

## B MANUFACTURING INDICATORS

The indicators recommended are a total of three out of twenty five indicators considered. These indicators relate to the categories outlined in the conclusions of the study which are:

- Health concerns
- Contribution to development
- Environmental assessments
- Waste and pollution

The first indicator suggested is the proportion of exports which are not from primary sectors of the economy. This is a developmental indicator relating to the success of the government in reducing reliance on extremely volatile sectors such as agriculture and mining.

The second indicator suggested is the proportion of the urban population living in towns that do not comply with their water permits. This is an indicator that combines a health concern (the protection of the population from the adverse effects of badly treated effluents) and a general waste and pollution concern (protection of the non human environment from these threats). This indicator will be mainly effected by changes in water treatment in the key large towns and will encourage a focus on the large towns which at present have inadequate systems.

The third indicator is the proportion of manufacturing industry in regions which have hazardous waste disposal facilities. This is an indicator that is focused on waste and pollution generally, in the sense that it deals with reduction of risks to groundwater from hazardous wastes, as well as smells and visual pollution. To a certain extent it also acts as a proxy for human health being protected from these wastes. In a similar way to the previous indicator it tries to focus attention on regions which do not have any hazardous waste disposal facilities but do have industry. The development and operation of hazardous waste facilities in these regions means that the indicator will start at a high level, so focusing attention on regions where there are not these facilities. It should be noted that this indicator includes storage for disposal elsewhere as a facility. Hence a region that has basic storage such as a lined concrete slab, from which waste is collected for proper disposal elsewhere each few months, would be defined as a success.

A wide variety of indicators have not been recommended but have been included for reference purposes. Some of these, particularly relating to human health, are not included due to the lack of a strong link to manufacturing. Most potential waste and pollution indicators have been discarded due to the lack of information available on them. This should be available in the near future with the planned Pollution and Waste Management Agency. This will allow the calculation of indicators based on the proportion of the population who are in areas with good water and air quality, based on the setting of environmental standards by this agency. Information on the costs of waste disposal would be very interesting to calculate from the point of view of keeping the costs to manufacturing and municipalities down, but will have to be left

for the present time. Partly this is because this information is not collected. It would also be inappropriate to use it in the absence of evidence that environmental standards are not deteriorating, otherwise a fall might just indicate laxer enforcement of standards. Environmental assessment related indicators have also been decided against on the grounds of the dispersed nature of manufacturing and the possibility of much growth coming through small and medium enterprises which will not undertake environmental assessments. Indicators related to resource use have also been decided against, because there is no evidence that manufacturing resource use has any environmental implications. The only possible exception is wood use, and data is unavailable on this. Finally a potentially useful indicator that has been discarded is the proportion of large scale manufacturing in formal industrial areas. Although this would have been a useful indicator the time required in calculating it means that it has been discarded for the time being, although discussions with the planned Pollution and Waste Management Agency are recommended on whether they might find it useful to calculate for their own planning purposes.

