

# Risk and Vulnerability Assessment in Agriculture



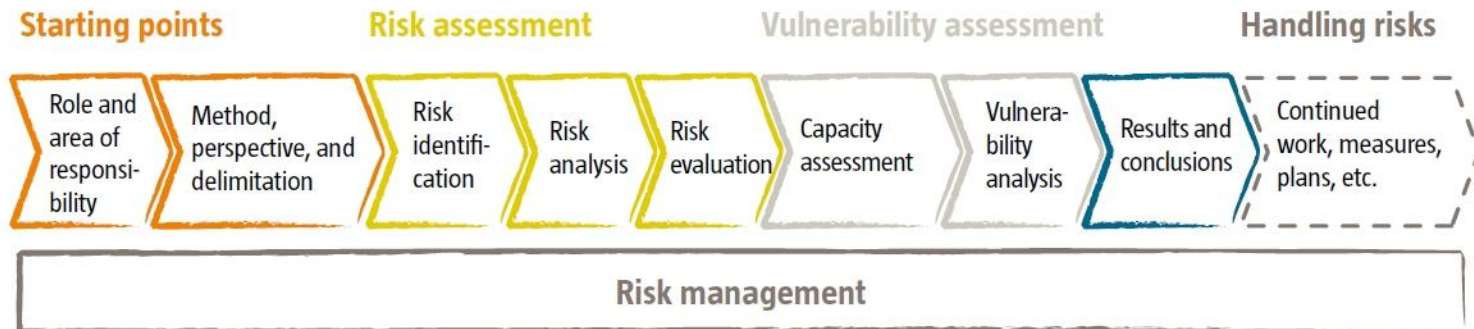
Dr. Justin VanderBerg

26 August 2015 - Savannakhet, Lao PDR



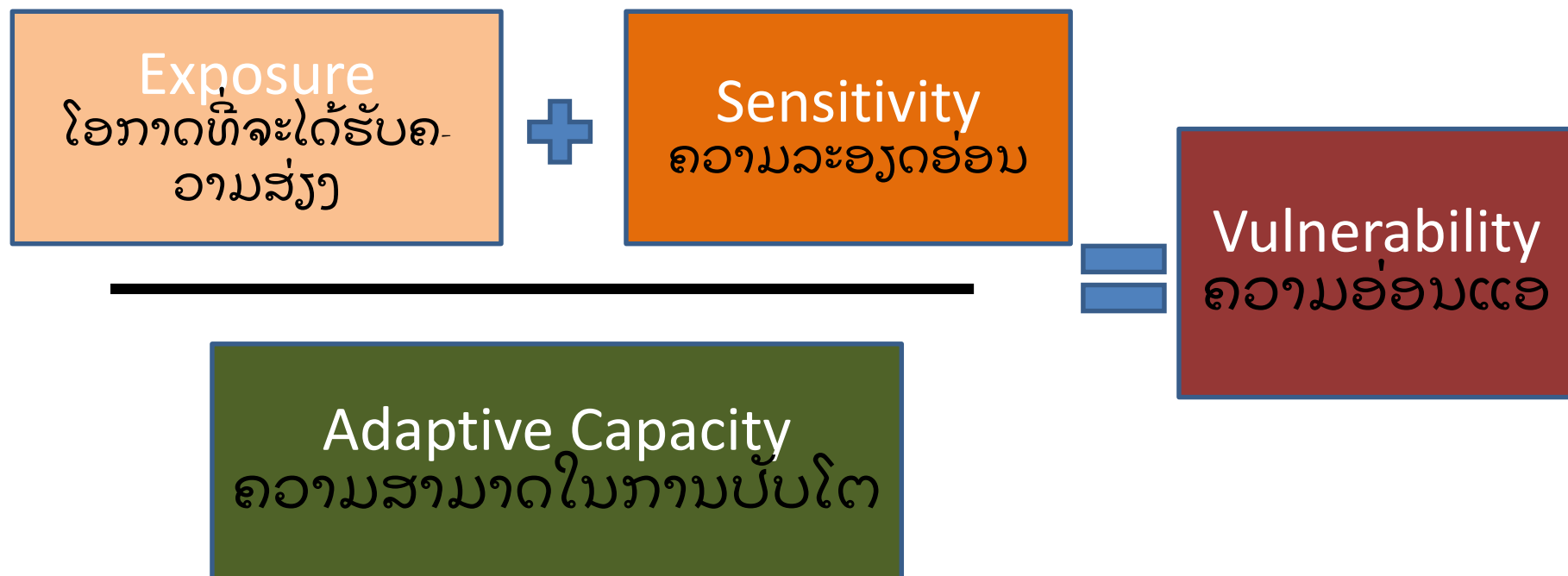
# Outline

- Risk & Vulnerability for Agriculture
  - Principles of Vulnerability
  - Objectives of assessments
- Assessment Methods
  - Historical (ປະຫວັດຄວາມເປັນມາກ່ຽວກັບ)
  - Future (ອະນາຄົດ)
- Risk Prioritizing





# Vulnerability for Agriculture



## Physical

Precipitation

Temperature

Elevation

## Socio-Economic

Population

Irrigation

Crop Type

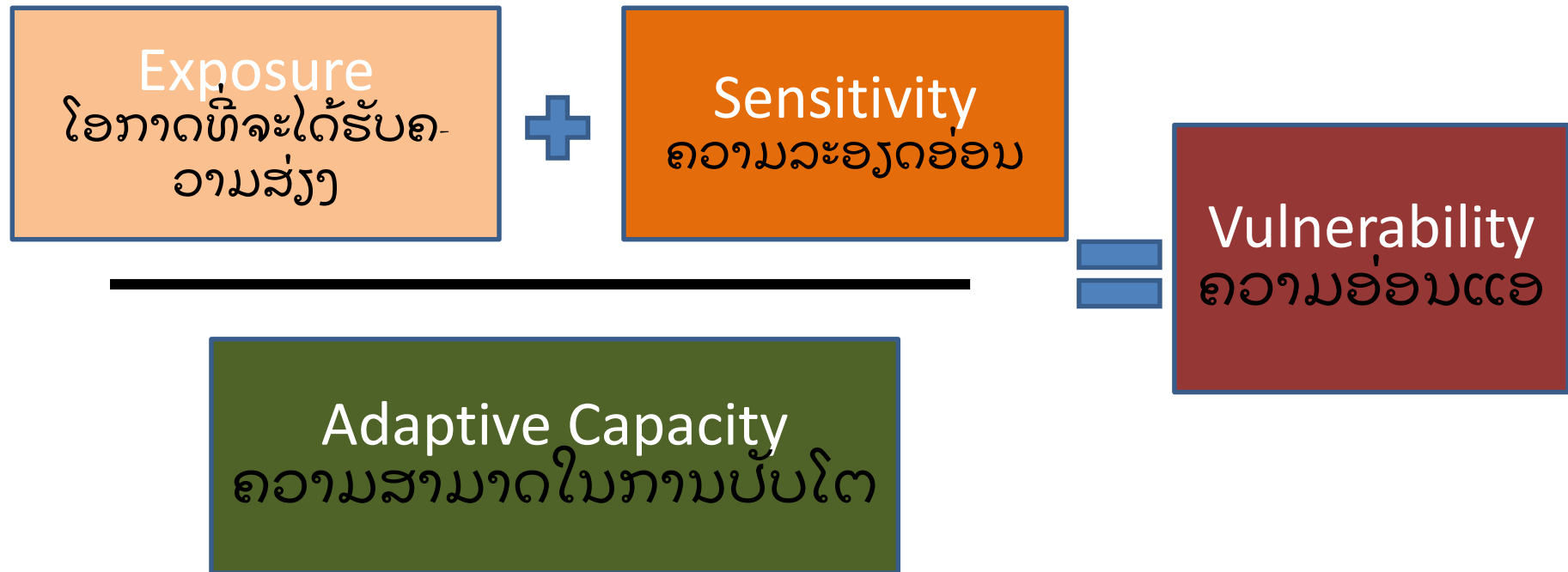
## Impacts

Flood

Drought

Disease

# Flooding Example



## Exposure

The river floods every year, exposing the floodplain to risk.

