The background of the slide is a photograph of a vast forest covering rolling hills and mountains under a clear blue sky with wispy white clouds.

# Research on “Development of Operational Methods for Implementation of Multi-purpose National Forest Inventories”

Forest production and technology professor's team of SPT, MUST

Ulaanbaatar

20 November 2013

# Research objective

In Mongolia

to develop the initial alternative of operational methods for implementation of multi-purpose national forest inventory

# Research specific objectives

- Define shapes of inventory areas;
- Select measurement parameters;
- Develop alternative for inventory table;
- Instructions for filling out inventory table;
- Select sample plots;
- Define steps for measurement;
- Develop guidelines of measurement;

# Shapes of inventory areas



# Template of inventory table

| <b>Тооллогын хүснэгт</b>                |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
|---|-------------------|----------------------|----------------------|----------------------------------|--------------------------------------|----------------------|-----------------------|------------------------------------|-----------------|------------------------|--|----------------------------|--|
| 1.ОН, сар, өдөр<br>2.Эхэлсэн хугацаа    |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| 3.Аёй аа<br>ñöi ûi i ýö                 |                   | 4.Газрын нэр         |                      | 5.Дугуй дээж<br>талбайн №        |                                      | 6.Хэсэглэл           |                       | 7.Ялгарал                          |                 | 8.Уртраг               |  | 9.Өргөрөг                  |  |
| 10.Ойн бүсийн<br>ангилал                |                   | 11.Ойн<br>терөл      |                      | 12.Хэв<br>шинж                   |                                      | 13.Ойн<br>хэлбэр     |                       | 14. АА-н<br>арга хэмжээ            |                 | 15.Гадар<br>гын чиглэл |  | 16.Газрын<br>налуу, градус |  |
| 17.Гарал<br>үүсэл                       |                   | 18.Бүрэлдхүүн        |                      | 19.Хөрсний хэв шинж              |                                      | 20.Хөрсний<br>эвдрэл |                       | 21.Сөөгний нягт-<br>шилийн ангилал |                 |                        |  |                            |  |
| 22.Бонитет                              |                   |                      |                      | 23.Түймэрт өртсөн эсэх           |                                      |                      |                       | 24.Шатсан он                       |                 | 25.Огтолсон он         |  |                            |  |
| <b>Ургаа мод тоолох хүснэгт</b>         |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| 26.Д/д                                  | 27.Мод-<br>ны код | 28.Модны<br>голч, см | 29.Модны<br>өндөр, м | 30.Титмийн<br>хэлбэр             | 31.Зай, м                            | 32.Өнцөг,<br>градус  | 33.Таваа-<br>рын анги | 34.Гэмтэл<br>согог                 | 35.Ишний хэлбэр |                        |  |                            |  |
| 1                                       |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| 2                                       |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| ...                                     |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| ..                                      |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| 19                                      |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| 20                                      |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| <b>Унанги тоолох хүснэгт</b>            |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| 36.Д/д                                  | 37.Модны<br>код   | 38.Модны<br>голч     | 39.Өнцөг,<br>градус  | 40.16 м тойрог<br>доторхи урт, м | 41.Тайлбар                           |                      |                       |                                    |                 |                        |  |                            |  |
|   |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
|   |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| <b>42.Хожуулын тоо</b>                  |                   |                      |                      |                                  | <b>43.Бүлэг мод</b>                  |                      |                       |                                    |                 |                        |  |                            |  |
| <b>44.Шилмүүст төрлийн өсвөр ургац</b>  |                   |                      |                      |                                  | <b>45.Навчит төрлийн өсвөр ургац</b> |                      |                       |                                    |                 |                        |  |                            |  |
| Модны<br>код                            | 25 см<br>хүртэл   | 0,26-1,0 м<br>өндөр  | 1,0 м < 6<br>см >    | Нийт                             | Модны<br>код                         | 50 см<br>хүртэл      | 0,5-1,5 м<br>өндөр    | 1,5 м < 6<br>см >                  | Нийт            |                        |  |                            |  |
|   |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| <b>46. Тайлбар:</b>                     |                   |                      |                      |                                  |                                      |                      |                       |                                    |                 |                        |  |                            |  |
| <b>47.Тооллого хийсэн багийн гишүүд</b> |                   |                      |                      |                                  | <b>48.Дууссан хугацаа:</b>           |                      |                       |                                    |                 |                        |  |                            |  |

