



Food and Agriculture  
Organization of the  
United Nations



# International Mountain Day

Presentation for students ages 5-12

11 December 2019



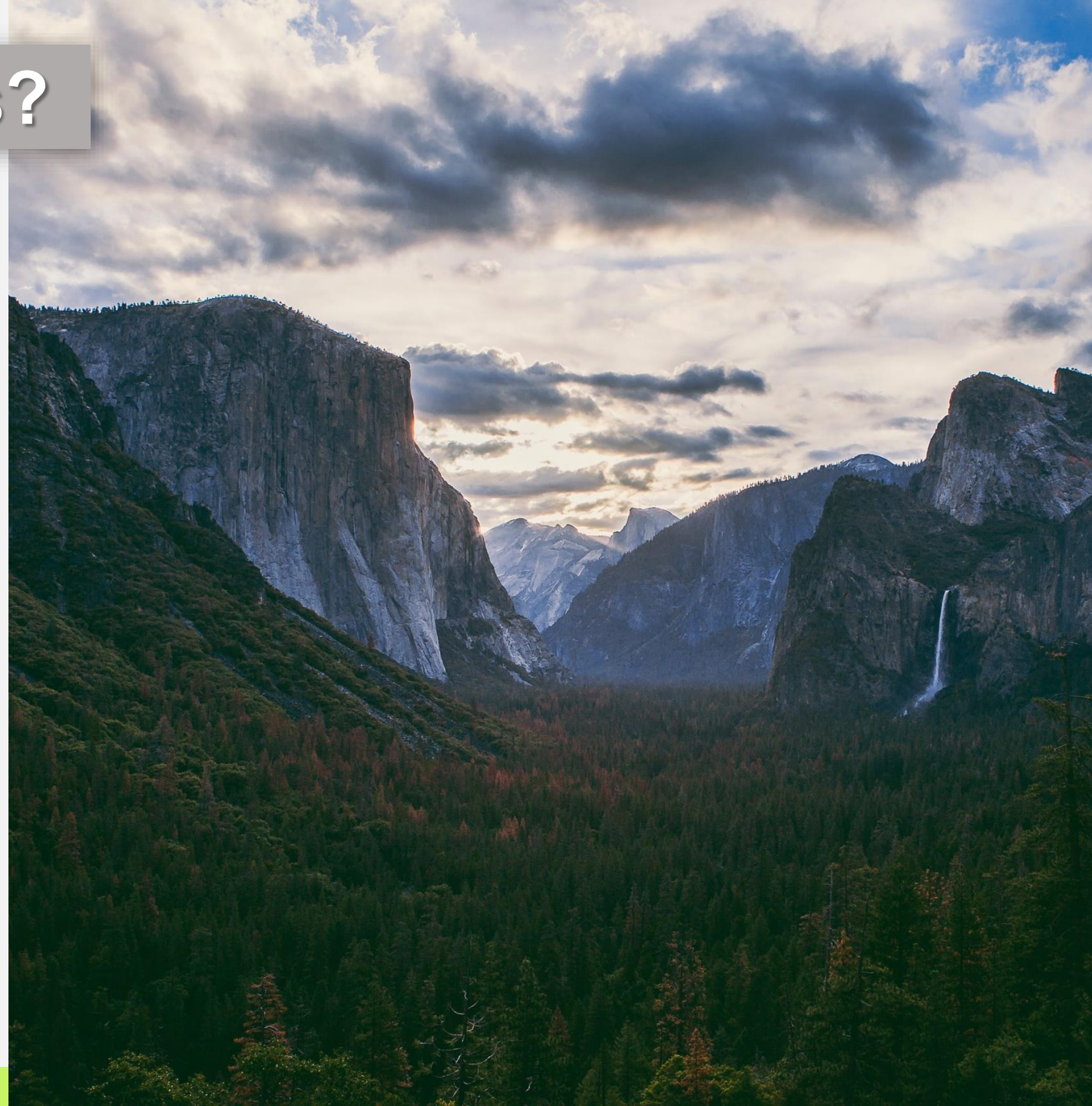
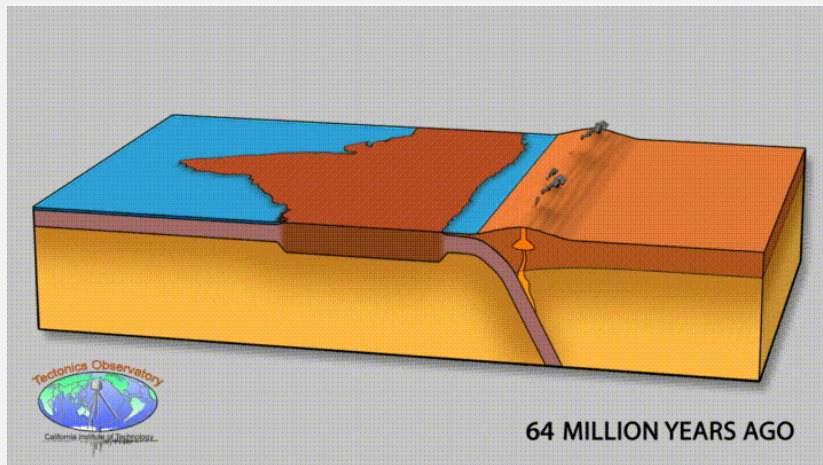
# What Are Mountains?