## Sensitivity

Living in the floodplain makes you sensitive to flooding.

## Adaptive Capacity

But if you've build your house on stilts, you're not vulnerable to flooding.

## Vulnerability

is zero, not because of lack of exposure, but because adaptive capacity limits sensitivity.

# Why do we need to assess Vulnerability?

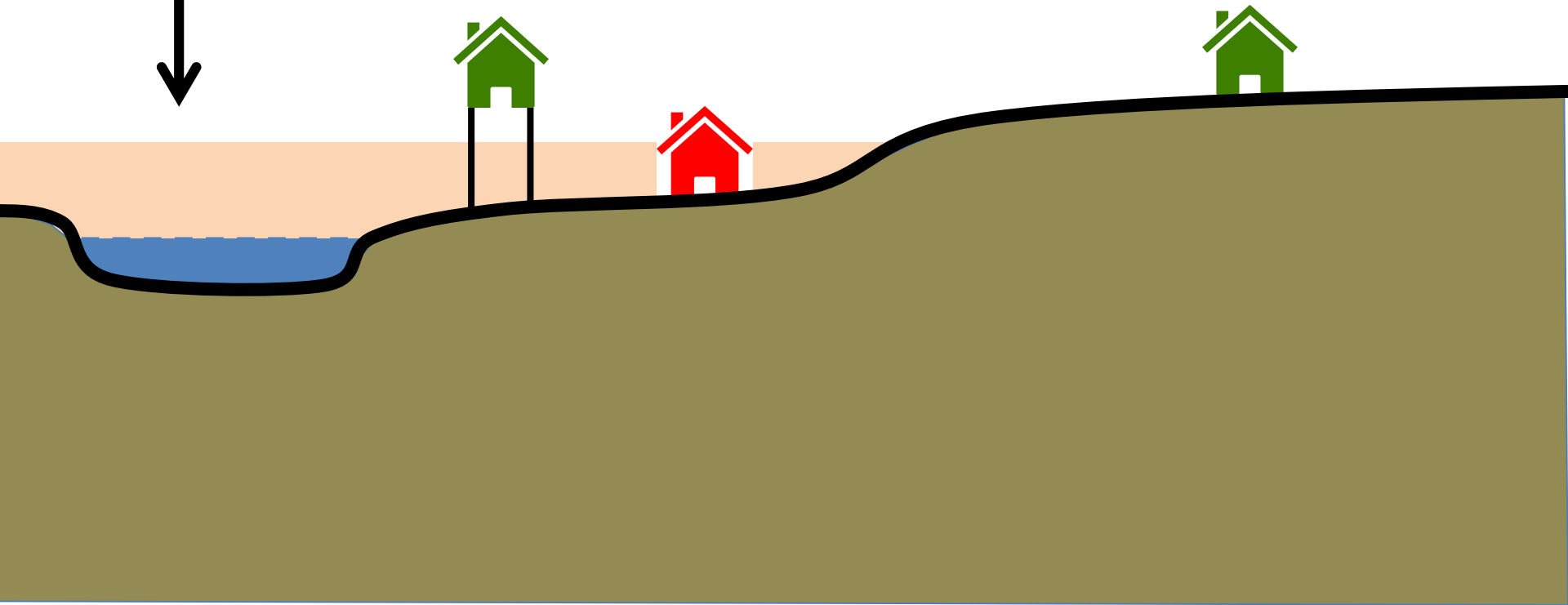
Zone of Exposure

No house, No Exposure, No Sensitivity, No Vulnerability

House, No Exposure, Yes Sensitivity, No Vulnerability

House, Yes Exposure, Yes Sensitivity, High Vulnerability

House, Yes Exposure, No Sensitivity, No Vulnerability



# How can we change Vulnerability?

- Eliminate the exposure.

ກຳຈັດໃຫ້ໝົດໄປ/ລືບລ້າງ ໂອກາດທີ່ຈະໄດ້ຮັບຄວາມສ່ຽງ

- Eliminate the sensitivity.

ກຳຈັດໃຫ້ໝົດໄປ/ລືບລ້າງ ຄວາມລະອຽດອ່ອນ

# Why does Vulnerability Matter?

- By identifying where vulnerabilities exist, we can target adaptive programs that eliminate exposure and lower sensitivity.

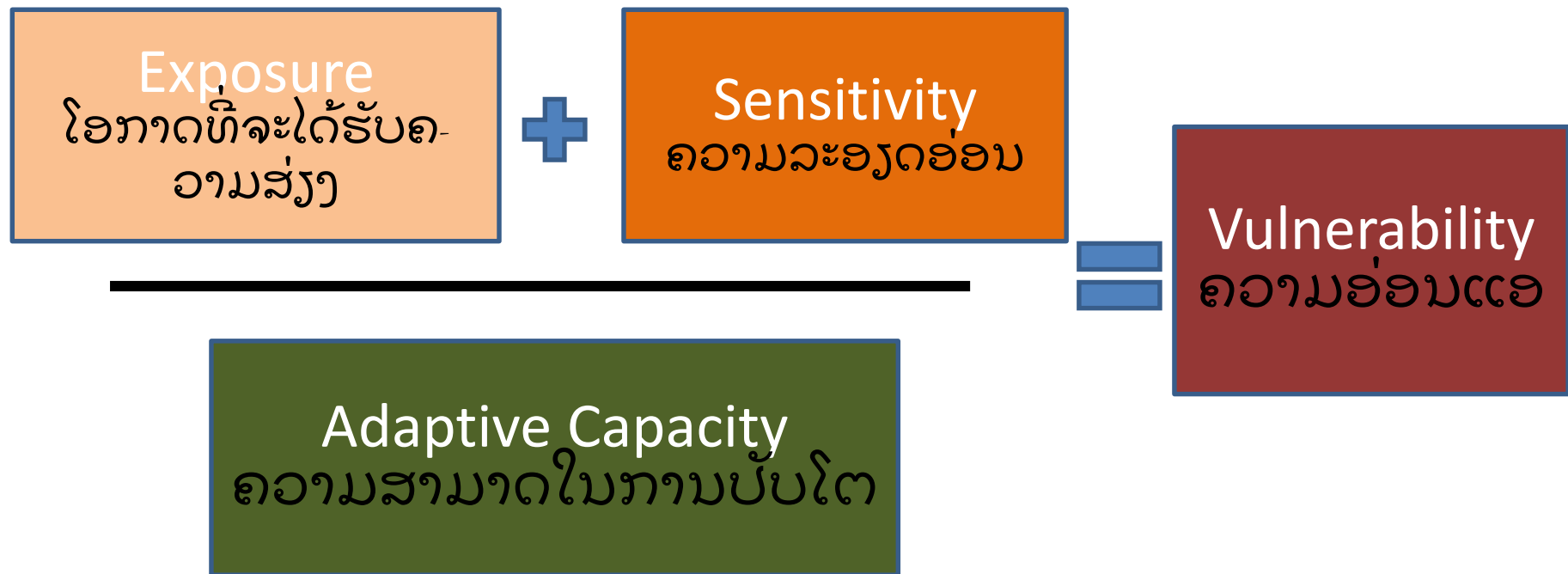
# Assessments

- Historical (ປະຫວັດຄວາມເປັນມາກ່ຽວກັບ )
  - What has happened before will happen again!
    - Look at Data
    - Ask Local Stakeholders
- Future - Trend Analysis (ອະນາຄົດ)
- Risk Priority (ຄວາມສ່ຽງ ບຸລິມະສິດ)



