## METHODOLOGY SHEET 1

### GENERAL:

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Portion of population living below the national poverty line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The proportion of the national population living below the national poverty line.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Poverty – Income</td>
</tr>
</tbody>
</table>

### DESCRIPTION:

**Precise definition & underlying concepts:**

Poverty is measured by the level of income available to an individual. National poverty rates use a country specific poverty line which is designed to better reflect the country’s economic and social circumstances. A person is considered to be below the poverty line when their income level falls below the minimum level necessary to meet basic needs. The portion of the population living below the national poverty line will be those persons whose income fall below the minimum level needed to meet basic needs. Statistics South Africa (2007a:8) determined the national poverty line to be R430 per capita.

**Purpose & relevance:**

Poverty is the most defining characteristic of underdevelopment and can be used as one of the core measurements of living standards. Measuring poverty levels aid policy makers in the formulation of pro-poor growth strategies and ultimately contributes to the improvement of human lives.

**Measurement methods:**

1) Establish national poverty line
2) Calculate number of population below the poverty line
3) Calculate the total population.
4) Calculate portion of population below the poverty line as a percentage of the total population.

### DATA ACQUISITION:

**Data required / applied:**

National poverty line. Income levels of population. Total population size.

**Availability of data sources:**

Representative household surveys. World Bank poverty estimates for developing countries. National poverty line determined by National Treasury.

**Data reliability:**

The national poverty line was published in 2007 and the national community survey was conducted in the same year. Data correlation is assured. This is the most recent data available.

**Data references:**


**METHODOLOGY SHEET 2**

<table>
<thead>
<tr>
<th>GENERAL:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator name:</td>
<td><strong>Portion of population below $1 a day</strong></td>
</tr>
<tr>
<td>Brief definition:</td>
<td>The proportion of the population living on less than $1 a day.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Poverty – Income</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Precise definition &amp; underlying concepts:</td>
<td>The proportion of the national population having per capita consumption of less than $1 (R8.67) a day. This indicator measures poverty by the level of income available to an individual. A person is deemed poor if their income level falls below a minimum level necessary to meet basic needs. $1 a day is used as a uniform poverty line and is expressed in a common unit across countries.</td>
</tr>
<tr>
<td>Purpose &amp; relevance:</td>
<td>Progress made towards eradicating absolute poverty is a widely accepted yardstick to assess the overall performance of developing economies. This indicator can be used to monitor progress made toward achieving the first Millennium Development Goal (to eradicate extreme poverty and hunger). Poverty reduction is a key goal of the international, and national, community’s strategy for sustainable development. Measuring poverty levels aids policy makers in the formulation of pro-poor growth strategies and ultimately contributes to the improvement of human lives.</td>
</tr>
</tbody>
</table>
| Measurement methods: | 1) Calculate the total population having an income of less than $1 a day  
2) Calculate the total population*  
3) Calculate the portion of the total population having an income of less than $1 a day as a percentage of the total population. |

<table>
<thead>
<tr>
<th>DATA ACQUISITION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data required / applied:</td>
<td>Income levels of population.</td>
</tr>
<tr>
<td>Availability of data sources:</td>
<td>Representative household surveys.</td>
</tr>
<tr>
<td>Data reliability:</td>
<td>Data was collected during the 2007 Community Survey. This is the most recent data available.</td>
</tr>
</tbody>
</table>
### METHODOLOGY SHEET 3

#### GENERAL:

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Income inequality based on gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The proportion of all annual income earned by women</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Poverty – Inequality</td>
</tr>
</tbody>
</table>

#### DESCRIPTION:

**Precise definition & underlying concepts:**

Income inequality is based on the distribution of income between groups. For the purpose of this indicator the groups are male and female.

**Purpose & relevance:**

Inequality in outcomes such as income and inequality in opportunities hinder human development and are detrimental to long-term economic growth. Income inequality is a good indicator of overall equality between gender groups in the economy. The results can show the presence (or lack) of equality within a community and policy makers can take this into consideration.