High landforms with steep sides

A mountain is the result of **land being pushed together over millions of years**

Mountains cover **27 percent of the planet** and are on **every continent**

## How are mountains formed?



# What make mountains special?

























# Where Are Mountains?





# How Many Mountain Words Do You Know?

Mountains Vocabulary List

alpine		conservation	
altitude		crevasse	
atlas		earth's crust	
avalanche		employment	
blizzard		environment	
cable car		erosion	
changeable		frost bite	
climate		glacier	
climber		globe	
continent		goggles	


Widgit Symbols © Widgit Software 2002-2017

Mountains Vocabulary List

ridge	
safety	
safety procedures	
season	
ski boots	
ski jump	
skiing	
ski instructor	
skis	
snowboarding	

Widgit Symbols © Widgit Software 2002-2017

Mountains Vocabulary List

hill		moraine	
hypothermia		mountain	
iceberg		mountain guide	
ice cap		mountain range	
ice field		mountain rescue	
ice rink		over trousers	
ice sheet		peak	
ice skates		ravine	
ice skating		recreation	
landscape		resort	

Widgit Symbols © Widgit Software 2002-2017



# Why Should YOU Care About Mountains?





# #MountainsMatter for Water

- Mountains provide drinking water and also help to collect and clean it
- Most water comes from mountains



# #MountainsMatter for Animals

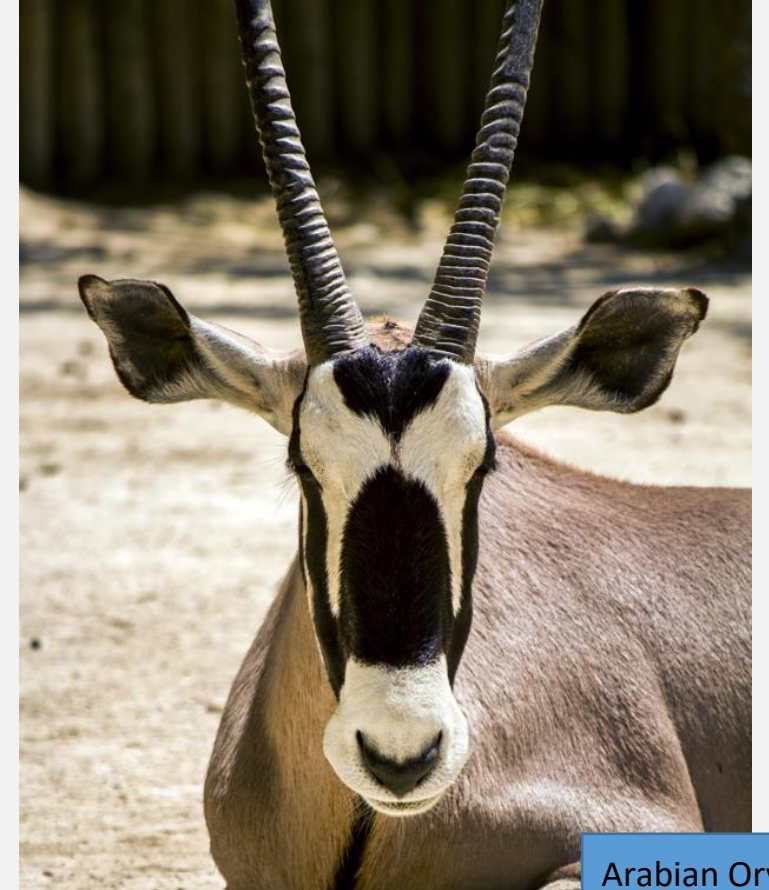
- Mountains are home to many different animals and plants that exist nowhere else
- 25 percent of all land animals live in mountain regions
- Do you know these animals?