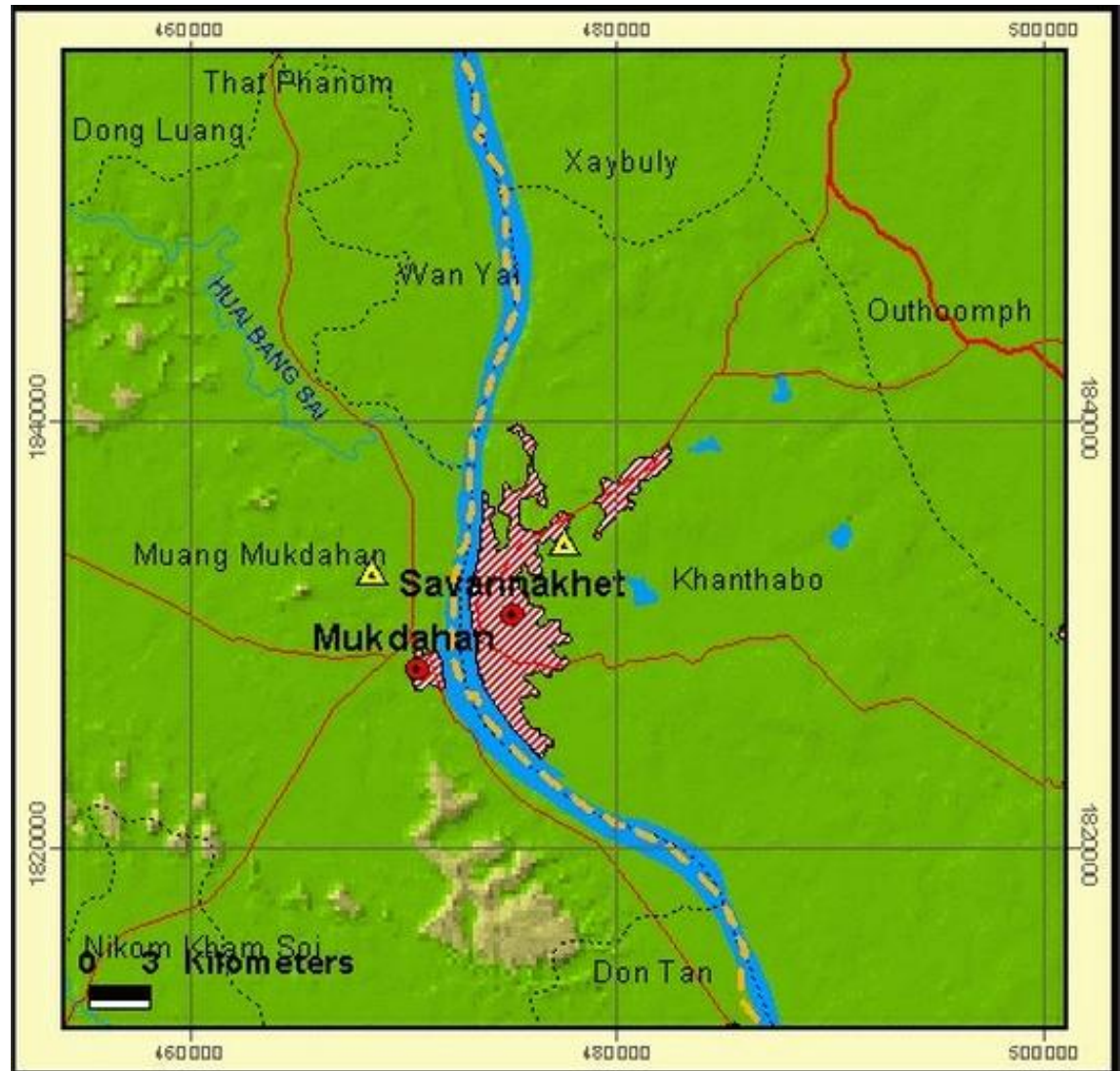
# Assessment

Assess each component to assess vulnerability



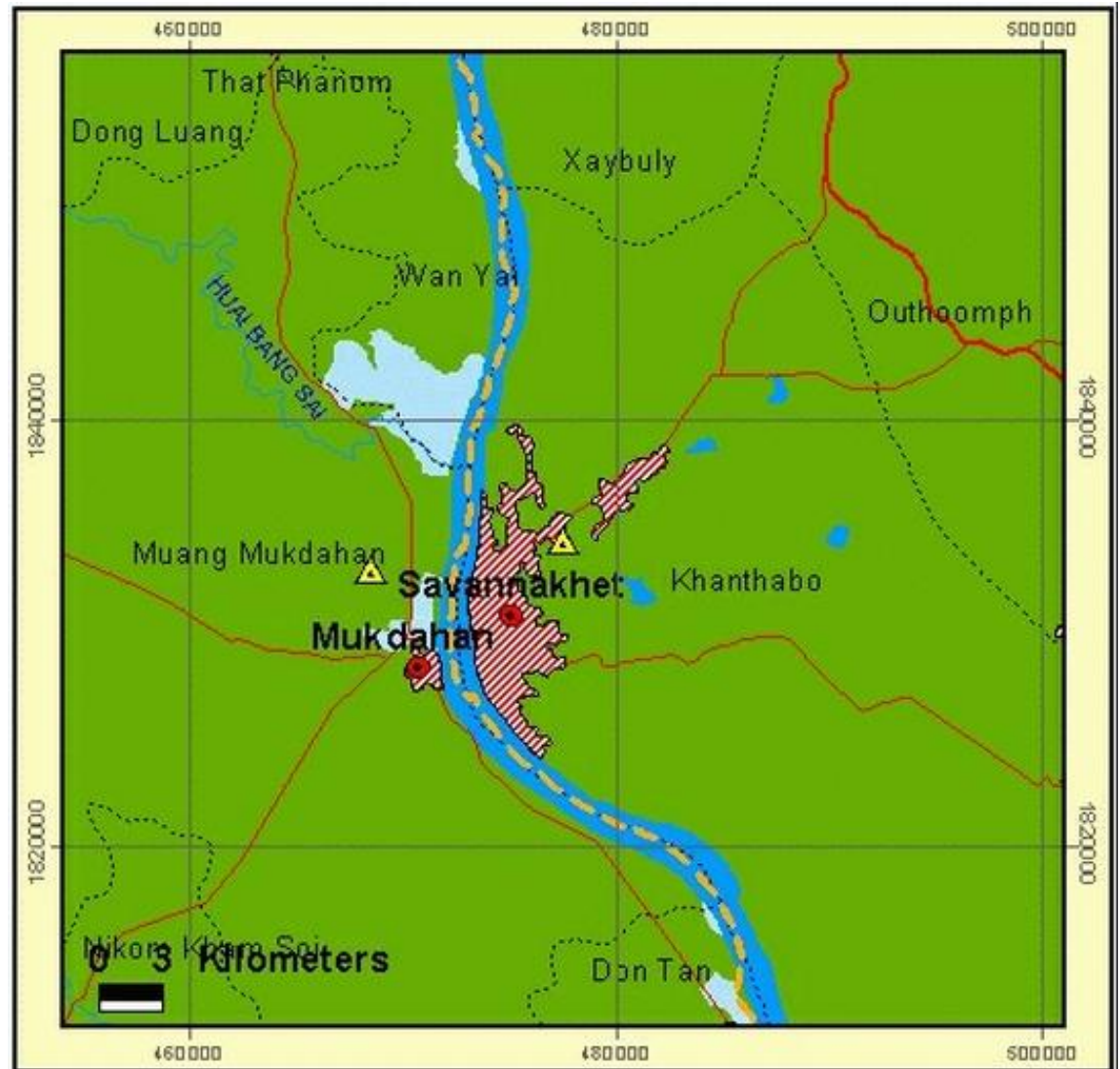
# Assessments (ປະຫວັດຄວາມເປັນມາກ່ຽວກັບ)