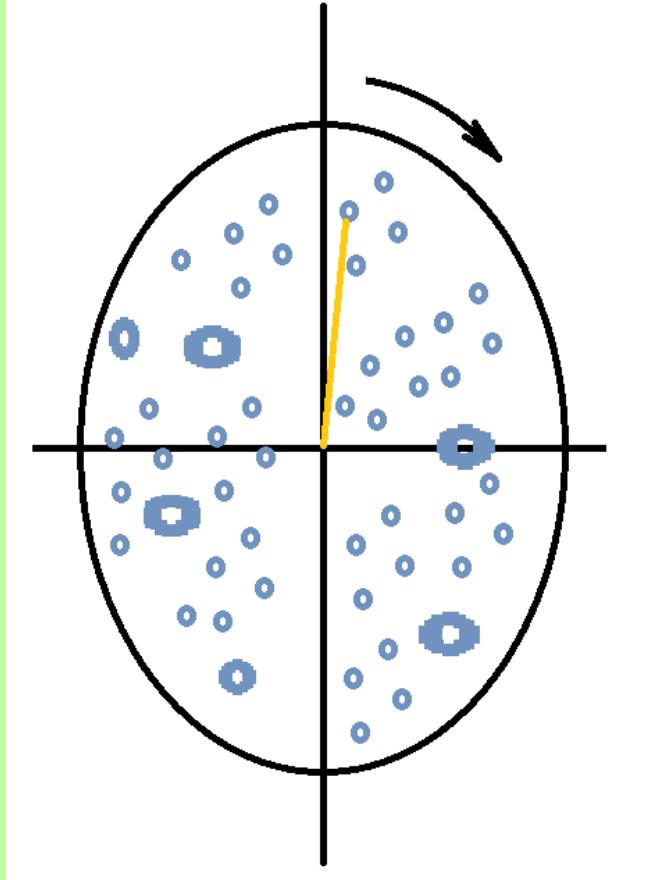
# Pilot measurement

- Batsumber soum of Tuv aimag
- Tarialan soum of Khuvsgul aimag
- Umnudelger and Batshireet soums of Khentii aimag