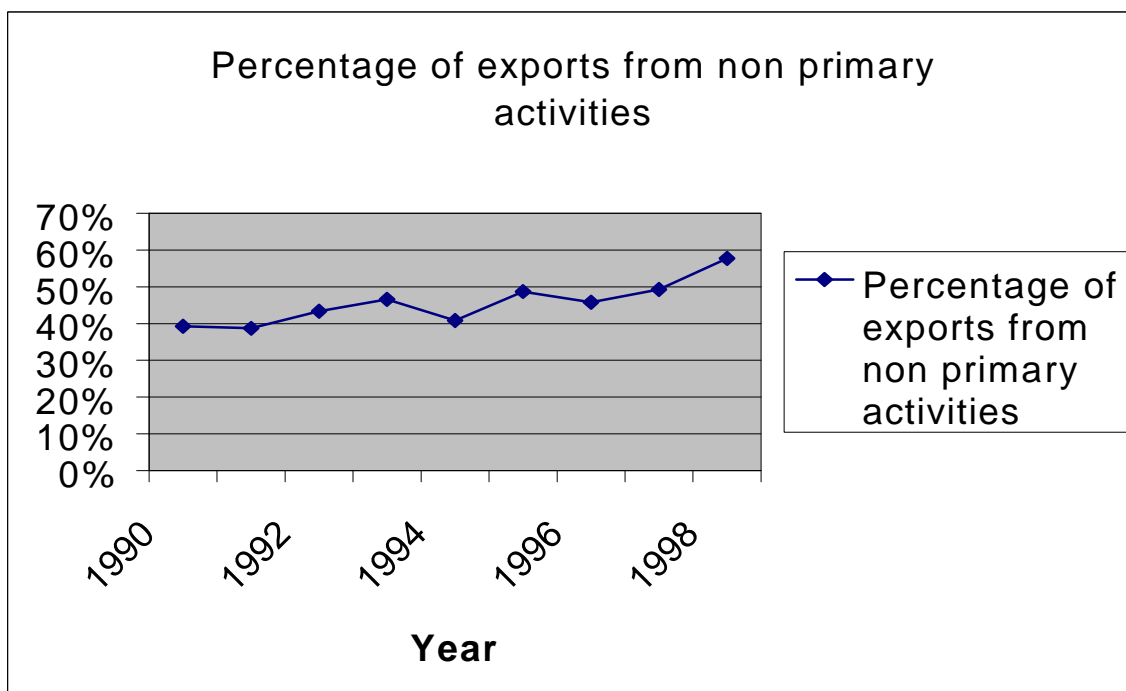
**INDICATOR B1: NON PRIMARY SHARE OF EXPORTS**

<b>INDICATOR NAME</b>	Non primary share of exports
<b>DEFINITION</b>	Proportion of exports that do not come from traditional sources such as agriculture, mines and fishing
<b>MEASUREMENT</b>	Expressed as a percentage

**SIGNIFICANCE OF THE INDICATOR**

<b>PURPOSE:</b> This indicator measures the proportional contribution of manufacturing and services to the total economy and tracks the changes in the country's reliance on primary production for economic production and the extent and rate at which the country is moving towards or away from being a mineral, agriculture and fish based economy	
<b>RELEVANCE:</b> This indicator tracks the country's diversification away from traditional industries into higher value industries such as manufacturing and tourism. The present situation of Namibia's linkage to the Rand means that for the present the exchange rates effects are not important, however the effects of commodity prices on employment and government revenue continue to be significant. The higher the proportion of exports that are not dependent on the weather on land and sea and international mineral prices the more stable employment, output and the economy as a whole will be.	<b>LINKAGES TO OTHER INDICATORS:</b>
<b>UNDERLYING VARIABLES AND DEFINITIONS:</b> The indicator compares exports in primary industries (mining, fishing, agriculture and forestry) to the rest of the economy.	<b>MEASUREMENT OF THE INDICATOR:</b> The Central Statistics Office publishes the annual contribution of each of the main sectors of the economy to exports in the 'National Accounts'. Data is thus readily available.
<b>LIMITATIONS OF THE INDICATOR:</b> The indicator contains no direct links to environmental quality	

### B1.1 PAST PERFORMANCE



Performance since 1990 has been generally positive with growth from around 40% of exports to around 60%. These trends have been driven mainly by growth in services and processing of meat and fish, although there has been some growth in "other manufacturing".

### B1.2 INTERPRETATION

Fish processing has in fact proved to be able to grow substantially even in years when fish catches have fallen. This can be attributed to greater success in producing higher quality processed products. Similarly the strong growth of meat exports reflects an ability to produce products which are higher quality for export. "Other manufacturing" has grown, but as a proportion of exports has actually fallen. Exports of services cannot be disaggregated much, but can be assumed to be mainly originating from growth of transport and tourism as sectors. Future growth in this indicator will be driven by combinations of growth in fish as an input to fish processing and by growth in "other manufacturing" and services. Hence future growth is fairly uncertain.

### B1.3 DATA REQUIREMENTS

All information is available in the "National Accounts" which are published annually by the Central Bureau of Statistics.

