

Mapping vulnerability in mountains

Rosalaura Romeo - IPROMO 2015



Mountain Partnership



In this presentation:

- **Why** this study?
- **Definition** of mountains
- Mountain **areas** of the world
- Mountain **population**
- **Methodology** to estimate vulnerability to food insecurity
- **Vulnerable** mountain people
- **Conclusions**



Why this study?

- Provide **updated disaggregated data** (last study: 2002)
- Understand **trends** along a decade
- Inform **policy making**
- Basis for further **research**
- Support **advocacy** campaigns
- Promote **investments** in mountains



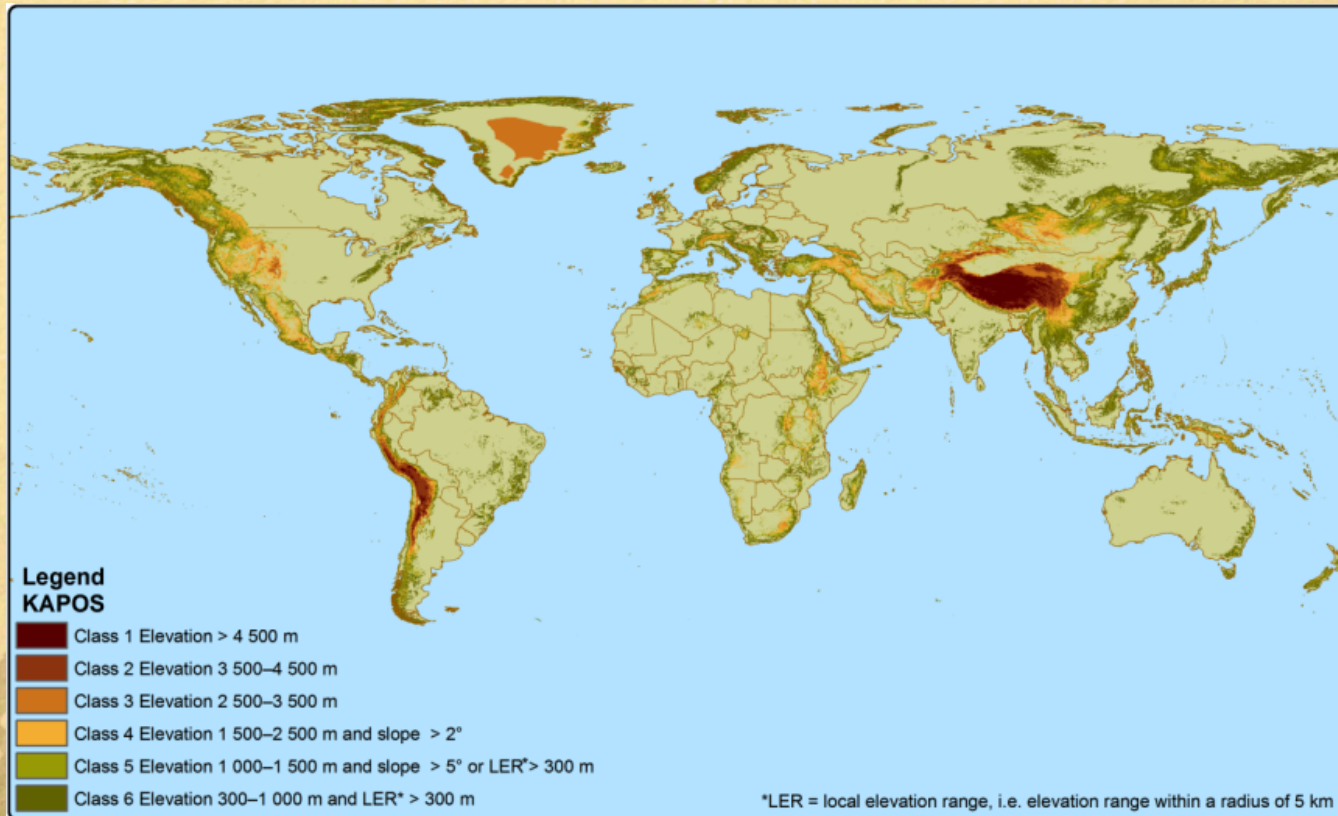
Definition of mountains

UNEP-WCMC classification (*Kapos et al., 2000*)