Snow Leopard



Gelada Baboon



Arabian Oryx



# #MountainsMatter for Food

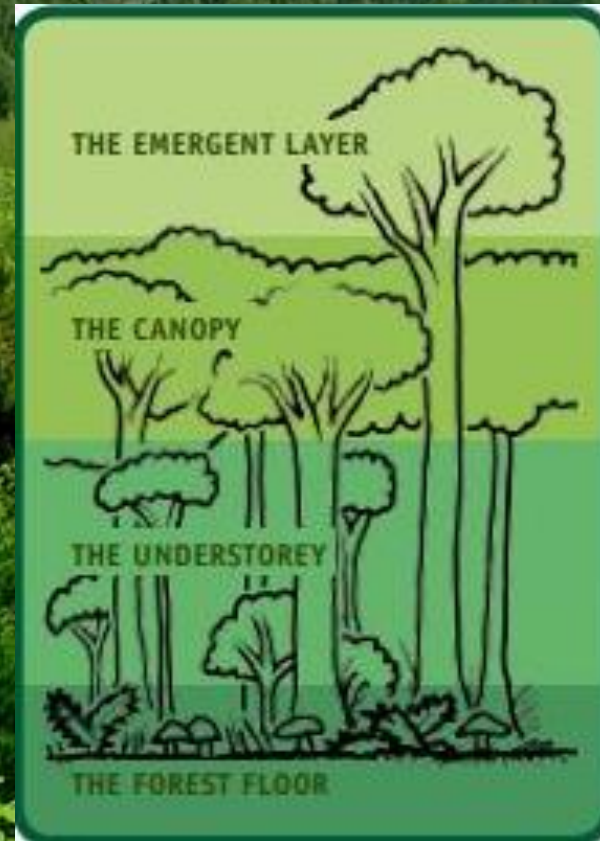
- Mountains are the source of 6 of the 20 most important foods, like apples, potatoes, corn, Barley, Tomatoes and Sorghum
- Do you eat these foods?





# #MountainsMatter for Forests

- 40 percent of mountains are covered by forests
- Forests are important to us because they provide the oxygen needed to breathe
- Forests are also homes for animals, insects and plants





# #MountainsMatter for People

- Mountains are home to 1.1 billion people
- Mountain people have unique languages, religions, cultures and ethnicities
- Do you know where these people live?





# How can I help mountains?

I will. . .	I will <u>NOT</u> . . .
➤ Conserve water	➤ Waste water
➤ Buy local food	➤ Waste food
➤ Plant local trees	➤ Waste paper
➤ Visit a mountain for holidays	➤ Use plastic
➤ Pick up waste and <u>recycle</u>	➤ Throw my waste into nature