- Historical



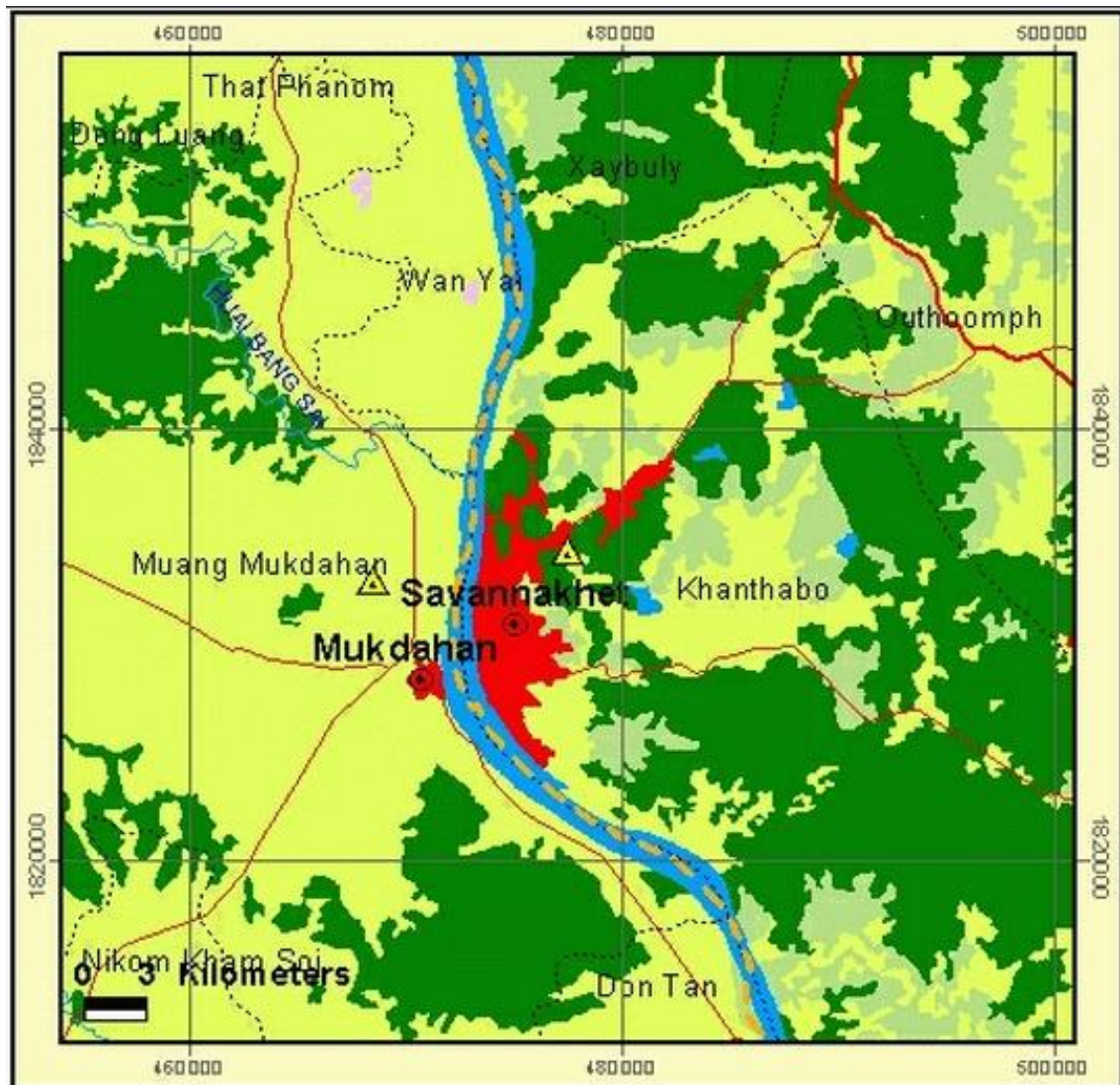
# Assessments (ປະຫວັດຄວາມເປັນມາກ່ຽວກັບ)