- **Class 1:** $\geq 4\,500$ m
- **Class 2:** 3 500–4 500 m
- **Class 3:** 2 500–3 500 m
- **Class 4:** 1 500–2 500 m and slope $\geq 2^\circ$
- **Class 5:** 1 000–1 500 m and slope $\geq 5^\circ$ or local elevation range (LER) > 300 m
- **Class 6:** 300–1 000 m and LER > 300 meters

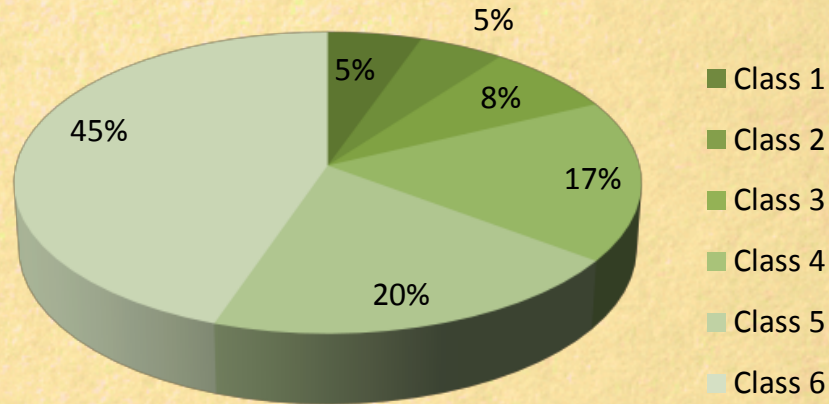
Mountain areas

32 million km² = **22%** of earth's land surface

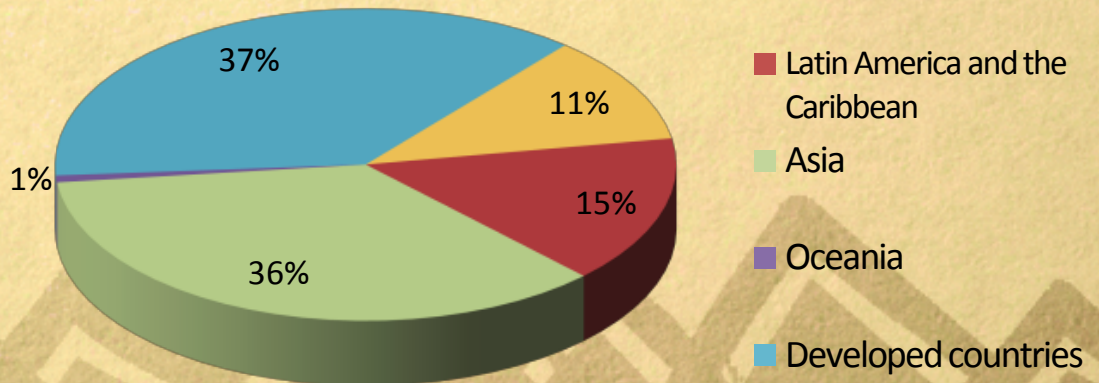


Mountain areas

Mountain areas by **elevation** class



Mountain areas by **region**



Mountain population

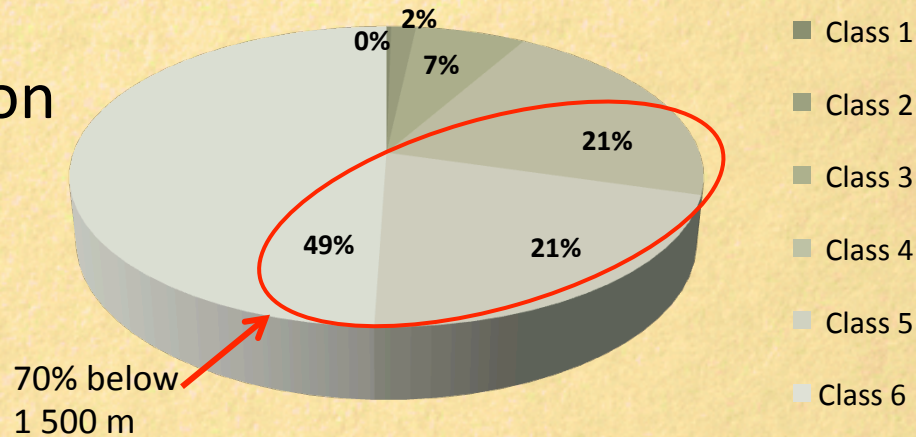
Today **925 million** people live in mountain areas

