

Datazone level Namibian Index of Multiple Deprivation 2001



*Empowered lives.
Resilient nations.*



Oshikoto Region

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PREFACE



This report is the result of collaborative work between the Government of the Republic of Namibia (GRN), the United Nations Development Programme (UNDP) and the Centre for the Analysis of South African Social Policy at the Oxford Institute of Social Policy at the University of Oxford

In November 2009, the Khomas Regional Council requested UNDP to assist in designing an objective criterion or set of criteria, devoid of political and other considerations, which the Council could use in allocating development resources. Subsequent discussions led to an agreement that other stakeholders, especially the Central Bureau of Statistics needed to be involved and that the criterion or set of criteria needed to go beyond income poverty considerations. It was also agreed that rather than focus on Khomas region alone, the criterion or set of criteria needed to be applicable to, or cover the entire country. Specifically, it was agreed that a composite index of multiple deprivation, the Namibia Index of Multiple Deprivation (NIMD), be constructed at both national and regional levels. Since the scope and depth of analysis needed for the development of the NIMD required very detailed and reliable data and information, it was agreed that the 2001 census data, though 'outdated', be used as the source of information for preparing the NIMD. Accordingly, the NIMD being presented in this report reflects the situation in Oshikoto region at the 2001 time-point only. UNDP and the GRN recognize that the report does not speak to possible changes in relative deprivation that may have occurred in the Oshikoto region since 2001. Nevertheless the 2001 NIMD could serve as a benchmark against which change over the last decade could be measured when the

2011 Census becomes available and is subsequently used for carrying out a similar analysis.

This report presents, using tables, charts and digital maps, a profile of multiple deprivation in Oshikoto region at data zone level, which is a relatively new statistical geography developed for purposes of measuring deprivation at a small area level. This technique of profiling deprivation at datazone level, each with approximately 1000 people only, enables the identification and targeting of pockets of deprivation within Oshikoto region for possible use in panning for and implementation of development interventions. The aim of the exercise was to produce a profile of relative deprivation across Oshikoto region in order for the most deprived areas to be identified and clearly delineated. In this way, it would be possible for regional and constituency level policy and decision makers, as well development practitioners, to consider a particular domain of deprivation, or to refer to the overarching NIMD for each constituency or datazone, in *inter alia*, allocating and applying development resources and interventions. The NIMD can also be used as a platform for effecting a paradigm shift in development planning towards increased focus on and targeting of deprived areas and sectors; as well as interrogating the causes of inequality in access to basic services within the region. The NIMD at datazone level should be viewed as adding

to the existing body of information and knowledge, including local knowledge systems, about poverty and deprivation in Oshikoto region and the large family of existing planning and resource allocation tools and methodologies already in use at the regional and constituency levels.

This project was undertaken by Professor Michael Noble, Dr Gemma Wright, Ms Joanna Davies, Dr Helen Barnes and Dr Phakama Ntshongwana of the Centre for the Analysis of South African Social Policy at the Oxford Institute of Social Policy at

the University of Oxford, under the leadership and guidance a national steering committee chaired by Mr Sylvester Mbangu, Director of the Central Bureau of Statistics, with the participation of representatives of the thirteen Regional Councils. In addition to providing the funds for carrying out the project, UNDP provided overall oversight and technical backstopping to the project through Ojijo Odhiambo, Senior Economist and Johannes Ashipala, National Economist. David Avenell is thanked for his assistance with producing the datazones.

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SECTION 1: INTRODUCTION



This report presents the datazone level Namibian Index of Multiple Deprivation 2001 (NIMD 2001) for the Oshikoto region. The NIMD is a composite index reflecting five dimensions of deprivation: income and material deprivation; employment deprivation; education deprivation; health deprivation; and living environment deprivation.

The NIMD and the component domains of deprivation were produced at datazone level using data from the 2001 Population Census. Datazones are small areas containing approximately the same number of people (average 1,000). The datazone level NIMD therefore provides a fine-grained picture of deprivation and enables pockets of deprivation to be identified in Oshikoto region.

The report is structured as follows: The background information and the conceptual framework which underpins the model of multiple deprivation is described in this introductory section. In Section 2 the rationale for and process of constructing datazones are described. Section 3 introduces the domains and indicators that were included in the NIMD and summarises the methodological approach that was used in constructing the NIMD. In Section 4 datazone level results for Oshikoto region are presented, while conclusions and some general policy recommendations are presented in Section 5.

1.1 Background

Initially a NIMD was created at constituency level for the Khomas Region, but applicable to other regions of the country as well, using data from the 2001 Population Census at constituency level after a two-day consultative process on the domains and indicators with members of the Central Bureau of Statistics, civil servants from the Council and staff members of UNDP. The objective of this phase of

the project was to construct measures of multiple deprivation at constituency level in order to provide a more detailed analysis of deprivation which would enable Khomas Regional Council, and other regional councils across Namibia, to rank their areas in order of deprivation, and also to set them in the context of all other areas in Namibia. The datazone level index presented in this report draws from the previous constituency index, and covers, in detail, the entire country including Oshikoto region. In constructing the NIMD at datazone level however, it became necessary to make some small changes

“ The NIMD and the component domains of deprivation were produced at datazone level using data from the 2001 Population Census. As will be elaborated in Section 2, datazones are small areas containing approximately the same number of people (average 1,000) ”

to some of the domains and indicators initially used in the constituency level study. These changes are explained in detail in Section 3 of this report. As such, the constituency level index has also been revised to give a comparable measure. The initial results of the work at the datazone level were presented to, and validated by, representatives of all the 13 Regional Councils at a workshop held in Ondangwa in November 2011.

1.2 Defining poverty and deprivation

Townsend (1979) sets out the case for defining poverty in terms of relative deprivation as follows: *'Individuals, families and groups can be said to be in poverty if they lack the resources to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary or at least widely encouraged or approved in the societies to which they belong'* (Townsend, 1979, p31).

Though 'poverty' and 'deprivation' have often been used interchangeably, many have argued that a clear distinction should be made between them (see for example the discussion in Nolan and Whelan, 1996). Based on this line of thought, it can be argued that the condition of poverty means not having enough financial resources to meet a need, whereas deprivation refers to an unmet need, which is caused by a lack of resources of all kinds, not just financial.

1.3 The concept of multiple deprivation

The starting point for the NIMD is a conceptual model of multiple deprivation. The model of multiple deprivation is underpinned by the idea

that there exists separate dimensions of deprivation which can be recognised and measured, and are experienced by individuals living in an area. Multiple deprivation is therefore conceptualised as a weighted combination of distinct dimensions or domains of deprivation. An area level score for each domain is produced and these are then combined to form an overall Index of Multiple Deprivation.

Although the area itself is not deprived, it can nonetheless be characterised as deprived *relative* to other areas, in a particular dimension of deprivation, on the basis of the proportion of people in the area experiencing the type of deprivation in question. In other words, the experiences of the people in an area give the area its deprivation characteristics. It is important to emphasize that the area itself is not deprived, though the presence of a concentration of people experiencing deprivation in an area may give rise to a compounding deprivation effect, but this is still measured by reference to those individuals.

Having attributed the aggregate of individual experience of deprivation to the area however, it is possible to say that an area is deprived in that particular dimension. And having measured specific dimensions of deprivation, these can be understood as domains of multiple deprivation. In his article 'Deprivation' Townsend also lays down the foundation for articulating multiple deprivation as an aggregation of several types of deprivation (Townsend, 1987). Townsend's formulation of multiple deprivation is the starting point for the model of small area deprivation which is presented in this report.

SECTION 2: DATAZONES



Datazones are a new statistical geography for Namibia created especially for this version of the NIMD 2001. This section provides a non-technical overview of the process of creating the datazones and summarises their characteristics.

The methodology adopted is based on a similar process undertaken in South Africa (Avenell et al., 2009) which in turn was adapted from techniques developed in the United Kingdom (see, for example, Martin et al., 2001). Datazones were built up from Census Enumeration Areas (EAs) to create a standard uniform geography across Oshikoto region based on the existing EA geography which nest within the ten constituency boundaries. Though a datazone may be created from a single EA, it is usually created by merging one or more contiguous EAs which share common characteristics in accordance with a set of pre-defined rules. The actual creation of datazones was undertaken using a variety of geographical programming techniques (see Avenell et al., 2009). A set of rules governing the merging process was drawn up to ensure that the datazones had, as close as was possible, the following characteristics:

Population size: Datazones are designed to have a similar resident population size - this allows comparability across the region. The target population size was 1,000 with a minimum of 500 and maximum of 1,500. A total 165 datazones were created for the Oshikoto region.

Population density: Datazones should comprise EAs of similar population density. This is important to ensure that urban areas become distinct from rural areas. The datazone algorithm incorporated thresholds to ensure that, wherever possible, urban areas became tightly bounded.

Internal homogeneity: It is important that datazones comprise EAs of similar characteristics.

This helps to ensure that the datazone geography created is 'meaningful' in that, for example, in urban areas housing of a similar type are grouped together within one datazone and that those living in EAs within a single datazone share similar socio-economic characteristics.

In order to achieve this all EAs were analysed using a technique known as cluster analysis. This technique groups EAs across the country and the region into a small number of 'families' based on a variety of relevant characteristics. The datazones were checked and validated by obtaining aerial photography underlays for the mapping software and visually inspecting boundary positions.

“ Though a datazone may be created from a single EA, it is usually created by merging one or more contiguous EAs which share common characteristics in accordance with a set of pre-defined rules. ”

SECTION 3: METHODOLOGY

3.1 An introduction to the domains and indicators

Domains

The NIMD was produced using the 2001 Namibian Population Census which was supplied by the Namibian Central Bureau of Statistics for the purposes of this project. Whilst the intention should always be concept-led rather than ‘data-driven’, the project team was restricted to selecting indicators from the range of questions included within the 2001 Census. The NIMD was produced at datazone level (and also at constituency level on a comparable basis). There are 165 datazones and ten constituencies in Oshikoto region.

The NIMD contains five domains of deprivation:

- Material Deprivation¹
- Employment Deprivation
- Health Deprivation
- Education Deprivation
- Living Environment Deprivation

Each domain is presented as a separate domain index reflecting a particular aspect of deprivation. Each domain seeks to measure only one dimension of deprivation, avoiding overlaps between the domains and providing a direct measure of the deprivation in question. Individuals can however, experience more than one type of deprivation at any given time and it is therefore conceivable

that the same person can be captured in more than one domain. So, for example, if someone was unemployed, had no qualifications and had no access to basic material goods they would be captured in the Employment Deprivation, Education Deprivation and Material Deprivation domains. The indicators were chosen following an extensive consultation process with representatives of the Central Bureau of Statistics, Khomas Regional Council and UNDP².

“ The NIMD was produced using the 2001 Namibian Population Census which was supplied by the Namibian Central Bureau of Statistics for the purposes of this project ”

Indicators

Each domain index contains a number of indicators. There are 11 indicators in total in the NIMD. The aim for each domain was to include a parsimonious

¹ This refers to material goods, that is, assets or possessions.

² During the consultation process a number of other domains were discussed. These included: access to recreation facilities, level of participation in community activities, crime, food security, provision of emergency services, and availability of affordable transport. Unfortunately data relating to these issues were not available within the Census. These issues could be incorporated into further iterations of the NIMD if appropriate administrative or geographical data becomes available.

(i.e. economical in number) collection of indicators that comprehensively captured the deprivation for each domain, but within the constraints of the data available from the 2001 Census. When identifying indicators for the domains, it was important to ensure that they are direct measures of the domain of deprivation in question and specific to that domain.

In the construction of that index the indicators were discussed at length during the consultation process and every effort was made to ensure that they were appropriate for the Namibian context. The domains need to allow different geographical areas to be distinguished from one another; therefore it would be unhelpful to identify a deprivation which is experienced by most people in most areas as this would not enable the areas to be ranked relative to each other in terms of deprivation.

“With the exception of changes to three indicators in the newly constituted Living Environment Deprivation Domain, the indicators are the same as those used in the previous constituency level index.”

“In any event, the 2001 Census did not have an income question and so an income poverty indicator, if included, would need to be modelled from a different data source such as the Namibian Household Income and Expenditure Survey”

In the following sub-sections the domains and indicators which make up the NIMD 2001 are described.

3.2 Material Deprivation Domain

Purpose of the domain

This domain measures the proportion of the population experiencing material deprivation in an area by reference to the percentage of the population who are deprived of access to basic material possessions.

Background

In other indices that have followed this model (e.g. UK indices), an Income Deprivation Domain was created. However, there is an argument that such a domain is inappropriate within an Index of Multiple Deprivation, because - as explained above - deprivation can be regarded as the outcome of lack of income rather than the lack of income itself.

