

Territorial strategic planning: Livelihoods and watershed management to climate change adaptation



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Megadiverse country :
10% of planet Biological Diversity



High lands – Lake Atitlan



Coniferous forests



Pine – Oak forests



Cloud forests



Seasonal dry forest



Horned guan

(Fotografía de Javier Rivas Romero)



Pink-headed warbler

(Fotografía de Dominic Sherony)



Blue tanager

(Fotografía de Dominic Sherony)



Quetzal

(Fotografía de Spiderhuette)



Ocelot

(Fotografía de Melanie Thyssen)



Puma



Spider monkey

(Fotografía Michele Roman)



Oso Hormiguero

(Fotografía de Dirk van der Meer)

**GUATEMALAN
HIGHLANDS**



(Fotografía de mundochapin.com)



**Human and social
resources**

(Imágenes de José R. Ranea Q)



(Fotografías de visionguatemalablog.blogspot.com)

Traditional weaving





(Foto de Prensa Libre; Edgar R. Sáenz)
(Escultor: Diego Flaviano Chávez Quiévaco)



Artcratfs

(Foto de www.arsan018.com)
(Escultor: Nicolás Chávez Sojuel)



Local traditional foods

(Foto de www.guatemalafotos.files.wordpress.com)



(Foto de María de los Angeles López)

Cultural resources



(Fotografía de mundochapin.com)

Archaeological site Chuitinamit



(Fotografía de www.centro-antico.com)

Subaquatic archaeological site: samabaj



(Fotografía de Roberto Samayoa Asmus)



(Fotografía de Roberto Samayoa Asmus)