- **13%** of the world's population
- **70%** lives in rural areas

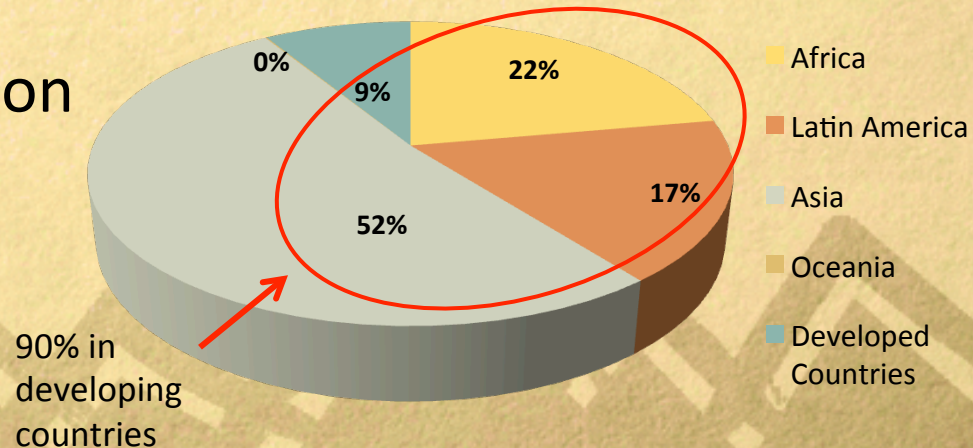


Mountain population

Mountain population by **elevation class**



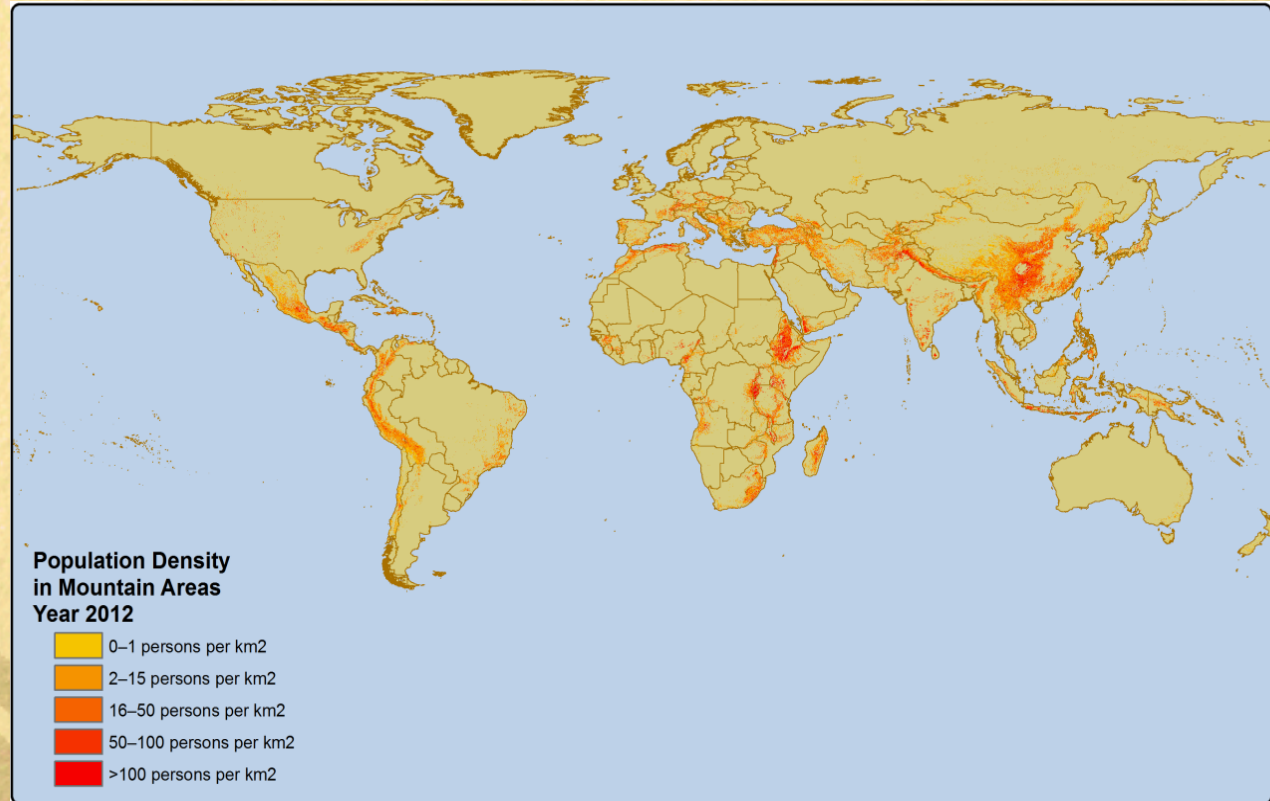
Mountain population by **region**