# Activities: Why Should Mountains Matter to ME?

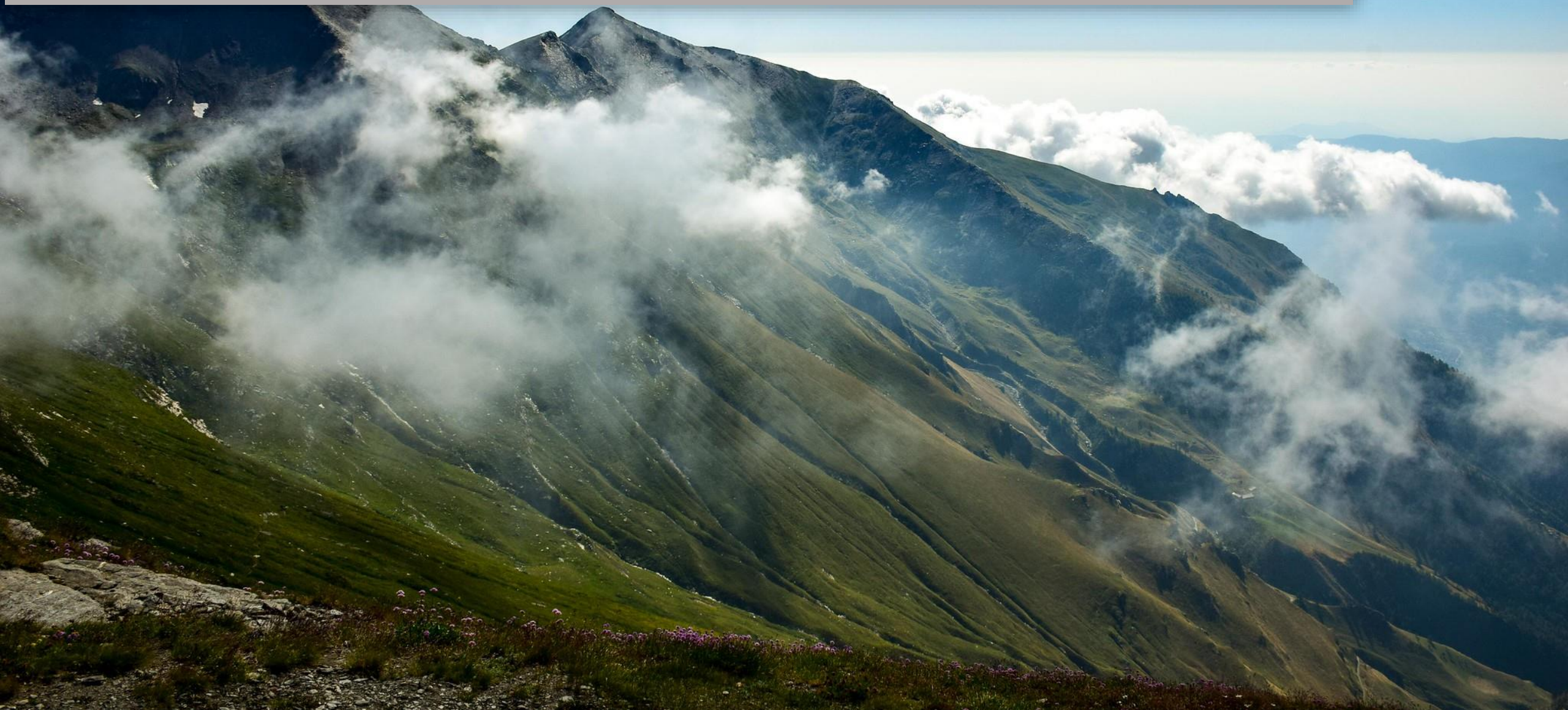
- Draw why mountains matter to you. Think about what was talked about in this presentation and how they relate to your life.
- What can you find in mountains?
- What kind of activities can you do in mountains in every season?
- Imagine you're going on a mountain expedition. What do you bring with you?
- Mountain farming is family farming. Imagine you and your family lived on a mountain. What are the jobs you would have and who does them?





# Happy International Mountain Day 2019!

#MountainsMatter







Food and Agriculture  
Organization of the  
United Nations



# International Mountain Day

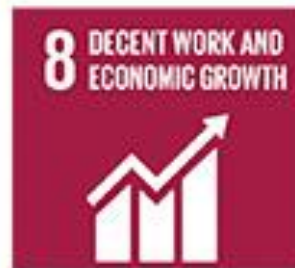
Presentation for students ages 11-16

11 December 2019





# The Sustainable Development Goals



United Nations 2015

What is sustainable development?

An illustration of two children sitting on a globe of the Earth, which is set against a dark blue space background with stars and a planet in the distance. The globe shows continents and oceans. The children are looking at each other.



# The SDGs and Mountains

These 6 SDGs are the most important for mountains:

SDG 15.4.2 (Mountain Green Cover) specifically relates to mountains, measures changes in the area of green vegetation in mountain areas





# How are Mountains Created?

[Video: How are mountains made?](#)





# What make mountains special?





# Why Do Mountains Matter?



Mountains cover **27 percent** of earth's land surface

40 percent of the world's **forests** are in mountains

Mountains are extremely affected by **climate change**

Let's explore why #MountainsMatter for five reasons: **Water, Biodiversity, Food, Forests and People!**