To follow Townsend, within a multiple deprivation measure, only the deprivations resulting from a low income would be included so low income itself would not be a component, but lack of material possessions would be included. In any event, the 2001 Census did not have an income question and so an income poverty indicator, if included, would need to be modelled from a different data source such as the Namibian Household Income and Expenditure Survey. Such modelling work is being undertaken separately for the Central Bureau of Statistics (now Namibia Statistics Agency) by Lux Development and will provide a complementary small area measure of income poverty. For these reasons, a material deprivation domain was produced. A lack of access to basic material goods can be understood as a proxy for low income. The 2001 Census included questions about access to material goods (e.g. television, radio, newspaper, telephone and computer) which are internationally accepted and widely used as measures of variations in living standards.

Of the possible material goods that could be included as indicators, access to a television/radio and telephone/cell phone were selected as they represent important modes of communication and a means of accessing information crucial to one's life and livelihood. The quality of the services provided however, were not be taken into account.

Indicators

- Number of people living in a household with no access to a television or a radio; or

- Number of people living in a household with no access to a telephone/cell phone.

Combining the indicators

A simple proportion of people living in households experiencing either one or both of the deprivations was calculated (i.e. the number of people living in a household with no access to a television/radio and/or with no access to a telephone/cell phone divided by the total population).

3.3 Employment Deprivation Domain

Purpose of the domain

This domain measures employment deprivation conceptualised as involuntary exclusion of the working age population from the world of work by reference to the percentage of the working age population who are unemployed.

Background

The 2001 Census recorded employment status in line with the International Labour Organisation (ILO) 'labour force framework' and the 'priority rules' which give precedence to employment over all other activities '*regardless of the amount of time devoted to it, which in extreme cases may be only one hour*' (Husmanns, 2007, p6). Therefore a person was considered to be employed if during the seven days prior to the Census night they worked for at least one hour for pay, profit or family gain. It follows that unemployment was defined as a situation of a total lack of work. The definition of

unemployment adopted by the 13th International Conference of Labour Statistics (ICLS) stipulates three criteria which must be simultaneously met for a person to be considered unemployed. According to this official definition, the unemployed are those persons within the economically active population (aged 15-65 inclusive) who during the reference period (for the 2001 Census this is the seven days prior to Census night) were:

1. Without work, i.e. in a situation of total lack of work; and
2. Currently available for work, i.e. not a student or homemaker or otherwise unavailable for work; and
3. Seeking work, i.e. taking steps to seek employment or self-employment.

Using the 2001 Census however, it was not possible to measure whether unemployed people were available for work and seeking work. Though other indices have also included people of working age who cannot work because of illness or disability, as they are involuntarily excluded from the world of work and internationally are regarded as the 'hidden unemployed' (Beatty et al., 2000), the consultation group wanted to limit this domain to the economically active population and therefore disabled or long-term sick people were not included. The age band was modified to 15-59 inclusive to reflect a concept of working age relevant to Namibia.

Indicators

- Number of people aged 15-59 inclusive who are unemployed.

Combining the indicators

The domain was calculated as those identified as unemployed and aged 15 to 59 inclusive divided by the number of people who are economically active in that age group.

3.4 Health Deprivation Domain

Purpose of the domain

This domain identifies areas with relatively high rates of people who die prematurely. The domain measures premature mortality but not aspects of behaviour or environment that may be predictive of *forthcoming* health deprivation.

Background

Although the consultation process raised the importance of measuring people's health status; and access to health facilities and healthcare, these issues could not be measured using the 2001 Census data. It was therefore not possible to include any measures of morbidity or access to health services. Instead a form of standardised mortality ratio known as Years of Potential Life Lost (YPLL) was used. An internationally recognised measure of poor health, the YPLL measure is the level of unexpected mortality weighted by the age of the individual who has died (for details about how this indicator was constructed see Blane and Drever, 1998). An area with a relatively high death rate in a young age group (including areas with high levels of infant mortality) will therefore *ceteris paribus*, have a higher overall YPLL score than an area with a similarly relatively high death rate for an older age group.

“ The YPLL measure is related to life expectancy in an area. Areas with low life expectancy will have high YPLL scores ”

The YPLL indicator is a directly age and gender standardised measure of premature death (i.e. death under the age of 75)³. The YPLL measure is related to life expectancy in an area. Areas with low life expectancy will have high YPLL scores. Equally high levels of infant mortality and perinatal mortality as well as high levels of serious illness such as HIV/AIDS and tuberculosis will all contribute to reduced life expectancy in an area and therefore high YPLL scores. Thus, although the YPLL is a mortality measure, it does, implicitly, reflect the extent of serious ill-health in an area. And although it would have been possible to use infant mortality, under-five mortality, and life expectancy as indicators, YPLL in effect combines all these issues into a single indicator and is therefore a broader and more useful overview of health deprivation in an area.

Indicator

- Years of potential life lost

3.5 Education Deprivation Domain

Purpose of the domain

This domain measures deprivation in educational attainment for people aged 15 to 59 inclusive.

Background

Elsewhere in the Southern Africa Development Community (SADC) region it has been shown that the level of educational attainment in the working age adult population is closely linked to an individual's employment status and future opportunities for those individuals and their dependants (Bhorat et al., 2004).

The 2001 Census includes a record of the level of education completed and a record of illiteracy. These two questions provide the best available measures of educational attainment and make up the indicators for this domain. The consultation process additionally raised the importance of affordable education and availability of tertiary education opportunities, but again, these could not be adequately captured using the 2001 Census.

Indicators

- Number of 15-59 year olds inclusive with no schooling completed at secondary level or above; or
- Number of 15-59 year olds inclusive who are illiterate.

³. Because the direct method of standardisation makes use of individual age/gender death rates it is often associated with small numbers. An empirical Bayes or 'shrinkage' technique is therefore used to smooth the individual age/gender death rates in order to reduce the impact of small number problems on the YPLL.

Combining the indicators

A simple proportion of the working age population (aged 15 to 59 years old inclusive) who had not completed schooling at secondary level or who are illiterate was calculated (i.e. the number of people with no schooling completed at secondary level or above or who are illiterate divided by the population aged 15 to 59 inclusive).

3.6 Living Environment Deprivation Domain

Purpose of the domain

This domain measures both inadequacy in housing conditions and a lack of basic services to the home.

Background

The 2001 Census questionnaire provides indicators on households' access to basic amenities. These aspects of the immediate environment in which people live impact on the quality of their life and provide good measures of deprivation in terms of access to services.

Measuring access to electricity as a basic amenity is a useful indicator of living environment deprivation. Three Census indicators were considered: main source of energy for cooking, lighting and heating. Although cost, availability and effectiveness are factors in the consumption of all energy supplies, it has been argued that in certain instances, the choice of fuel for cooking may be influenced by cultural preference rather than availability alone, whereas the use of electricity for lighting would generally be the preferred choice, if available,

and therefore provides a more valid measure of deprivation in terms of access to energy for lighting (Bhorat et al., 2004). This was the measure used in the previous constituency level index. However, at datazone level, all individuals in a high proportion of datazones were found to lack electricity for lighting. These datazones would all be given the same overall score for this domain, and so it would not be possible to discriminate between datazones in terms of their level of deprivation. For this reason the indicator was altered slightly to include paraffin alongside electricity (and solar power) as the measure of access to energy for lighting. The inclusion of paraffin however, does not imply any judgement about its suitability for lighting purposes, but is rather a means of enabling datazones to be properly ranked on this domain.

Access to clean drinking water and sanitation facilities is essential for the good health of the population and thus an important indicator to include in this domain. An indicator of no access to

“Access to clean drinking water and sanitation facilities is essential for the good health of the population and thus an important indicator to include in this domain”

piped water within the home or within 200 metres of the home was included. The threshold of 200 metres was regarded by the consultation group as preferable to a threshold of 400 metres (the MDG measure). Though in the previous (constituency) index people without flush toilets or ventilated pit latrines were regarded as deprived, investigation of this indicator at datazone level revealed that again, a high proportion of datazones scored 100 percent. Therefore, as with the access to energy indicator, an additional criterion was added: long drop pit latrines were included alongside flush toilets and ventilated pit latrines. Again, the inclusion of long drop pit latrines does not imply adequacy, but is included simply as a means of discriminating between datazones.

The quality of housing construction provides an important indicator for the quality of day-to-day life and vulnerability to shocks such as adverse weather conditions (Bhorat et al., 2004; Programme of Action Chapter 2 World Summit for Social Development Copenhagen 1995). There was much discussion during the consultation process about traditional dwellings and their adequacy. Though the 2001 Census contains fairly precise information about materials used in the construction process, there is no way of identifying whether the resultant buildings were of a high quality or not. It was therefore agreed that only shacks could be reliably identified as constituting inadequate housing.

The crowding indicator is calculated by dividing the number of people in the household by the number of rooms excluding bathrooms, toilets, kitchens, stoops and verandas. Different versions

of the crowding indicator were considered. It was felt that the most appropriate measure of crowding was to classify three or more people per room as a deprivation. Setting the capacity cut-off at two or more people per room was considered. However, it was felt that this lower capacity would capture too many non-deprived people, for example relatively well-off couples sharing a one room urban apartment.

Indicators

- Number of people living in a household without the use of electricity, paraffin or solar power for lighting; or
- Number of people living in a household without access to a flush toilet or pit latrine (ventilated or long drop); or
- Number of people living in a household without piped water/borehole/borehole with covered tank (but not open tank)/protected well inside their dwelling or yard or within 200 metres; or
- Number of people living in a household that is a shack; or
- Number of people living in a household with three or more people per room.

Combining the indicators

A simple proportion of people living in households experiencing one or more of the deprivations was calculated (i.e. the number of people living in a household without electricity, paraffin or solar power for lighting and/or without adequate toilet facilities and/or without adequate water provision and/or living in a shack and/or in overcrowded conditions divided by the total population).

3.7 Constructing the domain indices

In all domains apart from the Health Deprivation Domain, the overall score is a simple proportion of the relevant population, and so can be easily interpreted. As Censuses can be regarded as a sample from a super-population, it is important to consider and deal with large standard errors. A technique that takes standard errors into account but still enables one to then combine the domains into an overall index of multiple deprivation is called Bayesian shrinkage estimation. Specifically, the scores for datazones can be unreliable when the deprived population is small and so the shrinkage technique was applied to each of the domains. The 'shrunk' estimate is the weighted average of the original datazone level estimate and an appropriate larger spatial unit. The weight is based on the standard error of the original datazone estimate and the amount of variation within the constituency. For further details about this technique see Annex 2 of the 2001 NIMD National Report available at <http://www.undp.org.na/publications.aspx> and also Noble et al. (2006b).

3.8 Standardising and transforming the domain indices

Having obtained a set of domain indices, these needed to be combined into an overall Namibia Index of Multiple Deprivation and in order to combine domain indices which are each based on different metrics there needed to be some way to standardise the scores before any combination could take place. A form of standardisation and transformation is required that meets the following

“As Censuses can be regarded as a sample from a super-population, it is important to consider and deal with large standard errors. A technique that takes standard errors into account but still enables one to then combine the domains into an overall index of multiple deprivation is called Bayesian shrinkage estimation”

criteria. First it must ensure that each domain has a common distribution; second, it must not be scale dependent (i.e. conflate size with level of deprivation); third, it must have an appropriate degree of cancellation built into it; and fourth, it must facilitate the identification of the most deprived datazones. The exponential transformation of the ranks best meets these criteria and was applied in the NIMD 2001. For further details about this technique see Annex 3 of the 2001 NIMD National

“A form of standardisation and transformation is required that meets the following criteria. First it must ensure that each domain has a common distribution; second, it must not be scale dependent (i.e. conflate size with level of deprivation); third, it must have an appropriate degree of cancellation built into it; and fourth, it must facilitate the identification of the most deprived datazones. The exponential transformation of the ranks best meets these criteria and was applied in the NIMD 2001. For further details see Annex 3 and Noble et al. (2006b)”

Report available at <http://www.undp.org.na/publications.aspx> and also Noble et al. (2006b).

3.9 Weights for the domain indices when combining into an overall Index of Multiple Deprivation

Domains are conceived as independent dimensions of multiple deprivation, each with their own additive impact on multiple deprivation. The strength of this impact, though, may vary between domains depending on their relative importance. As a starting point, equal weights for the domains were recommended and this was supported by the consultation group. Each domain was therefore assigned a weight of 1. The NIMD was therefore constructed by adding the standardised and transformed domain indices with equal weights.

SECTION 4: DATAZONE LEVEL NAMIBIAN INDEX OF MULTIPLE DEPRIVATION 2001: OSHIKOTO REGION

4.1 Multiple Deprivation

In this section a profile of multiple deprivation in Oshikoto region, at both constituency and datazone levels, is presented. Using the data from the NIMD it is possible to compare the 165 datazones and ten constituencies within Oshikoto. Map 1 shows the datazones in Oshikoto in relation to the overall NIMD (i.e. the five separate domains of deprivation

combined together). The lightest shading relates to the least deprived datazones. Map 2 is a zoom-in of Map 1, showing the datazones within the Tsumeb area (as these are small in physical size and therefore hard to distinguish on the Map 1). These maps provide an easy to interpret picture of the pattern of multiple deprivation in the Oshikoto region.

