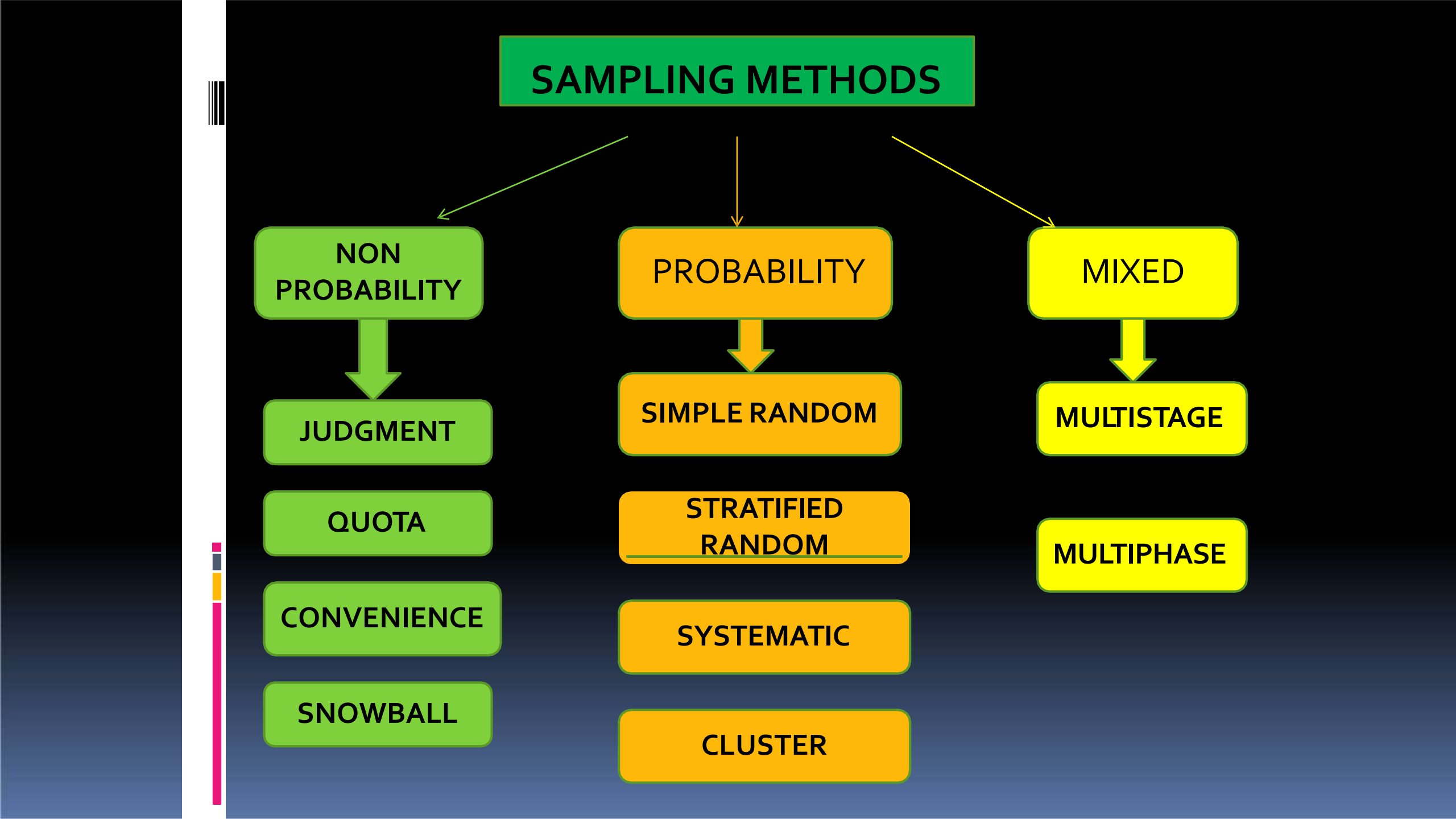
SAMPLING TECHNIQUES

- The study population is too large and it may be too expensive or too time consuming to attempt either a complete or nearly complete coverage in a statistical study, so we take a sample from the population.
- Sample is the representative of the population and to ensure that we chose each unit of the sample technically. This process is called sampling technique.
- Sufficient sample size is calculated based on the precision of estimate of sample and approximate prevalence of disease