# #MountainsMatter for Water

Mountains and their vegetation collect, clean, store and provide **WATER**

They provide **60 to 80 percent** of the world's drinking water

**Every major river** in the world begins in the mountains!

6 CLEAN WATER  
AND SANITATION





# #MountainsMatter for Biodiversity

Mountains host a wide array of organisms

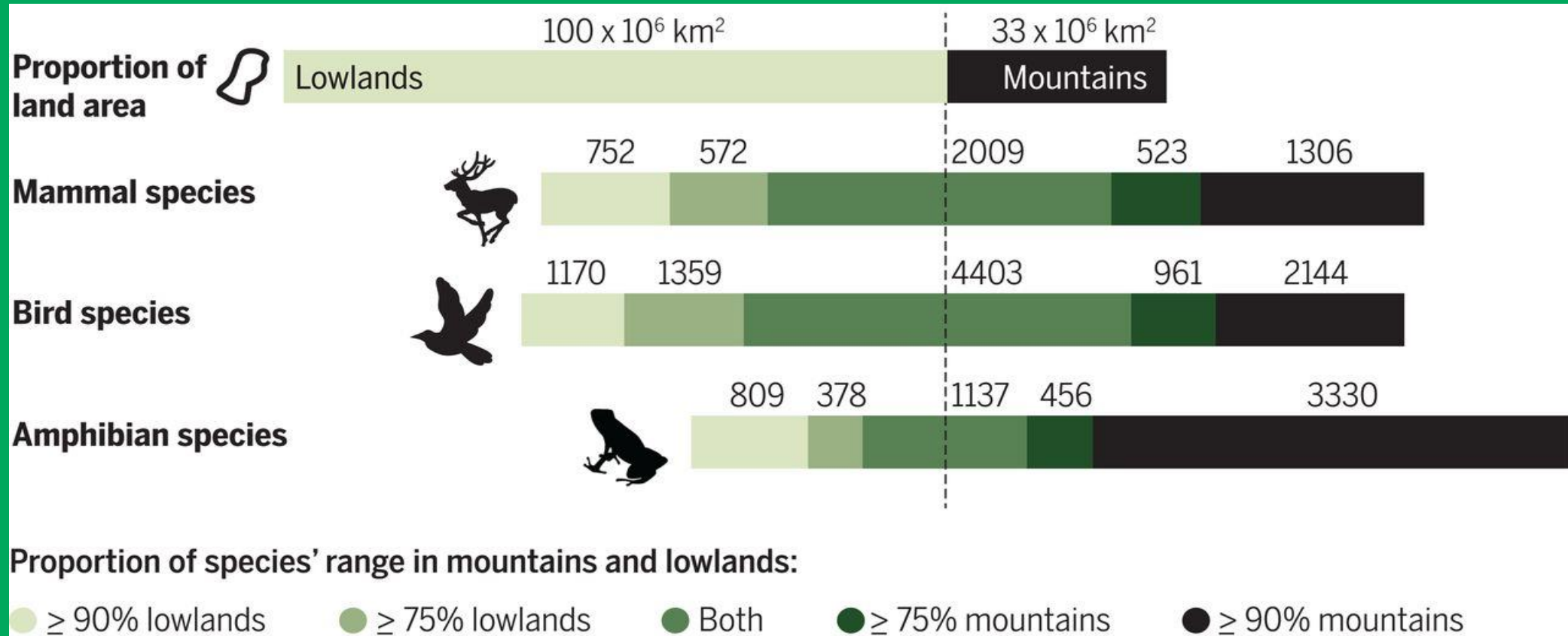
They host **25 percent** of all terrestrial life

**85 percent** of mammals, birds and amphibians





# #MountainsMatter for Biodiversity



Source: Carsten Rahbek et al.



# #MountainsMatter for Biodiversity

Mountains host a wide array of organisms

They host **25 percent** of all terrestrial life

**85 percent** of mammals, birds and amphibians



15 LIFE ON LAND





# #MountainsMatter for Food

**6 of the 20** most important food crops (maize, potatoes, barley, sorghum, tomatoes and apples) originate in mountains

They contain many Food NUS (Neglected and Underused Species) – critical for food security and agrobiodiversity