**Measurement methods:**

1) Calculate the total income* earned by females
2) Calculate the total income* earned by the entire population
3) Calculate the portion of income earned by females as percentage of the total income of the total population.

*Income brackets are provided in census data. For calculation purposes use the median of each bracket.

#### DATA ACQUISITION:

**Data required / applied:**

Income levels of population. Gender distribution of population.

**Availability of data sources:**

Representative household surveys.

**Data reliability:**

Data was collected during the 2007 Community Survey. This is the most recent data available.

**Data references:**

<table>
<thead>
<tr>
<th>GENERAL:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicator name:</strong></td>
<td>Portion of households without electricity</td>
</tr>
<tr>
<td><strong>Brief definition:</strong></td>
<td>The portion of entire population without access to electricity or commercial energy services.</td>
</tr>
<tr>
<td><strong>Unit of measure:</strong></td>
<td>Percentage (%)</td>
</tr>
<tr>
<td><strong>Placement within the matrix:</strong></td>
<td>Social – Poverty – Energy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Precise definition &amp; underlying concepts:</strong></td>
<td>The proportion of the entire population without access to electricity or commercial energy services or heavily dependent on non-commercial (traditional) energy options, such as wood, charcoal and dung. Lack of access to modern energy services implies unsatisfied energy requirements or the use of traditional fuels.</td>
</tr>
<tr>
<td><strong>Purpose &amp; relevance:</strong></td>
<td>This indicator measures the progress made in the accessibility of the population to affordable, modern energy services. Electricity is an essential component of providing adequate food, shelter, medical care, etc. Lack thereof contributes to poverty and limits economic development. Adequate, affordable and reliable energy services are needed to assure sustainable economic and human development.</td>
</tr>
</tbody>
</table>
| **Measurement methods:** | 1) Calculate the total population with access to electricity.  
2) Calculate the total population.  
3) Calculate the portion of the population with access to electricity as a percentage of the total population. |

<table>
<thead>
<tr>
<th>DATA ACQUISITION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data required / applied:</strong></td>
<td>Type of energy used for lighting by population. Total population.</td>
</tr>
<tr>
<td><strong>Availability of data sources:</strong></td>
<td>Representative household surveys. Community census.</td>
</tr>
<tr>
<td><strong>Data reliability:</strong></td>
<td>Data was collected during the 2007 Community Survey. This is the most recent data available.</td>
</tr>
</tbody>
</table>
# METHODOLOGY SHEET 5

<table>
<thead>
<tr>
<th>GENERAL:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator name:</td>
<td>Portion of population using solid fuels for cooking</td>
</tr>
<tr>
<td>Brief definition:</td>
<td>The portion of population using solid fuels for cooking</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Poverty – Energy</td>
</tr>
</tbody>
</table>

## DESCRIPTION:

### Precise definition & underlying concepts:

The proportion of the national population using solid fuels for cooking. Solid fuels include biomass (wood, charcoal, crops) and agricultural waste (dung, shrubs, straw and coal).

### Purpose & relevance:

This indicator is used to monitor the changes in cooking fuel use as a measure of ascertaining access to modern household energy services. The use of solid fuels in households is proxy for indoor air pollution which is associated with an increase in mortality and diseases. This indicator is a good universal indicator of social and economic development due to its association with other socioeconomic characteristics.

### Measurement methods:

1. Calculate the total population using solid fuels for cooking.
2. Calculate the total population.
3. Calculate portion of the population using solid fuels for cooking as a percentage of the total population.

## DATA ACQUISITION:

### Data required / applied:

Type of energy used for cooking by population. Total population.

### Availability of data sources:

Representative household surveys. Community census.

### Data reliability:

Data was collected during the 2007 Community Survey. This is the most recent data available.