- Historical
  - Exposure
  - low lying areas



# Assessments (ປະຫວັດຄວາມເປັນມາກ່ຽວກັບ)

- Historical
  - Exposure
  - low lying areas
  - **Sensitivity**
  - land use





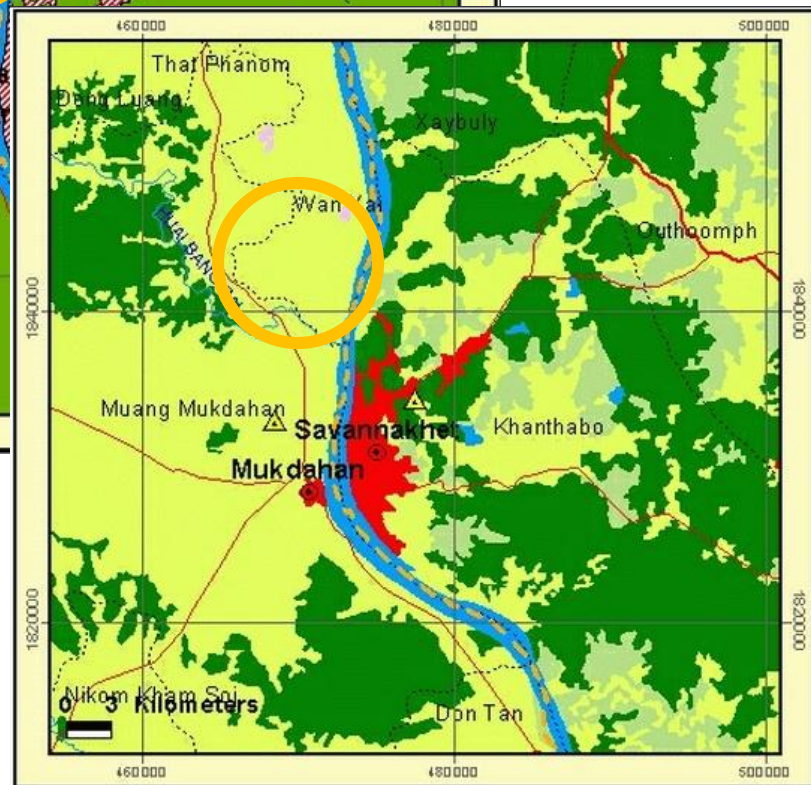
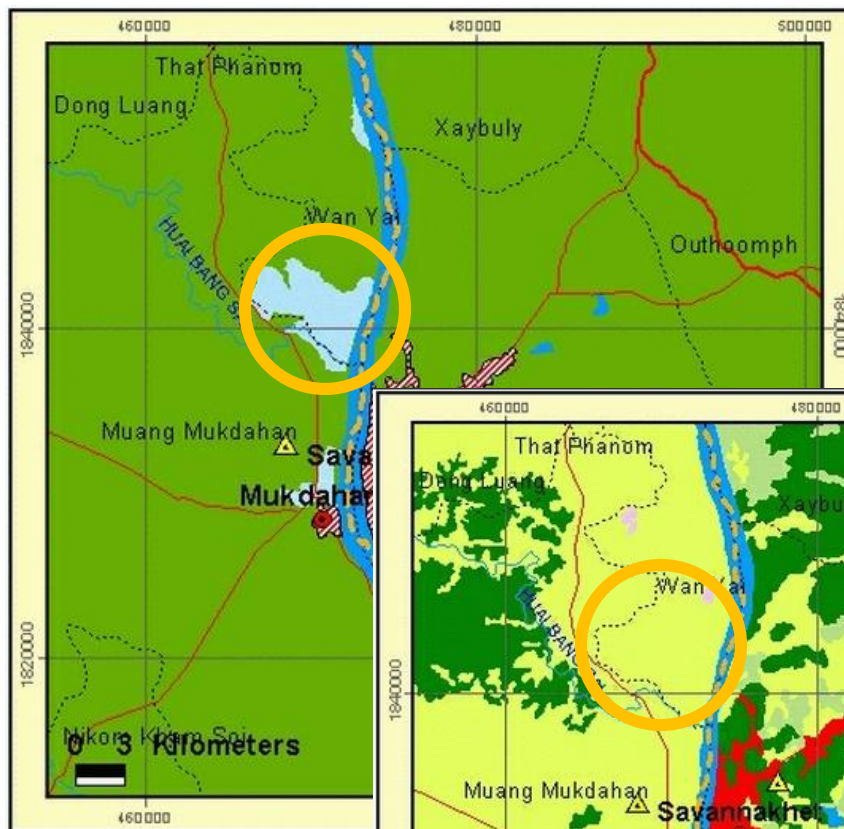
# Assessments (ປະຫວັດຄວາມເປັນມາກ່ຽວກັບ)

- Historical
  - Exposure
  - low lying areas
  - Sensitivity
  - land use
  - **Capacity**
  - protection



# Assessments (ປະຫວັດຄວາມເປັນມາກ່ຽວກັບ)

- Historical
  - Exposure
  - low lying areas
  - Sensitivity
  - land use
  - Capacity
  - Protection
  - Vulnerability