SAMPLING METHODS
NON PROBABILITY
JUDGMENT
QUOTA
CONVENIENCE
SNOWBALL
PROBABILITY
SIMPLE RANDOM
STRATIFIED RANDOM
SYSTEMATIC
CLUSTER
MIXED
MULTISTAGE
MULTIPHASE

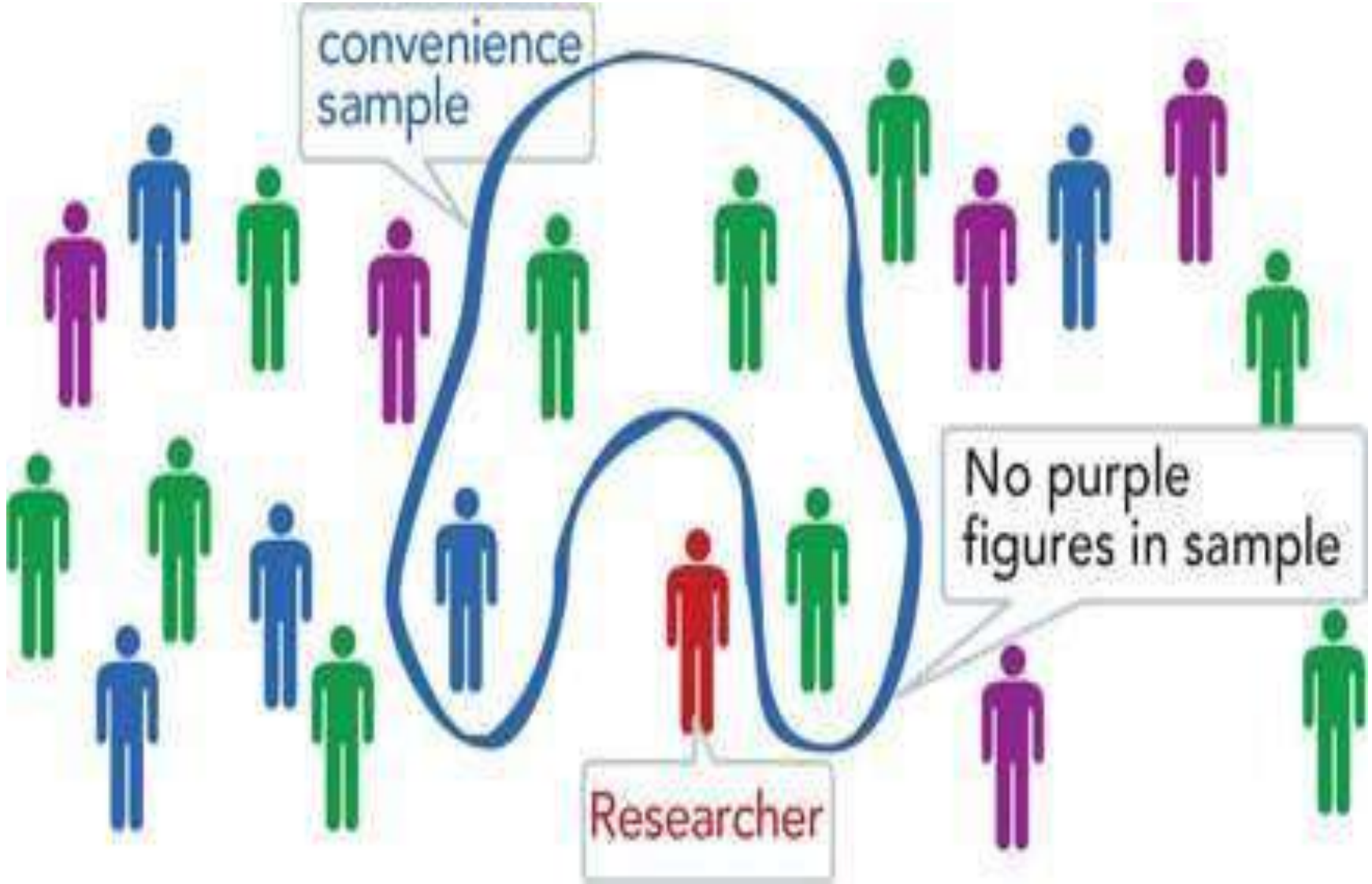
NON PROBABILITY SAMPLING

Judgment

- Choosing the sample items depends on the judgment of the investigator.
- Samples are because the investigator believes that they are typical or representative of the population under his/her study.

Convenience sampling

- Selection is made from an available source like that from a nearly college students to study the awareness regarding AIDS in college students, because getting sample is convenient.
- Non- random sampling is biased and unsatisfactory, but time, cost and resource required will be considerably less.

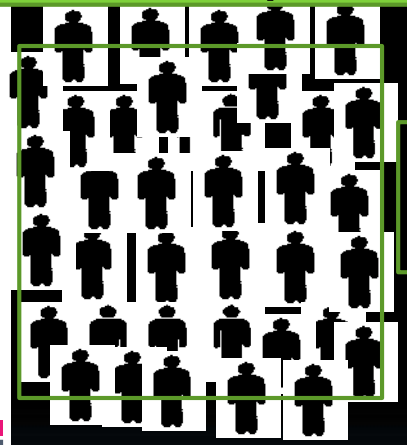

