Segmentation and supplementation Memo

PMA2020 aims to work in enumeration areas (EAs) that are approximately 200 households in size. However, often EAs are either too large and require segmentation or too small and require supplementation. This document is designed to give some guidance on when segmentation or supplementation should be used. These are general guidelines only. In all instances, the specifics of the situation should be recorded and the final decision taken by the in-country PIs and JHU sampling team.

1. During the listing process the total number of HHs listed per EA must be tracked
2. EAs that are too small (<100 households) must immediately be identified, and JHU team should be notified to determine if supplementation is necessary in the current round
3. EAs that exceed 350 HHs should be identified *a priori* and the decision made as whether to list in full or segment. It may be necessary to list the entire area initially so that a segmentation plan can be designed and implemented before households are selected for interview.

FAQ segmentation

1. What is the smallest EA size that we need to segment?
    a. A segmentation that would give approximately 200 HHs is considered optimal, along with the field team's consideration of the effort required for an "upper limit" of the HHs for conducting the interviews. In urban settings, covering an EA with 350 HH may not be difficult, but could be problematic in rural areas, especially with sparse population. The JHU sampling team has designated 350 as the threshold level for segmentation.

2. How does one proceed with segmentation?
    a. Once a large EA has been identified (over 350 HHs), divide the area into equal size segments of approximately 200 households. For example, if there are 673 households in the EA, dividing by 200 would result in 3.4 EAs. Rather than dropping a 0.4 EA, segment the full area into 3 EAs of 224 HHs. Under this example, use the paper listing form and identify the segments as HH 1-225, 226-450, and 451-673. Randomly select one of these three segments. The selected segment will now become the enumeration area for conducting the survey. Appropriate weight adjustments will be needed for segmentation.

3. How will this affect the weights?
    a. The original EA selection probability will be adjusted by the number of segments and the probability of selecting one segment from the list. It is critical that a detailed list of the number of segments and households for each segmented area is kept to ensure the weights are adjusted correctly.

FAQ Supplementation

1. What is the largest EA size that we need to supplement?
   a. Less than 100 households

2. How does one proceed with supplementation?
   a. The identification of the supplemental EA(s) will generally need to come from the statistical office. The team should ask for the identification of the geographically contiguous enumeration areas to the original (index) EA and one EA that shares the same urban/rural designation as the index EA should be selected. The selection probability of the supplemental EA must be obtained from the statistical office.
   b. How should household listing proceed?
      i. We will consider both EAs as one enumeration area for the purposes of sampling. The same enumeration area label as the index EA can be used to refer to the combined EA area. However, it is helpful to distinguish the unique geographic areas for supervisory purposes. During the household listing, the name of the original EA should be selected, and households in the additional EA should be numbered starting from a designated number. For example, if the original EA had 89 households, the Structure/HH numbers would go from 1 to 89. In the supplemental EA, with another 90 households, the numbering would be 100-189, that is, starting from the designated number of 100. This way it is possible to keep track of which households are in the original and which in the supplemental EA.
   c. How will this affect the weights?
      i. The weights will need to be adjusted to account for using two EAs rather than one. We will adjust the EA selection probability by multiplying the original selection probability X (HH size of original EA+HH size of new EA)/HH size of original EA. This results in the EA probability being adjusted for the total HH size after supplementation. More detailed guidance on how weights are constructed is available in a separate memo.