### Data references:

### METHODOLOGY SHEET 6

<table>
<thead>
<tr>
<th>GENERAL:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator name:</td>
<td><strong>Tenure status</strong></td>
</tr>
<tr>
<td>Brief definition:</td>
<td>The portion of residents that own their own dwelling.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Poverty – Living conditions</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Precise definition &amp; underlying concepts:</td>
<td>The proportion of the entire population that own the dwelling in which they live. This includes persons who own their dwelling but has not yet paid off the mortgage.</td>
</tr>
<tr>
<td>Purpose &amp; relevance:</td>
<td>This indicator measures the progress made towards the improvement of tenure status for residents. The ideal would be if every person owned their own house and had security of tenure. This indicator indicates the tenure safety of the population and is a crucial factor in sustainable development.</td>
</tr>
<tr>
<td>Measurement methods:</td>
<td>1) Calculate the total population that own the dwelling they live in. 2) Calculate the total population. 3) Calculate the portion of the population that own their own dwelling as a percentage of the total population.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATA ACQUISITION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data required / applied:</td>
<td>Tenure status. Total number of population.</td>
</tr>
<tr>
<td>Availability of data sources:</td>
<td>Representative household surveys. Community census.</td>
</tr>
<tr>
<td>Data reliability:</td>
<td>Data was collected during the 2007 Community Survey. This is the most recent data available.</td>
</tr>
</tbody>
</table>
## METHODOLOGY SHEET 7

### GENERAL:

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Type of main dwelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The portion of residents that reside in inadequate housing.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Poverty – Living conditions</td>
</tr>
</tbody>
</table>

### DESCRIPTION:

**Precise definition & underlying concepts:**

The proportion of the entire population that reside in inadequate housing. Inadequate housing is housing that endangers the safety of the resident and provides poor living conditions, e.g. shacks and informal dwellings.

**Purpose & relevance:**

This indicator measures the progress made towards the improvement of housing conditions and the provision of safe and adequate housing for all. The Constitution (1996:26) states that everyone has the right to adequate housing and that the state must take measures to achieve the realisation of this right. This indicator is a means of gauging progress being made towards this goal.

**Measurement methods:**

1) Calculate the total population live in informal housing and shacks.
2) Calculate the total population.
3) Calculate the portion of the population living in inadequate housing as a percentage of the total population.

### DATA ACQUISITION:

**Data required / applied:**

Type of main dwelling. Total number of population.

**Availability of data sources:**

Representative household surveys. Community census.

**Data reliability:**

Data was collected during the 2007 Community Survey. This is the most recent data available.

**Data references:**

**METHODOLOGY SHEET 8**

<table>
<thead>
<tr>
<th>GENERAL:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator name:</td>
<td><strong>Intentional homicides per 100 000 population</strong></td>
</tr>
<tr>
<td>Brief definition:</td>
<td>The number of intentional homicides per 100 000 of the population per year</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Recorded cases / 100 000 population</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Governance - Crime</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Precise definition &amp; underlying concepts:</td>
<td>The total number of intentional homicides reported per 100 000 of the population per year. Intentional homicides can be understood to mean death deliberately inflicted on a person by another person (thus excluding manslaughter). This indicator refers only to police-recorded homicides.</td>
</tr>
<tr>
<td>Purpose &amp; relevance:</td>
<td>A stable, crime free environment is necessary to support the goals of poverty eradication, economic investment, gender equality and sustainable livelihoods. This indicator measures the upholding of the rule of law, good governance and proper management of public affairs.</td>
</tr>
</tbody>
</table>
| Measurement methods:          | 1) Calculate the total number of recorded homicides per year.  
2) Multiply the number of homicides by 100 000.  
3) Divide by the total population in the same year. |

<table>
<thead>
<tr>
<th>DATA ACQUISITION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data required / applied:</td>
<td>Midyear population figures. Police statistics on total intentional homicides.</td>
</tr>
<tr>
<td>Availability of data sources:</td>
<td>Community census. Police statistics.</td>
</tr>
<tr>
<td>Data reliability:</td>
<td>Data is updated continuously. The year for which data is needed can be selected to ensure that it corresponds to the year of collection of the other indicators.</td>
</tr>
</tbody>
</table>
**METHODOLOGY SHEET 9**

