

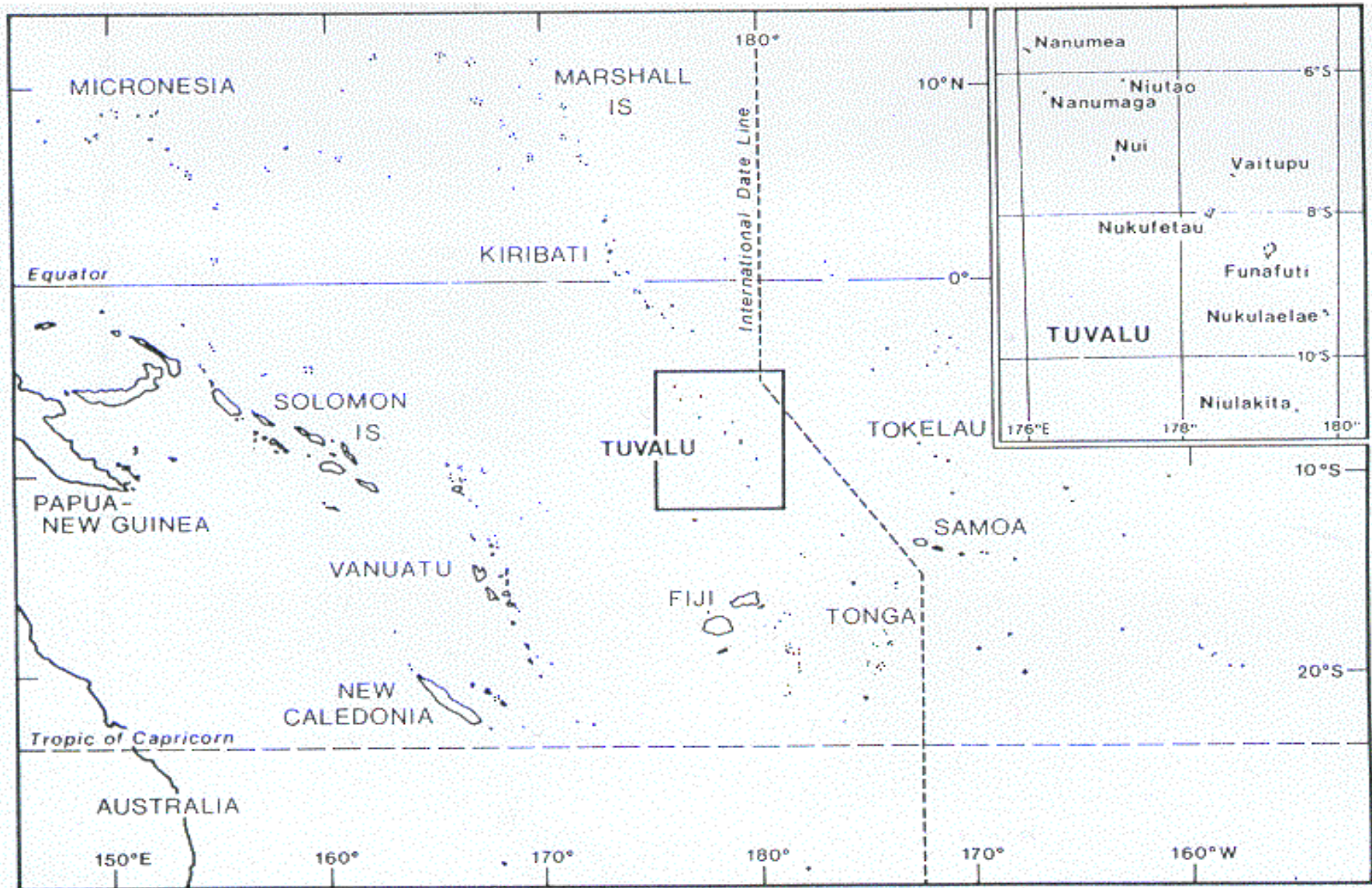
# Adaptation Experience in Tuvalu

Poni Faavae

# Agenda

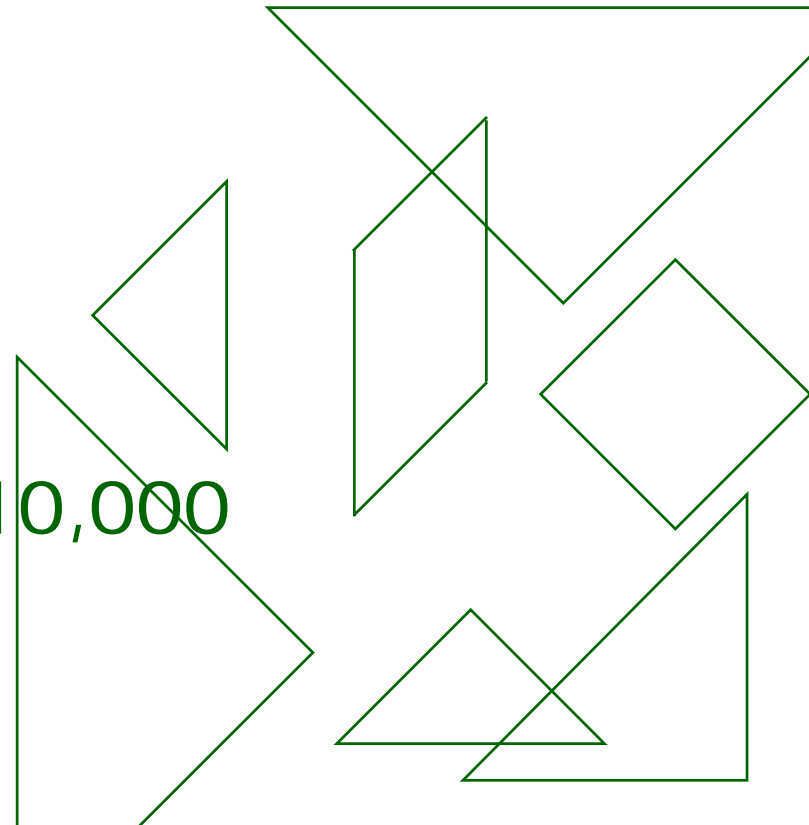
- ◆ General Overview of Tuvalu
- ◆ Coastal Biotic Resources Management
- ◆ Freshwater Management
- ◆ Coastal Erosion, Saltwater intrusion & Inundation

