### A TEMPLATE FOR DESCRIBING INEQUALITIES BETWEEN POPULATION SUBGROUPS

Inequalities are observable differences (in health, nutrition, education, sanitation, and so on) between subgroups within a population. These differences can be measured and monitored at a single point in time, and over time.

This is an example report for examining national inequalities in key deprivations according to sex, region of residence, (urban or rural), wealth quintile, maternal education, and country region. The template uses tables, diagrams, and maps to present inequality measurements. The template has 4 broad sections: (section 1) a national summary, (section 2) regional inequalities, (section 3) other (sociodemographic) inequalities, and (section 4) inequality change over time. Read the accompanying description to each section to help understand how to interpret the output.

There are four more tabs on this spreadsheet. The "Template" tab provides a full sized version of this example template - it is designed to print over 3 sides of A4 paper. The "Data" tabs provide all summary data that were used to construct this template. The "Descriptions" tab provides detail on the definition and source for each measurement index.

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### TEMPLATE LAYOUT NOTES

In this column is a brief description for each template section. The four broad sections are:

**SECTION 1.** National Summary

**SECTION 2.** Regional Inequalities

**SECTION 3.** Other (sociodemographic) inequalities

**SECTION 4.** Inequality change over time

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### SECTION 1A. NATIONAL SUMMARY: KEY INDICATOR

Start your profile with a national summary of a key indicator. For our theme of "Saving Newborns" we have used "Neonatal Mortality Rate" as our key indicator. For a "Child Malnutrition" theme, you might use "Child Stunting" as a key indicator, and so on...

### SECTION 1B. NATIONAL SUMMARY: ALL INDICATORS

Next, present national values for all indicators chosen for your profile (See box 3 opposite). If possible, present national values over time - here we've used data from two consecutive rounds of the national Demographic Health Survey (DHS). Your data sources may well be different. If you don't yet have information over time, this is a goal to work towards.

### SECTION 2. REGIONAL INEQUALITIES: ALL INDICATORS

Next, present your indicators at the regional level (region is the first of our inequality stratifiers - See box 4 opposite). Maps, are a great way to visualize regional differences in your measurement indices, but require specialist software to create.

### SECTION 3. MEASUREMENT INDICATORS

There can be many indicators related to a single theme (or deprivation). For each theme, the aim is to select a small number of 'tracer' indices that collectively describe the theme. A great resource for choosing indicators is available from the World Health Organisation (http://apps.who.int/gho/indicatorregistry/App_Main/browse_indicators.aspx). Your indicator choice may well be limited by data availability.

### SECTION 4. INEQUALITY CHANGE OVER TIME

Other (sociodemographic) inequalities.

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### METHODOLOGY NOTES

In this column we introduce key concepts relevant to inequality analyses. Our "concept boxes" are numbered 1 to 6.

1) **INEQUALITIES or INEQUITIES?**

In this example template we have used two terms: inequality and inequity. These two terms have very different meanings.

When we speak of inequality, we mean unjust differences between persons of different social groups. When we speak of inequity, these are observable differences between population subgroups that can be measured and monitored. So whereas "inequality" is a measurement concept,

2) **MEASUREMENT INDICATORS and INEQUALITY STRATIFIERS**

Our inequality monitoring template requires two different types of intersecting data: measurement indicators and inequality stratifiers. Each data type is described below.

3) **MEASUREMENT INDICATORS**

There can be many indicators related to a single theme (or deprivation). For each theme, the aim is to select a small number of 'tracer' indices that collectively describe the theme. A great resource for choosing indicators is available from the World Health Organisation (http://apps.who.int/gho/indicatorregistry/App_Main/browse_indicators.aspx). Your indicator choice may well be limited by data availability.

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### PAKISTAN: Draft Equity Profile #1

**Theme: Saving Newborns**

Data sources used in this profile: Demographic Health Surveys (2006-07 and 2011-12).

