Title of template

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

**Sample designs supported:**

4

Designing and Implementing Gridded Population Surveys

**gridpopsurvey.com**

**C1. SSU sample – GeoSampler**

Last updated: Aug 2022

**Select a simple random sample of buildings from satellite imagery in GeoSampler**

## Example: Namibia

**Motivation:** GeoSampler is a simple tool developed by Epicentre to create random points (with an optional buffer) over satellite imagery, and results in a simple random sample of buildings by guiding the user to keep only those points that land directly on top of a building. Use this tutorial to select a simple random sample of buildings within PSU boundaries for sample Design 4. Field interview teams will require training for the following situations:

* There are multiple households in the building: Fieldworker should list all households in the building and randomly select one household (for example, using a Kish table).
* The selected building is not residential, but is owned by a household (e.g. latrine, separate kitchen, barn): Fieldworker should identify the residential building(s) used by the household, and approach residents.
* The selected building is not associated with a household (e.g., shop, religious facility, office): Fieldworker should confirm that no one sleeps in the building, then move to the next SSU. Optionally, fieldworkers can follow a protocol to select a replacement building in the field, for example:
  + Randomly select a building from a back-up list of SSUs (buildings).
  + Sample the nearest residential building (in a particular direction).

**Example:** In this example, the team has selected 500 PSUs across Namibia using the boundaries of old census enumeration areas (see Tutorial A3).

**Steps:**

1. Navigate to the Epicentre GeoSampler app. <https://apps.msf.fr/epiGeoSampler/>
   1. By default, Google satellite imagery is displayed as the base layer, but other public base maps can be displayed, if desired, via the dropdown menu in the upper-right.
   2. The “Overview” tab contains three buttons that you will need to (1) define your PSU boundaries, (2) generate random points over public satellite imagery, and (3) save all generated points that are located over a building.
   3. The “Data” tab summarizes all building points that you generate and save during the session, and enables the point data to be exported as a CSV, KML, or GPX file.
   4. The “Options” tab includes customizable parameters to visualize building points.
2. On the Overview tab, define your PSU boundaries by uploading a shapefile or KML file, or selecting 1+ preloaded administrative unit boundaries. In this example, we upload a KML file of the sampled PSU boundaries.

Graphical user interface, text, application

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1. (OPTIONAL) We recommend updating two default parameters on the Options tab before generating points.
   1. Reduce the “circle radius” around each random point from 50 m to 5 m or 10 m. This arbitrary circle radius increases the chances that a given point will be located on a building in satellite imagery. However, the larger the radius, the greater the chance of sampling a building located in a rural or sparsely settled area. To avoid inadvertently biasing the sample, ensure that the circle radius is not larger than a typical residential building in the survey setting.
   2. Uncheck “simplify polygons” (unless absolutely necessarily for performance) to avoid inadvertently selecting buildings outside of the PSU, or excluding buildings inside the PSU. Note that polygons that follow grid cell boundaries are already simplified.

Graphical user interface, text, application

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1. On the overview tab, generate random points using the pin button Map

   Description automatically generated, and keep only those points located on top of a building using the check-mark button ![Map

   Description automatically generated](). Stop generating new points in the PSU when you have kept the target number of building point locations.

A picture containing graphical user interface

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Map

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**Be sure to follow protocols strictly. For example, the following points SHOULD NOT be kept if they are (1) located next to, not on top, of a building; (2) located on top of vehicles, vegetation, or other materials within a compound that are not a building; or (3) if the point’s circle covers a building located entirely outside of the PSU.**

A picture containing graphical user interface

Description automatically generated Graphical user interface

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Point not touching building Point over other materials Point over vehicles

**The following points SHOULD be kept even though (1) more than one point lands on the same building or compound, (2) one point’s circle covers more than one building; (3) a point is located on top of a latrine, outdoor kitchen, shed, or other non-residential building; or (4) the point radius covers only part of a building.**

Graphical user interface

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Point over non-residential building Point over part of a building Point over multiple buildings

The final distribution of points represents a simple random sample of buildings in the PSU.

Map

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1. To download the generated (and kept) point locations, navigate to the Data tab and select the CSV, KML, or GPX buttons.

Graphical user interface, text, application, email

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1. At any point, you can save your session by selecting the floppy disc button in the menu bar and copying the unique bookmark URL address.

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