of Environment Affairs and the ICGP. The case studies are evaluated against these variables to determine which are commonly used, how extensively are they used, and if there are unique variables used in the various case studies.

Table 9: Case Study Evaluation: Variables Analysis

VARIABLES	SALDANHA STEEL	CORRIDOR SANDS	MOHALE DAM	ESKOM	DURNACOL
Cultural resources					
Structures and sites of architectural, cultural or historic heritage		X (H)* (graves)	X (H)		
Sites of archaeological or palaeontological importance	X		X (M)	X	
Special attraction of local sites, traditions or events		X (H)			
Sites or areas of religious or spiritual significance		X (H)			
Sites or areas of special social or cultural interest			X (M)		
The integrity of cultural resources		X (M) (leadership)			
Socio-economic characteristics of the affected people					
<i>Demographic aspects:</i>					
	X			X	X
Growth rate of the local population	X (L)	X			X
Location, distribution or density of population	X (H-)			X	X
Existing age or gender composition	X (L+)	X	X (M)		X
Existing biographical composition of population	X (L+)				X
Existing migration movements	X (H-)	X			X
Inflow of tourists	X (L+)		X		
<i>Economic and employment status of the affected social groups:</i>					
					X
Economic base of the area	X (H+)	X (H+)	X	X	X
Distribution of income	X (L)		X		X
Local industry	X	X (H+)		X	X
Rate and scale of employment growth	X (L+)	X (H+)			X
Labour needs and the spare labour capacity of the area	X (M+)	X (H+)			
Movement of labour away from existing employment in the area	X (L+)	X (L+)			X
Non-local labour remaining in the area after completion of development	X (H-)				
Pressure to comply with particular skills, age range	X (L+)	X	X		X

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or gender needs					
Job opportunities for school leavers	X (M+)	X			
Short- and long-term unemployment trends	X				X
<i>Welfare profile:</i>					
Incidence of crime, drug abuse or violence	X (L-)		X (M)		X
Extent of homelessness and overcrowding	X (M+)				
Adequacy of services	X (M-)				X
Adequacy of support systems such as crèches and shelters for destitute children	X (M-)				
Quality of life	X (L+)	X			
<i>Health profile:</i>					
Availability of clinics/health services	X (L+)				
Incidence of disease (STDs/AIDS)	X (H)	X (H)	X (H)		
Incidence of mental illness	X	X (H)			
Threats to health from pollution	X (L-)		X		
<i>Cultural profile:</i>	X				
Existing lifestyles, household composition and family network	X (H-)	X (H)	X		X
Religious and cultural attitudes, outlooks and expectations	X (H-)	X (H)	X		X
Cultural or lifestyle diversity	X (H-)	X (H)	X		
Cultural or lifestyle stability/religion	X (H-)	X (H)	X		
Social infrastructure services					
<i>Education:</i>					
Demand for specific types of technical skill training	X (L+)				
Demand for specific types of industrial training	X (M+)				
Adequacy of existing technical institutions	X				
Adequacy of nursery, junior and secondary education facilities	X (M-)		X (M)		
Need for additional education facilities	X (M-)		X		
Demand that exceeds the planned provision of education facilities	X (M-)				
Pre-school facilities	X				
<i>Housing:</i>	X	X	X		X
Property values and levels of rates	X (M+)	X			X
Potential conflict over land use	X (M-)	X			
Availability of housing stock	X (M+)				X
Need to release additional land for housing development	X (L+)		X (H)		
Acceptability of such land release/resettlement	X	X	X		
Adequacy of infrastructure for further housing	X (L+)				

