



# Sustaining Environmental Integrity amid the New Globalization

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10 September 2019 MSU-Gensan

# What's in the *New Globalization*?

- **Global citizens**
- **Global markets**

## **BUT ALSO**

- **Global warming**
- **Climate change**





**Geo-Mapping and Land Suitability Assessment for a Climate Change Resilient Mindanao Communities**

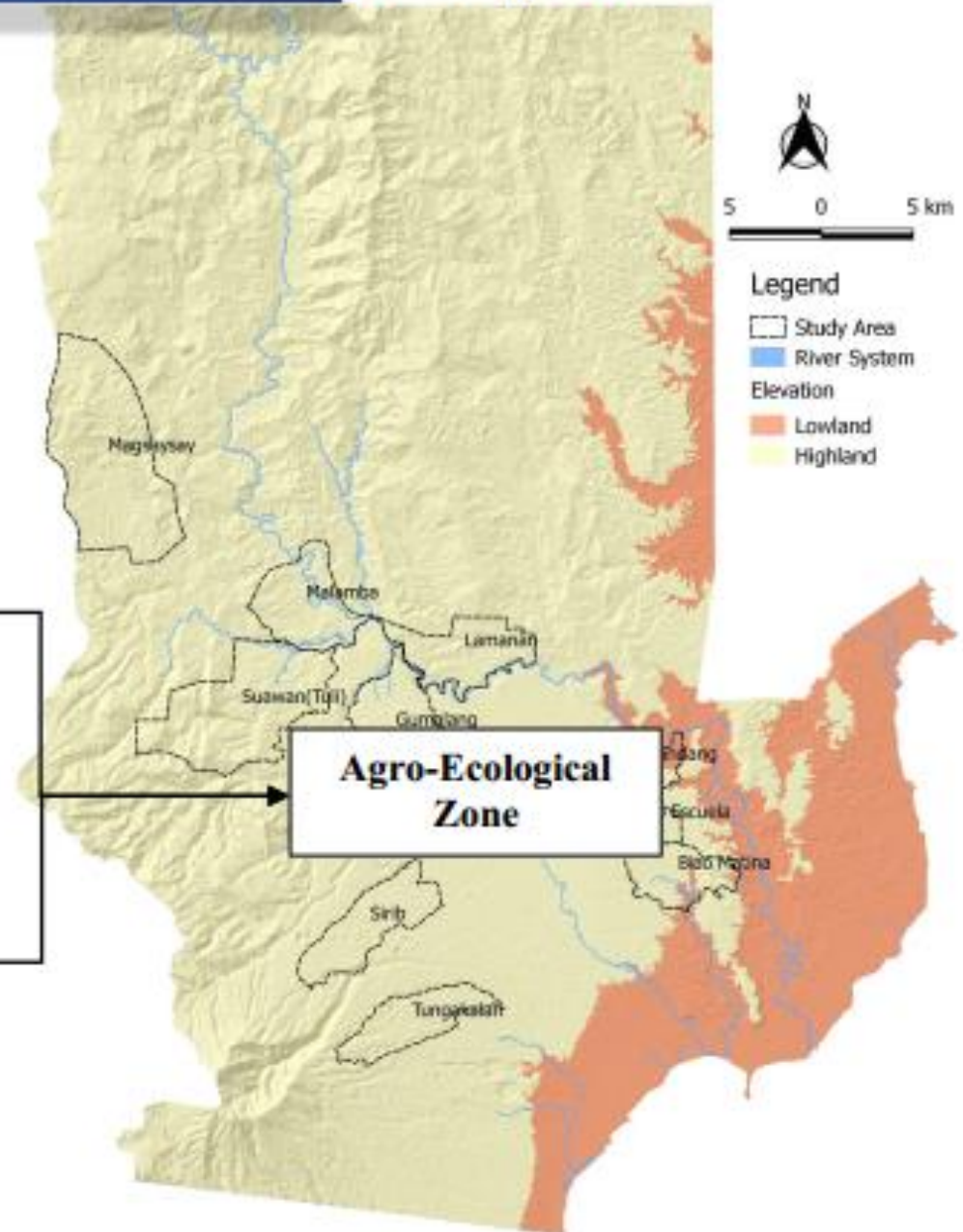
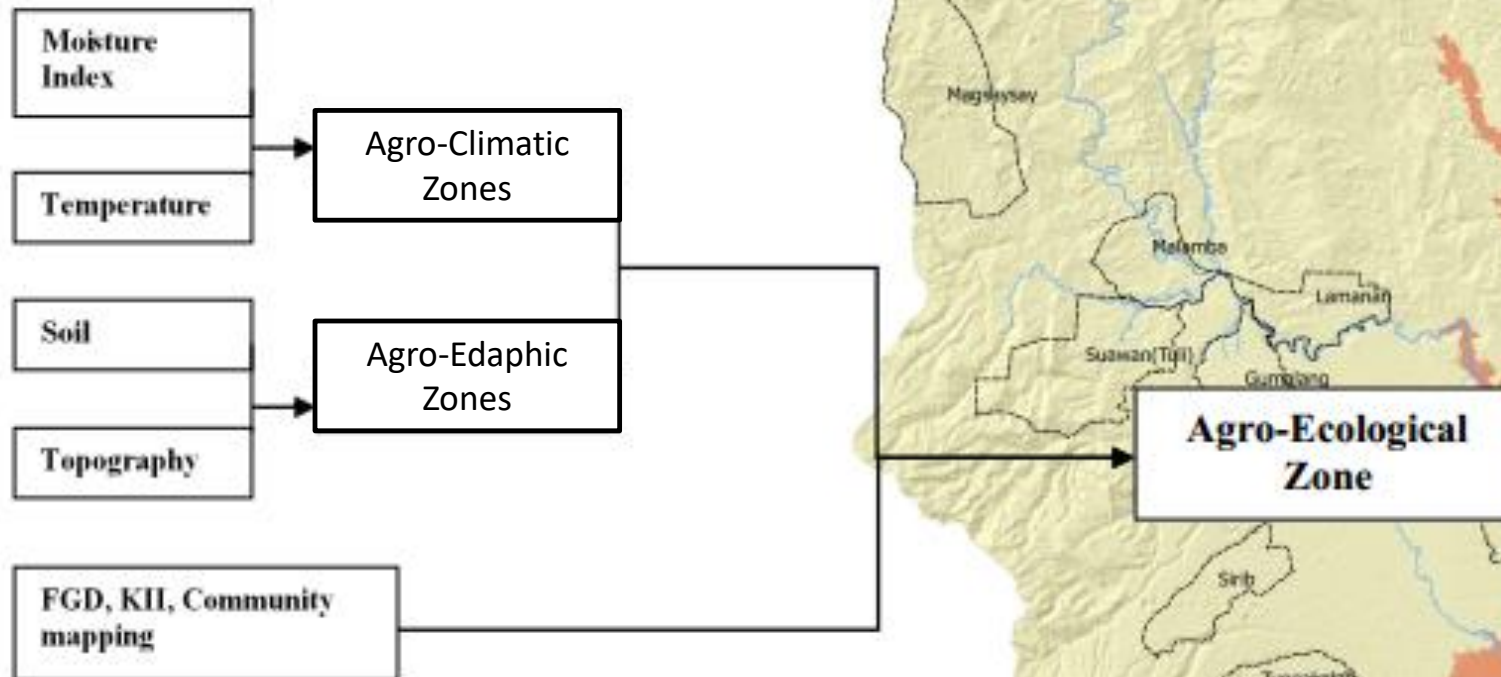
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# Objectives of the Study