# Pilot measurement



# Pilot measurement

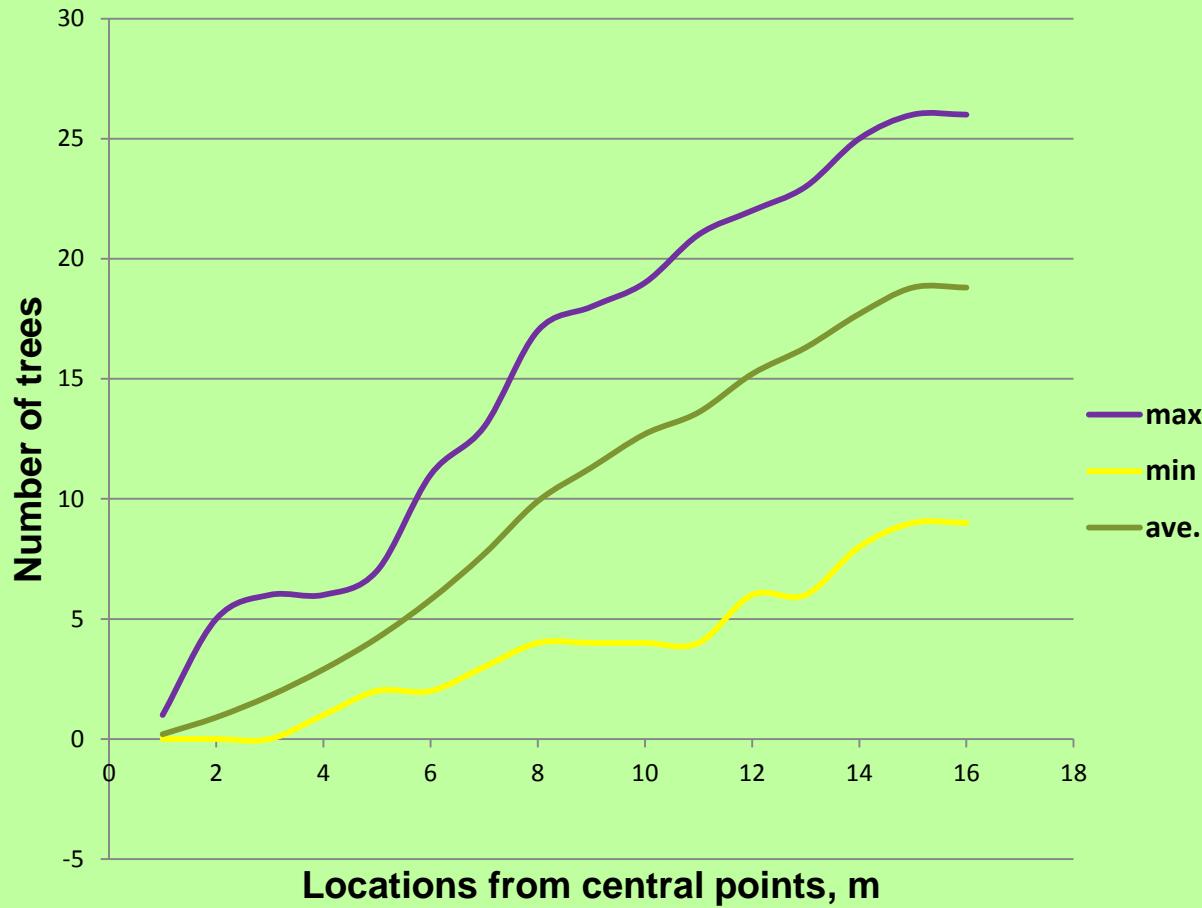


- Öýýæíèé °íäðèéí äèàìåòð
- Ìäíû °íä°ð
- Òîéðäèéí ò°â°°ñ àëñëàääñàí áàéääè
- Tree crown sizes in 4 directions
- Locations, °íö°ã
- Íàñ
- In the plot əñâ°ð ïääüí òïï
- Äýìòýë, ñäïä, óíàíæ