convenience sample
No purple figures in sample
Researcher

QUOTA SAMPLING

- Most commonly used in non probability sampling.
- Quotas set up according to some specified characteristic.
- Within the quota , selection depends on personal judgment.

QUOTA SAMPLING - EXAMPLE

Radio listening survey



Quota Formation

60% housewives

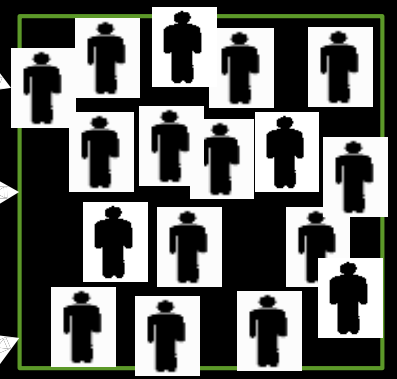
25% farmers

15% children under age 15

300

125 Personal judgement

75



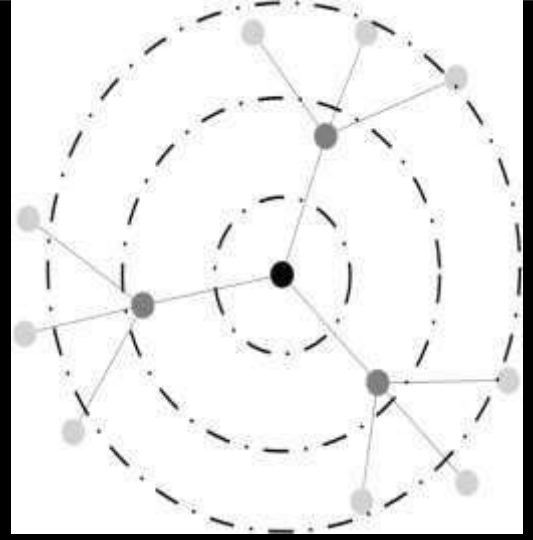
500 people

Interview 500 people

SNOWBALL SAMPLING

- A special non probability method used when the desired sample characteristic is rare.
- It may be extremely difficult or cost prohibitive to locate respondents in these situations.
- Snowball sampling relies on referrals from initial subjects to generate additional subjects.