# Map of Tuvalu(Insert)



# Overview

- ◆ Tuvalu is a Low lying Country:
- ◆ Barely rising more than 3m above msl
- ◆ Composed of:
  - ◆ 5 Atolls
  - ◆ 3 Table-reef
  - ◆ 1 Composite
- ◆ Land Area of 26 sq km
- ◆ EEZ of 900,000 sq km
- ◆ Population of just over 10,000

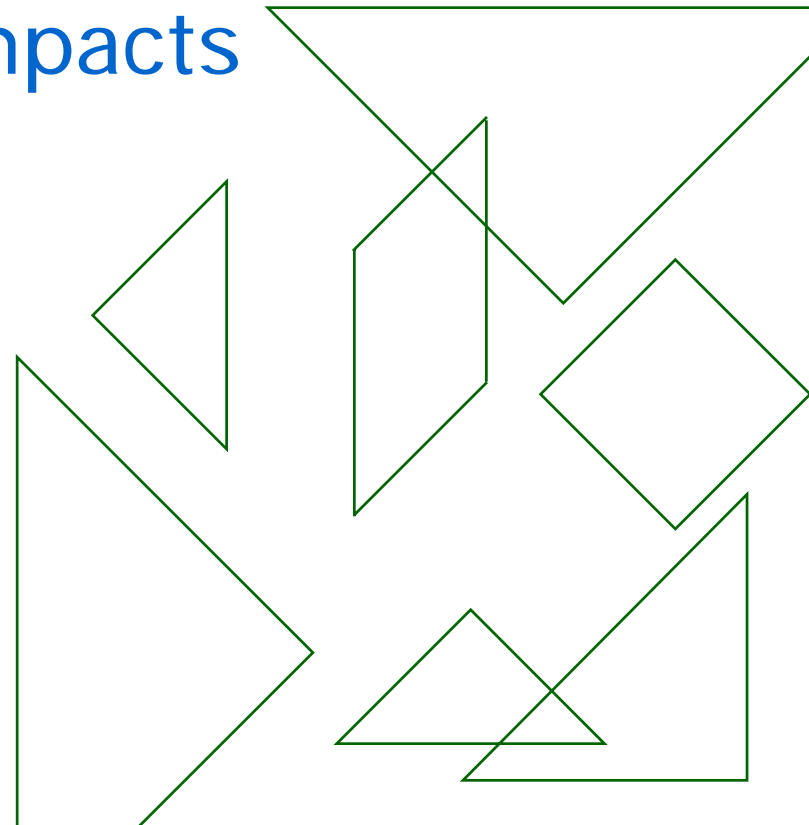


# Adaptation Capacity

- ◆ Tuvalu's Adaptation Capacity to Climate Change is:
  - ◆ **LOW** due to :
  - ◆ Lack of Technical Expertise and
  - ◆ Poor(classified as Least Developed)

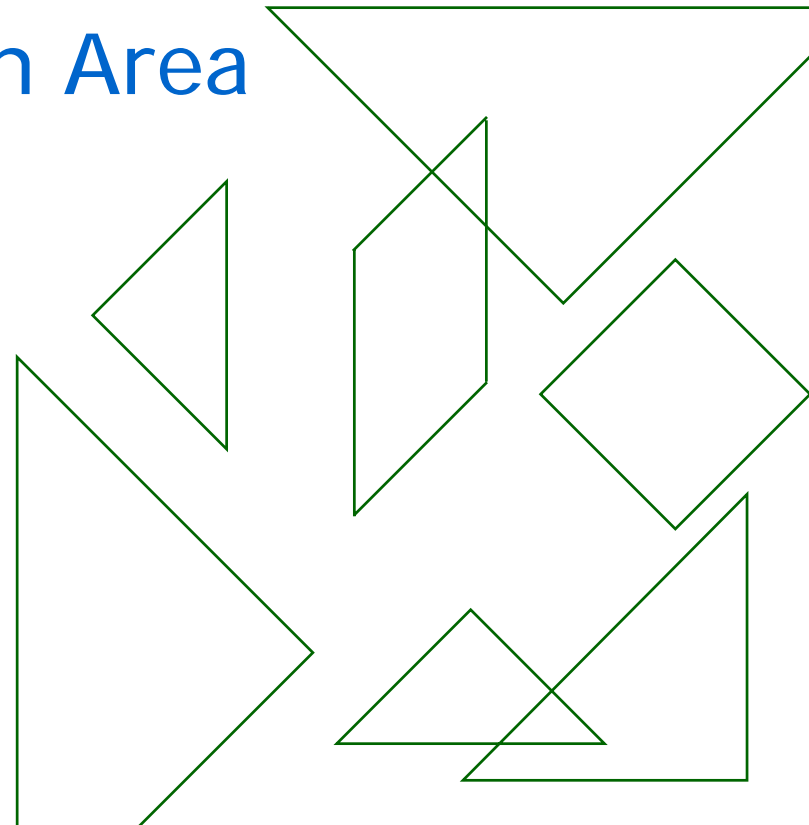
# UNFCCC Provisions

- ◆ Provisions in the UNFCCC will
- ◆ Amplify Tuvalu's Capacity to Adapt to Climate Change Impacts



# A. Coastal Biotic Resources

- ◆ Giant Clam (*Tridacna gigas*)
- ◆ Trochus shell (*Trochus niloticus*)
- ◆ Funafuti Conservation Area



# Why Manage Coastal Biotic Resources?

- ◆ Some resources are Close to extirbation
- ◆ as a result of:
  - ◆ Over-harvesting & Population Congregation (esp Ffti)
  - ◆ Impacts of Climate Change