- 1. Characterize selected land area in Davao (land use, soil attributes, and agro-ecological zones)**
- 2. Generate spatial database**
- 3. Provide updated data to serve as bases for further research and development**

## Framework



# Satellite images

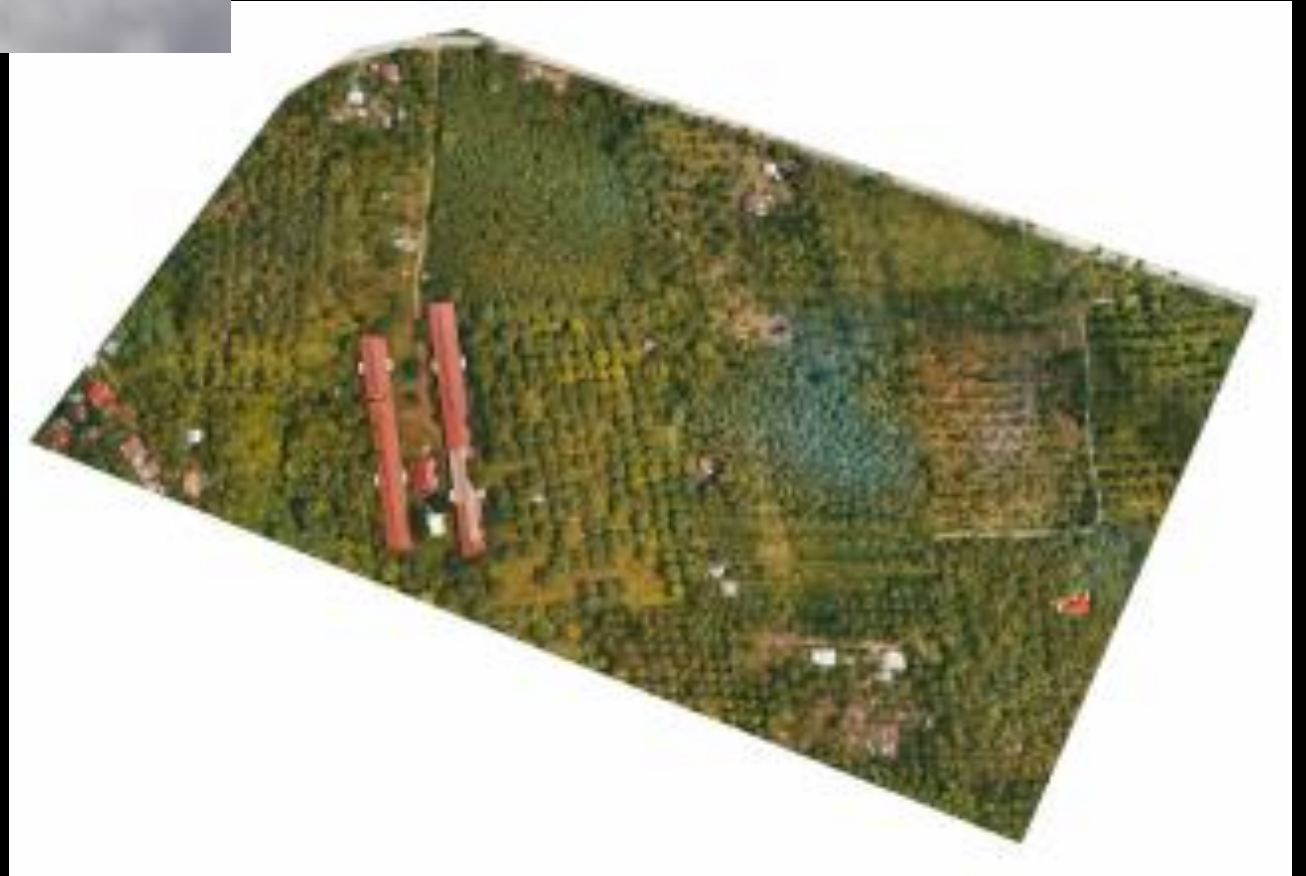
**Land Surface Temperature**



**Biomass (NDVI)**



# Data Collection: Drone Aerial Mapping



# Data collected: Soil Samples

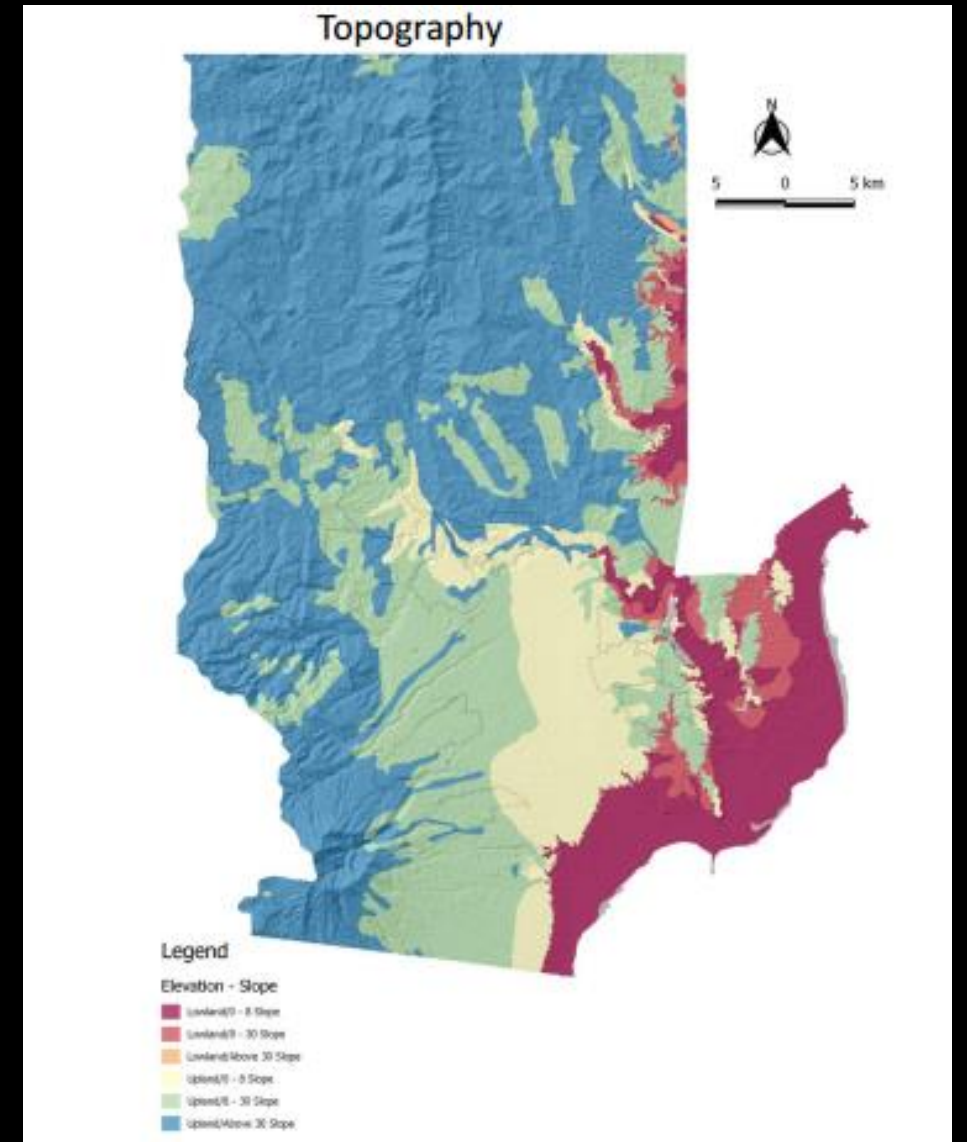
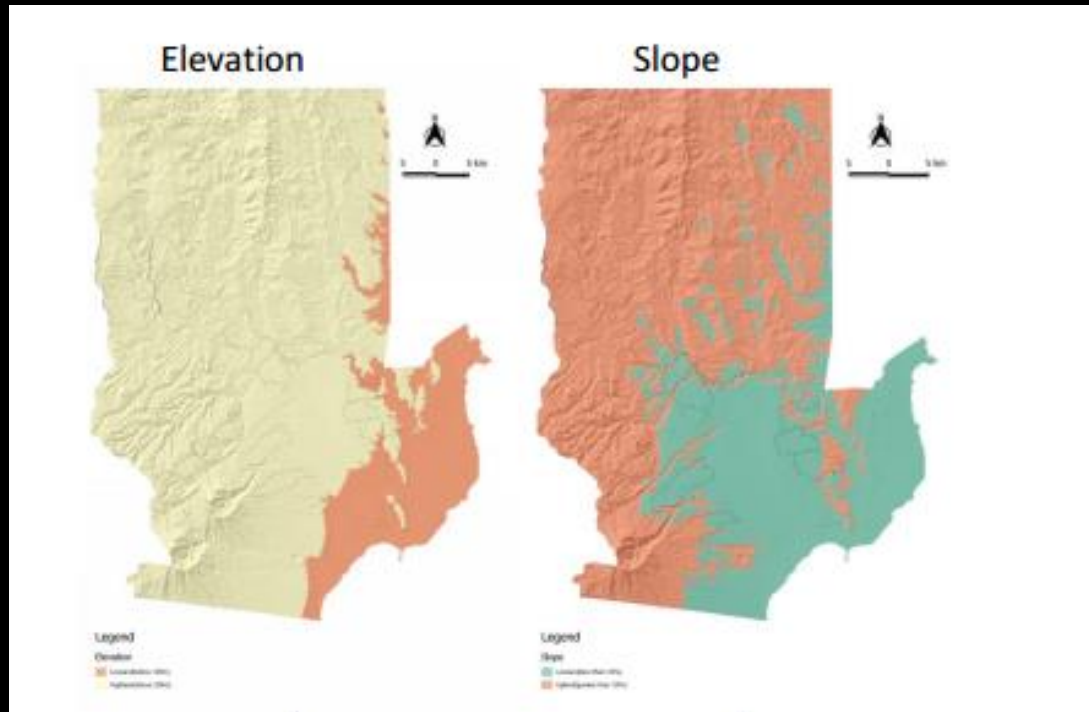