### GENERAL:

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Portion of population using improved sanitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The portion of entire population regularly using an improved sanitary facility for human excreta disposal.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Health – Sanitation</td>
</tr>
</tbody>
</table>

### DESCRIPTION:

**Precise definition & underlying concepts:**

The portion of entire population regularly using a private sanitary facility for human excreta disposal in the dwelling or immediate vicinity. A sanitary facility is defined as a unit for disposal of human excreta which isolates faeces from contact with people, animals and water sources. Suitable facilities can include protected pit latrines and flush toilets. Sanitation facilities that involve human contact with the excreta, such as bucket systems, are seen as inadequate.

**Purpose & relevance:**

This indicator is useful for assessing sustainable development and human health. Accessibility to adequate sanitation facilities is fundamental to decrease the risk of disease. This indicator is a good universal indicator of human development and can also provide tangible evidence of injustices.

**Measurement methods:**

1) Calculate the total population with access to improved sanitation facilities.
2) Calculate the total population.
3) Calculate the portion of the population with access to improved sanitation facilities as a percentage of the total population.

### DATA ACQUISITION:

**Data required / applied:**

Toilet facilities used by population. Total number of population.

**Availability of data sources:**

Representative household surveys. Community census.

**Data reliability:**

Data was collected during the 2007 Community Survey. This is the most recent data available.

**Data references:**

### METHODOLOGY SHEET 10

**GENERAL:**

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Portion of population using improved water sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The portion of entire population with access to an improved drinking water source.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Health – Water</td>
</tr>
</tbody>
</table>

**DESCRIPTION:**

**Precise definition & underlying concepts:**

The proportion of the entire population with access to an improved drinking water source in the dwelling or located within a convenient distance from the dwelling. The water source should be no further than 1000 meters from the user’s dwelling and should provide at least 20 litres of safe water per person per day. For water to be safe it must not contain biological or chemical agents at concentration levels that are detrimental to health. Untreated surface waters (streams, ponds, lakes) should only be considered safe in the water quality is regularly monitored.

**Purpose & relevance:**

This indicator measures the progress made in the accessibility of the population to improved water sources. Accessibility to suitable drinking water sources is fundamental to the lowering of risk to disease. It is also an indicator of human development and can provide useful information on equity issues.

**Measurement methods:**

1) Calculate the total population with access to improved water sources.
2) Calculate the total population.
3) Calculate the portion of the population with access to improved water sources as a percentage of the total population.

**DATA ACQUISITION:**

**Data required / applied:**

- Type of access to water by population. Total number of population.
- Availability of data sources:
  - Representative household surveys. Community census.
- Data reliability:
  - Data was collected during the 2007 Community Survey. This is the most recent data available.
- Data references:
## METHODOLOGY SHEET 11

### GENERAL:

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Population growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The annual rate of change of population size during a specified period.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Demographics - Population</td>
</tr>
</tbody>
</table>

### DESCRIPTION:

**Precise definition & underlying concepts:**
The annual rate of change of population size during a specified period. For a country this indicator is based on the population enumerated at two consecutive censuses or the components of population growth during a specific period. Both must be adjusted for incompleteness.

**Purpose & relevance:**
The population growth rate measures how fast the population is changing. Population growth is one of the crucial elements affecting long-term sustainability. Rapid population growth can put strain on the capacity for handling a wide range of issues. The speed and scale of population growth continues to pose serious challenges to both countries and the world community. These developments must be monitored and sustainable urban environments must be created.

**Measurement methods:**

\[ r = \frac{100 \ln \left( \frac{P_2}{P_1} \right)}{t_2/t_1} \]

- \( r \) – population growth rate
- \( P_1 \) and \( P_2 \) are the number of persons at time \( t_1 \) and \( t_2 \) respectively.