# 1. Giant Clam

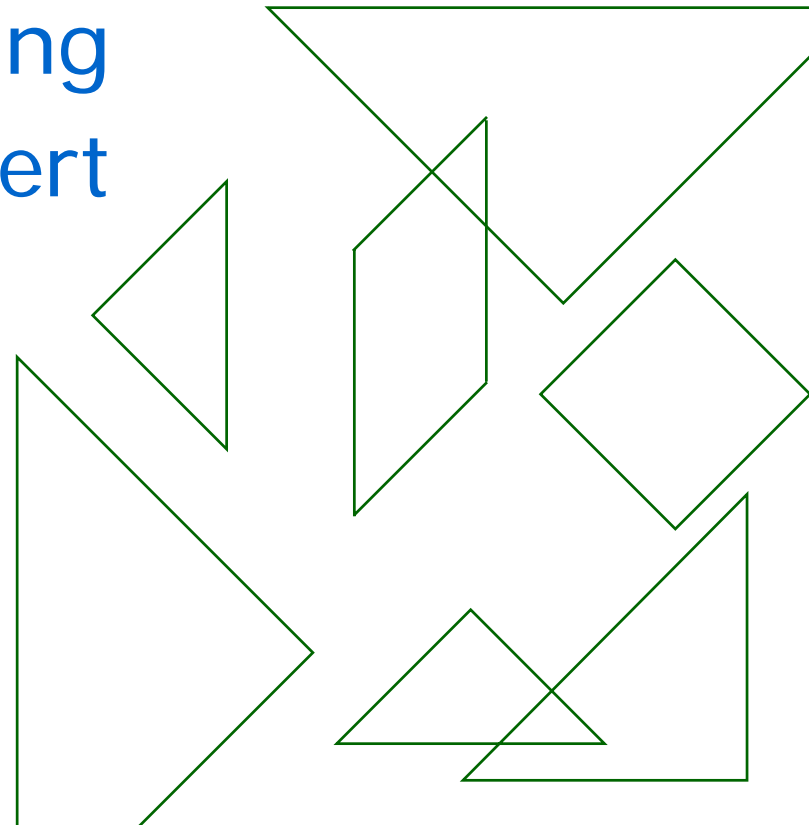
- ◆ *T. gigas* Introduced Species
- ◆ Why selected?
- ◆ Fast rate of Growth
- ◆ Early Reproductive age (after 2 years)
- ◆ High Reproductive Rate

# Sites for Giant Clam culture

- ◆ Original Site
- ◆ Abandoned
- ◆ Influx of Land/Coastal sediments drowning culture
- ◆ Present Site
- ◆ Too deep
- ◆ Frequently Disturbed (anchoring Boats)
- ◆ Clams Reproduced well

# Future Vision for clams

- ◆ 1. Juvenile clams transplanting to new sites
- ◆ 2. Improved monitoring
- ◆ 3. Training Local Expert

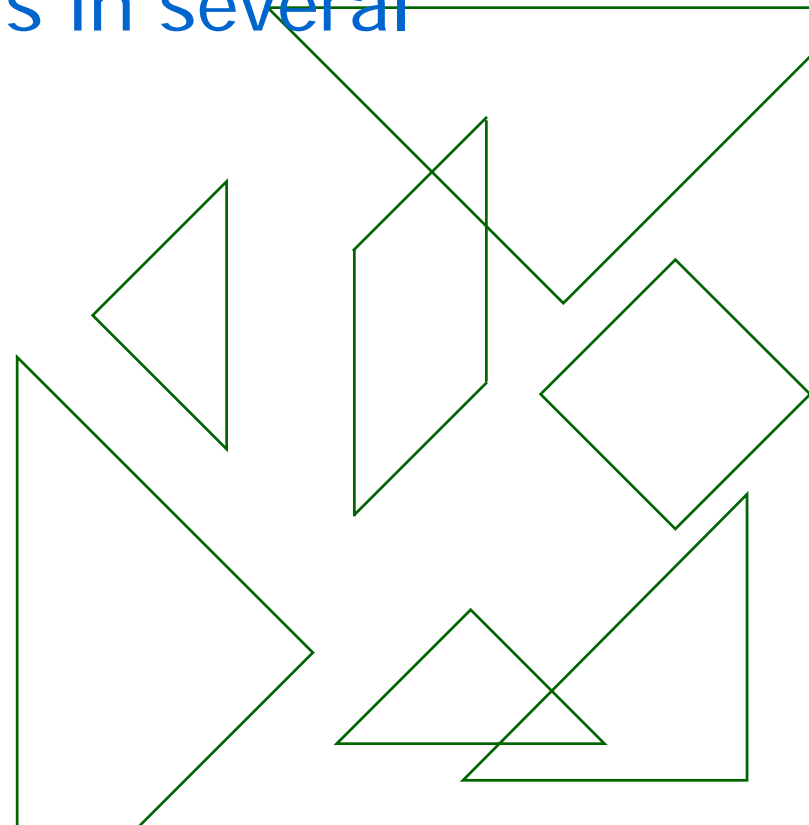


# 2. Trochus niloticus

- ◆ Primary AIM:
- ◆ Income Generating
- ◆ enhance adaptation programmes on coastal biotic resources.

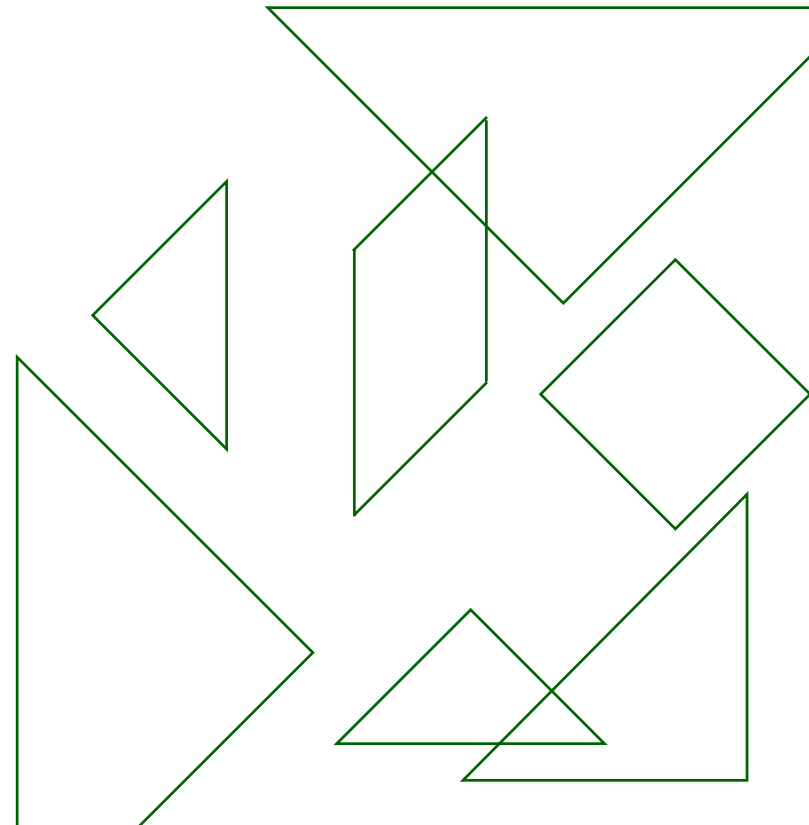
# Are *T. niloticus* reproducing?