2 ZERO HUNGER





# #MountainsMatter for Forests

**40 percent** of mountains are covered by forests

**Ecosystem services** (oxygen, carbon sequestration, water, habitats)

Essential to **combating climate change**



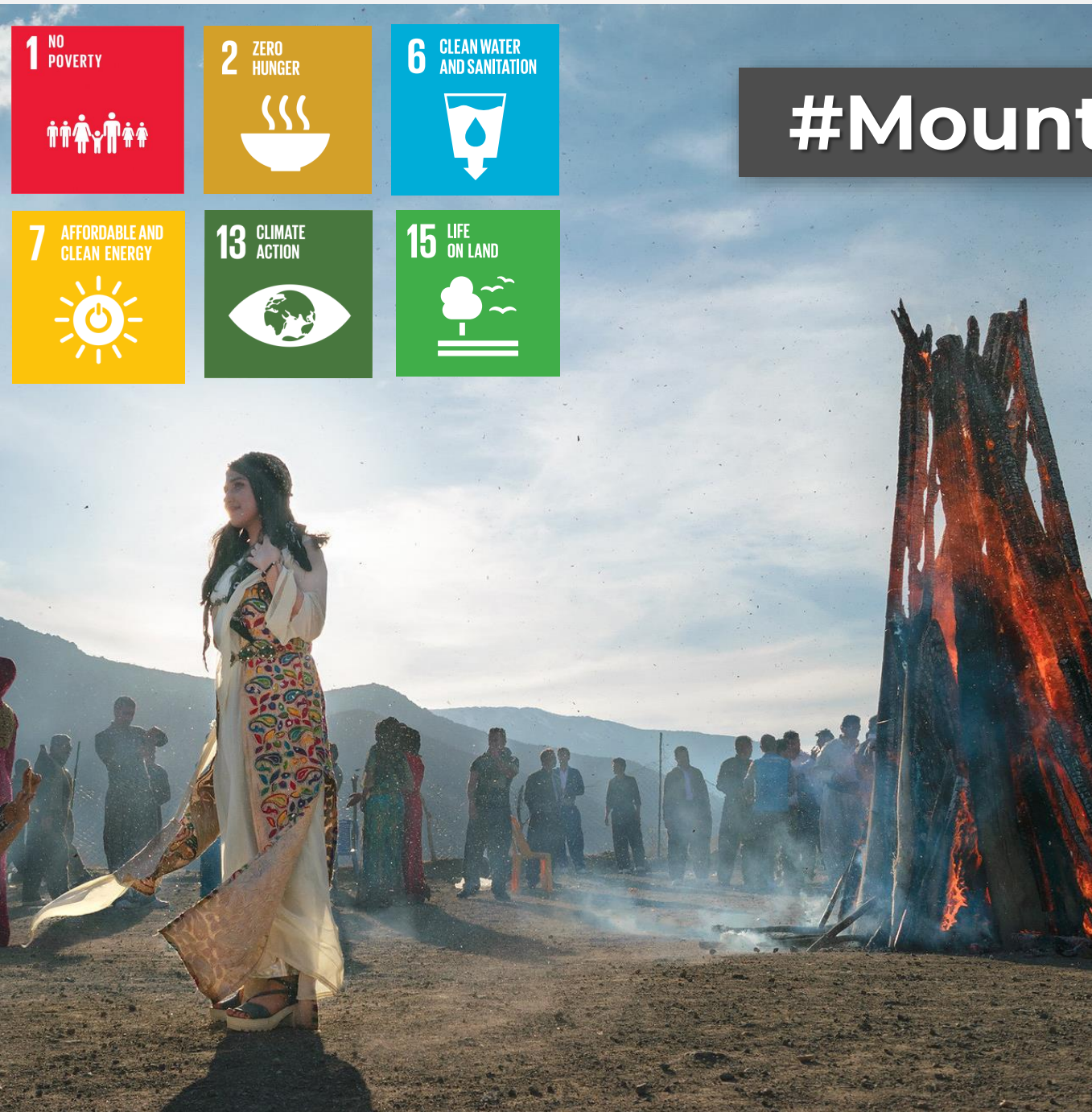
15 LIFE ON LAND



6 CLEAN WATER AND SANITATION







# #MountainsMatter for People



Home to **1.1 billion people**

**Unique** languages, religions, cultures

More than **one in three** are vulnerable to food insecurity



# Climate Change and Mountains

Glaciers disappearing lead to **water scarcity**

Major changes in **precipitation and natural disasters**

**High mountains warm** faster than the rest of the world

By 2100, all small and medium sized **glaciers will disappear**





# Our Actions, Our Future



**Don't waste** – water, food, electricity

**Avoid buying plastic** products and packaging

**Reduce, Reuse and Recycle**

**Be a conscious consumer** and only buy what you need from sustainable producers

**Visit a mountain** for vacation and be responsible by picking up your waste and supporting local businesses

Spread awareness on social media  
**#MountainsMatter**



# Activity 1: Identify the Risks

As a class, examine the following three slides and discuss the risks you see that are unique to mountain communities. Explore why each risk might make life harder in mountain regions, and how people might adapt to these risks.