#### **D1.4 CALCULATION AND FUTURE UPDATING OF THE INDICATOR**

An Excel spreadsheet has been prepared for the updating of this indicator. The information from the above sources is entered into this spreadsheet for each new year. Figures are taken from the pages in the "National Accounts" which deal with exports in current Namibian dollars.

**INDICATOR B2: EFFECTIVENESS OF WATER QUALITY POLICY**

<b>INDICATOR NAME</b>	Effectiveness of water quality policy
<b>DEFINITION</b>	Percentage of urban population who live in municipal areas which are in breach of water quality permits
<b>MEASUREMENT</b>	Expressed as a percentage

**SIGNIFICANCE OF THE INDICATOR**

<b>PURPOSE:</b> This indicator aims to show whether most people who are living in urban areas are potentially at risk from low quality water treatment, or whose water supply is threatened by poor water treatment	
<b>RELEVANCE:</b> This indicator relates to the capacity of municipalities to treat effluent from domestic and industrial sources so that it is not a health hazard to the residents of these areas. It inevitably measures pollution problems that are due to both domestic and industrial waste	<b>LINKAGES TO OTHER INDICATORS:</b> This indicator is measured as follows. Each towns' urban population is taken from the 1991 census and multiplied by one if it is in breach of its permit conditions at the last inspection and zero if it is not. These figures are then divided into the total urban population in 1991. Statistics on breaches of water permit conditions are available from Division: Water Environment in the Department of Water Affairs. Urban populations are available from the 1991 census from CBS.
<b>UNDERLYING VARIABLES AND DEFINITIONS:</b>	<b>MEASUREMENT OF THE INDICATOR:</b> This indicator is measured as follows. Each towns' urban population is taken from the 1991 census and multiplied by one if it is in breach of its permit conditions at the last inspection and zero if it is not. These figures are then divided into the total urban population in 1991. Statistics on breaches of water permit conditions are available from Division: Water Environment in the Department of Water Affairs. Urban populations are available from the 1991 census from CBS.
<b>LIMITATIONS OF THE INDICATOR:</b> There are three major limitations. Firstly the seriousness of the breach is not measured. Secondly the root cause of the pollution is not measured, so there is no distinction between waste from manufacturing and other sources. Thirdly it relies on constant enforcement levels by Water Environment.	

## **B2.1 PAST PERFORMANCE AND INTERPRETATION**

This cannot be assessed due to lack of past data on both urban populations and water quality.

## **D2.2 DATA REQUIREMENTS**

Data for this indicator is available from the Department of Water Affairs Division: Water Environment, who yearly assess all permit holders, including all municipalities. Data on population in urban areas can be obtained from the Central Bureau of Statistics, however it is not updated regularly so until the results of the 2001 census are available those of the 1991 census should continue to be used as an approximation. These have been entered on the spreadsheet constructed.

## **D2.3 CALCULATION AND FUTURE UPDATING OF THE INDICATOR**

An Excel spreadsheet has been prepared for the updating of this indicator. The information from the Department of Water Affairs is entered into this spreadsheet for each new year. A one is entered if a municipality is in breach, a zero otherwise.