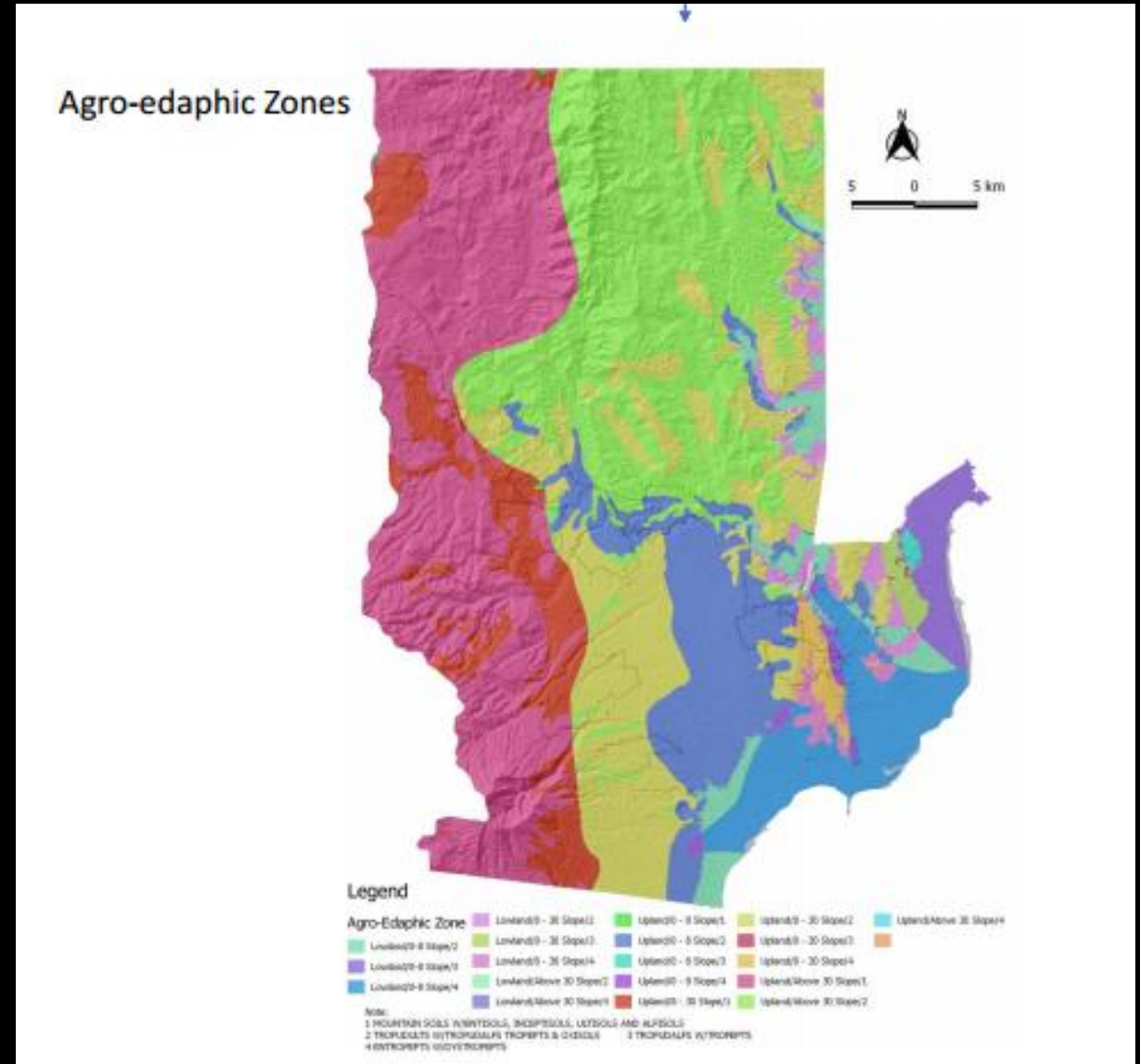
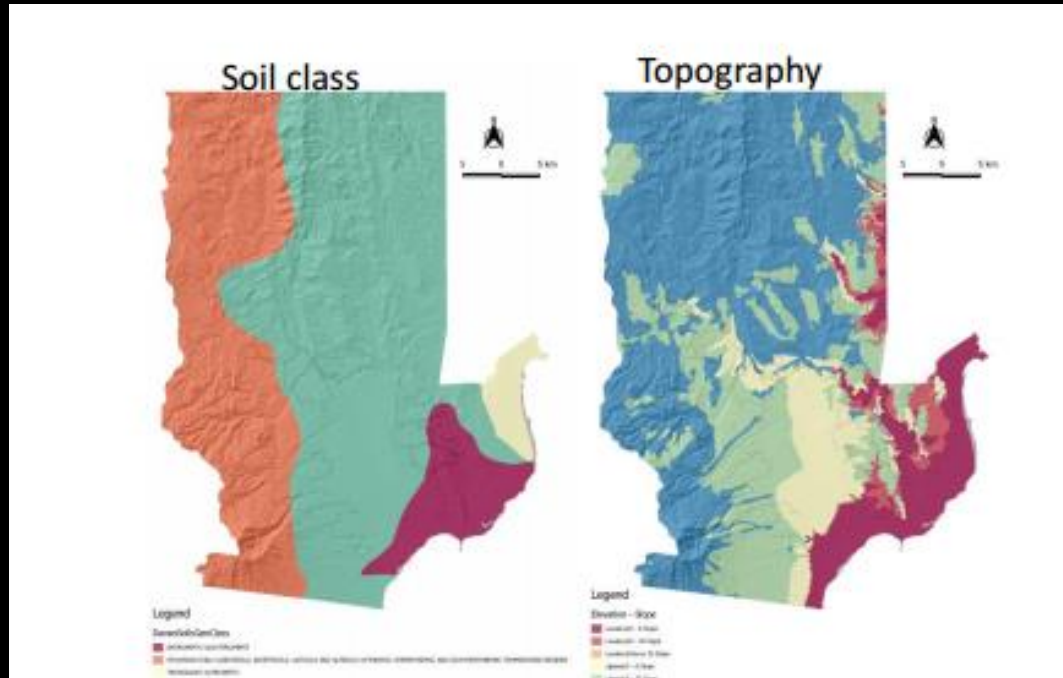
# FGD and KII