Map 2

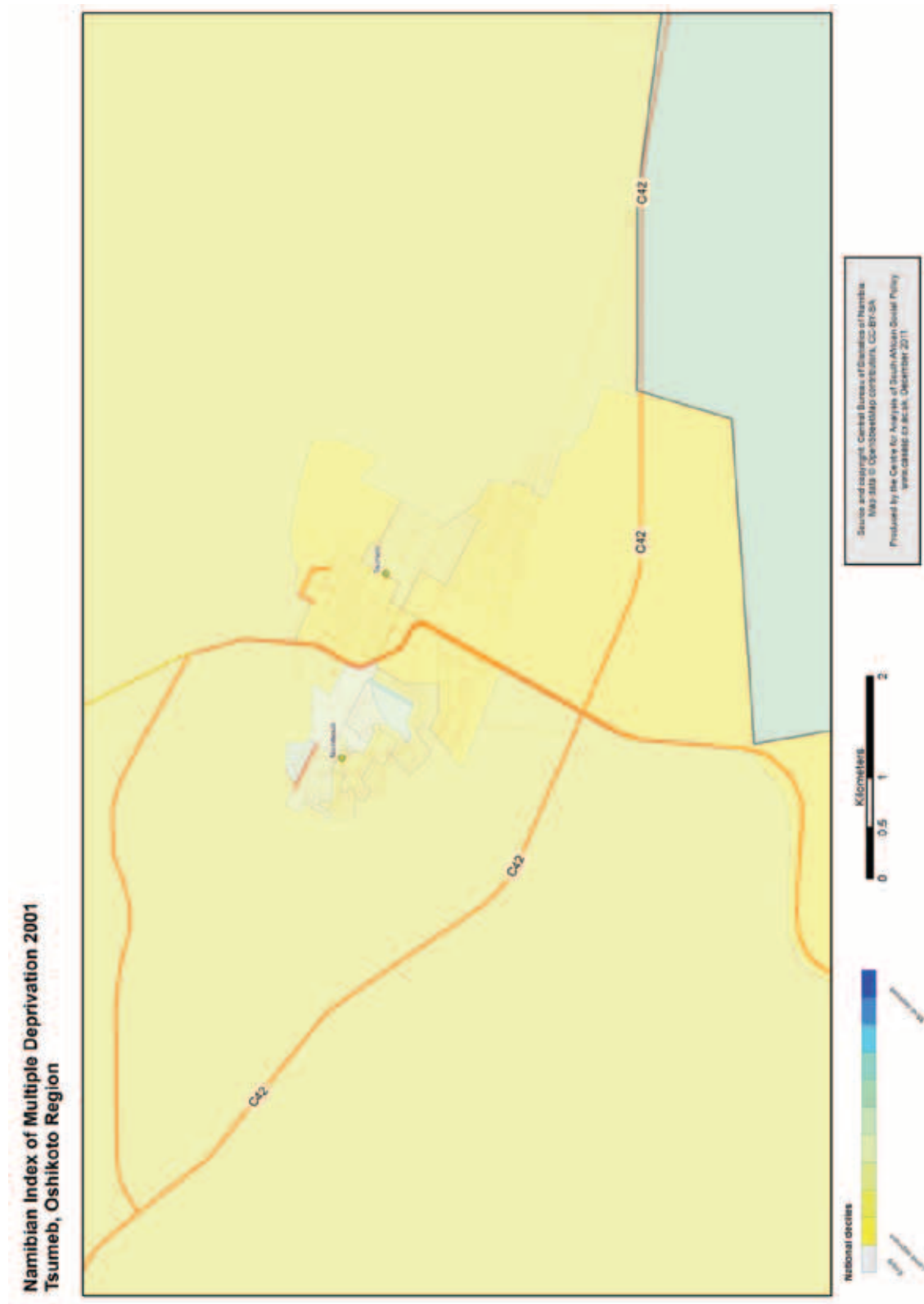


Table 1 shows some of the data underlying these maps. The NIMD 2001 score, national rank (where 1=most deprived and 1,871=least deprived) and Oshikoto rank (where 1=most deprived and 165=least deprived) for the 20 most deprived datazones in Oshikoto are shown. Appendix 2 provides this information for all of the datazones in Oshikoto.

The most deprived datazone in Oshikoto is in Omuntele constituency, and is therefore given

a rank of 1 among the datazones in Oshikoto. If ranked alongside all datazones in Namibia, it ranks as the 6th most deprived. Thirty of the datazones in Oshikoto are in the most deprived 10 percent of datazones nationally in terms of multiple deprivation (the cut-off for the 10 percent most deprived is a rank of 187). The least deprived datazone in Oshikoto is located in Tsumeb and is ranked at 1,790 in Namibia as a whole.

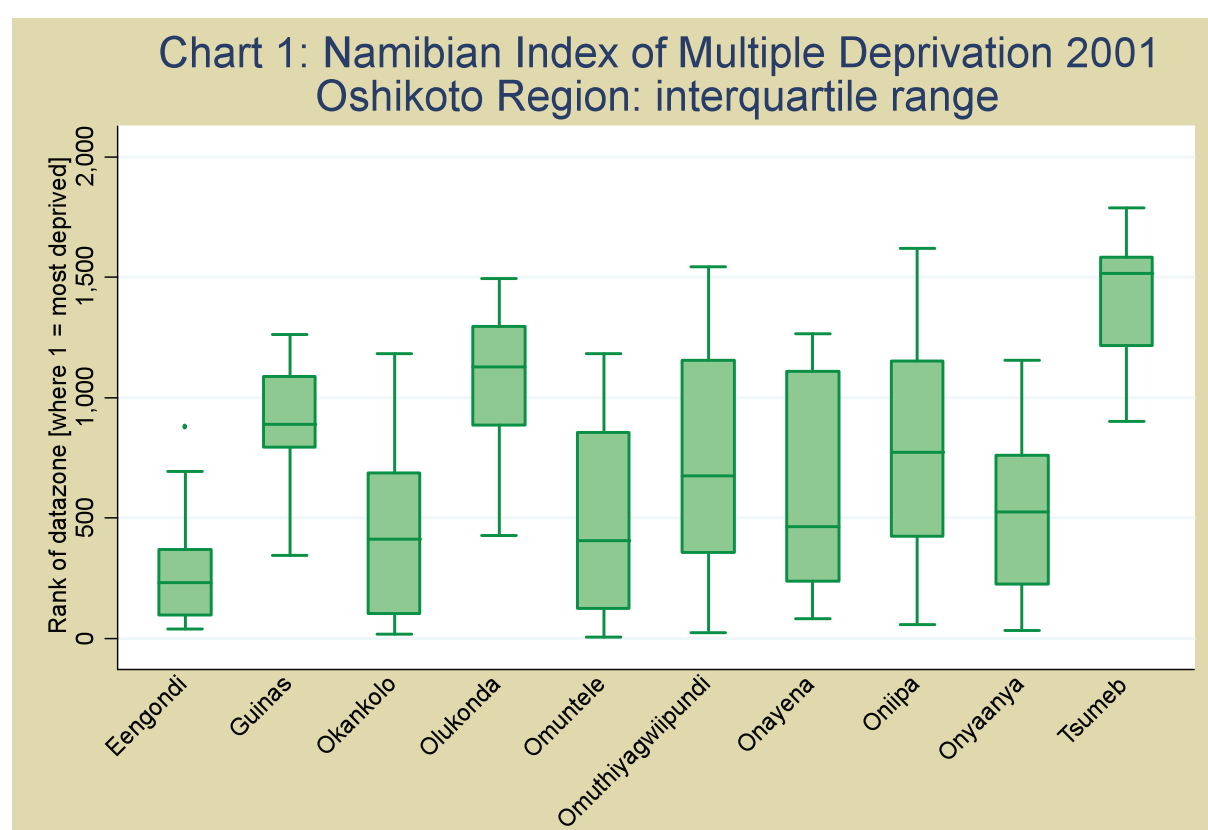
Table 1: The 20 most deprived datazones in the Oshikoto Region

Datazone	Constituency	NIMD score	NIMD rank – national	NIMD rank – within Oshikoto
1644	Omuntele	352.2	6	1
1616	Okankolo	339.3	17	2
1622	Okankolo	329.3	23	3
1675	Omuthiyagwiipundi	326.3	24	4
1729	Onyaanya	318.9	34	5
1594	Eengondi	316.9	38	6
1621	Okankolo	308.5	47	7
1640	Omuntele	302.7	55	8
1719	Onyaanya	302.2	57	9
1692	Oniipa	302.1	58	10
1602	Eengondi	300.1	63	11
1592	Eengondi	298.7	70	12
1599	Eengondi	296.5	72	13
1679	Onayena	292.0	83	14
1619	Okankolo	291.6	84	15
1696	Oniipa	289.8	92	16
1645	Omuntele	289.7	93	17
1593	Eengondi	288.6	95	18
1693	Oniipa	286.8	100	19
1734	Onyaanya	283.5	113	20

The ten constituencies in Oshikoto vary in terms of the range of deprivation of their datazones. Chart 1 shows the minimum, maximum and median rank of datazones in each constituency, and the interquartile range for the overall NIMD. This is based on the *national* ranks (i.e. where the most deprived datazone in Namibia is ranked 1, and the

least deprived datazone is ranked 1,871).

Interpreting the Charts: For details on how to interpret the chart please see the 'How to interpret interquartile range charts' description in section 4.1 of the national report available at <http://www.undp.org.na/publications.aspx>



The vertical green line for each constituency shows the range of the ranks of the datazones in a constituency (including the dots which for some constituencies, like Eengondi, appear at either end of the line). A number of constituencies have a wide range of deprivation, particularly Omuthiyagwiipundi and Oniipa. Eengondi, Guinas and Tsumeb have a smaller range of deprivation than the other constituencies.

The green box for each constituency shows the range of the NIMD ranks of the middle 50 percent of datazones in the constituency (the interquartile range). The horizontal line within the box for each constituency represents the rank of the median datazone within that constituency. The median rank in Tsumeb is higher (less deprived) than the other constituencies, while the median rank in Eengondi is lower (more deprived) than the other

constituencies. If the box is short this indicates that datazones are ranked in a narrow range, with similar NIMD ranks (and therefore similar levels of multiple deprivation). In Omuthiyagwiipundi and Oniipa the datazones in the middle 50 percent are ranked in a relatively wide range. The opposite is true of datazones in Eengondi, Guinas, Olunkonda and Tsumeb. If this box sits towards the bottom of the chart it tells us that datazones in the constituency are concentrated in the most deprived part of the national distribution of the NIMD. If the box sits towards the top of the chart it tells us that the datazones in the constituency are concentrated in the least deprived part of the national distribution. Most of the constituencies are concentrated towards the middle and more deprived end of the national distribution. Datazones in Tsumeb however, are concentrated at the least deprived end of the scale.

Further analysis shows that the datazones in the most deprived 10 percent of datazones *within Oshikoto* on the overall NIMD are located in seven constituencies. These seven constituencies and the number of datazones that are in the most deprived 10 percent of datazones within Oshikoto are as follows: Eengondi (4 of 18), Okankolo (4 of 16), Omuntele (2 of 15), Omuthiyagwiipundi (1 of 24), Onayena (1 of 15), Oniipa (2 of 25) and Onyaanya (2 of 20).

4.2 Domains of deprivation

Although it is not possible to calculate multiple deprivation rates as such, each of the individual domains of deprivation can be presented at

constituency level, and for all domains except health the domain scores can be compared.

Table 2 provides the domain scores for each constituency in Oshikoto, excluding health as the health score is not calculated as a rate. The other four domains are in the form of simple deprivation rates. So for example, 98.3 percent of the population in Eengondi constituency experienced material deprivation in 2001. The within Oshikoto ranks are shown as well as the domain scores, for each constituency in Oshikoto (where 1=most deprived).

In terms of material deprivation, the most deprived constituency in Oshikoto is Okankolo (with 98 percent of the population experiencing material deprivation), followed closely by Eengondi, also 98 percent and Omuntele, 96 percent. In relation to employment deprivation, the most deprived constituency is Onayena (with 64 percent of the relevant population being employment deprived), followed by Onyaanya (61 percent).

Two constituencies stand out in terms of education deprivation: Guinas (with 80 percent of the relevant population being education deprived) and Eengondi (76 percent). In terms of living environment deprivation, the most deprived constituency is Okankolo (with almost 100% of the total population experiencing living environment deprivation). Six other constituencies also have a rate of over 90 percent.

It is interesting to note however, that although Eengondi is the second most deprived constituency

in terms of material, education and living environment deprivation, it is the second least deprived constituency in terms of employment deprivation, having half the rate of the most deprived constituency.