Mayan spirituality practices

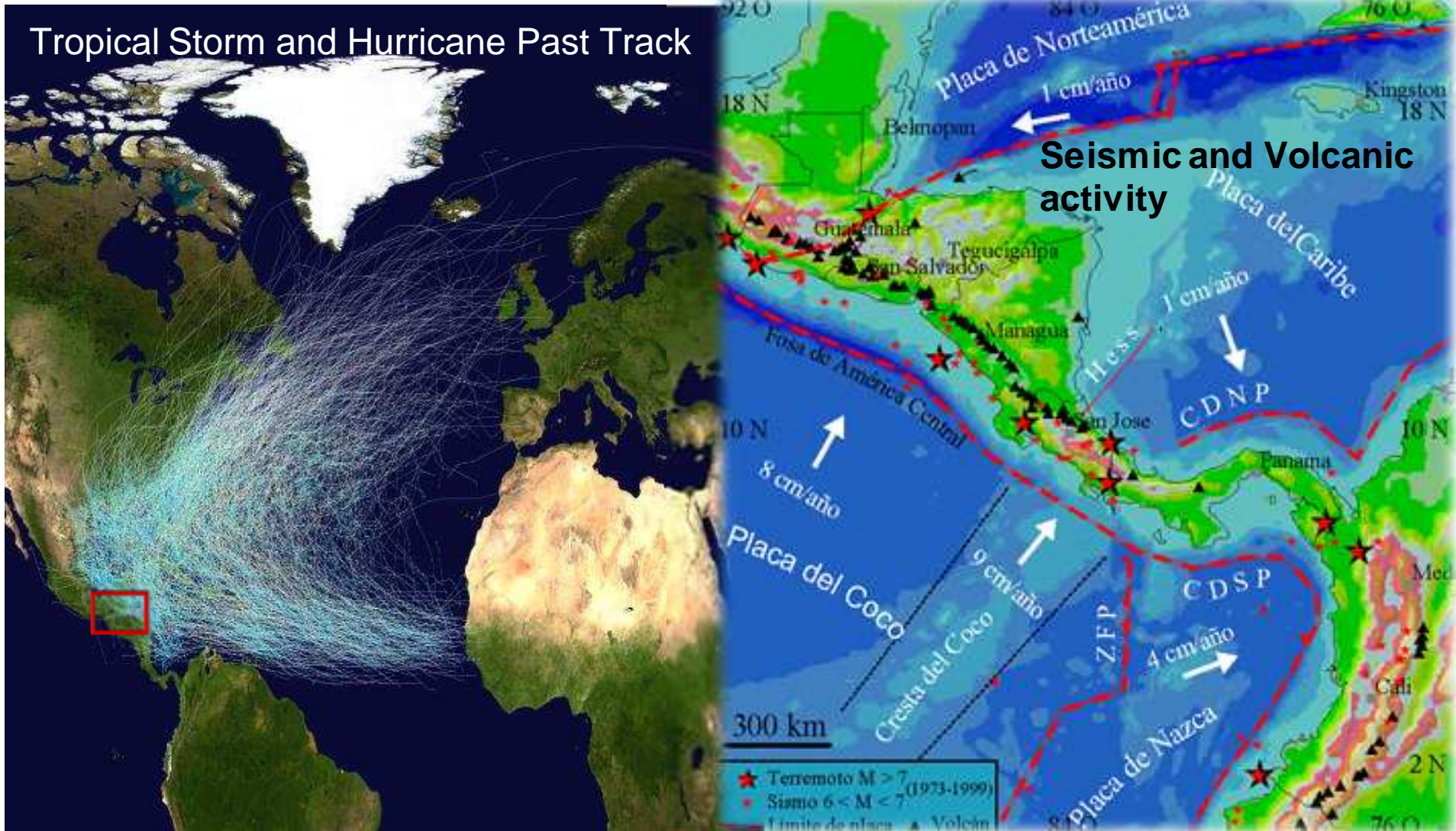


Colonial churches



Guatemala: Ten most vulnerable country to climate change *(Germanwatch, 2014)*

Tropical Storm and Hurricane Past Track



**Landslides San Lucas Tolimán
(TS Agatha 2010)**



**INCREASE IN CLIMATE-RELATED
EVENTS (1998 – 2014)**



San Francisco River (TS Agatha 2010)