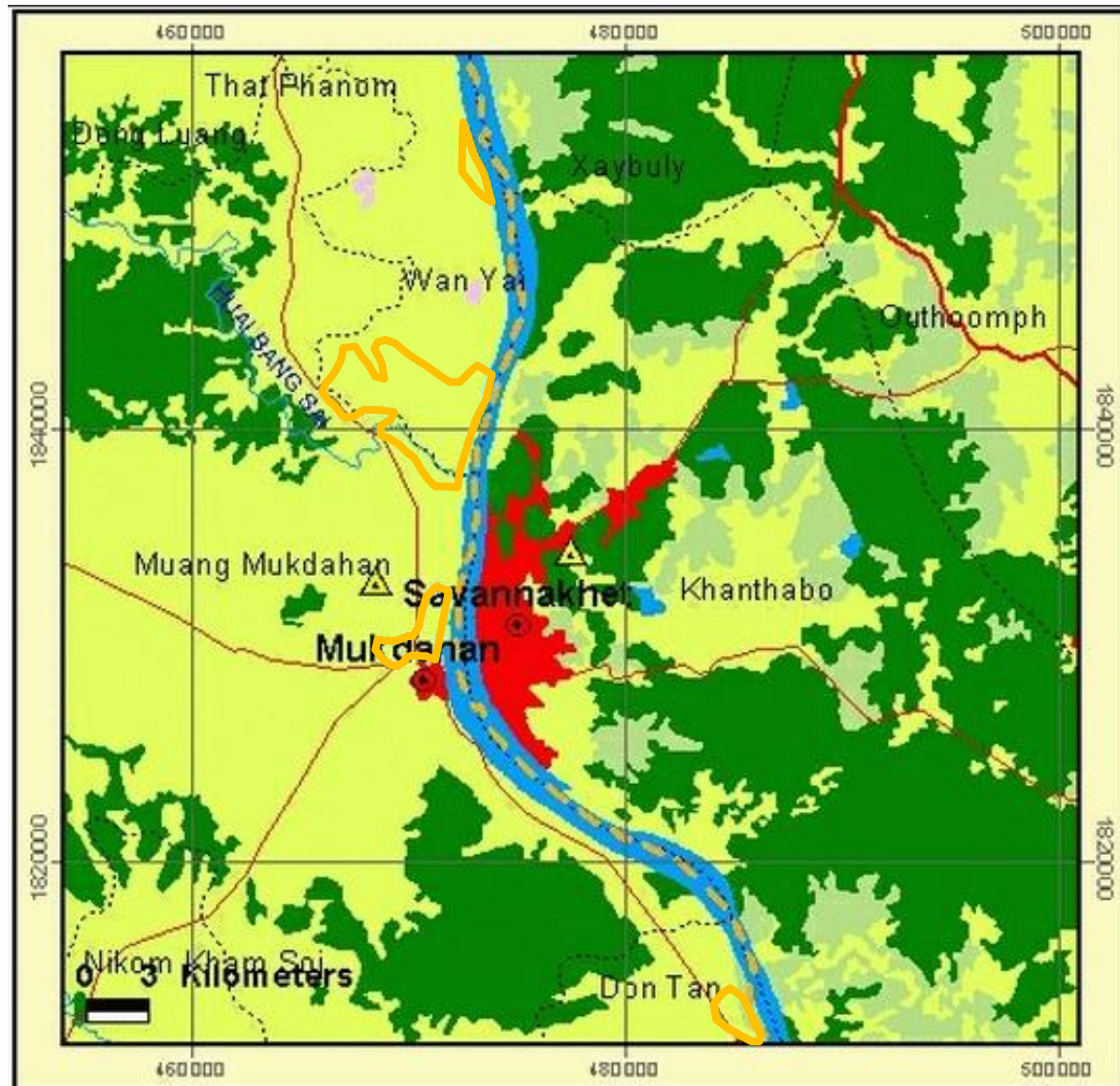


# Assessments: include

Quantify

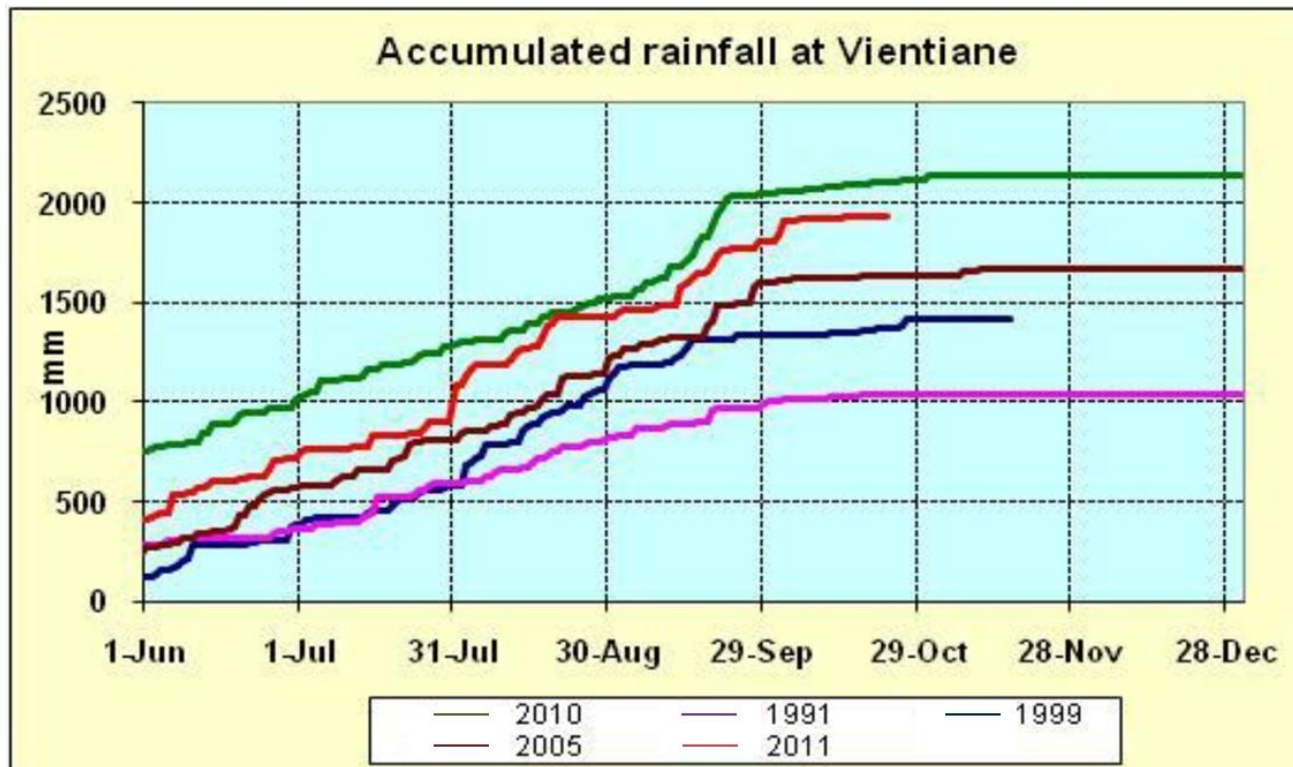
Vulnerable:

- Land
- People
- Property
- Value
- Damage



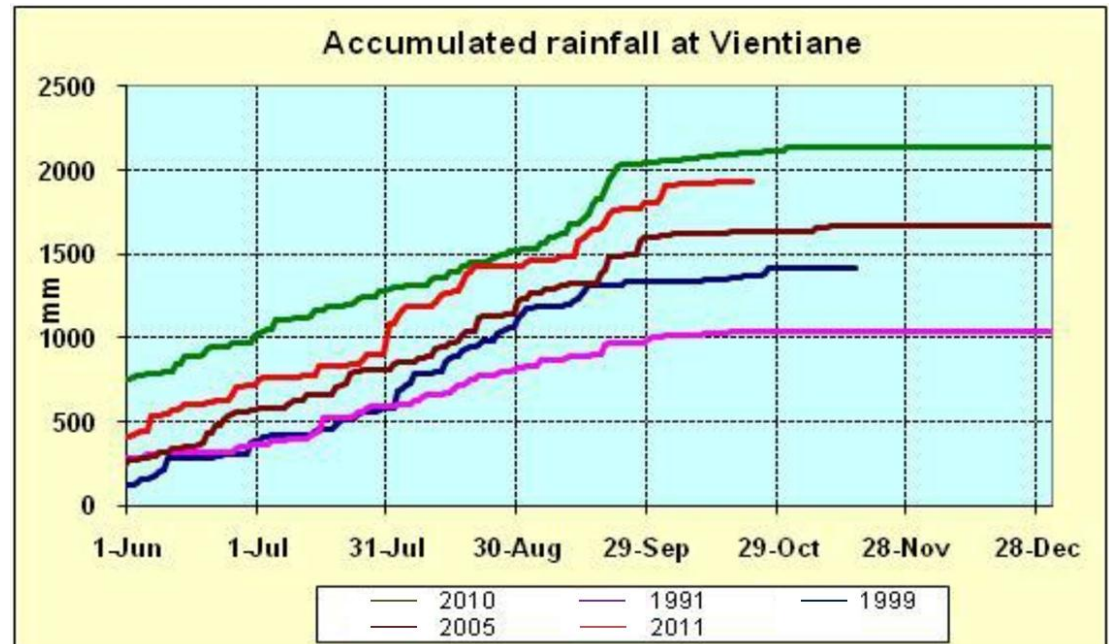
# Assessments

- Trend Analysis ອະນາຄົດ
  - project future conditions



# Risk List

- What are the threats?
  - List, how often?, how damaging?
  - Scenario Analysis