- ◆ Doubt, no survey conducted yet, but
- ◆ Observers report
- ◆ Sighting juvenile *Trochus* in several regions



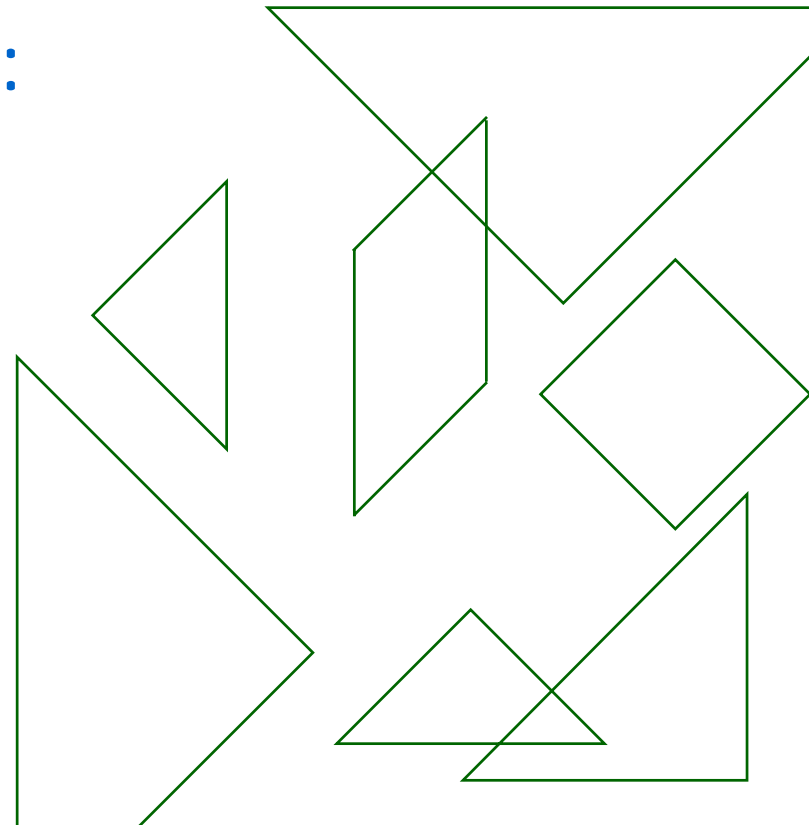
# Vision on Trochus niloticus

- ◆ Dispatched on new selected sites
- ◆ Training and Monitoring Project.



# 3. Funafuti Conservation Area

- ◆ Focus:
- ◆ Conservation of both:
- ◆ Terrestrial and
- ◆ Marine biota



# Conditions prior to Implementation

- ◆ Reef fish Biomass [ Reduced ]
- ◆ Nesting Birds Abandoned Area
- ◆ Land Crustacean Population [ Decreased ]
  - ◆ Most of small size (juveniles)



# Achieved Aim

- ◆ Reef fish Biomass (Increased)
- ◆ Birds returning to there nesting site
- ◆ Terrestrial Crustacean population Increased.
- ◆ Extension of conservation areas on to O/islands

# B. Freshwater Management

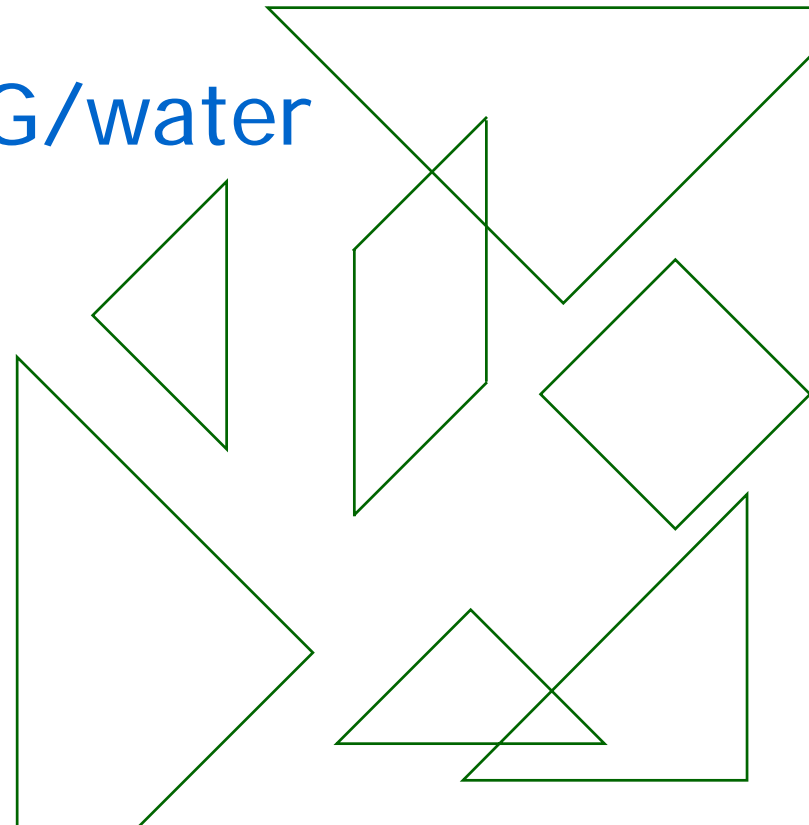
- ◆ La Nina following El Nino '97/'98
  - ◆ Drought Affect Tuvalu badly (esp. human & terrestrial vegetation)
- ◆ Importation of Desalination Plant
- ◆ Partially meet the demand on O/Islands.
  - ◆ Not on Funafuti.