# Results: Land Characteristics of Davao City



# Results: Land Characteristics of Davao City



Temperature



Moisture Index



**Agro-edaphic Zone**



**Agro-climatic Zone**



**Agro-ecological Zone**



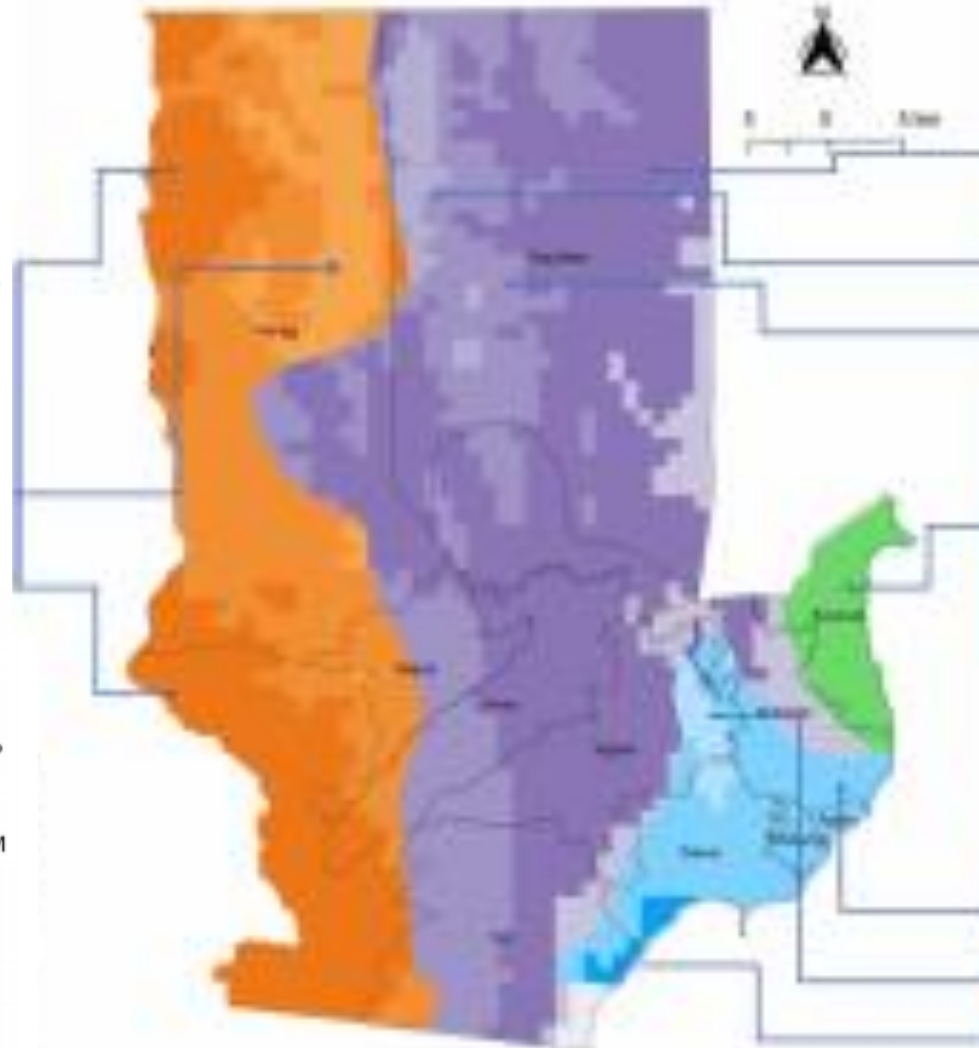
# Agroecological zones

## Acrisol

Upland rice, paddy rice, soybean, maize, groundnut, cassava, tea, coffee, rubber, pineapple, sugarcane, banana, cashew

### AGRO-ECOLOGICAL ZONES

- ACRISOL-HIGH GDD/NORMAL TEMP
- ACRISOL-LOW GDD/MOIST TEMP
- ACRISOL-LOW GDD/NORMAL TEMP
- ACRISOL-MEDIUM GDD/NORMAL TEMP
- CAMBISOL-HIGH GDD/DRY TEMP
- CAMBISOL-HIGH GDD/NORMAL TEMP
- CAMBISOL-MEDIUM GDD/NORMAL TEM
- GLEYSOL-HIGH GDD/NORMAL TEMP
- NITOSOL-HIGH GDD/DRY TEMP
- NITOSOL-HIGH GDD/DRY TEMP TEMP
- NITOSOL-HIGH GDD/NORMAL TEMP
- NITOSOL-LOW GDD/MOIST TEMP
- NITOSOL-LOW GDD/NORMAL TEMP
- NITOSOL-MEDIUM GDD/NORMAL TEMP
- Sub- Districts



## Nitosol

Forest, groundnut, sesame, soybean, maize, cassava, coffee, rubber, tea, durian

## Gleysol

Paddy rice, raised beds with sesame, groundnut, maize, cotton, vegetables, sugarcane, jute, sorghum

## Cambisol

Forest, fruit trees, rubber, mango, pineapple, soybean, maize, cassava, coffee

# Agroecological zones

## Soils requiring intensive management (RIM)

**Elevation:** Upland  
**Slope (%):** 0-8, 8-30, >30  
**Soil Class:** Acrisols-  
Arenosols, Andosols-  
Nitisols

## AGRO-ECOLOGICAL ZONES

- Requires Intensive Management(RIM)
- Requires Special Management(RSM)
- Suitable for Agriculture(SA)
- Very Suitable for Agriculture(VSA)