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development					
Ability of private or local authority to provide housing	X (L+)				
Compatibility of planned development with existing housing	X				
Location of suitable housing sites	X				
Sites suitable for construction camps	X	X (H+)			
Standard of provision of facilities required by authority	X				
Design and layout of site facilities	X				
Use to which construction camp may be put after construction period	X (H+)				
Social and community services and facilities					
<i>Health service facilities:</i>					
Adequacy of temporary facilities during construction phase of development	X		X		
Adequacy of on-site health facilities	X				
Adequacy of facilities for primary health care	X		X		
Adequacy of existing health services to cope with increased population	X (L+)				
Projected provision of health service facilities	X		X		
Need for additional facilities	X (L)		X		
<i>Emergency services:</i>					
Adequacy of existing emergency services	X (L+)				
Projected provision of services to meet increased demand	X (L+)				
Need for additional emergency services	X (L+)				
Adequacy of the emergency and safety services provided by the developer	X (L+)				
Ability of local resources to deal with emergencies	X (L+)				
<i>Recreational facilities:</i>					
Adequacy of existing facilities	X (L+)				
Projected provision of facilities to meet increased demands	X (L+)				
Need for additional facilities	X (M-)				
Recreational and service facilities in the workplace	X				
<i>Risk and hazard:</i>					
Level and identity of hazard to the public	X (M-)		X (M)		
Probability of occurrence	X		X		
Extent of effect – local, regional or panoramic	X				
Standards required for process equipment	X		X		
Safety and design review	X		X		

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Safety audits	X		X		
Hazard and operability reviews	X		X		
Failure mode and effect analysis	X		X		
Workers' safety/degree of risk	X		X		
Level of risk and hazard for other living organisms					
<i>Health and safety:</i>					
In the workplace	X		X		
Surrounding areas	X		X		

L = Low

H = High

+ = Positive

M = Moderate

- = Negative

4.1 DISCUSSION

All five case studies addressed the demographic aspects, either in an SIA or some of other report that supplemented the EIA. Gender and age were discussed in detail under a demographics section. This section was followed by a discussion of the economic base of the areas and possible job opportunities for the affected parties. The Durnacol study addressed alternatives for land use/job opportunities after the closure of the mine. It looked at where both males and females could be absorbed in the labour force, both in the formal and informal sector. Two of the studies addressed local industries, including related labour issues and the labour capacity of the areas. The transmission line study indicated that the communities would not be affected economically by the project. The Saldanha Steel study and the Corridor Sands study considered job opportunities for school leavers. The informal sector economy was strongly emphasised in the Corridor Sands study but was not one of the variables on the checklist. Hence this variable could be added to the checklist for Southern Africa.

In terms of welfare, two of the studies dealt with an increase in crime, violence and drug abuse. These problems were associated with the influx of construction and other temporary workers into the region. In a rural area such as Gaza Province such problems did not seem to occur, and the strong traditional values there could be the reason. The Saldanha Steel study addressed the adequacy of services and homelessness, and relocation and resettlement featured strongly in the Corridor Sands study, which also pointed to a decline in homelessness. "Quality of life" was only used as a variable in the Saldanha Steel and Corridor Sands studies. However, as the variable was not defined or described in detail, the two studies may have interpreted the variable differently.

Three of the studies referred to the high incidence of disease in general and sexually transmitted diseases in particular, and in all instances the mitigation measures were preventative. This variable seemed to be a concern when the workforce was temporary. Another concern cited in the reports was the effect of the emotional trauma of change on the local population.

Educational facilities were addressed in detail in the Saldanha Steel and the Durnacol Coal Mine studies. This may have been the result of the urban features of the towns. The existing facilities were expected to be severely affected by the proposed actions/projects. The Mohale Dam study called for the provision of additional educational facilities.

Housing/accommodation for the affected parties was discussed in all the studies except the transmission line study. The term “housing” was also used in a context where people needed to be resettled due to the closure of a mine or the raising of a dam floodline. The Saldanha Steel study specifically mentioned the provision of additional low-cost housing, as well as high-quality formal housing for professional mining people. The Durnacol Coal Mine study addressed the proposed impact of the mine closure on the property market and alternative uses for the existing infrastructure.