### DATA ACQUISITION:

**Data required / applied:**
Population enumerated at two consecutive censuses.

**Availability of data sources:**
National censuses.

**Data reliability:**
Data was collected during the 2007 Community Survey. This is the most recent data available. The 2001 Community survey was used as a supporting census to calculate the population growth rate.

**Data references:**

<table>
<thead>
<tr>
<th>GENERAL:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator name:</td>
<td><strong>Dependency ratio</strong></td>
</tr>
<tr>
<td>Brief definition:</td>
<td>The ratio of the number of children and older persons to the working-age population</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Per 100 persons ages 15-64</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Health – Demographics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Precise definition &amp; underlying concepts:</td>
<td>The dependency ratio relates the number of children (0-14) and older persons (65+) to the working-age population (15-64). A high dependency ratio implies that the economically active population and the overall economy face a greater burden to support the social services needed by children and older persons. The dependency ratio can be disaggregated into a youth dependency ratio and an old-age dependency ratio.</td>
</tr>
<tr>
<td>Purpose &amp; relevance:</td>
<td>The dependency ratio indicates the potential effect population age structures can have on social and economic development. It also points out broad trends in social support requirements by relating the group of the population most likely to be economically dependent to the group most likely to be economically active.</td>
</tr>
<tr>
<td>Measurement methods:</td>
<td><strong>Dependency Ratio =100 x (Population (0-14) + Population (65+))/ Population (15-64)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATA ACQUISITION:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data required / applied:</td>
<td>Demographic composition of population.</td>
</tr>
<tr>
<td>Availability of data sources:</td>
<td>Censuses. Community surveys</td>
</tr>
<tr>
<td>Data reliability:</td>
<td></td>
</tr>
<tr>
<td>Data was collected during the 2007 Community Survey. This is the most recent data available.</td>
<td></td>
</tr>
</tbody>
</table>
METHODOLOGY SHEET 13

GENERAL:
Indicator name: Portion of population without basic education
Brief definition: The portion of the total population who has not had basic education.
Unit of measure: Percentage (%)
Placement within the matrix: Social – Education – Basic education

DESCRIPTION:
Precise definition & underlying concepts:
Basic education is defined as education that comprises both essential learning tools and the basic learning content required by human beings to be able to survive, make informed decisions, develop and improve their quality of life (Carter, Irvine, Westaway, 2010:8). Education is compulsory for learners ages 7 – 15, or up to the end of Grade 9 and basic education is seen as education up to this point. This indicator thus measures the proportion of the total population who has not had education up to at least Grade 9.

Purpose & relevance:
The Constitution (1996) states that everyone has the right to basic education and that the state must make this available and accessible. This indicator measures the extent to which the realisation of this goal has been met.

Measurement methods:
1) Calculate the total population without education up to Grade 9.
2) Calculate the total population.
3) Calculate the population without basic education as a percentage of the total population.

DATA ACQUISITION:
Data required / applied:
Level of education. Total population.
Availability of data sources:
Community surveys.
Data reliability:
Data was collected during the 2007 Community Survey. This is the most recent data available.

Data references:
**METHODOLOGY SHEET 14**

**GENERAL:**

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Adult literacy rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The portion of the adult population aged 15 years and over that is literate</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Social – Education - Literacy</td>
</tr>
</tbody>
</table>

**DESCRIPTION:**

**Precise definition & underlying concepts:**

The proportion of the total adult population aged 15 years and over that is literate. A person is seen as literate if they can both read and write a short simple statement related to their everyday life. Functional literacy is when a person can engage in all activities in which literacy is required for effective functioning.

**Purpose & relevance:**

The stock of literate persons within the adult population who are capable of using written words in daily life is measured by this indicator. If shortfalls in literacy are identified it can provide indications of efforts that are required in the future to extend literacy to the remaining adult population. Literacy is needed to promote and communicate sustainable development and improve the capacity of people to address environmental and developmental issues.