Mountain population

Population **density is not homogeneous** worldwide

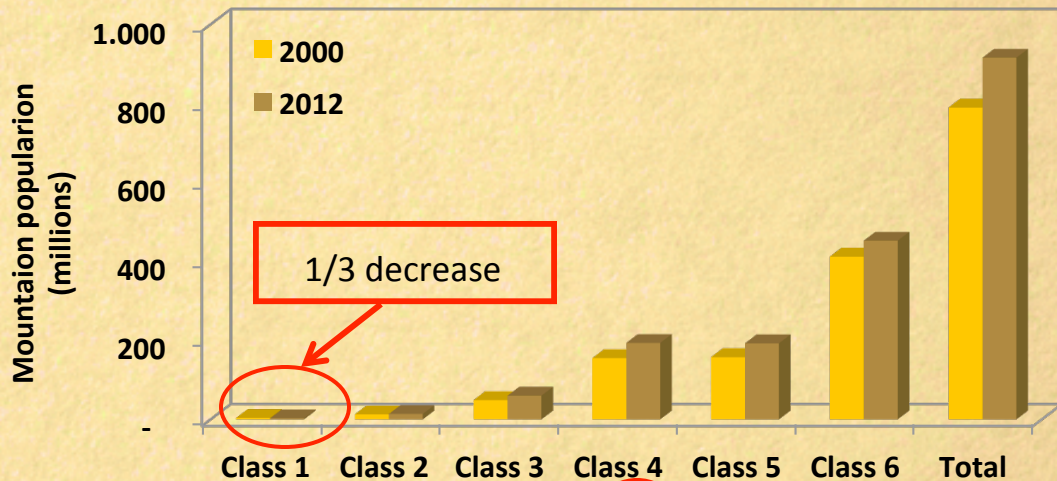
- **Europe:**
18% mountains
7% population
- **Asia:**
36% mountains
49% population
- **Africa:**
11% mountains
22% population