# Adaptation

- ◆ Projects (increase water storage capacity)
- ◆ TNCW Water Project (current)
- ◆ Climate Change Project (under development)
- ◆ Promote Groundwater Management and Use

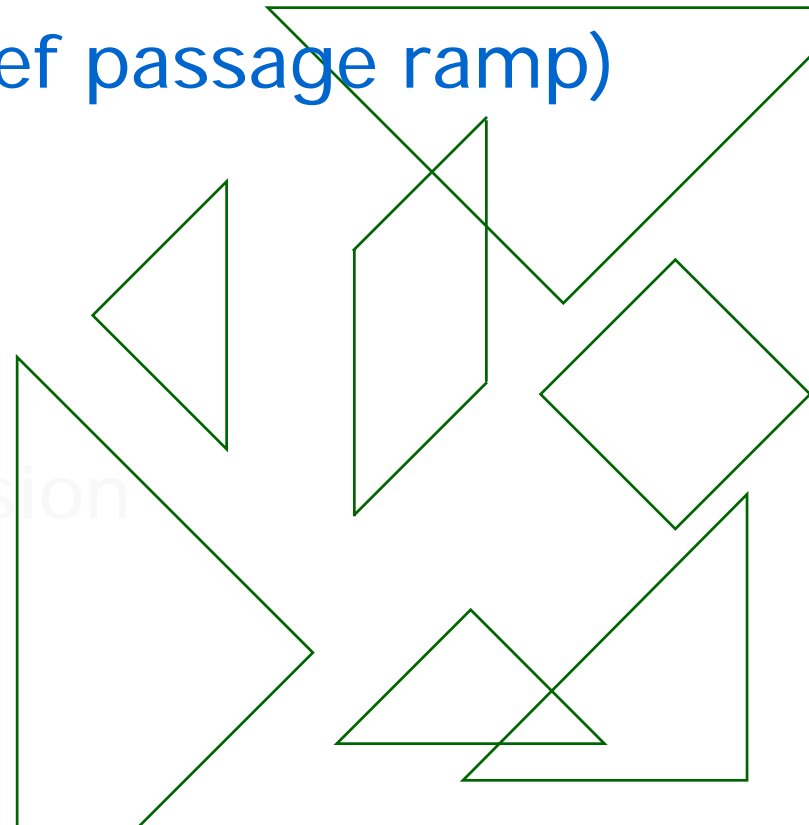
# Problems of Groundwater Use

- ◆ Uncertainty in the Degree of Contamination.
- ◆ Increased salinity of G/water



# C. Coastal Erosion

- ◆ Main cause of Pulaka (*chamissonis*) pit salination.
- ◆ Enhanced by:
  - ◆ Coastal Development(reef passage ramp)
  - ◆ Removal of Beach
  - ◆ Sand and
  - ◆ Gravel
  - ◆ Promote Saltwater intrusion



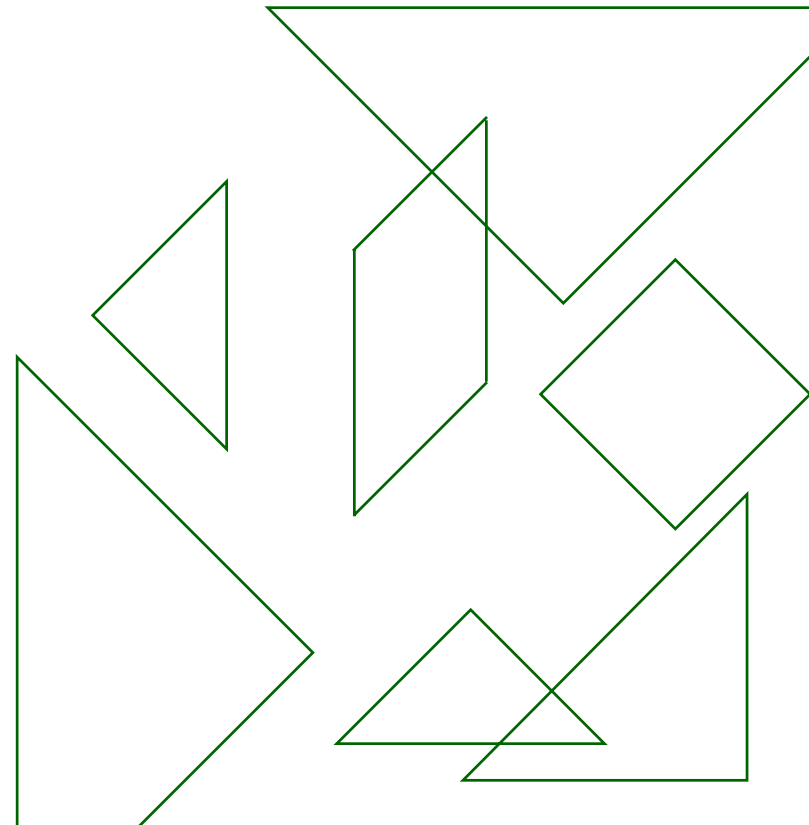
# Adaptation Measures

- ◆ Seawalls / Coastal Defenses.
- ◆ Effective in controlling
- ◆ In-situ erosion and
- ◆ Ineffective in controlling
- ◆ Saltwater Intrusion