**Measurement methods:**

1) Calculate the total population 15 years and over who are literate
2) Calculate the total population of 15 years and over
3) Calculate the population 15 years and over who are literate as a percentage of the total population aged 15 years and over.

**DATA ACQUISITION:**

<table>
<thead>
<tr>
<th>Data required / applied:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of education. Total population.</td>
</tr>
</tbody>
</table>

**Availability of data sources:**

Community surveys.

**Data reliability:**

Data is updated continuously. The year for which data is needed can be selected to ensure that it corresponds to the year of collection of the other indicators.

**Data references:**

METHODOLOGY SHEET 15

GENERAL:

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Proportion of arable and permanent cropland area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The portion of land that is arable and permanently under crops.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Environment – Land - Agriculture</td>
</tr>
</tbody>
</table>

DESCRIPTION:

Precise definition & underlying concepts:
The portion of the total land coverage that is arable and permanently under crops. Arable land is land that is temporarily under crops while land under permanent crops is the land cultivated with crops that occupy the land for long periods of time and need to be replanted after harvesting.

Purpose & relevance:
This indicator shows the amount of land that is available for agricultural production and the cropland that is available for food production. Population growth is driving a rapid increase in the demand for food while rising population density diminishes farm sizes. This indicator is a valuable tool in land planning decision making.

Measurement methods:
1) Calculate the total land area that is arable or under permanent crops
2) Calculate the total land area.
3) Calculate the total land area that is arable or under permanent crops as a percentage of the total land area.

DATA ACQUISITION:

Data required / applied:
Land coverage data.

Availability of data sources:
Environmental surveys.

Data reliability:
Data is updated continuously. The year for which data is needed can be selected to ensure that it corresponds to the year of collection of the other indicators. Global Insight’s Regional explorer is a reputed, scientific source. All data gathered from there can be seen as reliable.

Data references:
## METHODOLOGY SHEET 16

### GENERAL:

<table>
<thead>
<tr>
<th>Indicator name</th>
<th>Population density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition</td>
<td>The total population per km$^2$</td>
</tr>
<tr>
<td>Unit of measure</td>
<td>Number of people per km$^2$</td>
</tr>
<tr>
<td>Placement within the matrix</td>
<td>Environment – Land Change – Land use &amp; status</td>
</tr>
</tbody>
</table>

### DESCRIPTION:

**Precise definition & underlying concepts:**

The total population size of a country, or area, divided by its surface area. Surface area is seen as the total area of land and inland waters, excluding polar regions and uninhabited islands.

**Purpose & relevance:**

This indicator measures the concentration of the population in reference to space. This can be used as a partial indicator of human requirements and activities in the area. High population density can threaten sustainability of protected areas and is considered the main defining feature of urban areas. A high concentration of human population leads to a higher demand for employment, housing, services, waste management, etc.

**Measurement methods:**

1. Calculate the total population.
2. Calculate the total surface area.
3. Divide the total population by the total surface area.

### DATA ACQUISITION:

**Data required / applied:**

Total surface areas. Total population.

**Availability of data sources:**

Community surveys. Land surveys

**Data reliability:**

Data is updated continuously. The year for which data is needed can be selected to ensure that it corresponds to the year of collection of the other indicators. Global Insight’s Regional explorer is a reputed, scientific source. All data gathered from there can be seen as reliable.

**Data references:**


## METHODOLOGY SHEET 17

**GENERAL:**

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Land degradation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The amount of land affected by degradation.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Environmental – Land Change – Land use and status</td>
</tr>
</tbody>
</table>

**DESCRIPTION:**

**Precise definition & underlying concepts:**

The amount of land affected by degradation and its proportion of territory. Land degradation indicates the reduction or loss of the biological or economic productivity of land. This includes forest, woodland, thicket & bushland, grassland, shrubland, Fynbos and herbland.

**Purpose & relevance:**

This indicator measures the extent and severity of land degradation at local level. This information can aid in the implementation of agreements and programmes to address causes of land degradation and to reclaim degraded land. Land degradation impedes sustainable development by negatively impacting on sustainable agriculture.