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**TABLE 5. National coverage of key interventions to reduce neonatal mortality**

<table>
<thead>
<tr>
<th>Measurement index</th>
<th>National values (2011-12)</th>
<th>National values (2006-07)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth protected from a skilled provider (%) (ANC)</td>
<td>55.8</td>
<td>70.1</td>
</tr>
<tr>
<td>Birth protected against neonatal tetanus (%) (TT)</td>
<td>68.8</td>
<td>73.1</td>
</tr>
<tr>
<td>Skilled attendance at delivery (%) (DEL)</td>
<td>52.1</td>
<td>68.2</td>
</tr>
<tr>
<td>Institutional delivery (%) (DEL)</td>
<td>60.8</td>
<td>60.0</td>
</tr>
<tr>
<td>Women with postnatal checkup (%) (PNC-W)</td>
<td>44.2</td>
<td>42.0</td>
</tr>
<tr>
<td>Births with postnatal checkup (%) (PNC-C)</td>
<td>43.3</td>
<td>35.6</td>
</tr>
<tr>
<td>Early initiation of breastfeeding (%) (EBF)</td>
<td>35.4</td>
<td>20.0</td>
</tr>
</tbody>
</table>

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**INCOME INEQUALITY AND KEY INTERVENTIONS**

Figure 2. Regional variation in key interventions to reduce neonatal mortality.

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**FIGURE 1.** Inequalities in Coverage of Key Interventions

Neonatal mortality is the probability of dying between birth and the first month of life, expressed per 1,000 live births.

In 2014 the Inter-agency Group for Child Mortality Estimation (UNICEF, WHO, World Bank, UN DESA, Population Division) estimated NNM to be 42 per 1,000 live births. Neonatal mortality in Pakistan ranged from 26 per 1,000 births in Islamabad to 63 per 1,000 births in Kohistan and the Punjab (2011-2012).

Neonatal mortality rate is described below.

Neonatal mortality rate (NNM) is the number of live births that die before 28 days of age, per 1,000 live births. The probability of dying between birth and the first month of life, expressed per 1,000 live births.

Inequalities in Measurement Indices

Inequality change over time.
SECTION 3A. OTHER INEQUALITY STRATIFIERS: ALL INDICATORS

Next, comes the first of two important data tables. You should present your indicators stratified by your remaining inequality stratifiers. Minimize "noise" in your Table by presenting your data to 1 decimal place at most.

Notice that we have not tabulated our indicators by country region. We have relied on our maps to tell the story of regional inequalities. The data are presented in the "Data" tabs that are an important part of this spreadsheet.

Large tables are not great if we want to describe patterns in our data, so we also present these data as graphs for selected inequality stratifiers. In this example we create graphs using Wealth Quintiles and Area of Residence, but you can use others.

SECTION 3B. THE EQUIPLOT

The graph we have used is sometimes called an "equiplot". As well as showing the absolute value of an indicator (usually as a %), it highlights the absolute differences between indicator rates across population subgroups. The longer the line, the greater the inequality.

SECTION 3C. INEQUALITY METRICS AT LATEST POINT IN TIME

The second important data table presents direct measures of inequality for our chosen stratifiers (here we use wealth and area of residence). For wealth quintiles, we present two absolute and two relative measures (See box 5 opposite). They can also be classified as two simple and two complex measures (See box 6 opposite).

SECTION 4A. CHANGE IN INEQUALITY OVER TIME

The second part of this table presents the change in inequality across time (in our case between consecutive rounds of the Demographic Health Survey). Monitoring these changes is a key aspect of inequality measurement. You may not yet have comparable data over time, and this is a goal to work towards.

Table 6: Inequality measurement: for changes in inequality over time

<table>
<thead>
<tr>
<th>Inequality Measure</th>
<th>2003 (Q1)</th>
<th>2007 (Q5)</th>
<th>2007 (Q1)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>SII</td>
<td>0.85</td>
<td>1.06</td>
<td>0.21</td>
<td>0.85</td>
</tr>
<tr>
<td>Gini</td>
<td>0.45</td>
<td>0.52</td>
<td>0.07</td>
<td>0.45</td>
</tr>
<tr>
<td>Concentration index</td>
<td>0.80</td>
<td>0.85</td>
<td>0.05</td>
<td>0.80</td>
</tr>
<tr>
<td>Infants No education</td>
<td>0.05</td>
<td>0.10</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Infants Secondary</td>
<td>0.05</td>
<td>0.10</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Infants No education</td>
<td>0.05</td>
<td>0.10</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>Infants Secondary</td>
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<td>0.05</td>
</tr>
</tbody>
</table>