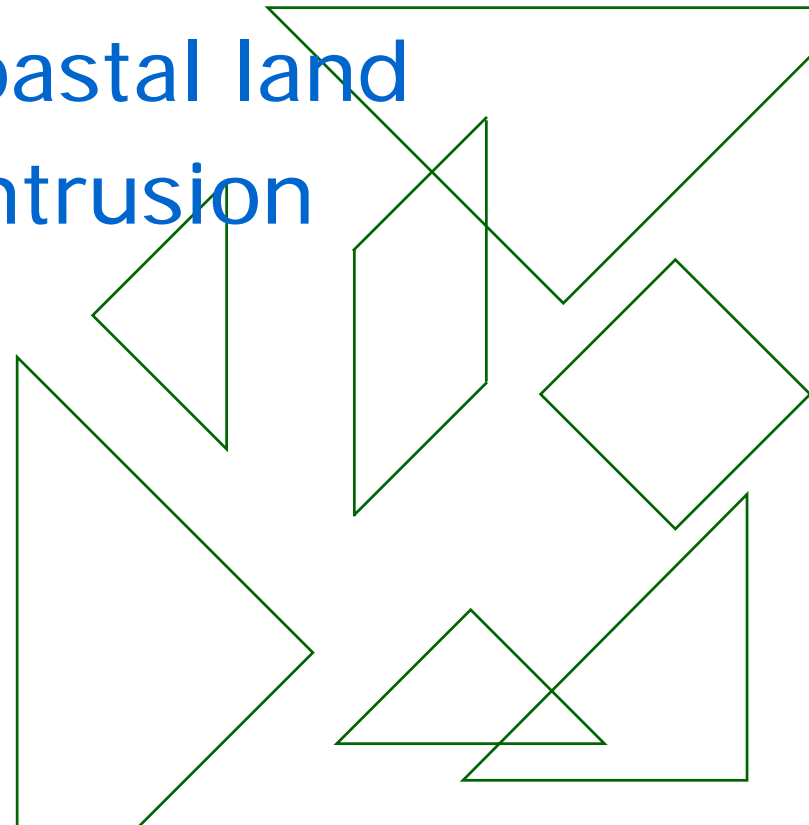
# D. Saltwater Intrusion

- ◆ Two routes of intrusion.
- ◆ Via Lateral Flow
- ◆ Via Blowholes



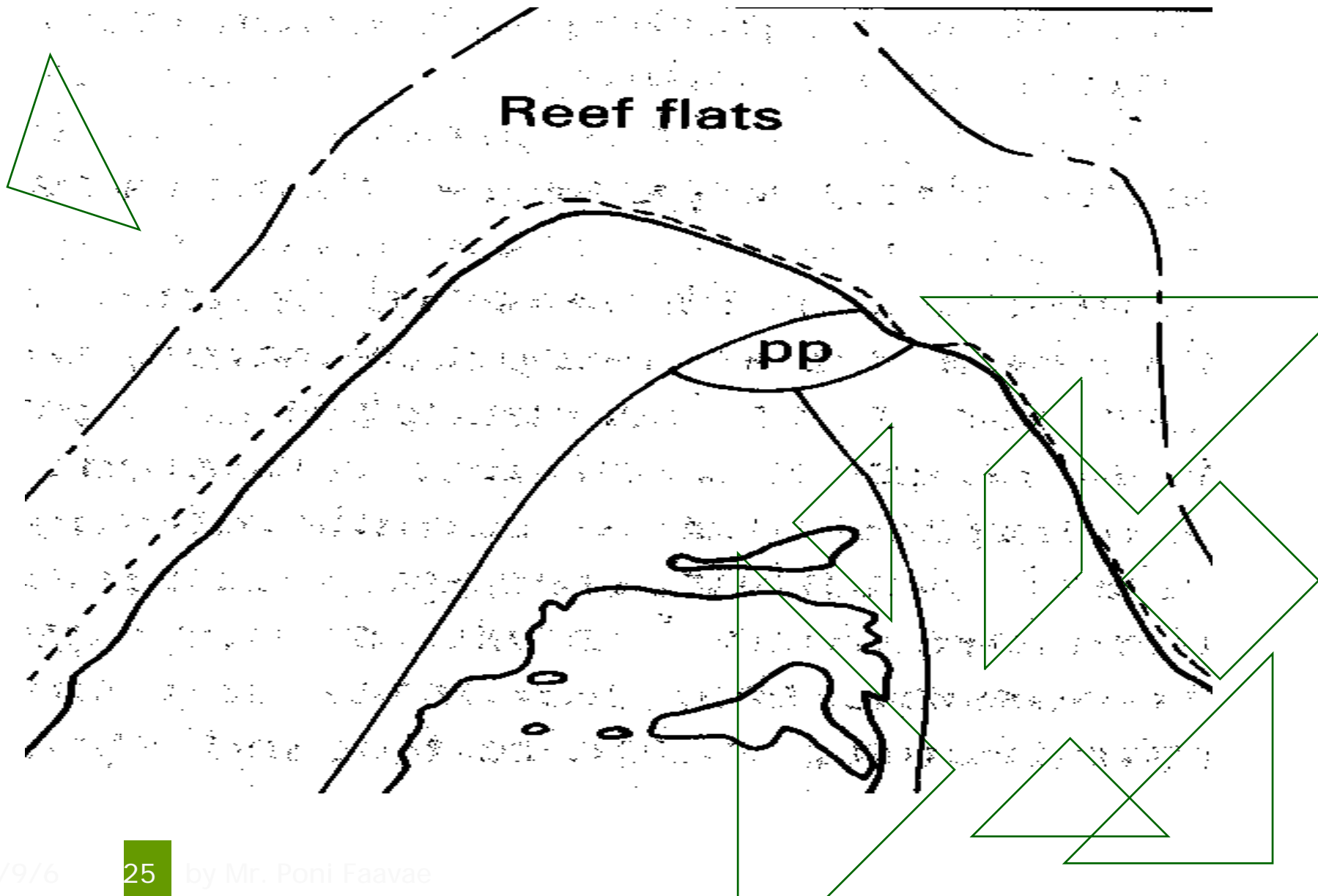
# a) Lateral Flow

- ◆ Case on Nanumaga :
- ◆ Erosion
- ◆ causes thinning of coastal land
- ◆ Promotes saltwater intrusion