The domain scores and ranks for each of the datazones in Oshikoto are presented in Appendix 2. As in Table 2, four of the five domains are expressed as rates. Health deprivation is expressed

as the years of potential life lost in that datazone. A datazone with a relatively high death rate in a young age group (including areas with high levels of infant mortality) will have a higher score than an area with a similarly relatively high death rate for an older age group, all else being equal. The measure is related to life expectancy in an area, so datazones with low life expectancy will have high scores on this domain.

Table 2: Domain scores and ranks for each constituency in the Oshikoto Region

Constituency	Material deprivation rate (%)	Material deprivation rank (within Oshikoto)	Employment deprivation rate (%)	Employment deprivation rank (within Oshikoto)	Education deprivation rate (%)	Education deprivation rank (within Oshikoto)	Living environment deprivation rate (%)	Living environment deprivation rank (within Oshikoto)
Fengondi	98.3	2	31.8	9	76.3	2	98.8	2
Guinas	76.7	8	17.9	10	80.1	1	92.5	6
Okankolo	98.4	1	41.4	7	68.5	3	99.6	1
Olukonda	65.6	9	58.5	3	62.3	8	73.1	9
Omuntele	96.4	3	49.2	5	67.3	4	95.6	5
Omuthiyagwiipundi	88.4	4	43.1	6	66.2	5	96.8	4
Onayena	85.6	5	63.9	1	63.3	7	91.5	7
Oniipa	78.4	7	52.9	4	61.3	9	85.1	8
Onyaanya	83.7	6	60.7	2	66.2	6	97.0	3
Tsumeb	53.2	10	36.8	8	56.1	10	47.2	10

Table 3 below shows the percentage of each constituency's datazones that are in the most deprived 10 percent of datazones *nationally* for each domain.

Three constituencies, Eengondi, Omuntele and Omuthiyagwiipundi have datazones that feature amongst the most deprived 10 percent of datazones in Namibia on four of the five domains. Over half

of the datazones in Eengondi and Okankolo are in the most deprived 10 percent nationally in terms of material deprivation. Only Eengondi and Guinas have datazones that are in the most deprived 10 percent of datazones in terms of education deprivation. Tsumeb is the only constituency that does not have any datazones in the most deprived 10 percent on any of the domains.

Table 3: Percentage of datazones in most deprived 10 percent of datazones in Namibia

Constituency	Number of datazones	Material deprivation	Employment deprivation	Health deprivation	Education deprivation	Living env. deprivation
Eengondi	18	55.6	22.2	0.0	22.2	11.1
Guinas	9	0.0	0.0	0.0	66.7	0.0
Okankolo	16	56.3	12.5	0.0	0.0	12.5
Olukonda	9	0.0	33.3	0.0	0.0	0.0
Omuntele	15	33.3	20.0	6.7	0.0	33.3
Omuthiyagwiipundi	24	20.8	16.7	4.2	0.0	4.2
Onayena	15	0.0	40.0	33.3	0.0	0.0
Oniipa	25	0.0	32.0	20.0	0.0	0.0
Onyaanya	20	5.0	30.0	20.0	0.0	0.0
Tsumeb	14	0.0	0.0	0.0	0.0	0.0

Table 4 shows the percentage of each constituency's datazones that are in the most deprived 10 percent of datazones *within Oshikoto* for each domain. Eengondi has the highest proportion of datazones in the most deprived 10 percent in terms of material and living environment deprivation. Over three quarters of the datazones in Guinas constituency are in the most deprived 10 percent in terms of education deprivation. All but two constituencies (Guinas and Tsumeb) have at least

one datazone in the most deprived 10 percent in terms of employment deprivation. All other types of deprivation are concentrated in a small number of constituencies. For instance, the 10 percent most deprived datazones in terms of education deprivation are in three constituencies: Eengondi, Guinas and Okankolo. As is the case nationally, the datazones in Tsumeb do not feature in the most deprived 10 percent of datazones within Oshikoto for any of the domains.

Table 4: Percentage of datazones in most deprived 10 percent of datazones in the Oshikoto Region

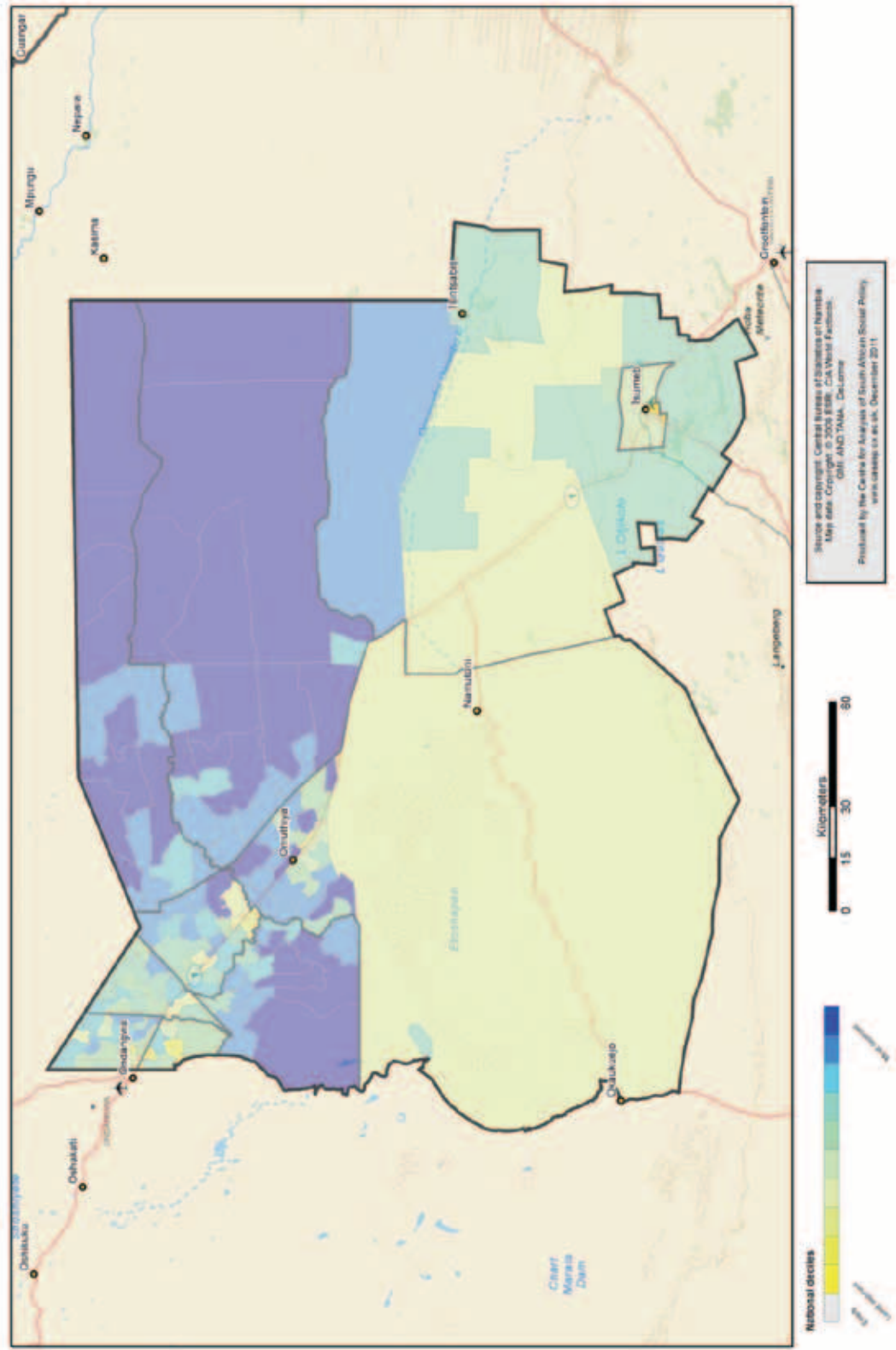
Constituency	Number of datazones	Material deprivation	Employment deprivation	Health deprivation	Education deprivation	Living env. deprivation
Eengondi	18	38.9	5.6	0.0	44.4	33.3
Guinas	9	0.0	0.0	0.0	77.8	0.0
Okankolo	16	25.0	12.5	0.0	6.3	18.8
Olukonda	9	0.0	11.1	0.0	0.0	0.0
Omuntele	15	20.0	6.7	6.7	0.0	33.3
Omuthiyagwiipundi	24	8.3	4.2	4.2	0.0	8.3
Onayena	15	0.0	26.7	33.3	0.0	0.0
Oniipa	25	0.0	8.0	20.0	0.0	0.0
Onyaanya	20	0.0	20.0	20.0	0.0	0.0
Tsumeb	14	0.0	0.0	0.0	0.0	0.0

The following maps present each of the five domains at datazone level for Oshikoto and for the Tsumeb area. As with Maps 1 and 2, the lightest

shading relates to the least deprived datazones. It is intended that these maps should provide accessible profiles of the domains of deprivation in the Oshikoto Region.

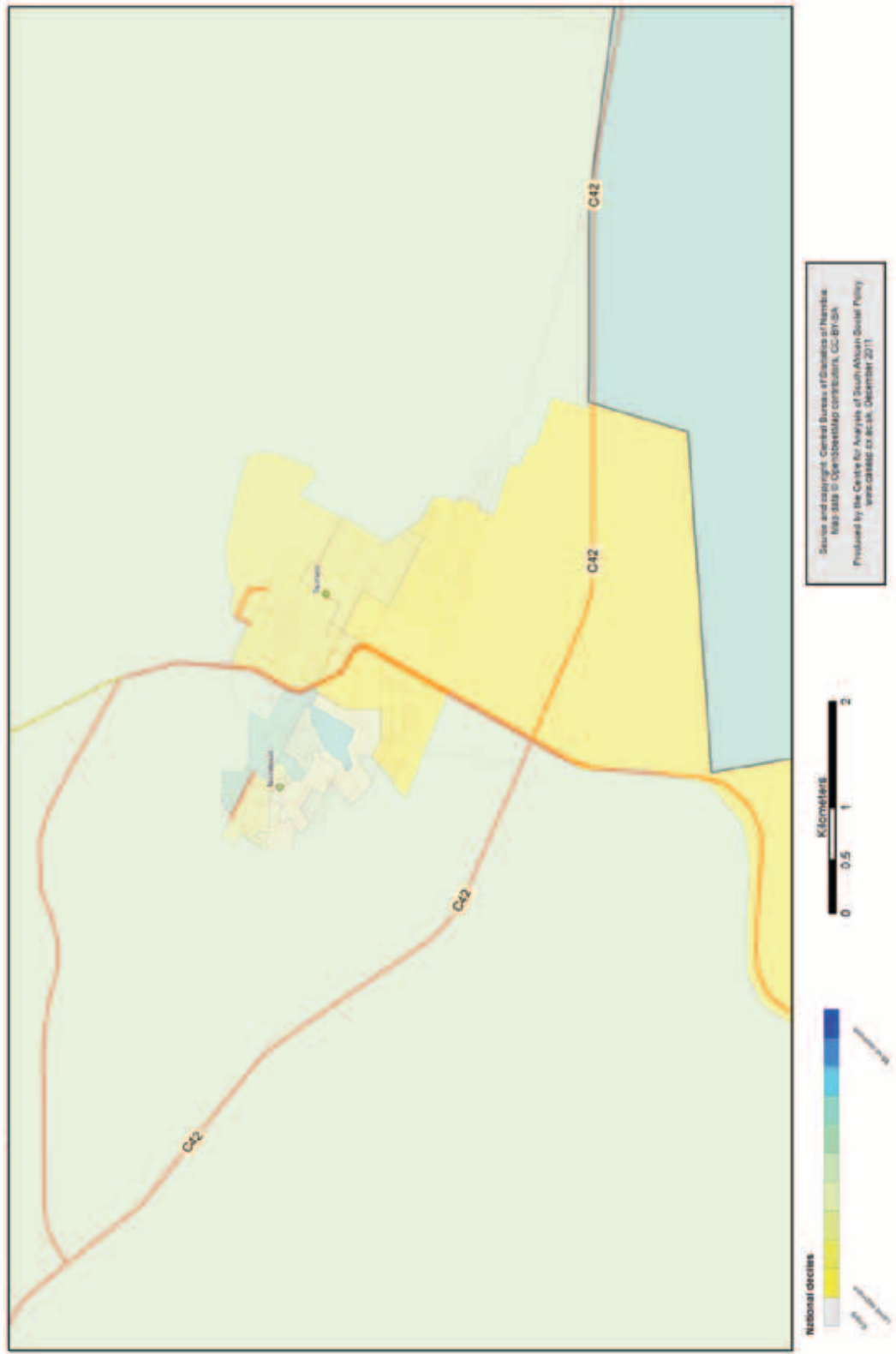
Map 3

Namibian Index of Multiple Deprivation 2001 - Material Deprivation Domain
Oshikoto Region