SNOWBALL SAMPLING - STEPS



- Make contact with one or two cases in the population.
- Ask these cases to identify further cases.
- Ask these new cases to identify further new cases.
- Stop when either no new cases are given or the sample is as large as is manageable.

PROBABILITY SAMPLING

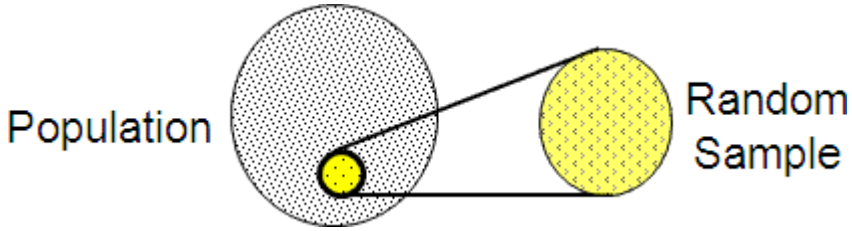
Simple random sampling

- It is applicable when:-

- The population is small.

- The population is available

- The population is homogenous.



- This is done either by using random table or lottery method.

  The principle used to select the sample is each and every unit will have equal chance of getting selected.

Stratified sampling

- This sampling technique is applicable when:-

- The population is large.

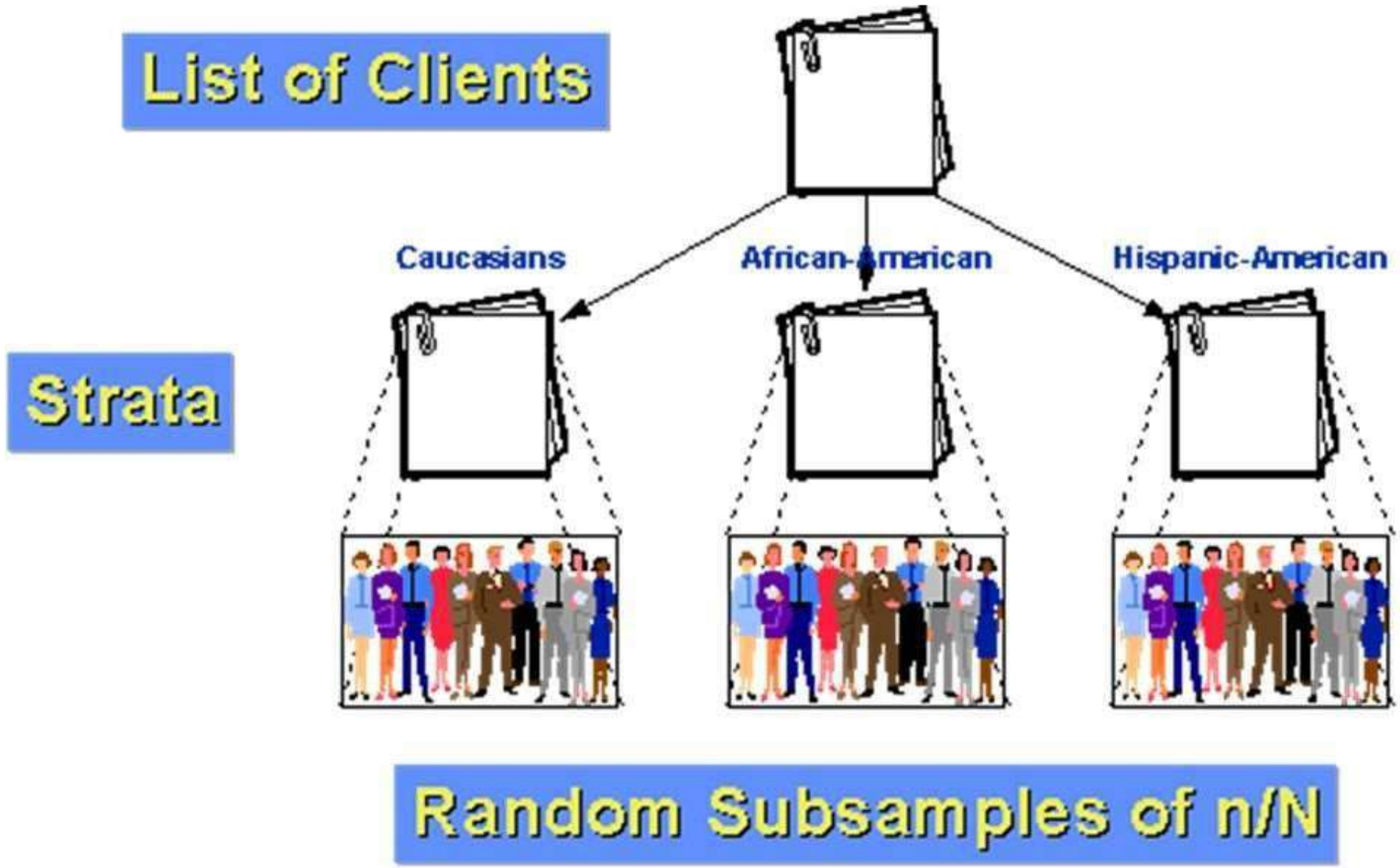
- The population is heterogeneous not homogeneous