# Photo of Nanumaga



## b) Blowhole

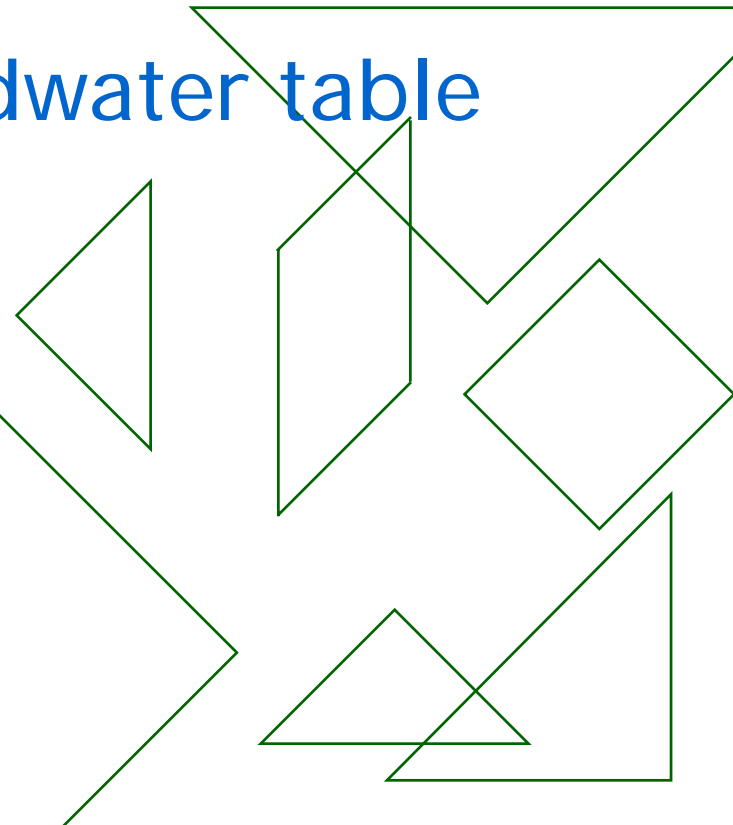
- ◆ Case on Vaitupu :
- ◆ New problem
- ◆ Plantation located approx. 300m from coast.
- ◆ From observation:
- ◆ Destruction to vegetation is intense around blowhole

- ◆ Consultation with Island Elders reveals:

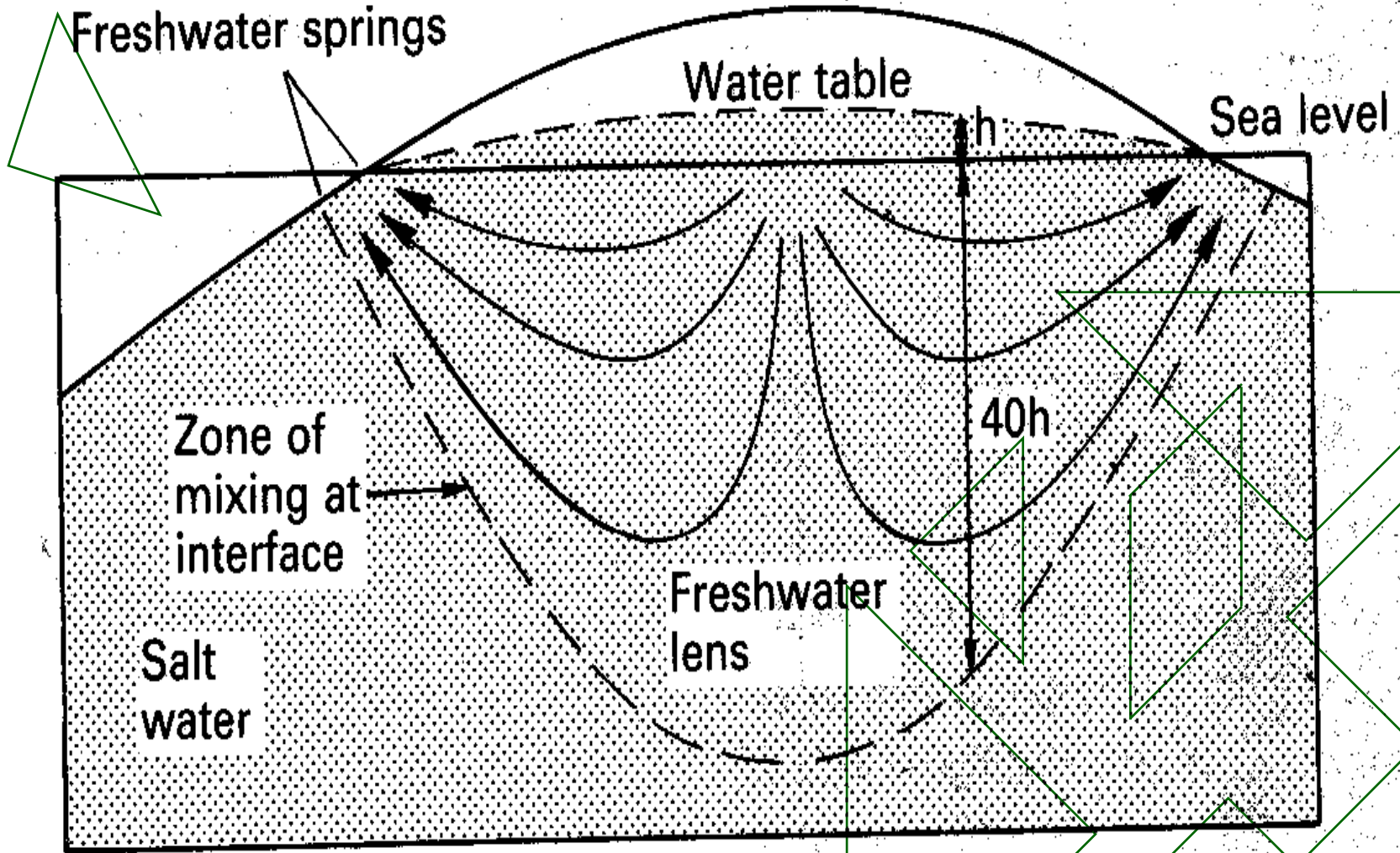
- ◆ Over-extraction of Groundwater(Motufoua Secondary School)

- ◆ Thinning of the Groundwater table results in:

- ◆ Upwelling of Saltwater

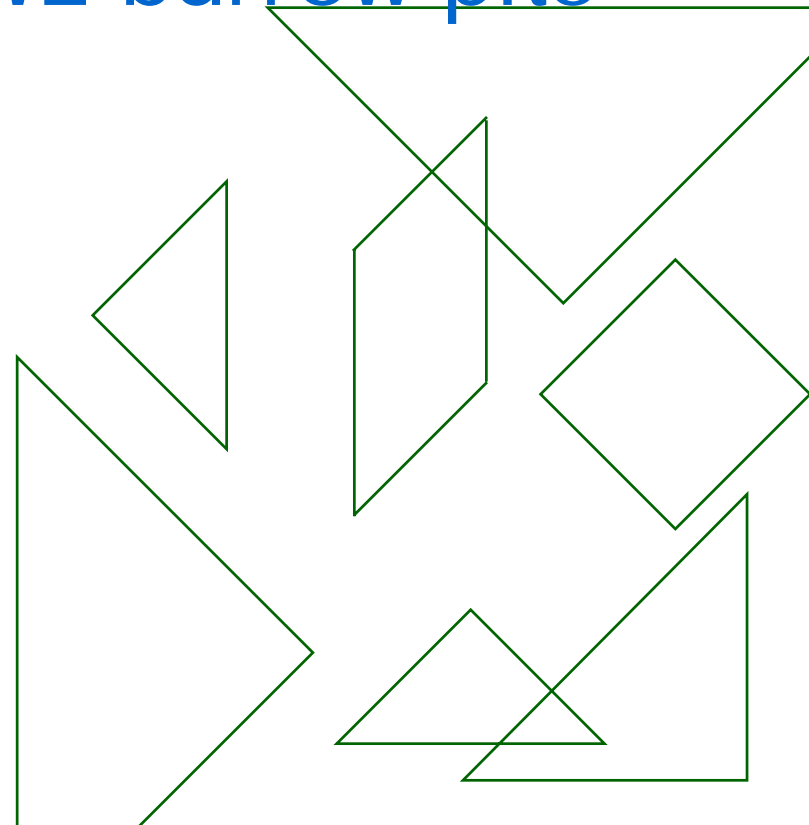


# Gyben-Hertzberg

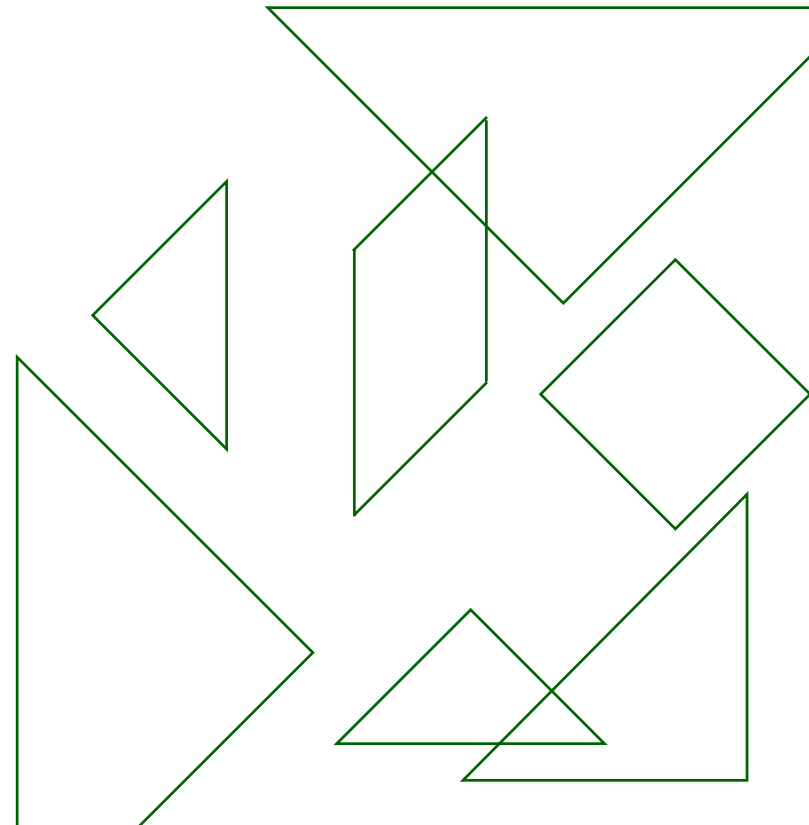
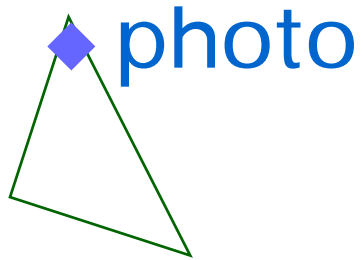


# D. Inundation

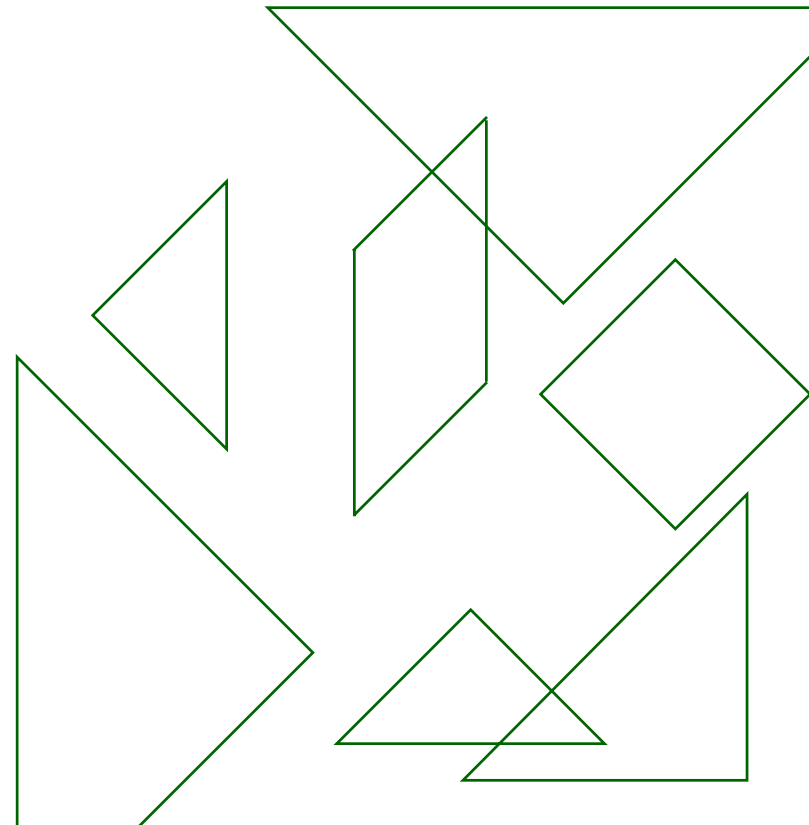
- ◆ Most cases result from
- ◆ Water upwelling from blowholes
- ◆ Overtopping from WW2 burrow pits



# Water upwelling



# Water over-topping



# E. Future Consideration:

- ◆ All Developed Countries to take a more constructive Role in the Climate Change Negotiation