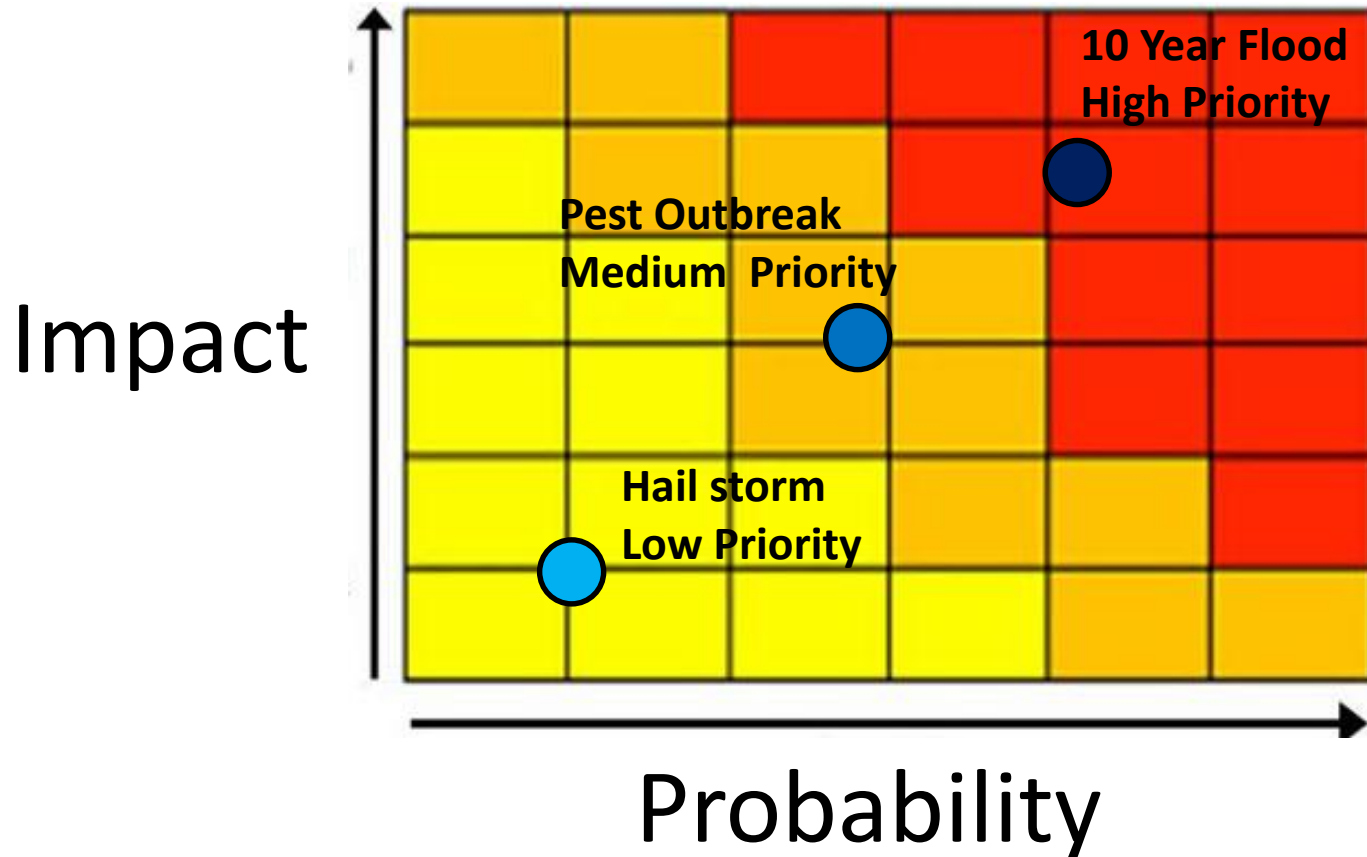


# Risk Priority ຄວາມສ່ຽງ ບຸນິມະສິດ

Low Impact/ Low Prob. = **Low Priority**

Medium Impact/ Medium Prob. = **Medium Priority**

High Impact/ High Prob. = **High Priority**

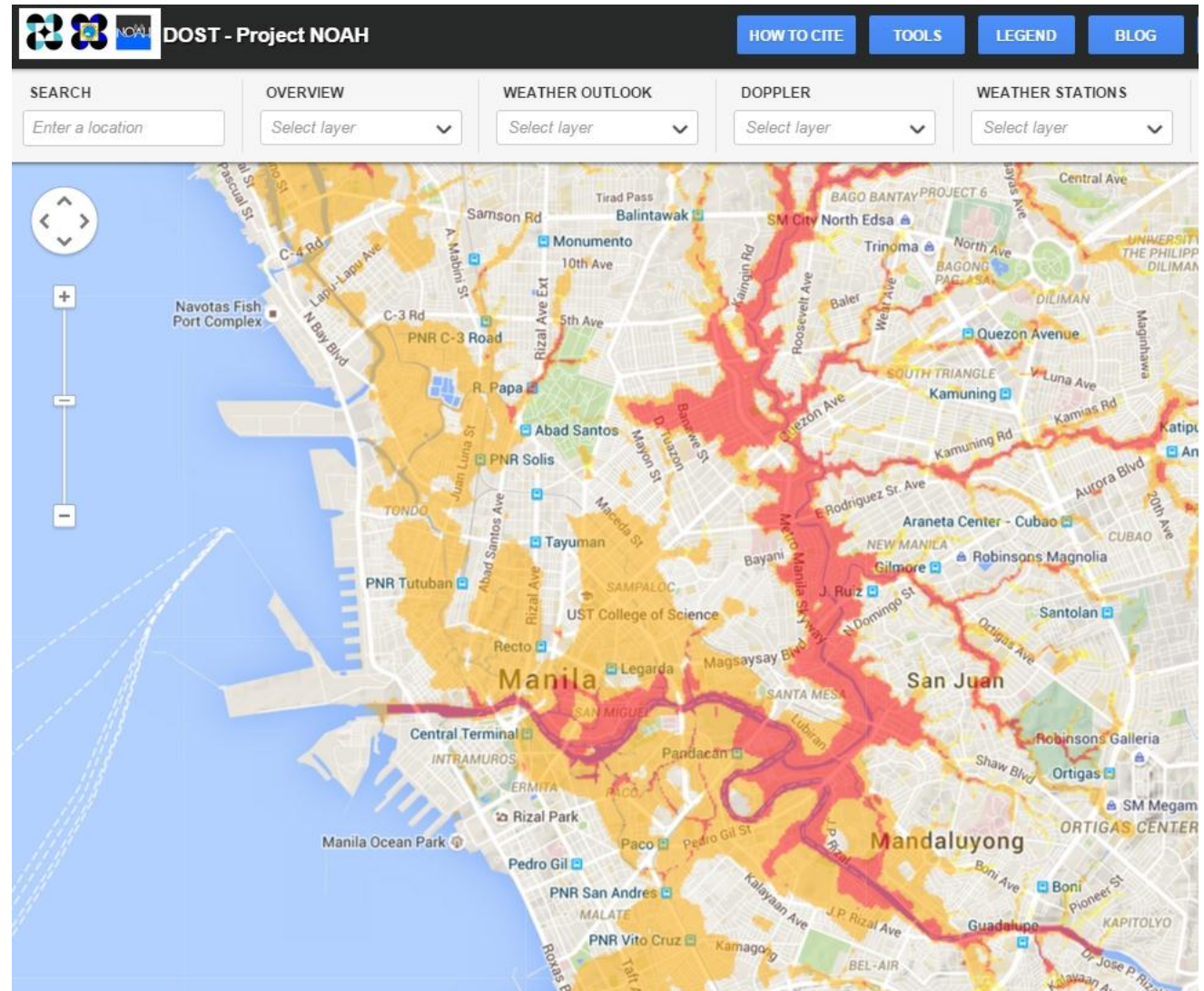




# Assessment Tools

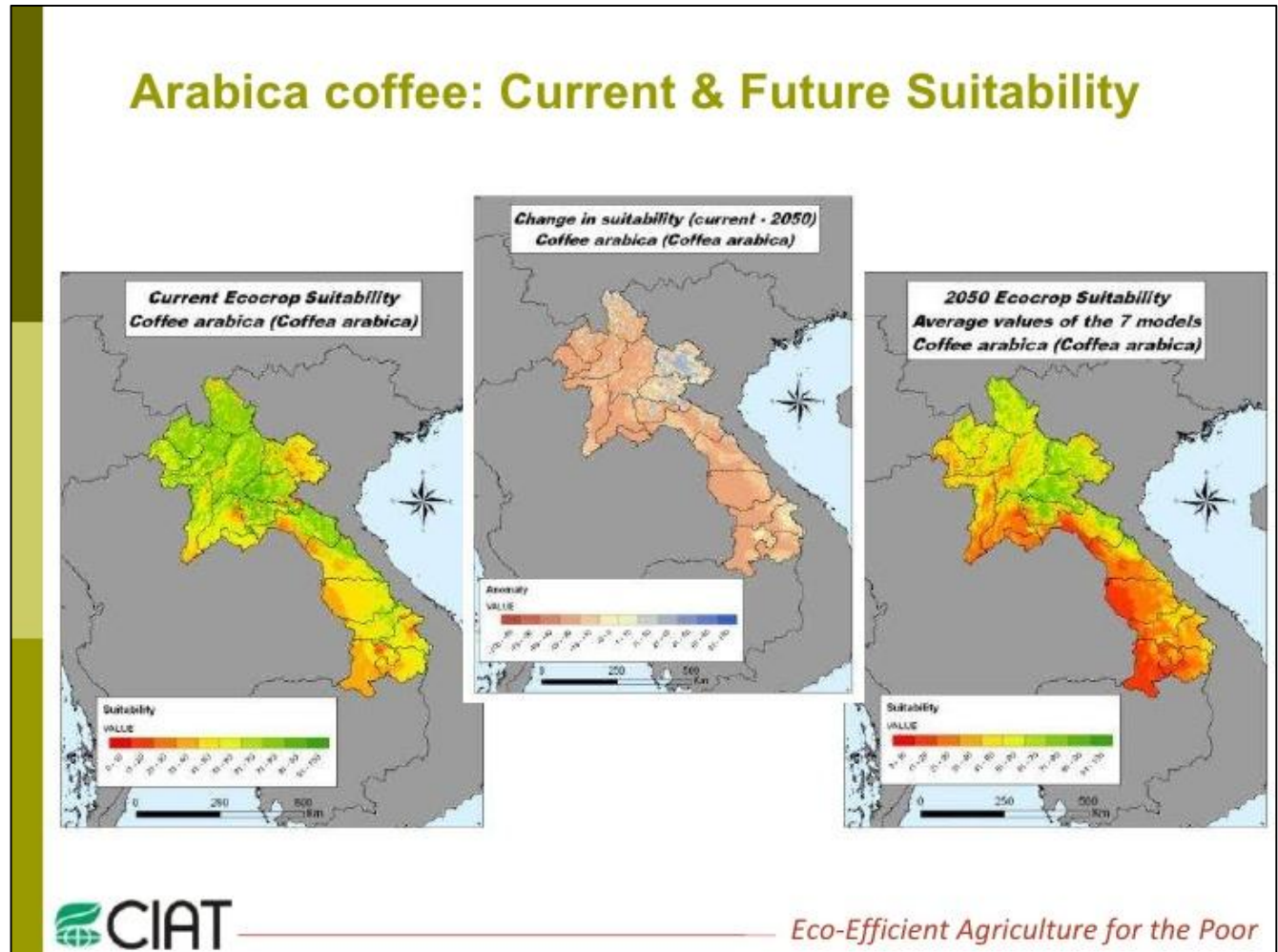
Many tools  
available:  
GIS,  
Websites,  
etc.

Manilla:  
100 year  
flood map