Mountain population trend

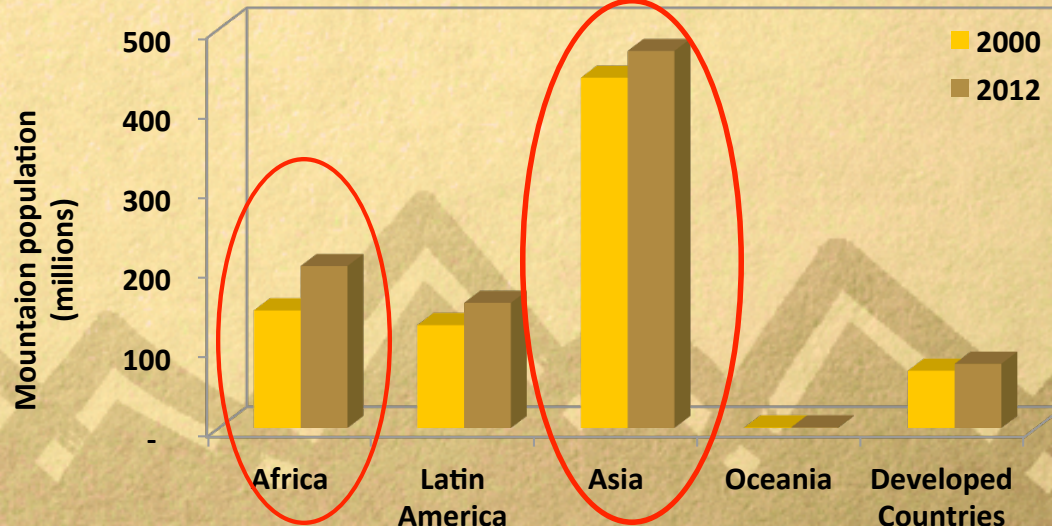
Overall there was a **16% increase** from 2000 to 2012

Change by **elevation** class



Change by **region**

Northern Africa, Southern Africa and Southern Asia are the only subregions where mountain population in percentage has **increased faster** than global one



Mountain challenges

- ❑ **Inaccessibility:** to roads, infrastructures and markets
- ❑ **Soils features:** slope, steepness, shallowness, elevation, lack of micronutrients
- ❑ **Marginalization:**
geographic, economic and political
- ❑ **Harsh climatic conditions**
- ❑ **Extreme climatic events**
amplified by climate change



Flood-hit Uttarakhand, 2015

The aim of this study

To estimate the **potential risk** for the **mountain populations** of each country to be **food insecure**



Old methodology – FAO 2002

Rationale: min kcal/day/person for rural people and average of prevalence of urban poverty in developing countries for urban people

Defines as **vulnerable:**

- **rural** mountain people living in areas with **cereal production < 200 kg** per person and **bovine density index = medium to low**
- **15%** of **urban** mountain people
- people living in **closed forests** and **protected areas**

Methodology – FAO 2015

Rationale: same but refined criteria and data sources

Defines as vulnerable:

- **rural** mountain people living in area with **< 1370 kcal/person/day** and **< 14 gr proteins/person/day**
- **23.6%** of **urban** mountain people