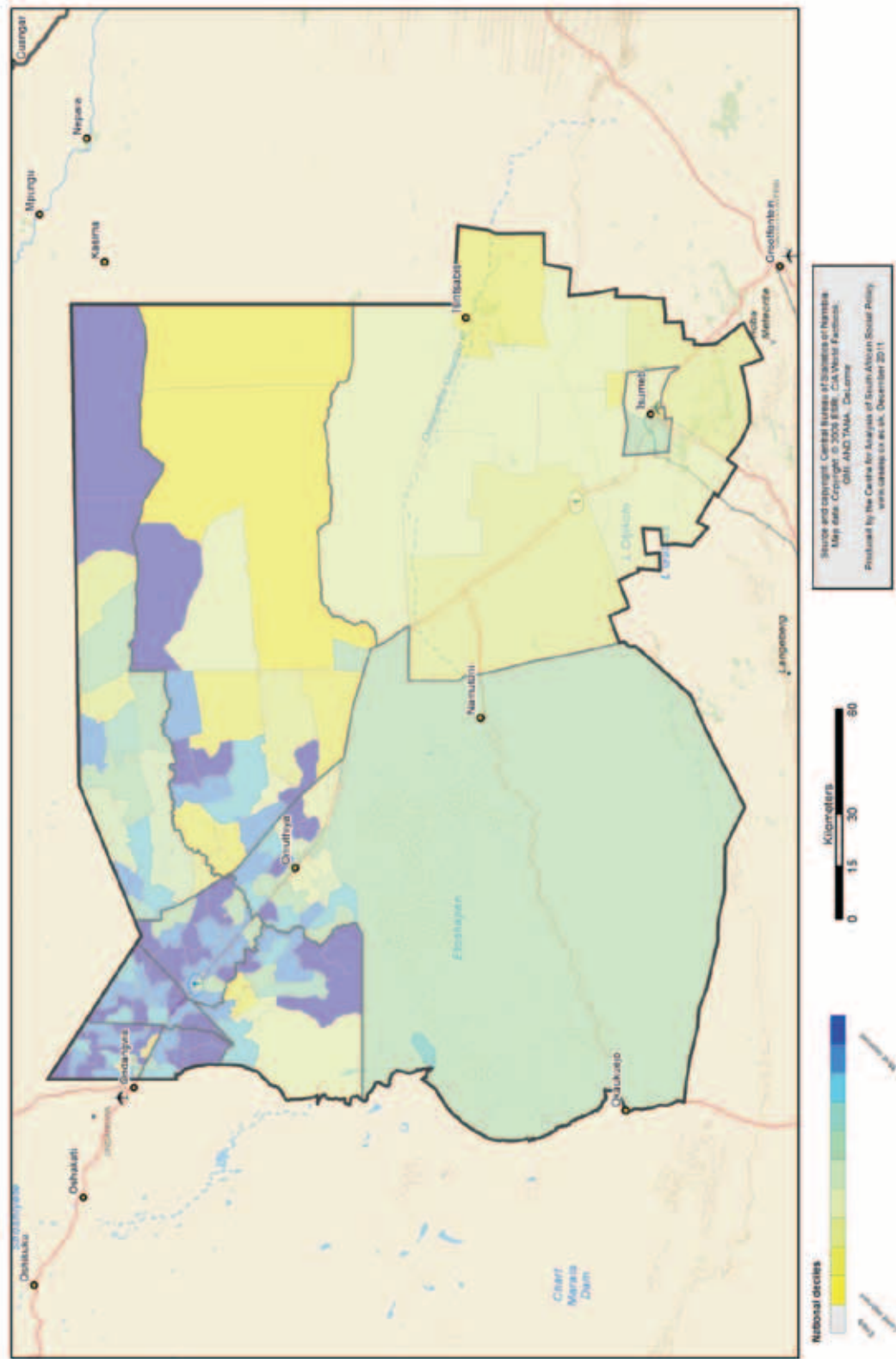
Map 4

**Namibian Index of Multiple Deprivation 2001 - Material Deprivation Domain
Tsumeb, Oshikoto Region**



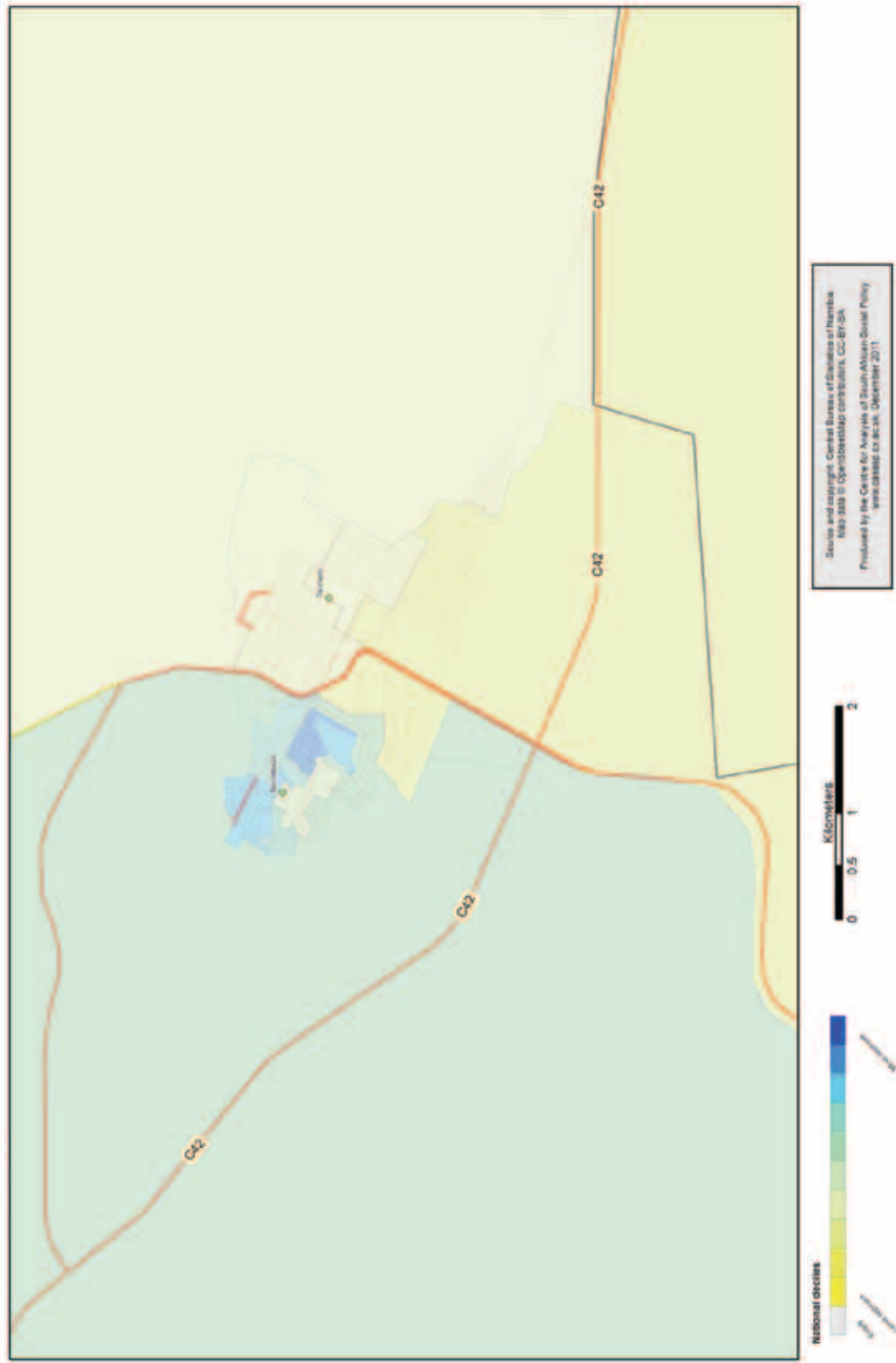
Map 5

**Namibian Index of Multiple Deprivation 2001 - Employment Deprivation Domain
Oshikoto Region**



Map 6

**Namibian Index of Multiple Deprivation 2001 - Employment Deprivation Domain
Tsumeb, Oshikoto Region**