**Measurement methods:**

Can use remote sensing, field monitoring and surveys. Expert opinions in EM to be consulted.

**DATA ACQUISITION:**

**Data required / applied:**

Level and extent of land degradation.

**Availability of data sources:**

Local Environmental Framework

**Data reliability:**

Global Insight’s Regional explorer is a reputed, scientific source. All data gathered from there can be seen as reliable.

**Data references:**

# METHODOLOGY SHEET 18

**GENERAL:**

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Portion of built-up area for residential use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The portion of built-up area that has been built on for residential use.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Environmental – Land Change – Land use and status</td>
</tr>
</tbody>
</table>

**DESCRIPTION:**

Precise definition & underlying concepts:
The proportion of the total built-up area that is used for residential use. Built-up areas are brownfield areas on which development has taken place. Residential built-up area is land developed for residential use.

Purpose & relevance:
This indicator provides insight into the portion of the total built-up area built on for residential use. Densification and the reduction of urban sprawl are key elements in sustainable development. Higher residential densities aid in effective service delivery, public transport and conservation of the environment.

Measurement methods:
1) Calculate total area of built-up land for residential use
2) Calculate total area of built-up land
3) Calculate total area of built-up land for residential use as a percentage of the total area of built-up land.

**DATA ACQUISITION:**

Data required / applied:
Level cover analysis.

Availability of data sources:
Land cover studies

Data reliability:
Global Insight’s Regional explorer is a reputed, scientific source. All data gathered from there can be seen as reliable.

Data references:
### METHODOLOGY SHEET 19

<table>
<thead>
<tr>
<th>GENERAL:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator name:</td>
<td>Employment-population ratio</td>
</tr>
<tr>
<td>Brief definition:</td>
<td>The proportion of the working-age population that is employed.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Economic – Employment - Employment</td>
</tr>
</tbody>
</table>

### DESCRIPTION:

**Precise definition & underlying concepts:**

The employment-to-population ratio is defined as the proportion of the working-age population that is employed. Employment is defined as persons above a specific age who performed any work at all. In South Africa the working age starts at 15 according to the Employment Act (2002).

**Purpose & relevance:**

The indicator provides information on the ability of an economy to create employment. The level of employment is useful and relevant to measuring sustainable development.

**Measurement methods:**

1) Calculate the total employed persons between the age of 15 and 65
2) Calculate the total population between the age of 15 and 65
3) Calculate the total employed persons as a percentage of the total population.

### DATA ACQUISITION:

**Data required / applied:**


**Availability of data sources:**

Community Surveys.

**Data reliability:**

Data was collected during the 2007 Community Survey. This is the most recent data available.

**Data references:**

**GENERAL:**

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Share of women in wage employment in the non-agricultural sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The share of women in wage employment in the non-agricultural sector as a percentage of the total wage employment.</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Percentage (%)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Economic – Employment - Employment</td>
</tr>
</tbody>
</table>

**DESCRIPTION:**

**Precise definition & underlying concepts:**

The share of female workers in wage employment in the non-agricultural sector expressed as a percentage of total wage employment. Wage employment refers only to people who earn wages or salaries. The non-agricultural sector includes industry and services.

**Purpose & relevance:**

This indicator shows the degree to which labour markets are open to women. This affects not only equal employment opportunities but also economic efficiency through flexibility of the labour market. In order to defeat poverty and foster sustainable development gender equality and the empowerment of women must be promoted.

**Measurement methods:**

1) Calculate the total number of women in non-agricultural paid employment.
2) Calculate the total number of persons in paid employment in the non-agricultural sector.
3) Calculate the total women employed as a percentage of the total employed population (both in the non-agricultural sector).

**DATA ACQUISITION:**

**Data required / applied:**

Industry employment per sector and per gender.

**Availability of data sources:**

Community Surveys.

**Data reliability:**

Data was collected during the 2007 Community Survey. This is the most recent data available.

