Title of template

**Skill level needed:**Basic/Intermediate/Advanced

**Sample designs supported:**

1, 2, 3, 4, 5

Designing and Implementing Gridded Population Surveys

**gridpopsurvey.com**

**B2. PSU review – Google Earth segment**

Last updated: Aug 2022

**Review and segment PSUs by natural features in   
Google Earth**

## Example: Nepal

**Motivation:** If your team does not have GIS skills, use this tutorial to review each selected PSU over recent satellite imagery and manually segment PSUs with exceptionally large populations before fieldwork. Reviewing each PSU before fieldwork is recommended for all gridded population surveys, though segmentation might be skipped for Designs 3 (random-walk) and 4 (building SRS). Design 6 specifically requires segmentation of PSUs by their component grid cells in a GIS software (see Tutorial B4).

**Example:** In this example, the team generated “small” GridEZ units (target 75 people, or roughly 19 households, each) in Nepal’s Kathmandu Valley. They selected 66 GridEZ units (60 main and 6 back-up PSUs) with PPS for an area-microcensus survey (Design 3). The team will now review each sampled GridEZ unit before sending household listing teams to the field, and segment any PSUs that are too large (e.g., appear to have more than 20 households in satellite imagery), and substitute PSUs that are insecure, inaccessible, or contain no (or few) habitable buildings (see Tutorial B5).

**Steps:**

1. Ensure that Google Earth Pro is downloaded and installed on a desktop. [www.google.com/earth/versions/#download-pro](http://www.google.com/earth/versions/#download-pro)
2. Open a KML of the sample PSU boundaries in Google Earth Pro.

**Context knowledge is important during this process. In this complex urban setting, we know that most buildings are two to four stories tall, and many are characterized by mixed-use commercial and residential.**

**To reset the aerial view to directly overhead with North at the top of the window, select View in the header > Reset > Tilt & Compass.  
  
Or simply press the ‘R’ key on the keyboard !**

1. OPTIONAL. In this particular example, we drop the rural Bagmati district sample of PSUs and keep urban Bagmati district PSUs which represent the broader Kathmandu Valley (see Tutorial A1). This means we can select all rural PSUs (records 1-66), right-click the selected PSUs, and select “delete.”

Graphical user interface

Description automatically generated

1. Double-click each PSU record one by one to zoom to the PSU boundary. Through quick visual inspection, gauge whether there are likely more than 20 households in the PSU.

Graphical user interface, application

Description automatically generated

1. If you identify a PSU with far more households than your field team can feasibly interview, then manually segment the PSU into approximately equal-sized population units following natural boundaries that can be spotted in the field, such as roads, rivers, and property fences. Below is an example of manual segmentation from the Kathmandu SUE survey.
   1. Rename the polygon that you plan to segment with the PSU and segment IDs.

Graphical user interface, application

Description automatically generated Graphical user interface, application

Description automatically generated

* 1. Duplicate the polygon that is to be segmented by right-clicking and selecting copy. Paste the copied polygon inside the folder that holds all PSU polygons; repeat for each segment, and rename each new polygon with a unique segment ID.

Graphical user interface

Description automatically generated Graphical user interface, application

Description automatically generated Table

Description automatically generated

* 1. Manually edit the boundary of each segment to cover the entire PSU. We have changed the boundary color of each segment to visualise boundary changes.

Graphical user interface, application

Description automatically generated Graphical user interface, map

Description automatically generated with medium confidence

1. In PSUs composed of multiple segments, follow a protocol to randomly select one segment to represent the PSU, for example, see Tutorials C2 (Excel), C3 (Stata), or C4 (R).
2. Save the revised PSU boundaries to a KMZ file when you are done editing by right-clicking the folder containing all polygons, and selecting “Save Place As…”.

Graphical user interface, application

Description automatically generated Graphical user interface, text, application

Description automatically generated

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