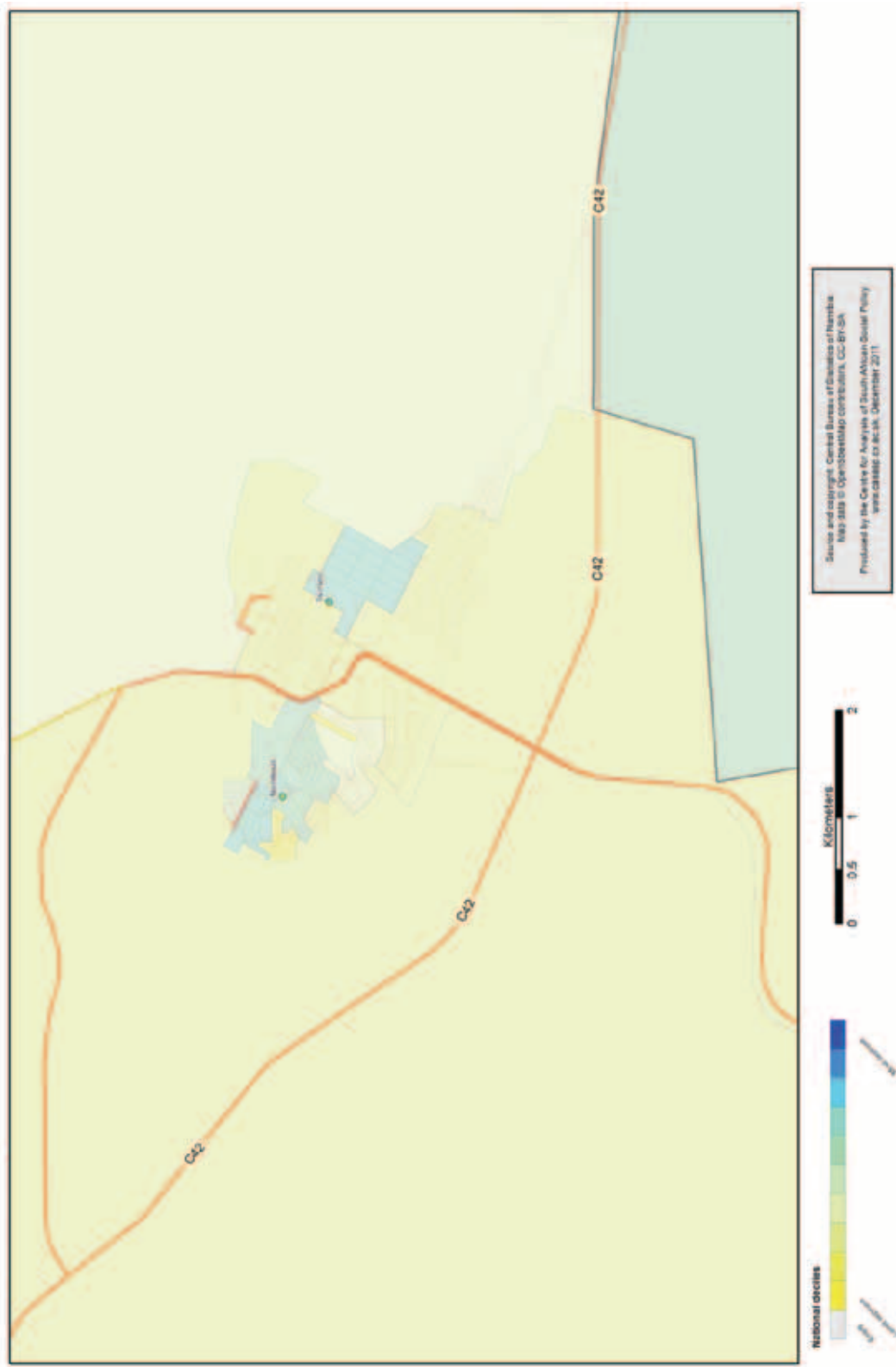


Map 7

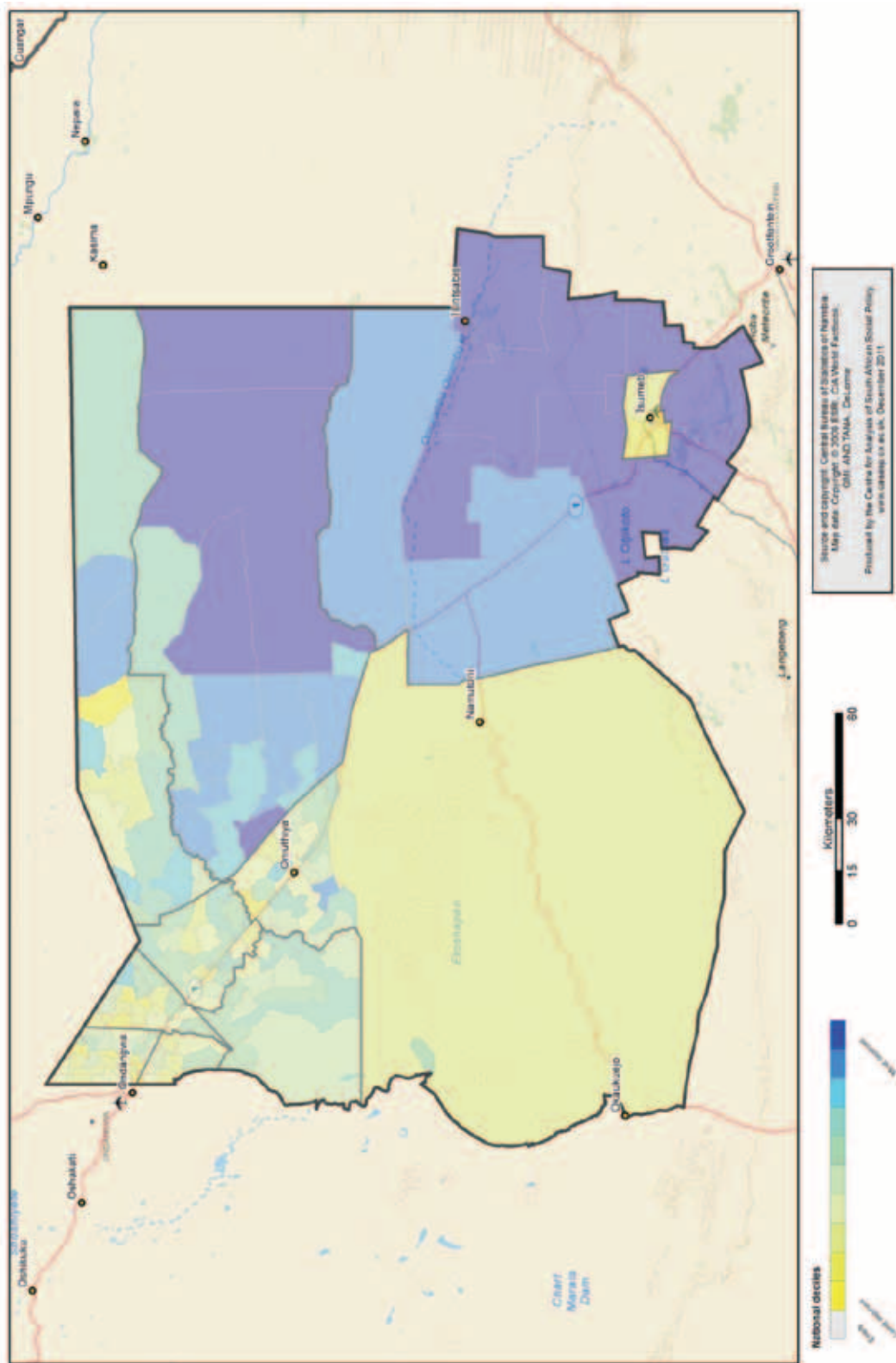


Map 8

**Namibian Index of Multiple Deprivation 2001 - Health Deprivation Domain
Tsumeb, Oshikoto Region**

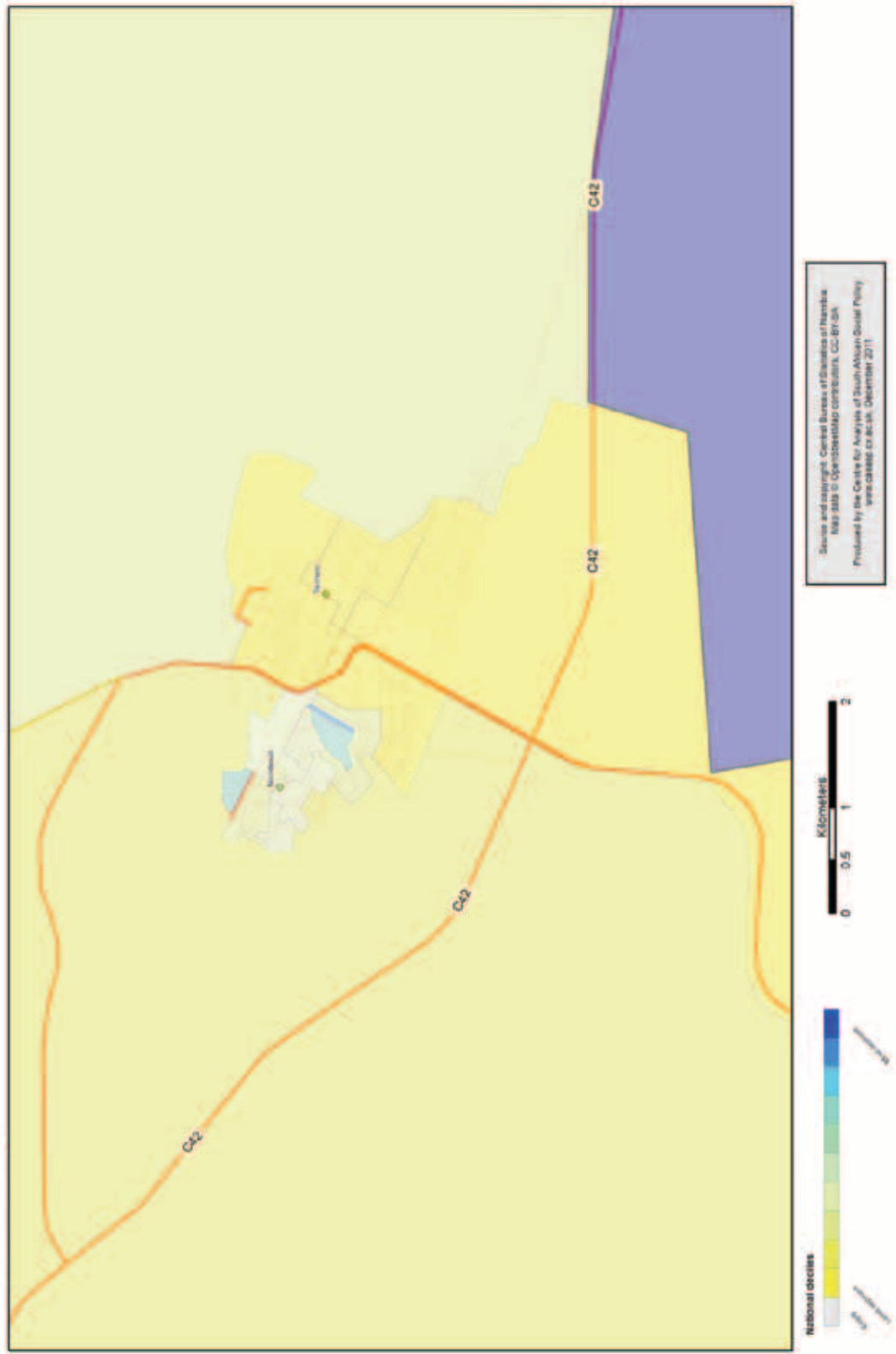


Map 9



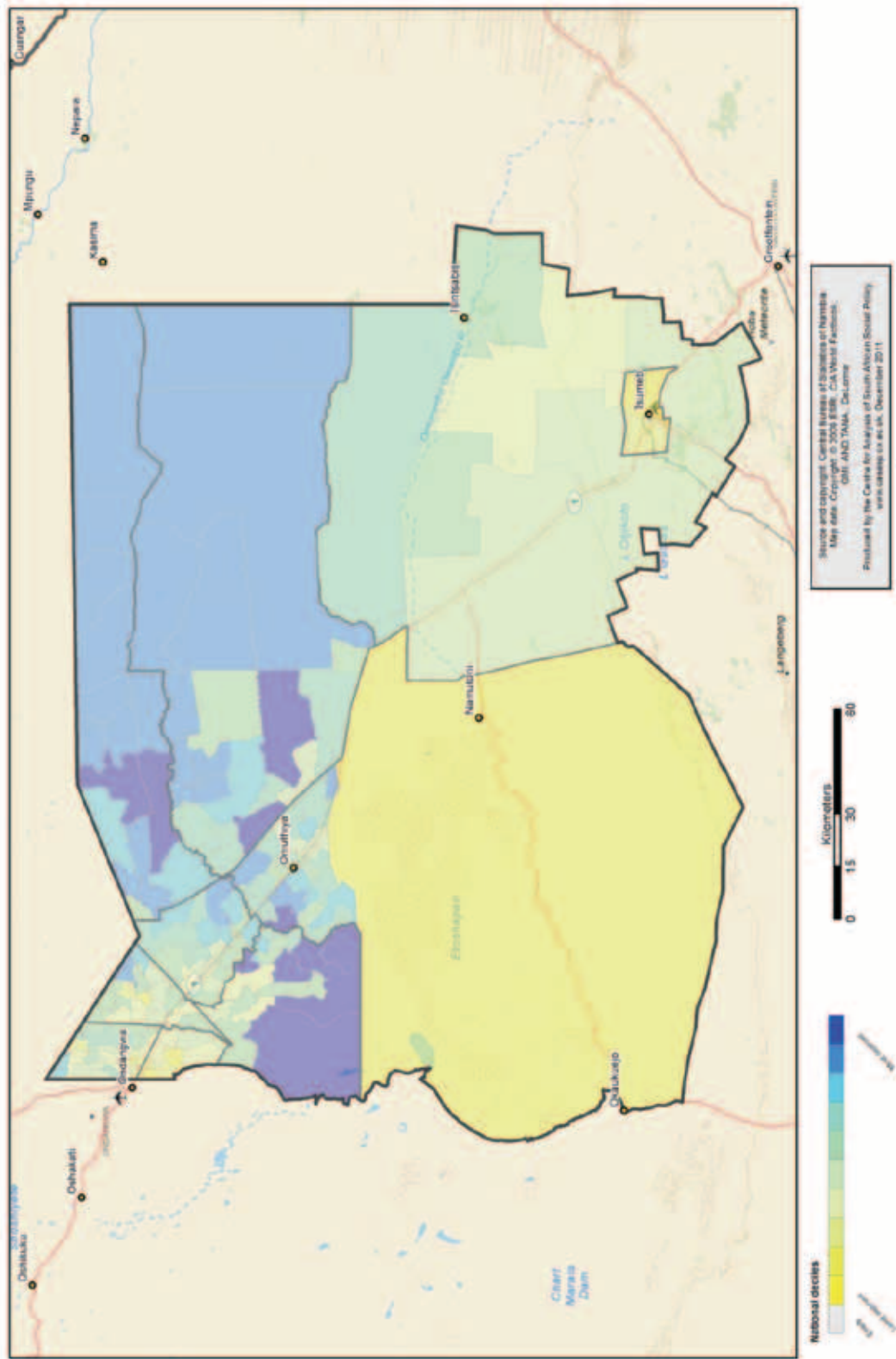
Map 10

Namibian Index of Multiple Deprivation 2001 - Education Deprivation Domain
Tsumeb, Oshikoto Region