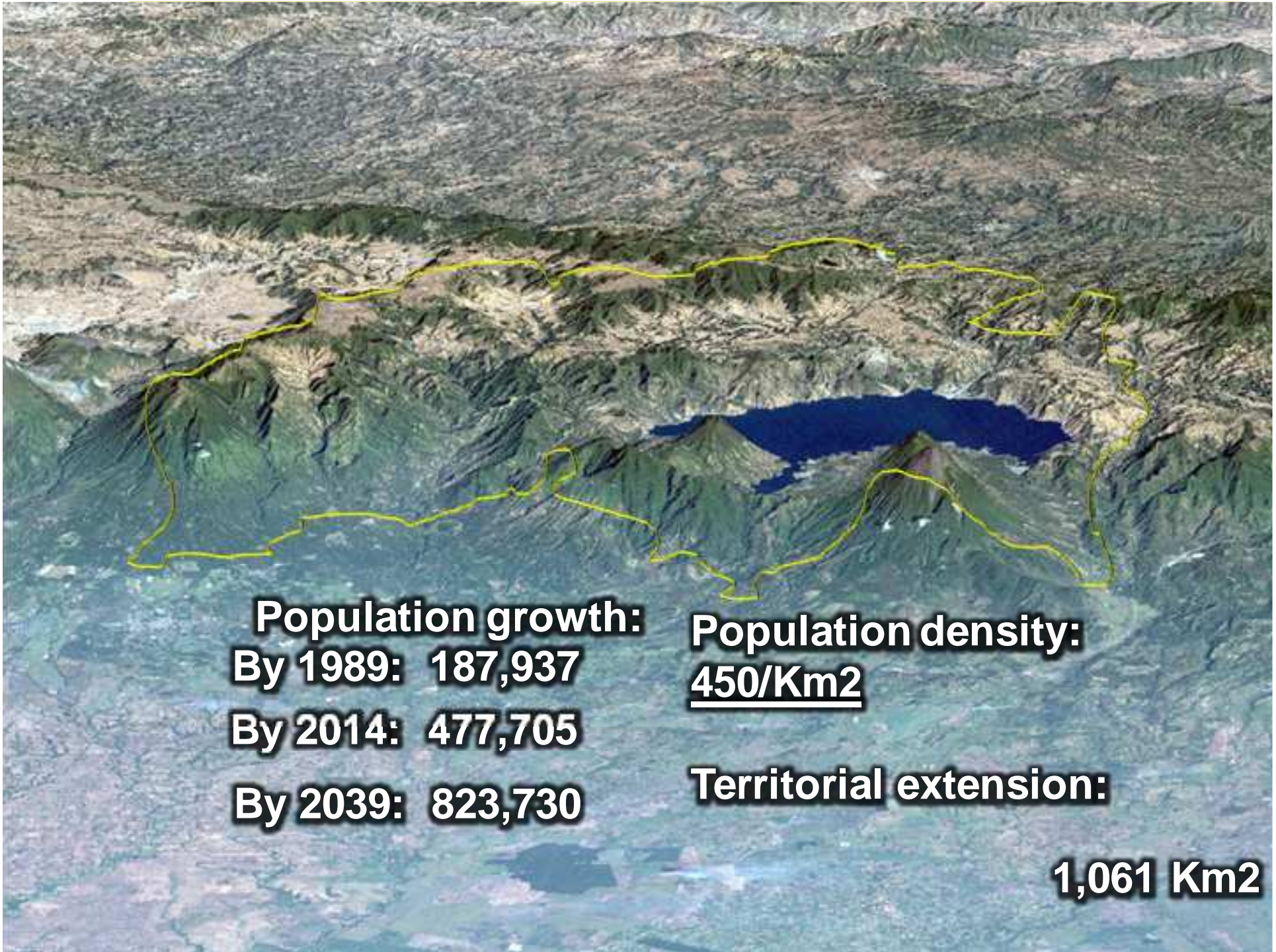


San Francisco River (TS Stan 2005)





**Community migration and resettlement
(Stan 2005)**



Population growth:
By 1989: 187,937
By 2014: 477,705
By 2039: 823,730

Population density:
450/Km²

Territorial extension:

1,061 Km²

Population vulnerability

- **Poverty: 77.5%**
- **Extreme poverty: 18%**
- **Analphabetism: 21.3% Men
23.6% Women**
- **High primary school abandonment: 28%**
- **High children chronic malnutrition: 72.3%**
- **High children mortality (< 1 year): 25 in 1,000 born alive**
- **High maternal mortality: 96 in 100,000 born alive**



Ecosystems vulnerability



Extended forest fire season



Increase in cyanobacteria blooms (Lake Atitlan 2009)

INTEGRATED CLIMATE-RISK RESILIENT WATERSHED MANAGEMENT (2011)

Step 1: Watershed social and environmental characterization

- **Demographic features**
- **Watershed limits**
- **Climate events and history**
- **Hydrogeological and soil features**
- **Land use and zoning**

Volcanic chain

An aerial photograph of a rural landscape. The terrain is hilly and terraced, with various shades of green, brown, and yellow indicating different types of vegetation and agricultural fields. A prominent feature is a large, deep, eroded gully or ravine that cuts through the center of the landscape, showing exposed reddish-brown soil. The overall scene suggests a region with significant soil erosion and agricultural activity.

Step 2: Livelihood strategies and resources participatory assessment

- Rural communities key strategies
- Common interests (*opportunities and weaknesses*)
- Current state of communities resources (*water, soil, forests*)

Situation awareness:

- **Small ownership and high demand on land for agriculture**
- **High dependence on annual crops (*corn-beans*)**
- **High soil erosion**
- **Low income**

Step 3: Territorial strategic planning based on climate risk-watershed management