Methodology – what's new

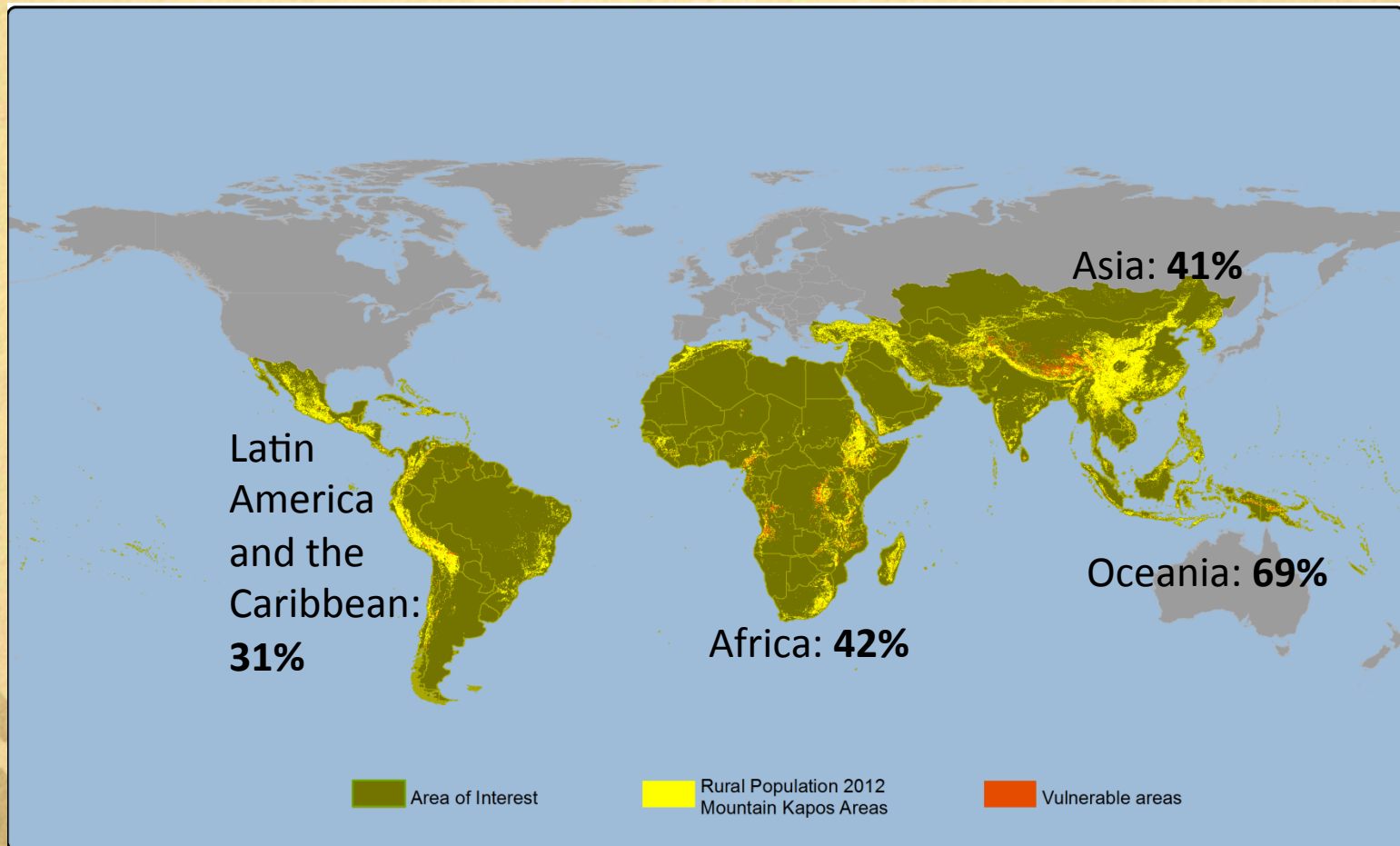
- **Quantity and quality of the diet:** combination of kcal and proteins
- **Kcal from six staple crops** (beans, cassava, maize, potatoes, rice and wheat) instead of cereals only
- **Proteins from multiple livestock** (beef meat, cow milk, sheep meat, sheep milk, goat meat, goat milk, pig meat, chicken meat and eggs) instead of bovine density
- No dedicated criterion for protected areas and closed forests