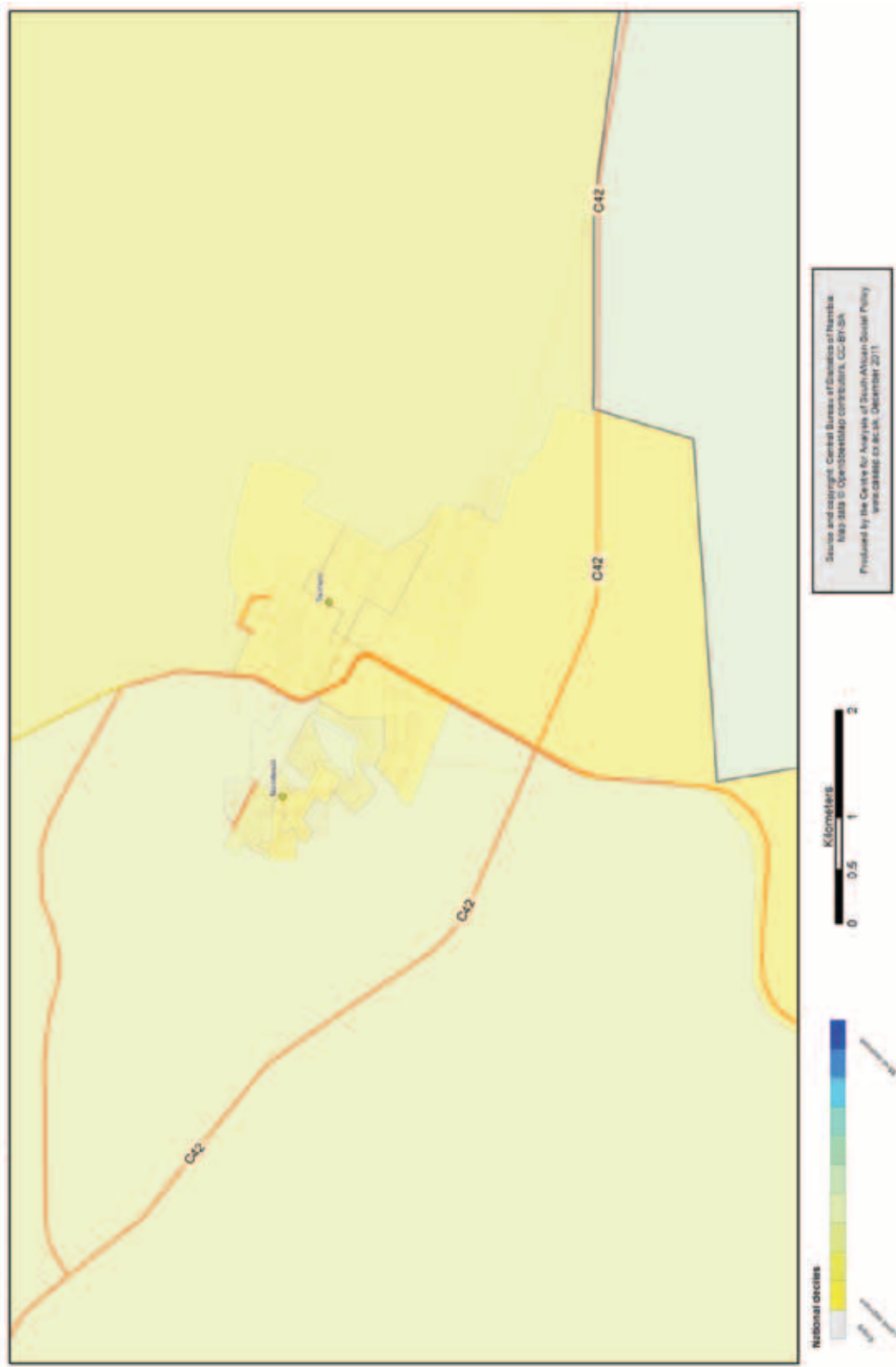
Map 11

Namibian Index of Multiple Deprivation 2001 - Living Environment Deprivation Domain
Oshikoto Region



Map 12

**Namibian Index of Multiple Deprivation 2001 - Living Environment Deprivation Domain
Tsumeb, Oshikoto Region**



SECTION 5: CONCLUSIONS AND SOME POLICY RECOMMENDATIONS



The analysis presented in this report has identified particular areas – both datazones and constituencies – where deprivation is high relative to other areas in Oshikoto region. This analysis can support pro-poor policy formulation processes and programmatic interventions in many ways.

By providing reliable and objective information on, and profiling the distribution of, multiple deprivation and the distribution of the individual domains of deprivation across the region, the analysis presented in this report can provide planners; policy and decision makers at the regional level with the evidence base on which to plan and make decisions regarding resource allocation and the geographic areas (constituencies and datazones) and sectors in which to prioritise public investments, government support and service delivery. Specifically, the analysis can be useful in the following ways:

Temporal analysis of nature, scope and effects of poverty reduction programmes: By describing the geographical distribution and extent of individual dimensions of deprivation and overall multiple deprivation at constituency and datazone levels, this report provides a baseline map of deprivation against which progress in poverty reduction in these areas can be measured over time, that is between successive censuses (2001 and 2011 censuses). The NIMD is based on data relating to 2001 time- line and significant changes may have taken place since then. It will thus be necessary to conduct further analyses using the 2011 Census data and information in order to shed light on the extent to which changes have occurred in the region and possible reasons for any noted changes.

Interrogating the causes of inequality: The report could be used by the regional authorities to initiate the process of interrogating the causal factors of

“ By providing reliable and objective information on, and profiling the distribution of multiple deprivation and the individual domains of deprivation across the country, the NIMD can provide policy and decision makers with the evidence base on which to make decisions regarding resource allocation and the geographic areas and sectors in which to prioritise public investments, government support and service delivery relating to the various domains of deprivation ”

such wide inter- and intra-constituency (datazone level) variations with respect to specific domains and the overall combined and weighted index of deprivation.

Better planning and targeting of development resources: Regional Councils have two distinct sources of development revenue – transfers from central government and locally generated resources. The NIMD allows for better planning for and targeting of such resources on the basis of relative deprivation to the datazone level. Priorities can then be identified at the constituency and datazone levels that could be addressed through integrated development approaches. Importantly, funds could be targeted to and ring-fenced for those sectors/domains in which specific constituencies and datazones are particularly deprived or to the most deprived constituencies and datazones within a constituency. It is also conceivable that constituencies and datazones characterised by

severe multiple deprivation could be targeted for integrated development projects and programmes. The most deprived areas vary by domain, and not all areas show a uniform degree of deprivation across the domains. This should be taken into account when selecting a measure of deprivation to use as it is important to choose the most appropriate measure for the particular policy purpose.

It should be noted however, that the NIMD, as presented in this report, provides a profile of *relative* deprivation in Oshikoto region and even the least deprived areas, such as Tsumeb constituency, contain pockets of deprivation. They are simply less deprived than other areas with higher levels of deprivation such as Eengondi and Okankola constituencies. As such, spatially targeted policy initiatives should be regarded as a complement to, rather than a substitution for, mainstream pro-poor policies and strategies that the Regional Council and National Government are already implementing in Oshikoto region.

ANNEX 1: INDICATORS INCLUDED IN THE NIMD 2001

Material Deprivation Domain

Numerator

- Number of people living in a household with no access to a television or a radio; or
- Number of people living in a household with no access to a telephone/cell phone

Denominator

Total population

Employment Deprivation Domain

Numerator

- Number of people aged 15-59 who are unemployed

Denominator

Total economically active population aged 15-59 inclusive

Health Deprivation Domain

Numerator

- Years of potential life lost

Education Deprivation Domain

Numerator

- Number of 15-59 year olds (inclusive) with no schooling completed at secondary level or above; or

- Number of 15-59 year olds (inclusive) who are illiterate

Denominator

Population aged 15-59 (inclusive)

Living Environment Deprivation Domain

Numerator

- Number of people living in a household without the use of electricity, paraffin or solar power for lighting; or
- Number of people living in a household without access to a flush toilet or pit latrine (ventilated or long drop); or
- Number of people living in a household without piped water/borehole/borehole with covered tank (but not open tank)/protected well inside their dwelling or yard or within 200 metres; or
- Number of people living in a household that is a shack; or
- Number of people living in a household with three or more people per room

Denominator

Total population

ANNEX 2: DOMAIN AND OVERALL NIMD SCORES AND RANKS

This table presents the scores and ranks for every datazone in Oshikoto for the five domains and the overall NIMD. For all domains except health the score is calculated as a rate. So for example, 98% of the population in datazone 1586 in Eengondi constituency experienced material deprivation in 2001. Health is expressed as the years of potential life lost (a measure of premature mortality) in that datazone, and a higher score indicates greater health deprivation. The within Oshikoto ranks are shown for each datazone (where 1=most deprived).

Datazone	Constituency	Material score	Material rank	Employment score	Employment rank	Health score	Health rank	Education score	Education rank	Living environment score	Living environment rank	NIMD score	NIMD rank
1586	Eengondi	98.0	37	58.5	61	350.2	118	69.2	53	99.9	13	257.8	34
1587	Eengondi	99.8	8	11.1	158	578.0	82	77.5	14	97.1	80	235.6	54
1588	Eengondi	99.1	22	14.8	151	205.9	144	77.6	13	99.9	4	253.5	39
1589	Eengondi	97.9	42	11.5	157	410.7	110	75.4	22	98.8	52	202.0	83
1590	Eengondi	99.3	16	11.5	156	399.4	111	76.8	16	98.3	61	220.7	69
1591	Eengondi	93.9	78	31.7	122	282.3	130	73.0	30	97.2	78	175.7	106
1592	Eengondi	99.2	17	1.3	164	839.6	45	83.0	4	99.9	11	298.7	12
1593	Eengondi	99.3	14	20.8	143	601.1	80	83.8	3	99.8	29	288.6	18
1594	Eengondi	99.8	5	82.0	7	320.7	126	71.4	36	99.9	15	316.9	6
1595	Eengondi	95.5	71	57.6	64	200.2	145	75.0	24	99.9	25	246.6	44
1596	Eengondi	99.8	6	1.2	165	332.1	124	84.8	2	99.9	21	270.8	29
1597	Eengondi	96.9	59	7.3	163	747.8	57	71.8	33	98.4	59	196.0	89
1598	Eengondi	99.8	7	47.9	84	233.1	141	73.9	28	99.6	36	260.3	32
1599	Eengondi	97.1	56	59.3	58	273.6	135	79.8	10	99.9	6	296.5	13
1600	Eengondi	98.1	36	72.7	20	429.9	107	72.8	31	92.7	110	246.6	45
1601	Eengondi	96.6	63	21.6	138	797.7	51	77.3	15	98.8	50	236.1	53
1602	Eengondi	99.3	15	74.7	17	0.0	163	76.4	19	99.9	19	300.1	11
1603	Eengondi	98.5	29	72.5	21	305.1	127	70.6	40	99.9	14	282.9	22
1604	Guinas	87.4	100	22.0	137	347.7	120	82.7	5	91.1	113	184.1	100
1605	Guinas	88.3	96	16.2	148	477.8	99	79.9	8	90.0	119	179.6	102
1606	Guinas	55.0	150	13.6	152	124.6	156	78.6	11	90.1	117	127.7	144
1607	Guinas	97.8	44	20.7	144	662.2	70	76.6	18	98.2	65	225.8	64
1608	Guinas	85.7	103	23.9	132	966.6	31	86.3	1	95.4	100	238.0	52
1609	Guinas	88.2	97	9.9	160	96.6	159	81.7	6	97.2	77	170.3	112
1610	Guinas	66.1	134	25.1	128	744.0	58	76.6	17	91.0	114	174.2	108

1611	Guinas	53.1	152	21.1	141	280.1	131	80.2	7	89.8	120	148.8	123
1612	Guinas	74.2	129	10.7	159	272.6	136	79.9	9	87.7	123	147.6	124
1613	Okankolo	99.1	24	33.4	117	505.7	95	61.5	135	99.9	9	227.4	63
1614	Okankolo	97.0	57	35.4	110	149.4	151	68.1	62	99.9	17	200.7	85
1615	Okankolo	99.8	9	40.4	98	99.5	158	63.3	117	99.9	23	214.7	72
1616	Okankolo	99.2	18	61.5	48	1079.2	23	73.9	27	99.9	16	339.3	2
1617	Okankolo	97.3	50	62.7	43	572.5	85	74.4	25	99.9	26	283.2	21
1618	Okankolo	97.7	46	12.7	153	0.0	163	33.2	164	99.8	27	139.0	137
1619	Okankolo	98.6	28	36.3	107	841.4	44	76.4	20	99.9	18	291.6	15
1620	Okankolo	99.8	10	15.7	150	575.9	83	78.4	12	99.9	24	273.1	27
1621	Okankolo	99.8	11	82.0	6	396.1	112	71.5	34	99.8	28	308.5	7
1622	Okankolo	99.8	12	91.2	1	732.6	62	69.7	49	99.8	31	329.3	3
1623	Okankolo	97.5	47	48.6	83	833.7	46	70.7	39	99.8	30	267.1	30
1624	Okankolo	95.6	70	24.7	130	415.3	109	74.3	26	98.9	48	198.9	86
1625	Okankolo	97.9	40	12.0	155	83.7	161	66.5	83	99.8	34	162.2	117
1626	Okankolo	98.8	26	30.0	124	111.8	157	70.4	41	99.9	3	233.9	56
1627	Okankolo	97.9	39	38.5	101	149.6	150	69.0	55	95.9	95	174.2	109
1628	Okankolo	99.2	21	25.3	127	445.9	104	62.0	129	99.5	37	194.5	92
1629	Olukonda	79.3	122	84.3	4	903.5	38	68.6	59	84.0	131	228.2	62
1630	Olukonda	74.2	128	73.5	19	438.5	106	64.7	102	90.1	118	174.7	107
1631	Olukonda	52.2	153	52.2	77	168.8	148	55.1	156	61.8	150	95.1	154
1632	Olukonda	86.5	102	50.8	80	451.9	102	63.6	114	55.8	157	141.2	133
1633	Olukonda	28.8	160	39.7	99	711.5	66	63.2	119	71.0	144	116.1	150
1634	Olukonda	82.3	114	46.0	92	663.9	67	61.8	131	69.0	145	144.2	129
1635	Olukonda	18.8	164	67.4	34	493.8	96	58.9	148	50.7	159	123.9	148
1636	Olukonda	93.7	80	62.2	45	550.6	88	65.1	100	86.9	127	188.8	96
1637	Olukonda	72.1	132	66.0	38	450.7	103	61.4	136	81.3	134	152.8	121
1638	Omuntele	99.1	23	39.2	100	727.3	63	67.8	66	95.4	99	219.0	71
1639	Omuntele	96.8	60	59.9	56	1087.9	21	63.3	118	99.3	43	255.5	37
1640	Omuntele	99.9	2	45.4	93	1698.1	7	69.7	48	97.1	82	302.7	8
1641	Omuntele	93.0	81	66.0	39	341.5	122	69.5	50	98.3	64	214.7	73