# Assessment Tools

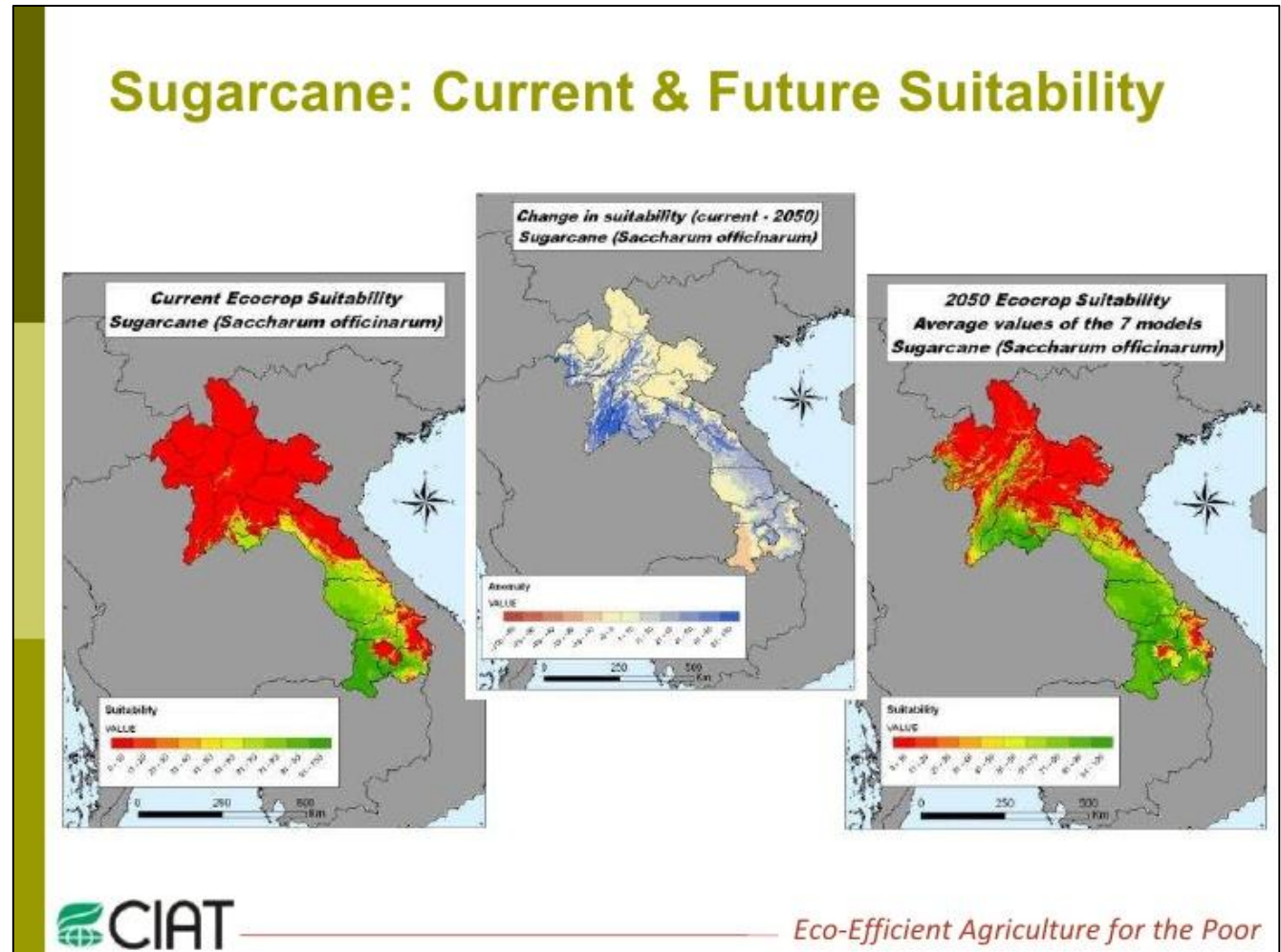
Same  
methods  
can also  
produce:  
  
Crop Maps





# Assessment Tools

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# Risk and Vulnerability Assessment in Agriculture

*Assessments are tools that help target your programs more effectively, and help you deliver better results!*

Thank You!

Questions?

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