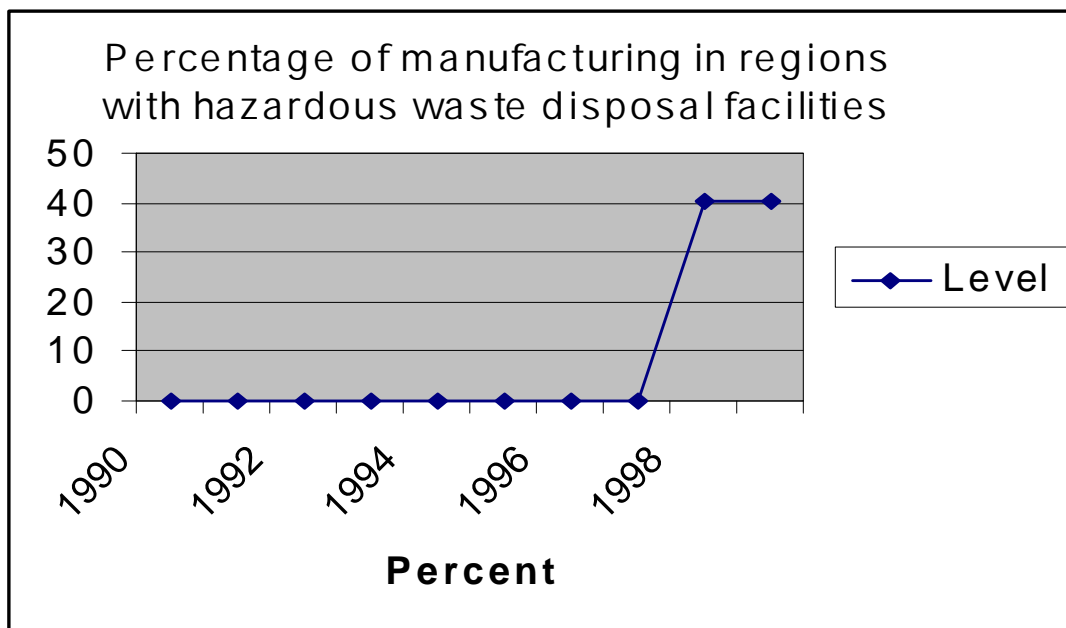
**INDICATOR B3: INDUSTRY IN REGIONS WITH HAZARDOUS WASTE DISPOSAL FACILITIES**

<b>INDICATOR NAME</b>	Industry in regions with hazardous waste disposal facilities
<b>DEFINITION</b>	Percentage of industry value added in regions with hazardous waste disposal facilities
<b>MEASUREMENT</b>	Expressed as a percentage

**SIGNIFICANCE OF THE INDICATOR**

<b>PURPOSE:</b> To show the ability of municipalities in a region to access a facility in which they can dispose of hazardous waste	
<b>RELEVANCE:</b> Most industry is willing to dispose of waste legally as long as the costs are not too high and it is fairly simple to do so. Similarly most municipalities have the underlying wish to improve waste disposal, and are attempting to do so. Hazardous waste is a particular problem due to the cost of disposal. Hence it is suggested to monitor disposal systems.	<b>LINKAGES TO OTHER INDICATORS:</b>
<b>UNDERLYING VARIABLES AND DEFINITIONS:</b>	<b>MEASUREMENT OF THE INDICATOR:</b> Percentages of industry by region are taken from the table in the previous manufacturing census. Data is then collected from the Pollution and Waste Management programme of the DEA on whether each region has a waste disposal storage facility, or a place to store waste before its disposal in another region. If there is such a place then the proportion of industry in the region is multiplied by one, if not zero. Then the total of the regions are aggregated.
<b>LIMITATIONS OF THE INDICATOR:</b> Revision of estimates of the manufacturing by region could lead to large swings in this indicator unless the indicator is revised retrospectively. Also the presence of a facility in a region does not mean that it is necessarily being used for all waste that should be disposed of there.	

### D3.1 PAST PERFORMANCE



Namibia's first hazardous waste treatment facility was at Kupferburg outside Windhoek, which came into operation in 1998. Hence the indicator level rose from zero to 40.4%. In future the coming on stream of the Walvis Bay facility will lead the indicator to rise further to 77.5%. If Luderitz builds such a facility, as is being considered at present, the indicator level will rise to around 85%. Hence future developments may be expected to be positive, depending on industrial trends and continued interest in hazardous waste management.

### D3.2 DATA REQUIREMENTS

The Directorate of Environmental Affairs Environmental Assessment programme can provide information on all hazardous waste facilities in operation and planned. In addition when the Pollution and Waste Management Agency comes into operation it will regulate all dumps so will be able to provide data. Industrial data is on the spreadsheet. The Directorate of Industrial Development in the Ministry of Trade and Industry can be contacted for updated information on the distribution of manufacturing, however this will not be available for some time.

### D3.3 CALCULATION AND FUTURE UPDATING OF INDICATOR

The spreadsheet provided contains all necessary data for the near future, until the manufacturing census is updated. A one can be entered in the spreadsheet next to the region indicated when a hazardous waste disposal facility starts operation.