Vulnerability to food insecurity

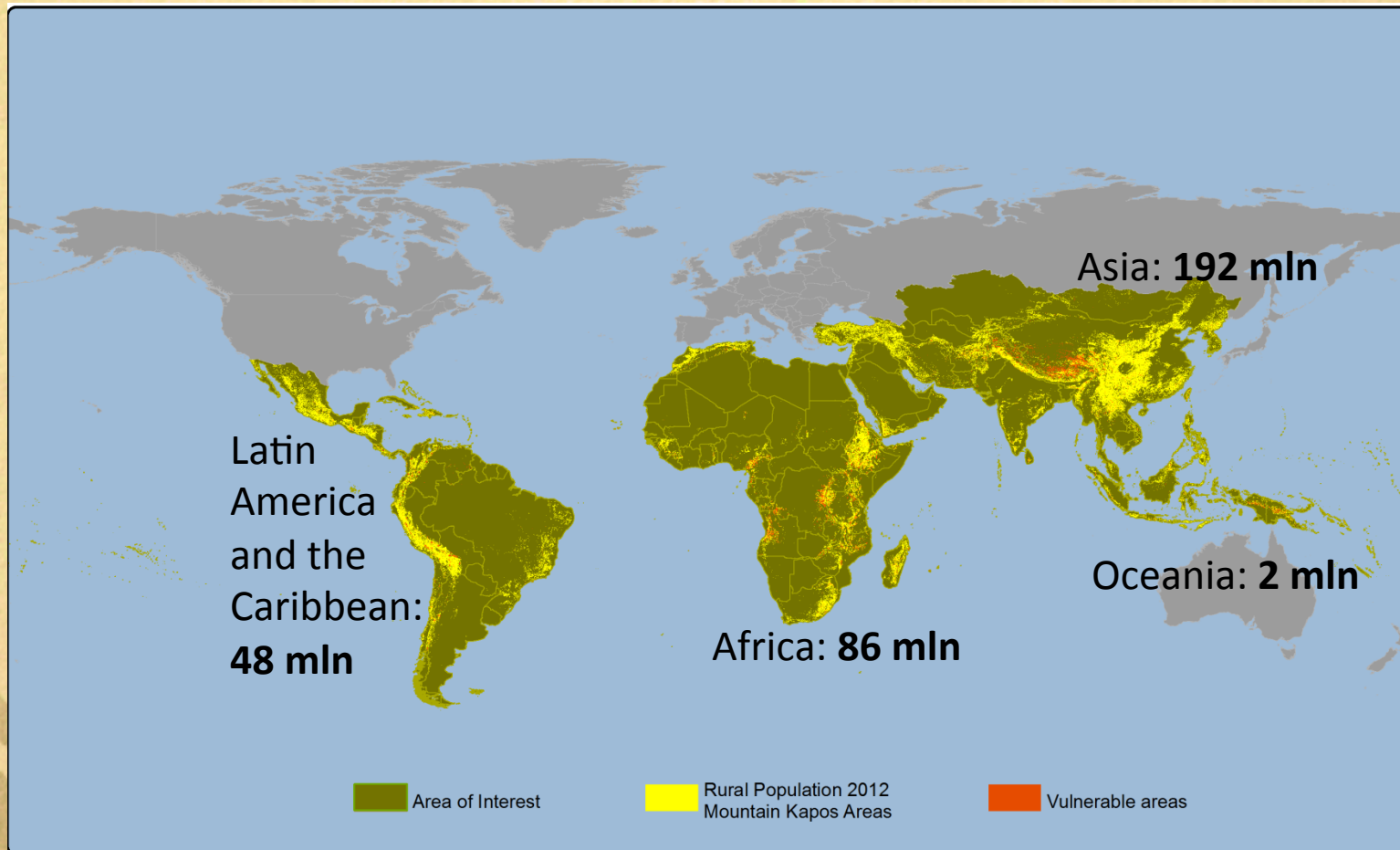
- **2000: 253 million people**
= **35%** mountain population (developing countries)
- **2012: 329 million people**
= **39%** mountain population (developing countries)