- First the population is divided into homogenous group called strata, and the sample is drawn from each stratum at random in proportion to its size.

- This gives greater accuracy result. (Best sampling procedure that can be followed)

- The demerit of this technique is, dividing the population into homogenous group.

Stratified Random Sampling



SYSTEMATIC SAMPLING

- Selecting first unit at random.
- Selecting additional units at evenly spaced intervals.
- Complete list of population available.

Class of 95 students : roll no. 1 to 95
Sample of 10 students
1st student random then every 10th

Cluster sampling.

- Cluster sampling is applicable when preparing the sampling frame is difficult.
- In it, geographical area is divided into small area called cluster.
- This technique allows only small number of target population to be sampled. Normally 30 clusters are selected by systematic sampling method.
- Error will be more but cost of study is reduced.

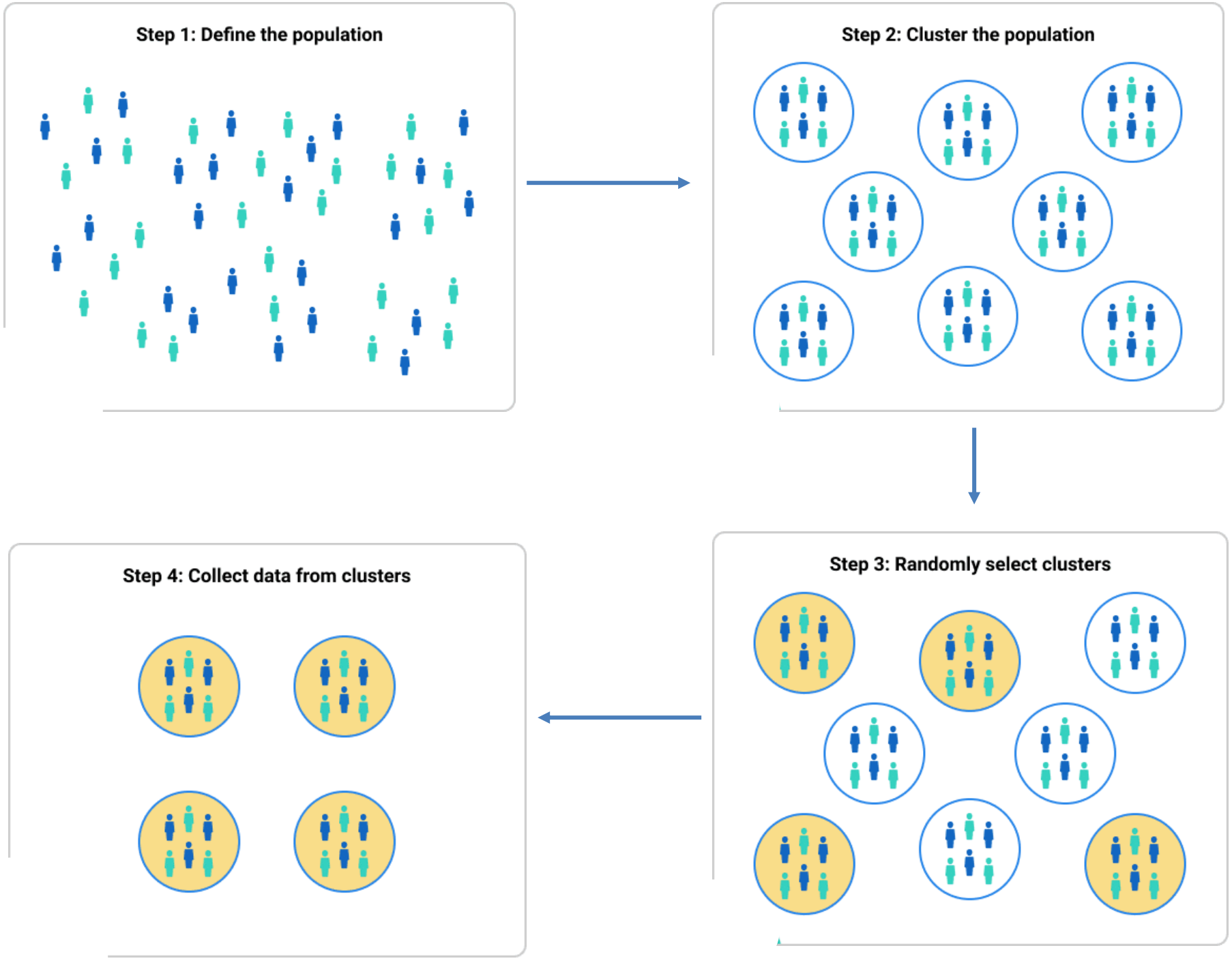
Cluster sampling

- The population is divided into subgroups (clusters) like families. A simple random sample is taken of the subgroups and then all members of the cluster selected are surveyed. (cluster sampling involves randomly selecting some of preexisting natural groups)

- Cluster sampling is used when the population is heterogeneous.

Cluster sampling is a method of probability sampling that is often used to study large populations, particularly those that are widely geographically dispersed.

Researchers usually use pre-existing units such as schools or cities as their clusters