1642	Omuntele	94.5	75	32.0	121	371.1	116	65.8	93	85.1	129	139.1	136
1643	Omuntele	99.9	3	60.7	53	348.4	119	66.8	79	99.9	10	281.0	23
1644	Omuntele	99.2	19	69.7	25	1037.0	25	70.9	38	99.9	2	352.2	1
1645	Omuntele	96.2	66	69.9	23	833.5	47	65.9	92	99.9	5	289.7	17
1646	Omuntele	99.9	1	23.5	134	417.0	108	66.3	89	99.9	1	256.1	36
1647	Omuntele	98.4	31	7.3	162	861.3	42	68.0	63	84.8	130	178.0	104
1648	Omuntele	88.1	98	76.0	16	928.1	36	63.4	116	99.9	7	274.4	26
1649	Omuntele	84.7	105	57.8	63	1113.2	20	68.7	58	94.9	102	223.5	68
1650	Omuntele	97.0	58	44.4	95	1144.8	18	66.8	78	96.3	89	230.9	60
1651	Omuntele	97.5	48	8.0	161	621.6	77	65.7	94	97.4	72	164.3	116
1652	Omuntele	97.4	49	23.1	136	163.4	149	70.1	44	87.3	125	146.8	126
1653	Omuthiyagwiipundi	97.2	53	69.7	24	736.7	60	72.8	32	96.8	85	263.9	31
1654	Omuthiyagwiipundi	99.7	13	33.1	118	762.9	54	62.3	127	96.0	93	206.9	79
1655	Omuthiyagwiipundi	62.4	139	23.1	135	780.4	52	65.5	98	95.9	94	137.7	138
1656	Omuthiyagwiipundi	96.2	67	34.0	116	49.9	162	69.1	54	99.9	20	190.7	94
1657	Omuthiyagwiipundi	97.2	52	61.4	50	1146.9	17	64.4	108	96.2	90	246.0	46
1658	Omuthiyagwiipundi	84.1	107	35.1	112	264.4	138	65.6	96	97.8	70	139.8	134
1659	Omuthiyagwiipundi	98.9	25	46.6	90	254.6	139	71.4	35	99.4	39	233.5	57
1660	Omuthiyagwiipundi	98.4	32	73.6	18	149.1	152	66.2	90	98.2	67	225.1	65
1661	Omuthiyagwiipundi	96.4	64	29.4	125	860.0	43	75.1	23	98.4	60	233.2	59
1662	Omuthiyagwiipundi	90.2	92	21.4	140	171.1	147	66.3	87	97.9	69	129.4	142
1663	Omuthiyagwiipundi	41.4	158	36.3	106	884.7	41	69.3	51	93.8	107	158.5	119
1664	Omuthiyagwiipundi	65.4	135	34.8	113	625.9	76	67.1	75	94.1	106	143.5	130
1665	Omuthiyagwiipundi	99.8	4	84.7	3	352.1	117	64.5	106	99.1	45	275.7	25
1666	Omuthiyagwiipundi	79.4	121	28.4	126	634.3	73	62.4	126	93.6	108	131.1	141
1667	Omuthiyagwiipundi	97.9	41	68.8	29	528.0	93	66.0	91	98.8	51	242.3	49
1668	Omuthiyagwiipundi	73.5	130	21.6	139	823.8	49	66.9	77	98.6	54	164.9	114
1669	Omuthiyagwiipundi	98.6	27	17.8	146	222.3	142	70.2	42	99.9	22	204.0	81
1670	Omuthiyagwiipundi	60.0	141	34.4	114	271.1	137	60.7	139	59.7	154	85.8	158
1671	Omuthiyagwiipundi	75.5	127	21.0	142	134.0	153	63.5	115	99.3	42	117.4	149
1672	Omuthiyagwiipundi	97.1	55	47.3	87	721.4	64	55.8	152	98.6	56	202.0	84

1673	Omuthiyagwiipundi	96.7	61	51.9	78	570.3	86	66.7	82	99.9	8	249.6	41
1674	Omuthiyagwiipundi	97.8	45	32.1	120	537.1	90	67.9	65	98.3	63	194.7	91
1675	Omuthiyagwiipundi	98.5	30	60.8	52	1950.8	5	64.7	103	99.9	12	326.3	4
1676	Omuthiyagwiipundi	97.8	43	44.9	94	132.3	154	60.5	142	98.7	53	173.1	110
1677	Onayena	91.4	88	64.7	41	1483.8	12	67.2	74	97.1	83	259.4	33
1678	Onayena	79.2	123	77.9	12	733.4	61	67.3	73	99.3	41	239.2	51
1679	Onayena	97.1	54	76.1	15	1661.0	9	68.4	60	94.8	104	292.0	14
1680	Onayena	90.4	91	57.3	65	711.5	65	59.3	146	92.8	109	178.3	103
1681	Onayena	76.4	126	46.5	91	1400.1	14	64.1	111	90.2	116	195.0	90
1682	Onayena	92.8	82	76.8	14	950.8	33	67.4	71	97.4	73	254.1	38
1683	Onayena	58.5	144	55.4	71	565.4	87	62.7	123	89.6	121	146.2	127
1684	Onayena	87.0	101	59.6	57	1864.3	6	65.5	97	96.8	86	249.6	42
1685	Onayena	83.9	108	68.3	30	1661.6	8	67.0	76	96.3	88	256.2	35
1686	Onayena	91.6	86	67.7	33	939.2	34	61.6	133	97.2	75	223.8	67
1687	Onayena	91.4	87	50.4	81	522.2	94	73.3	29	99.8	33	234.7	55
1688	Onayena	82.7	113	55.2	74	324.5	125	53.1	159	76.9	139	128.3	143
1689	Onayena	81.9	116	47.0	89	530.5	92	57.3	149	83.5	132	135.4	139
1690	Onayena	88.4	95	77.5	13	543.2	89	61.9	130	88.4	122	191.3	93
1691	Onayena	82.0	115	59.2	59	274.4	134	55.6	154	61.3	151	127.3	146
1692	Oniipa	93.9	79	79.0	9	2416.8	4	67.7	68	97.9	68	302.1	10
1693	Oniipa	96.1	68	66.4	37	2548.5	3	66.8	80	97.1	81	286.8	19
1694	Oniipa	63.9	138	64.7	42	1573.7	11	64.9	101	98.8	49	242.8	48
1695	Oniipa	92.2	84	69.3	27	607.8	78	54.6	158	92.1	111	186.8	98
1696	Oniipa	94.6	74	81.4	8	1445.8	13	62.7	124	99.4	40	289.8	16
1697	Oniipa	81.2	117	47.4	86	479.0	98	61.3	137	86.9	126	139.5	135
1698	Oniipa	90.9	89	66.0	40	755.5	55	64.5	105	94.9	103	206.4	80
1699	Oniipa	78.8	124	57.9	62	1032.0	26	64.4	107	98.4	58	214.4	74
1700	Oniipa	65.0	136	56.1	69	990.0	29	64.7	104	80.5	135	177.4	105
1701	Oniipa	43.9	155	36.9	104	574.2	84	46.8	161	76.7	140	97.3	153
1702	Oniipa	58.3	145	35.1	111	827.7	48	62.5	125	63.1	148	126.1	147
1703	Oniipa	58.2	146	51.4	79	371.4	115	55.7	153	67.9	146	110.4	151

1704	Oniipa	81.0	118	17.0	147	1271.8	15	60.4	144	77.0	138	145.3	128
1705	Oniipa	43.1	157	30.4	123	274.7	133	55.6	155	56.0	156	68.1	162
1706	Oniipa	20.2	163	37.1	102	585.1	81	52.5	160	60.6	153	88.0	157
1707	Oniipa	83.0	111	70.0	22	283.0	128	57.3	150	72.9	143	147.1	125
1708	Oniipa	91.7	85	54.2	75	1076.1	24	66.4	86	97.7	71	228.8	61
1709	Oniipa	55.4	148	47.2	88	1137.3	19	55.9	151	62.0	149	150.7	122
1710	Oniipa	97.2	51	68.1	32	461.4	101	63.8	113	95.6	96	208.8	77
1711	Oniipa	98.1	35	66.7	36	803.0	50	68.3	61	95.5	97	250.2	40
1712	Oniipa	83.0	112	12.6	154	984.4	30	65.5	99	83.1	133	141.8	131
1713	Oniipa	90.9	90	60.7	54	275.4	132	66.5	85	96.6	87	181.1	101
1714	Oniipa	92.3	83	62.3	44	1082.0	22	60.5	140	85.8	128	208.8	78
1715	Oniipa	83.8	110	66.7	35	923.5	37	60.5	141	90.9	115	196.9	88
1716	Oniipa	96.7	62	69.4	26	956.7	32	66.3	88	96.2	91	249.3	43
1717	Onyaanya	97.9	38	68.1	31	0.0	163	69.3	52	98.3	62	219.1	70
1718	Onyaanya	95.4	72	61.0	51	934.0	35	66.5	84	98.6	55	245.6	47
1719	Onyaanya	89.3	93	91.0	2	3903.7	1	67.6	69	97.2	76	302.2	9
1720	Onyaanya	79.5	120	61.5	49	1238.5	16	65.6	95	87.7	124	213.1	75
1721	Onyaanya	89.1	94	36.1	108	752.8	56	66.7	81	91.8	112	166.4	113
1722	Onyaanya	98.1	34	83.5	5	1011.8	28	61.8	132	98.2	66	277.6	24
1723	Onyaanya	98.4	33	35.6	109	663.3	68	68.9	56	99.0	46	224.3	66
1724	Onyaanya	56.9	147	61.9	46	1015.6	27	61.1	138	95.0	101	187.6	97
1725	Onyaanya	85.6	104	78.1	11	777.6	53	67.5	70	98.6	57	241.4	50
1726	Onyaanya	96.4	65	56.4	68	641.9	72	67.9	64	94.5	105	210.6	76
1727	Onyaanya	81.0	119	57.3	66	376.7	114	68.9	57	99.5	38	198.8	87
1728	Onyaanya	95.9	69	56.8	67	1577.6	10	62.2	128	99.7	35	271.1	28
1729	Onyaanya	99.2	20	78.4	10	892.0	39	69.8	46	99.8	32	318.9	5
1730	Onyaanya	59.8	142	58.8	60	603.0	79	70.1	43	97.0	84	189.3	95
1731	Onyaanya	49.6	154	36.4	105	653.4	71	67.7	67	99.1	44	164.4	115
1732	Onyaanya	94.9	73	60.6	55	445.4	105	62.9	122	95.5	98	186.4	99
1733	Onyaanya	94.5	76	69.2	28	741.3	59	67.4	72	97.1	79	233.4	58
1734	Onyaanya	94.4	77	61.7	47	3376.9	2	69.8	45	96.0	92	283.5	20

1735	Onyaanya	87.6	99	55.3	72	890.0	40	64.0	112	97.3	74	202.9	82
1736	Onyaanya	43.4	156	34.4	115	663.3	69	61.5	134	99.0	47	141.7	132
1737	Tsumeb	27.3	161	24.0	131	212.9	143	40.4	162	18.8	164	42.9	164
1738	Tsumeb	83.9	109	55.8	70	89.4	160	75.9	21	77.9	137	172.7	111
1739	Tsumeb	84.4	106	49.8	82	345.7	121	71.2	37	76.2	141	161.1	118
1740	Tsumeb	59.6	143	36.9	103	334.9	123	60.5	143	55.2	158	90.7	155
1741	Tsumeb	61.5	140	55.3	73	533.9	91	62.9	121	60.7	152	134.6	140
1742	Tsumeb	77.3	125	40.5	97	492.0	97	64.2	109	75.0	142	127.5	145
1743	Tsumeb	55.0	149	25.1	129	463.3	100	63.0	120	35.5	161	85.5	159
1744	Tsumeb	55.0	151	42.8	96	124.7	155	64.1	110	32.4	162	88.3	156
1745	Tsumeb	34.4	159	47.7	85	631.5	74	59.4	145	38.2	160	110.3	152
1746	Tsumeb	73.5	131	52.4	76	377.8	113	69.8	47	79.7	136	154.9	120
1747	Tsumeb	24.7	162	20.1	145	627.3	75	37.7	163	24.7	163	64.8	163
1748	Tsumeb	16.5	165	16.2	149	195.4	146	31.1	165	5.4	165	28.5	165
1749	Tsumeb	64.8	137	32.8	119	240.4	140	55.0	157	65.3	147	80.2	160
1750	Tsumeb	70.4	133	23.6	133	282.8	129	59.0	147	57.7	155	77.2	161

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