**Data references:**

## METHODOLOGY SHEET 21

<table>
<thead>
<tr>
<th>GENERAL:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator name:</td>
</tr>
<tr>
<td>Brief definition:</td>
</tr>
<tr>
<td>Unit of measure:</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precise definition &amp; underlying concepts:</td>
</tr>
<tr>
<td>The number of persons who use the Internet from any location. The Internet may be accessed via a computer, Internet-enabled mobile phone, digital TV, games machine, etc. The number of Internet users is a measure of Internet access and use. The Internet is a linked world-wide network of computers where users can get information from the network.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Purpose &amp; relevance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet usage provides opportunities for bringing education and information within the reach of all. It opens up new economic opportunities and a more environmentally friendly option for the marketplace.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measurement methods:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Calculate the total number of Internet users.</td>
</tr>
<tr>
<td>2) Calculate the total population</td>
</tr>
<tr>
<td>3) Divide the total number of Internet users by the total population and multiply by 100.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATA ACQUISITION:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data required / applied:</td>
</tr>
<tr>
<td>Type of Internet access. Total population.</td>
</tr>
<tr>
<td>Availability of data sources:</td>
</tr>
<tr>
<td>Community Surveys.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data reliability:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data was collected during the 2007 Community Survey. This is the most recent data available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data references:</th>
</tr>
</thead>
</table>
**GENERAL:**

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>Telephone users per 100 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The number of telephone user per 100 of the population</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>Telephone users per 100 population</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Economic – Economic development – Information and communication technologies</td>
</tr>
</tbody>
</table>

**DESCRIPTION:**

Precise definition & underlying concepts:

The total number of telephone users per 100 of the population. Telephone users refer to persons who use telephone lines connecting a customer’s terminal equipment to the Public Switched Telephone Network.

Purpose & relevance:

This indicator is the broadest measurement of the degree of telecommunication development in an area. Telecommunications and economic, social and institutional development are closely linked. Modern forms of communication are considered to be fairly harmless for the environment and sustainable development without a superior communications infrastructure seems unlikely.

Measurement methods:

1) Calculate the total number of telephone users.
2) Calculate the total population
3) Divide the total number of telephone users by the total population and multiply by 100

**DATA ACQUISITION:**

Data required / applied:
Access to a telephone. Total population.

Availability of data sources:
Community Surveys.

Data reliability:
Data was collected during the 2007 Community Survey. This is the most recent data available.

Data references:
### METHODOLOGY SHEET 23

#### GENERAL:

<table>
<thead>
<tr>
<th>Indicator name:</th>
<th>GDP per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief definition:</td>
<td>The GDP per capita of an area</td>
</tr>
<tr>
<td>Unit of measure:</td>
<td>ZAR (R)</td>
</tr>
<tr>
<td>Placement within the matrix:</td>
<td>Economic – Economic development – Macro economic performance</td>
</tr>
</tbody>
</table>

#### DESCRIPTION:

**Precise definition & underlying concepts:**

The Gross Domestic Product per capita of an area. GDP is the sum of all goods and services produced within the borders of a country during one year.

**Purpose & relevance:**

This indicator is a basic economic indicator that measures the level of total economic output relative to the population of an area. It reveals alterations in the total wellbeing of the population. The GDP is an indicator of how well the economy is faring and by allocating this to each head of population shows the extent to which total production of an area can be shared by its population. An increase in the GDP per capita can show the pace of income growth per head of the population. This indicator is important for the measure of the economic and developmental aspect of sustainable development.

**Measurement methods:**

1) Calculate the GDP
2) Calculate the total population
3) Divide the GDP by the total population

#### DATA ACQUISITION:

<table>
<thead>
<tr>
<th>Data required / applied:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP. Total population.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability of data sources:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Surveys. Treasury reports.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data reliability:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Insight’s Regional explorer is a reputed, scientific source. All data gathered from there can be seen as reliable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data references:</th>
</tr>
</thead>
</table>
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