The Corridor Sands study discussed various housing types, namely formal housing, communal villages and rural settlements. The settlements in the proposed mining area had strong links with subsistence farming, and their pending relocation and resettlement would therefore greatly affect their income. This called for compensation for the land they were to lose. The land also had a strong heritage value. Community participation in the assessments went a long way towards identifying the issues mentioned here.

Although the variable – housing types, was not an item in the checklist, it formed a very important part of the Corridor Sands Study. Land tenure was discussed in the Corridor Sands and Mohale Dam studies. In fact, it was highly rated in both studies. It is therefore recommended that the checklist be adapted to make provision for variables related to rural communities where land tenure types are important and subsistence farming is associated with housing issues or the community's values.

Health, emergency and recreational facilities were only discussed in detail in the Saldanha Steel study. Health facilities in the Lesotho Highlands Water Project study were covered under temporary facilities erected during the construction phase as well as under the need for future health care. The Saldanha Steel study, which described the establishment of a new industrial development in an area with existing infrastructure, identified the need for additional and better facilities for the expanding community. The Corridor Sands and Mohale Dam developments were located in rural areas where these facilities had not been established yet. Hence they were not addressed in the relevant studies.

The risk/hazard and safety variables were addressed in detail in the Saldanha Steel and Mohale Dam studies, as the safety of workers was important at both projects. At the transmission line the hazard might be temporary and limited to the construction site.

A social variable not contained in the checklist, but highlighted in two studies, was the issue of food security and nutrition. This issue was related to housing and land tenure where subsistence farming was exercised. This was a clear indication of the need for identifying variables for a rural setup in particular.

The variable “access” should be seen in the light of the nature and extent of the Lesotho Highlands Water Project. The project consisted of a whole infrastructure development for the dam area and included the construction of access roads, weirs and a series of dams. Access during the construction phase was an important issue for the residents of the area as the area consisted of a couple of rural settlements. Not all of the studies used the same variables, but the same topics were covered, as indicated by the checklists of the ICGP and the Department of Environment Affairs.

4.2 CONCLUSION

The variables used in the various studies were in accordance with the variables listed in the various sources. These variables included population impacts, community or institutional arrangements within the community, conflicts between local residents and newcomers, individual and family-level impacts, and community infrastructure needs. The population impacts included all the demographic aspects, as well as the presence and influx of temporary workers in the area, and relocation aspects. The community and institutional issues related to the forming of attitudes towards the project and the presence of the labour force in the area and the changes that might

occur in employment and occupational opportunities. The conflicts were mainly associated with the introduction of new social classes and the change towards an industrial and commercial focus. Individual and family impacts related to the disruption of daily living, religious practices and social networks, the change in leisure opportunities, and perceptions regarding health and safety. Community infrastructure related to the change of the community composition, land issues and effects of change on cultural and historical resources.

However, an SIA in Southern Africa should include variables specific to the third world context, such as the contribution of the *informal economy* to the regional economy, *land tenure types* and heritage aspects connected to these, as cited in the Corridor Sands study, and *food security and nutrition*, which variable is associated with settlement patterns and land tenure. Hence the third hypothesis of this dissertation can be accepted, as there are certain variables unique to the Southern African context.

- Step 6: 'Scoping' which is probably the key step in designing the SIA. It involves two steps: the first being the development of a relatively exhaustive list of potential impacts of the action and, second, the selection, from that list, of the potential impacts to be treated in the SIA.
- Step 5: The main research step, namely, the projection of estimated effects. The three main information sources for impact identification are the literature, experts and field research providing informant interviews. The case study assessor tries to establish what happened in similar past cases by studying the available literature as a guide to what could happen in the case study.
- Step 7: The task of predicting how the affected parties will respond. It must be admitted that most SIAs do not implement this step, or do very little of it. It is essential to estimate higher order impacts and the political consequences of the action – information in which decision makers should take an interest. It also entails ascertaining the attitudes of affected parties towards both the action and its direct impacts, and their probable responses to the impacts. Respondents' statements about their responses might poorly predict their subsequent actions, but their statements can at least alert the agencies to potential problems that might be resolved by appropriate agency actions.