## Soils requiring special management (RSM)

**Elevation:** Lowland  
**Slope (%):** 0-8, 8-30, >30  
**Soil Class:** Acrisols-  
Arenosols, Andosols-  
Nitisols

## Suitable for agriculture (SA)

**Elevation:** Upland  
**Slope (%):** 0-8, 8-30, >30  
**Soil Class:** Cambisols-  
Luvisols,  
Fluvisols-Gleysols-Vertisols

## Very suitable for agriculture (VSA)

**Elevation:** Lowland  
**Slope (%):** 0-8, 8-30, >30  
**Soil Class:** Cambisols-Luvisols,  
Fluvisols-Gleysols-Vertisols

## Key Findings:

- Farmers only grow crops through soil conditioners, both organic and synthetic;
- Farmers choose crops based on market demand and trends in the community;
- Arable land formerly used for corn and vegetable farming have been abandoned due to soil degradation;
- Abandoned lands have lost soil cover and are prone to erosion, further reducing land productivity;



## Key Findings (con't):

- Soil surface has become semi-permeable, increasing threats from climate change;
- Current cash crops (durian, mangosteen, and other fruit-bearing trees) are expected to be affected by rainfall patterns; and
- Cacao is a more climate-resilient crop.

# Recommendations

1. Strengthen partnership with DA
  - a. Farmers education
  - b. Sustainable incentives
  - c. Set price floor for farm produce
  - d. Partner with business sector for value-added products
2. Determine and replicate best practices
3. For sustainability, adopt biological farming methods
4. For food security, encourage integrated farming methods (permaculture) and vertical gardening in every household.