**Rural mountain population
vulnerability increased from 38% to 45%**

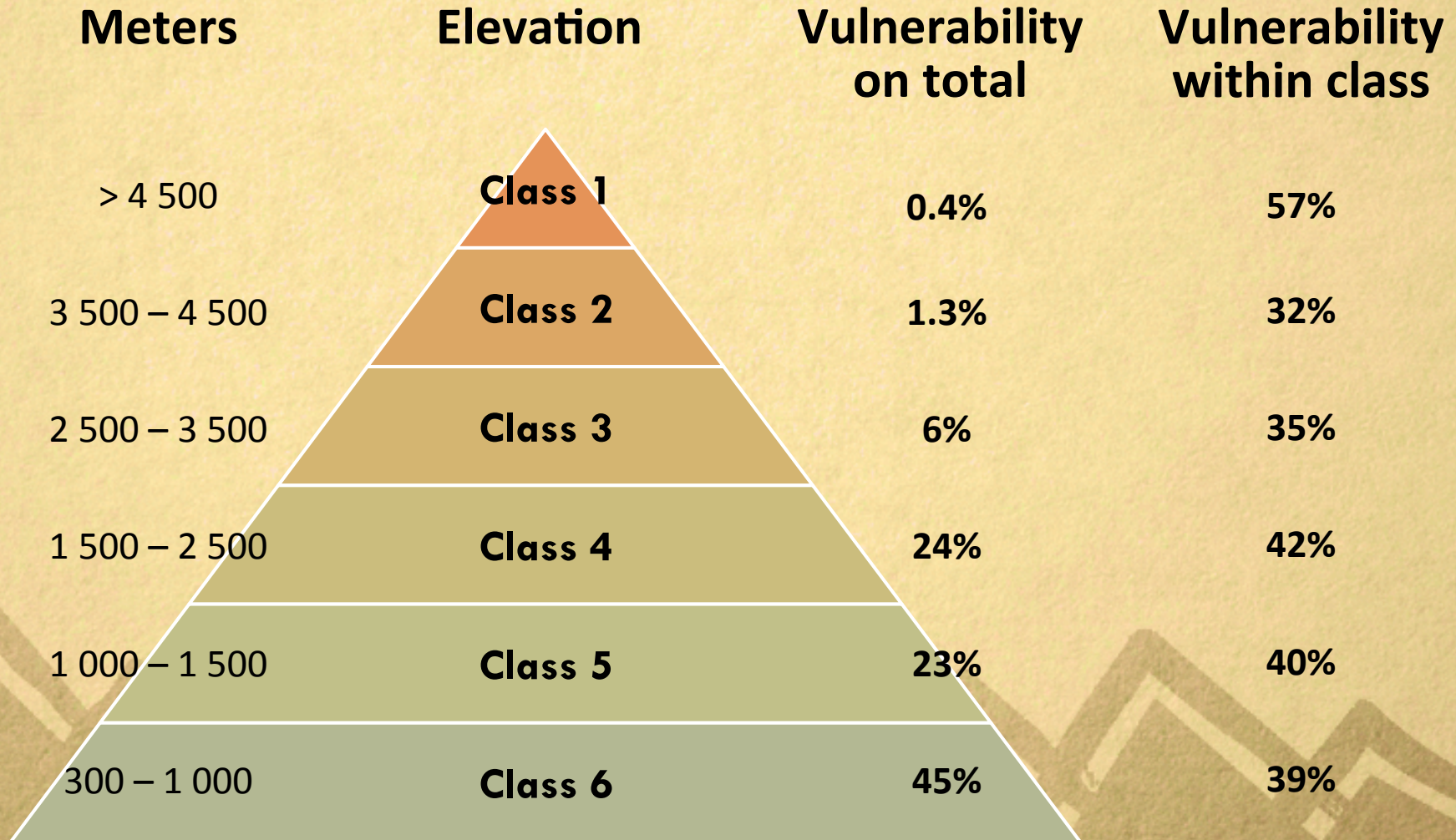
Vulnerability to food insecurity



Vulnerability to food insecurity



Vulnerability to food insecurity



Conclusions

- The number of hungry people in the mountains is still unacceptably high:

**1 in 3 mountain people
may not have enough to eat**

- Global average is 1 in 9
(*SOFI 2014, FAO*)



***Thank you
for your attention***