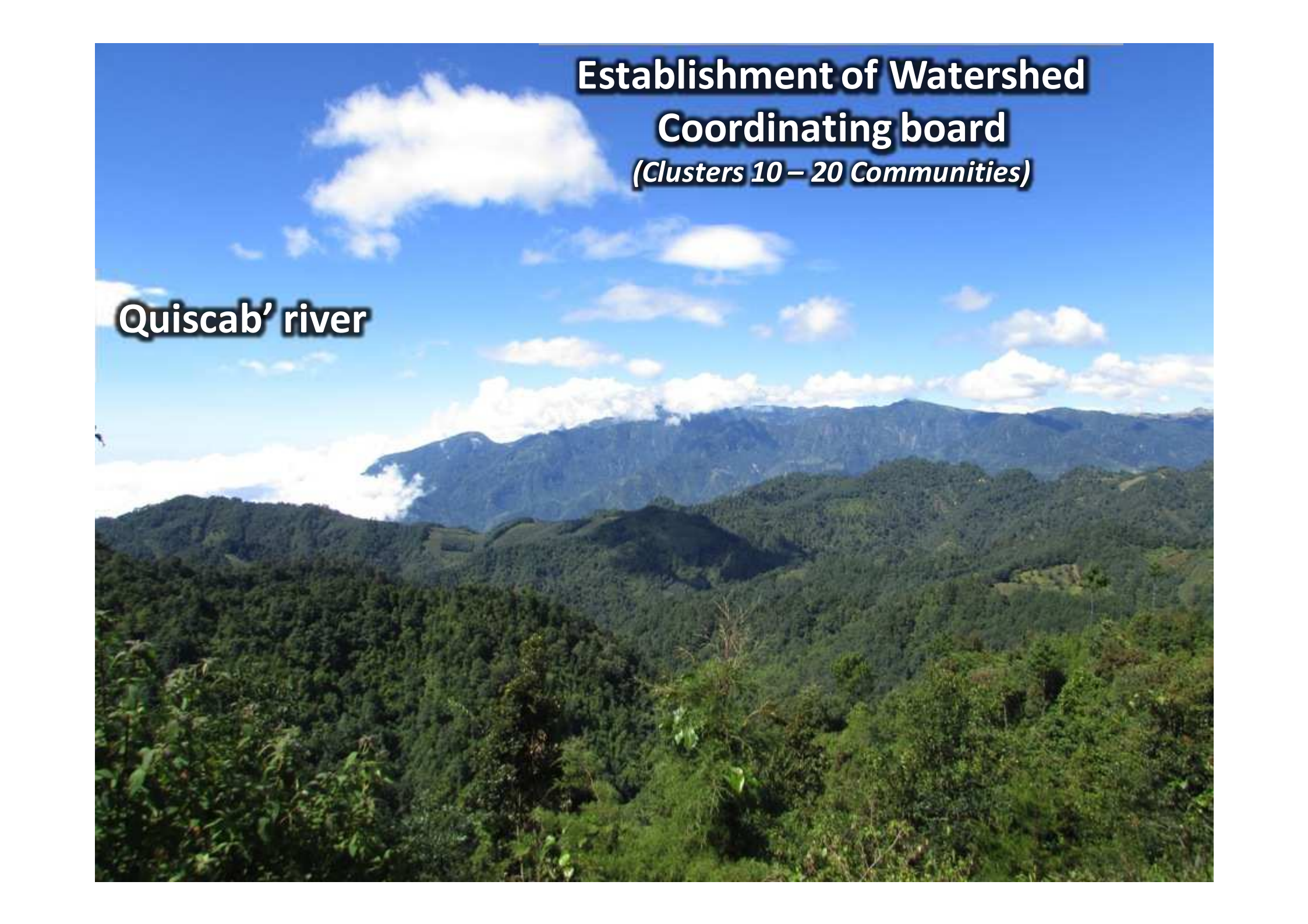
- A local territorial vision promoting changes (*actual to expected*)
- Key strategic goals and success criteria
- Strategic project initiatives (*adaptation*)
- Stakeholders platform