Step 1: Define the population
Step 2: Cluster the population
Step 3: Randomly select clusters
Step 4: Collect data from clusters

STRATIFICATION V/S CLUSTERING

Stratification	Clustering
All strata are represented in the sample.	Only a subset of clusters are in the sample.
Less error compared to simple random.	More error compared to simple random.
More expensive to obtain stratification information before sampling.	Reduces costs to sample only some areas or Organizations.

Multistage random sampling

- Multistage sampling refers to sampling plans where the sampling is carried out in stages
  using smaller and smaller sampling units at each stage.

  Not all Secondary Units Sampled normally used to overcome problems associated with a geographically dispersed population

Multistage random sampling

- In this method, the whole population is divided in first stage sampling units from which a random sample is selected.
- The selected first stage is then subdivided into second stage units from which another sample is selected.
- Third and fourth stage sampling is done in the same manner if necessary.
- Example:

For a survey some schools are selected randomly → from which classes were selected randomly → from which sections were selected randomly → from which students were selected randomly

MULTI PHASE SAMPLING

- Part of the information collected from whole sample & part from subsample.

- In Tb survey MT in all cases – Phase I
- X –Ray chest in MT +ve cases – Phase II
- Sputum examination in X – Ray +ve cases - Phase III

- Survey by such procedure is less costly, less laborious & more purposeful