# Measuring diameters at breast height of trees



# Results of pilot measurements



# Results of pilot measurement

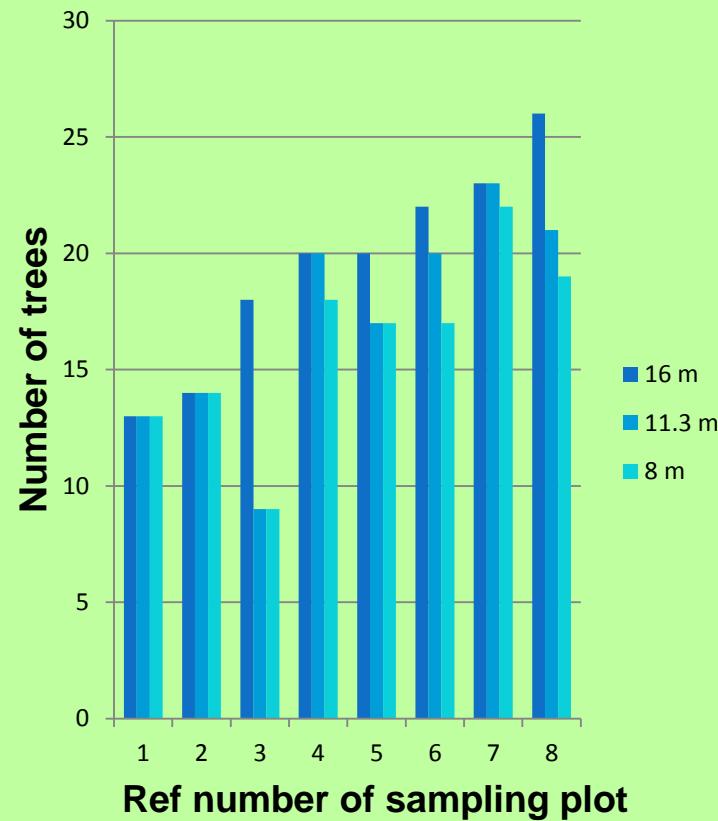
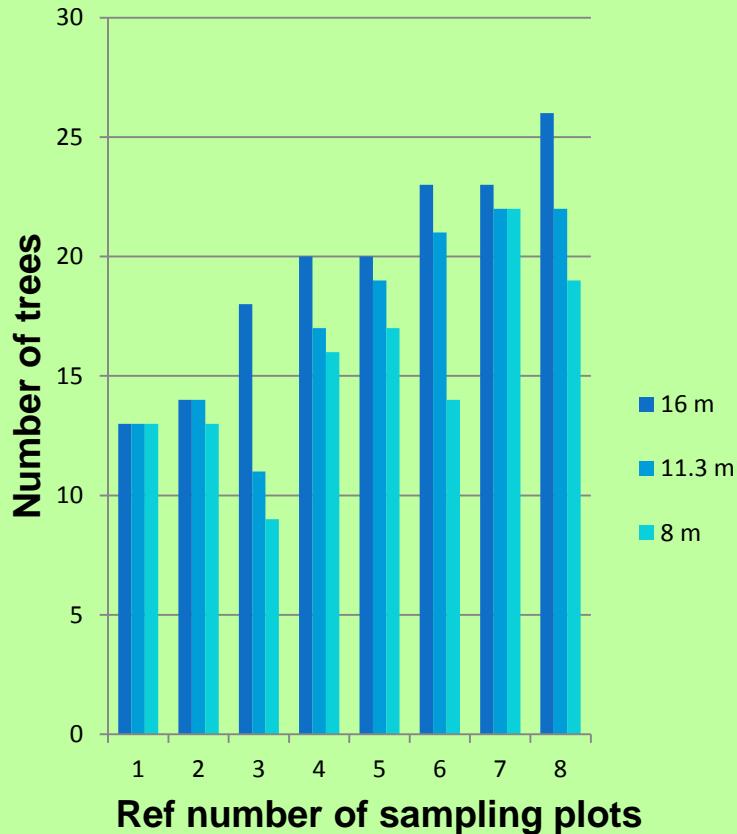
Radius of circling for sampling plot

- 11.3 m
- 8 m

Average diameter of breast height of trees

16 cm

# Results of pilot measurement



# Measurement parameters

| Nr. |   | During pilot period | After pilot period |
|-----|---|---------------------|--------------------|
| 1   | Number of members in a measurement team | 6                   | 2-3                |
| 2   | Öýyæíèé °íäðèéí äèàìåòð                 | +                   | +                  |
| 3   | Ìïäíû °íäºð                             | +                   | *                  |
| 4   | Òîéðääéí òºâººñ àëñëàääñàí áàéääë       | +                   | +                  |
| 5   | Tree crown sizes in 4 directions        | +                   | -                  |
| 6   | Location, °íöºã                         | +                   | +                  |
| 7   | Íàñ                                     | +                   | *                  |
| 8   | In the plot eñâºð ïïääûí òïï            | +                   | +                  |
| 9   | Ãýìòýë, ñïäñã, óíàíæ                    | +                   | +                  |

The background of the image shows a dense forest covering rolling hills, partially obscured by a thick layer of fog or mist. In the immediate foreground, there is a grassy field with several tall, thin evergreen trees standing prominently.

Thank you for your attention