(4) INEQUALITY STRATIFIERS

Inequality stratifiers are also known as "dimensions of inequality". The PROGRESS acronym can help you remember commonly used dimensions:

Place of residence (rural, urban, country region etc)
Base or ethnicity
Occupation
Gender
Education
Income
Health or resources
Social capital or resources

Your stratifiers should be relevant to your population. In this example we use Place of Residence, Maternal Education, Child’s Sex, Area of Residence (urban or rural), and Country Region (see maps above).

(5) ABSOLUTE AND RELATIVE INEQUALITY METRICS

We can classify our inequality measures as absolute or relative.

An absolute inequality is the magnitude of the indicator difference between two subgroup. Comparing 50% and 80%, or comparing 30% and 20% gives the same absolute inequality of 10 percentage points. Absolute measures retain the same unit as the health indicator, making interpretation easy. In this example we use two absolute measures:

DIFFERENCE: Absolute inequality in 2 subgroups
SLOPE INDEX OF INEQUALITY (SII): Absolute inequality in all subgroups

A relative inequality shows proportional difference. Comparing 100% and 50%, or comparing 2% and 1% would give the same relative inequality of 2. Relative measures are unit-less, and this is useful when comparing indicators with different measurement units. In this example we use two relative measures:

RATIO: Relative inequality in 2 subgroups

CONCENTRATION INDEX (CI): Relative inequality in all subgroups

(6) "SIMPLE" AND "COMPLEX" INEQUALITY METRICS

We can also classify our inequality measures as simple or complex.

Simple measures allow us to compare two (and no more than two) population subgroups, such as the most and least wealthy. Simple measures are an important tool for inequality monitoring. In this example we use two simple measures:

DIFFERENCE: to show absolute inequality between 2 subgroups
RATIO: to show relative inequality between 2 subgroups

Complex measures use data from all subgroups to assess inequality. They produce a single number that is an expression of the amount of inequality existing across all population subgroups together (such as all wealth quintiles). In this example we use two complex measures that are useful when subgroups have a natural order (such as from the poorest to the richest wealth quintile):

SLOPE INDEX OF INEQUALITY (SII): Absolute inequality in all subgroups

WHEN ARE COMPLEX MEASURES USEFUL?

Inequalities can usually be effectively shown using difference and ratio measures. They are straightforward to calculate, and easy to understand. Simple measures may offer a different conclusion to complex measures if a pairwise comparison includes extreme values.

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SECTION 4B. CHANGE IN ABSOLUTE INEQUALITY

Opposing trends in absolute and relative inequalities can complicate the assessment of inequality change over time.

When comparing across time we start simply, comparing absolute disparities on their own first. Much inequality monitoring can be accomplished without using complex inequality measures (See box 6 opposite), so we start with our simple "difference" measure, taking values directly from the previous table.

These three graphs examine the absolute inequality change over time using the "difference" measure. Graph 1 looks at wealth difference (Q5 - Q1), Graph 2 looks at area difference (urban - rural) and Graph 3 looks at Education difference (Secondary schooling - No schooling).

SECTION 4C. JOINT CHANGE IN ABSOLUTE and RELATIVE INEQUALITY

A complete picture of change in inequality over time requires us to examine absolute inequality and relative inequality together.

In this final chart, we plot the percentage change in our two complex inequality measures (SII - an absolute measure, and CII - a relative measure). We call this diagram a Quadrant Chart.

Our example again uses data from the previous table, examining the joint change in SII and CII for population subgroups in 5 wealth quintiles. The choice of which inequality stratifier to use is yours.

The best scenario is for absolute AND relative inequities to be decreasing - the lower left quarter of the chart. The worst scenario is for absolute and relative inequalities to be increasing - the upper right quarter.