Participatory process



Principle of social and gender equity





**Establishment of Watershed
Coordinating board**
(Clusters 10 – 20 Communities)

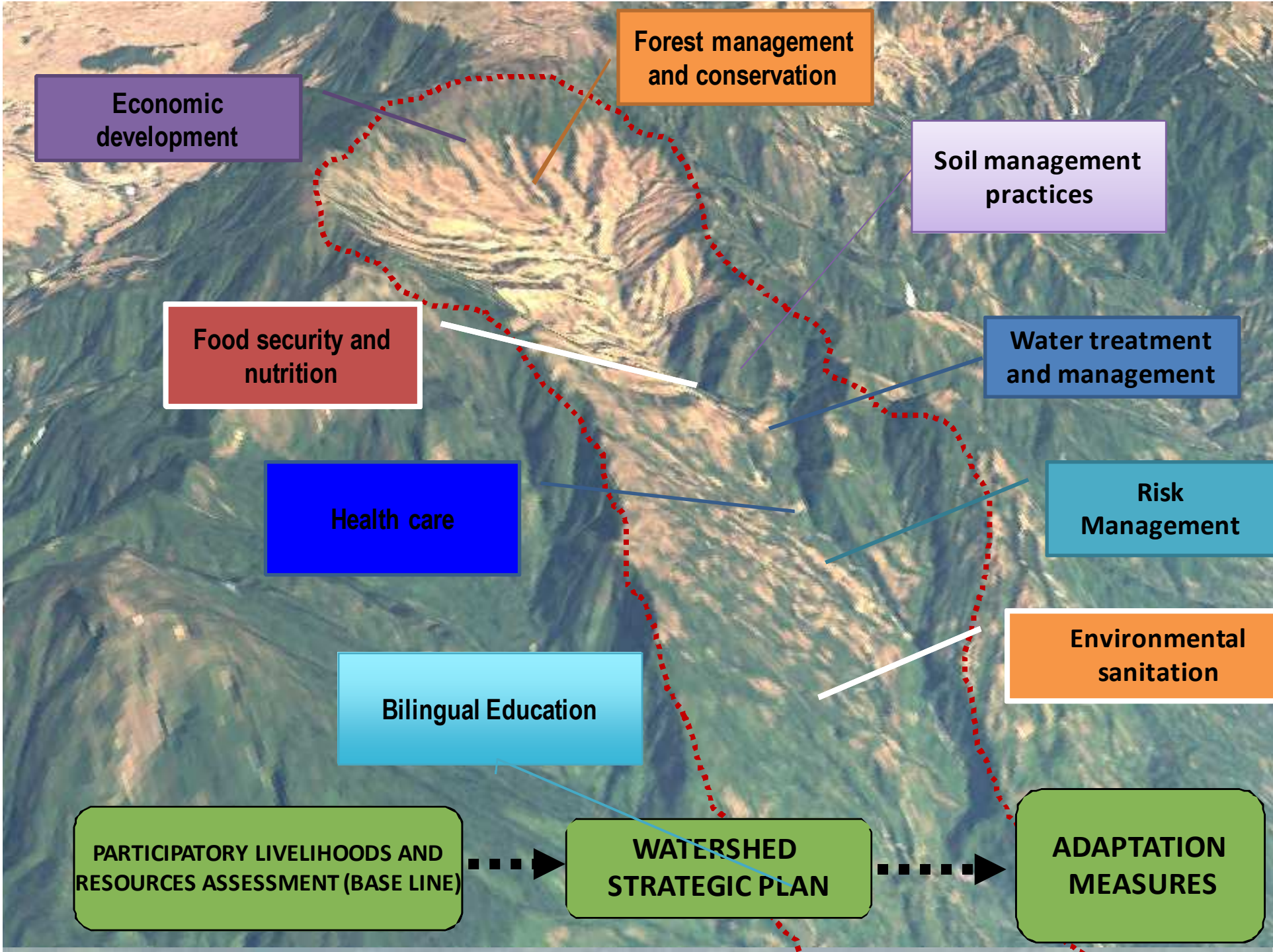
