Introduction

- Agriculture has significant environmental footprints.
- The ever-increasing population had necessitated intensified food production.
- Food demand expected to increase with increase in population.
- Global trend of increasing population, urbanization, techn and innov further aggravates the situation.
- Agriculture and land use changes are significant contributors to GHG; 15% global GHG.
- Intrinsically connected to climate change and reliant on; R/f, drought, flooding, dispersal of pests and diseases.
Climate change

- Temp increase; 0.85 and further 1.5°C by 2050
- Has -ve/+ve effects on regions in the world
- Africa most at risk of climate change;
  - high dependency on natural resources, rainfed agriculture
  - Climate change is an impediment to sustainable Devt
Climate change

✓ Variation in climatic quantitative parameters; persistent for a period; Temps, Rainfall, RH,

✓ Causes

➢ Internal/External forces

➢ Anthropogenic/human changes in atmosphere or land use;
  ✓ Livestock production
  ✓ Intensified Agricultural activities
    ✓ Mechanization, Chemical use
    ✓ construction
    ✓ wetland destruction
Consequences of climate change

- Extreme weather
- Land degradation
- Pests and diseases
- Social and physical infrastructure
Climate Smart Agriculture (Triple win)

Sustainably
Increases agrl prdn,increase income

Builds resilience of agricultural production

Minimizes GHG

- Regenerative Agriculture,
- Agroecological farming
- Biodynamic agriculture
- nature inclusive farming

- Sustainable Agriculture,
- Alternative Agriculture
- Carbon farming
- conservative agriculture
Undesirable consequences of unsustainable human activities
Climate Smart Agriculture

Working with nature for;
• improvement practice
• Soil fertility, Integrated pest management
• Integrated crop systems

Form of agriculture that;
• Improves food pdn with less-ve/ net +ve effects
• Restores soil fertility and biodiversity
• Reduce tillage; cover crops, mulch, compost, agroforestry and native sps restoration
• improves soil health, sequester carbon and increases biodiversity
CSA, continues;

- Emphasizes low external input:
  - on-farm inputs,
  - reduced pesticides,
  - reduced tillage, cover crops

- Uses technology and improved agronomic practices
  - improved tolerant varieties (heat, salinity, floods, drought)
  - crop diversification

- Allows science-based tech; precision agriculture and policies
  - inst. financing mechanisms
Comparison

CSA and Conventional Agriculture

Comparison based on:

- Production
- Biodiversity
- Soil composition
- Water use and GHG emission
Climate Smart Agriculture

- Pdn sustains soil health, ecosystem and popn: 4RC
- Organic pdn system that yields with less/no synthetic inputs, enhances soil health and promotes diversity
- Relies on ecosystems rather than adverse input use
- Is a natural way to produce, with soci0-environmental benefits
- Combines tradition, innovation and science
- May be more labour intensive
Conventional agriculture

- Uses synthetics to max yld; fertilizers, GMOs and other industrial pdts
- Has production efficiency, maximizes on the potential yield, meets needs, but compromises environmental integrity
- Pdn beneficial to food security but requires constant maintenance
- Involves monocropping, uniformity, chemical use, with unintended effects
Agriculture is a major contributor to climate change, 19-29% GHG. This may be higher.

It is significantly affected by climate change and also a cause.

Climate change effects real; increasing frequencies of extreme weather.

Ever increasing population demand food and sustainable production.
The simple principle; R4iCSA

Reduce

Reuse

Recycle

Rice Initiative for CSA

Husk- Biochar-Manure
Straw - compost-Manure
Husk-Utility stove

Thank You very much