# Principles of Sustainability

- **Solar energy**
- **Chemical cycling**
- **Biodiversity**



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# Solar Energy

- **All energy may be traced back to the sun**
- **Renewable energy**



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# Chemical Cycling

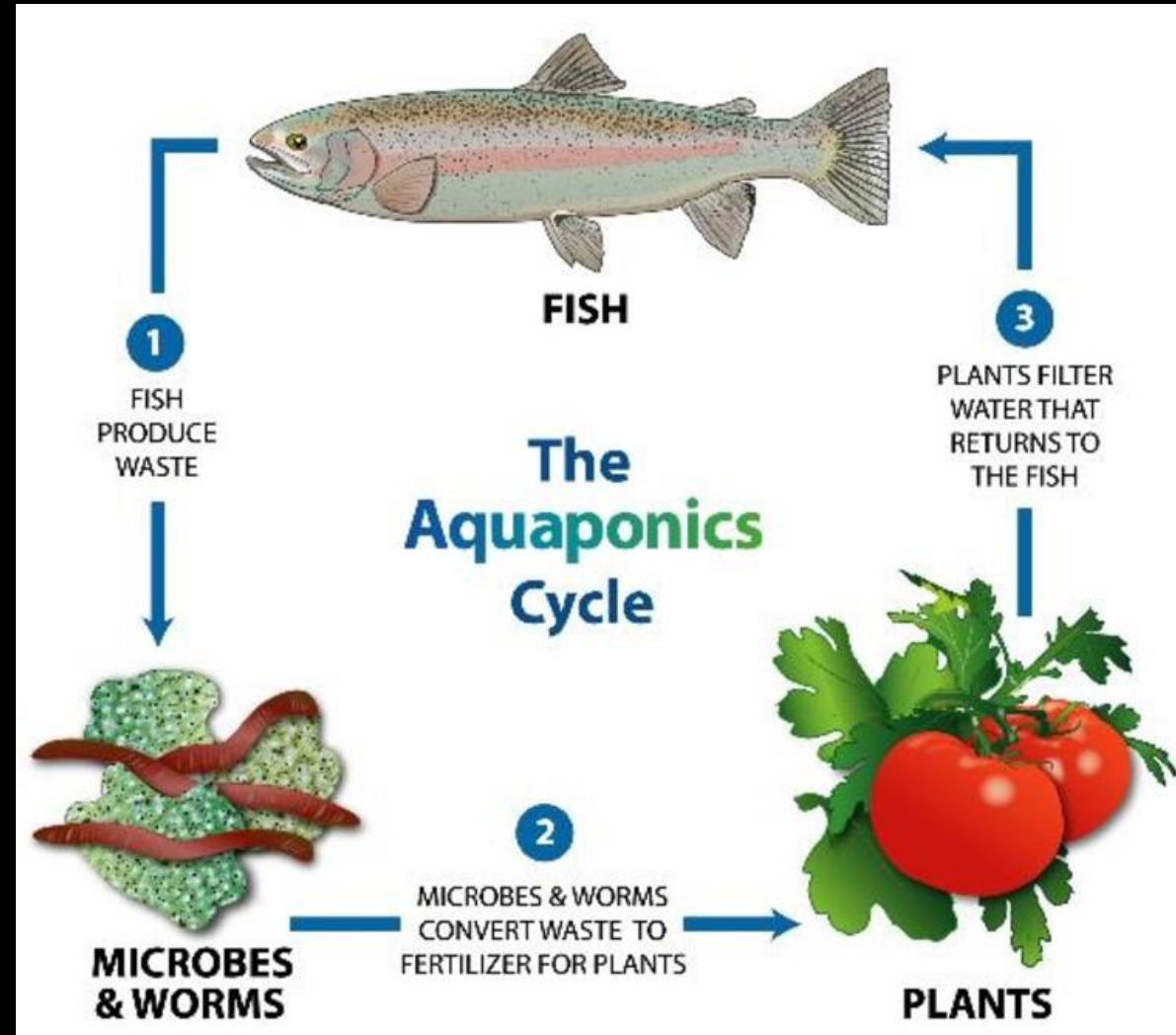
- **Finite amount of elements on earth**
- **Atoms are “recycled”**
- **Fertilizers add deficient elements (NPK)**



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# Biodiversity

- Ecological niche
- Permaculture
- Natural protection of crops



In conclusion...

**The new globalization may open economic opportunities for our local farmers, but could also pose threats to our environment, and to ourselves.**

**We need to find new ways of proceeding...**



THANK YOU