Quiscab' river

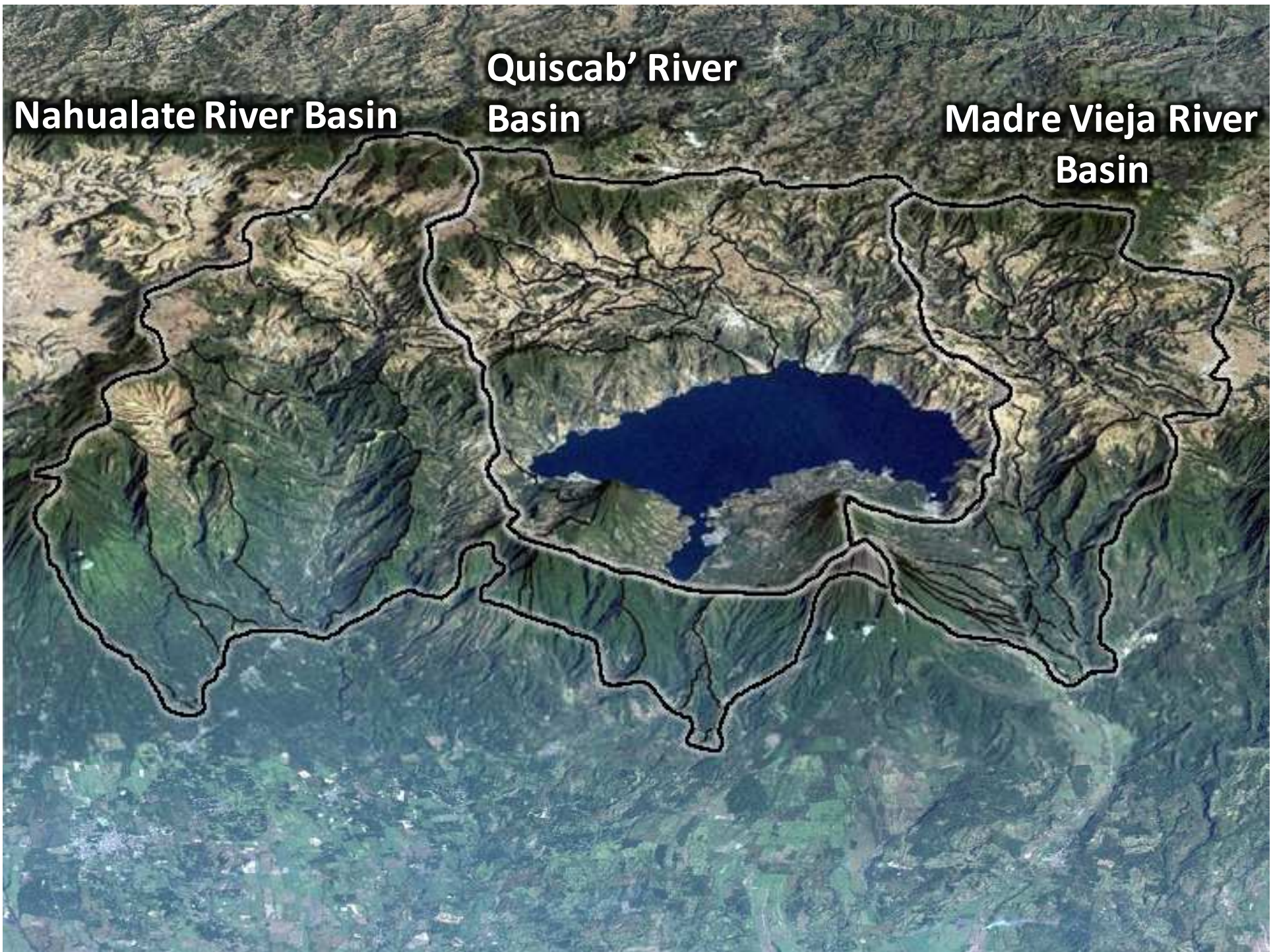
Tzozomá River



Masá River







Nahualate River Basin

**Quiscab' River
Basin**

**Madre Vieja River
Basin**