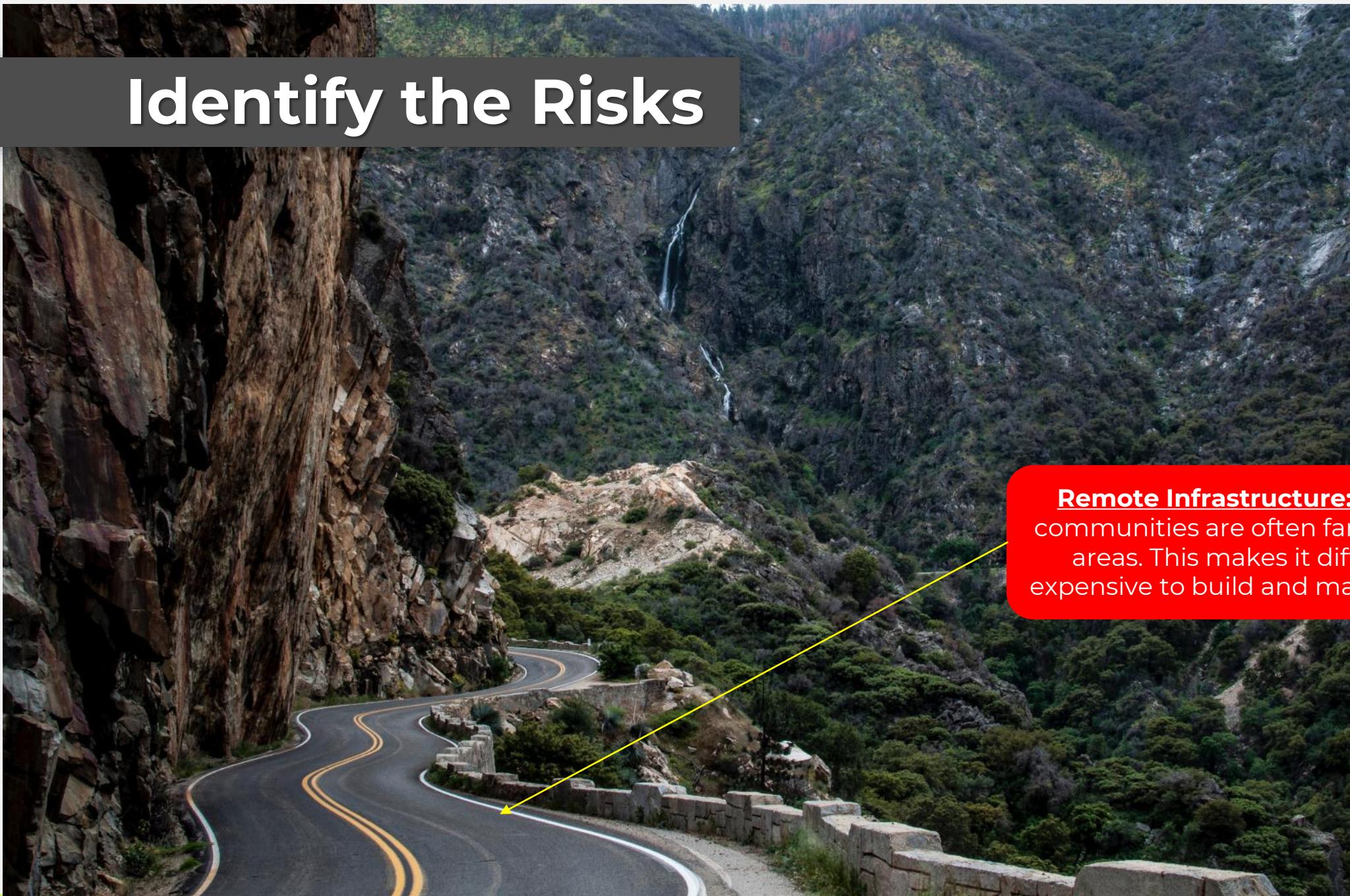


# Identify the Risks





# Identify the Risks



**Remote Infrastructure:** Mountain communities are often far from urban areas. This makes it difficult and expensive to build and maintain roads.



# Identify the Risks





# Identify the Risks

**Rock Fall, Slope Failure:** Mountain communities and environments can suffer from regular rock falls, slope failure and landslides





# Identify the Risks

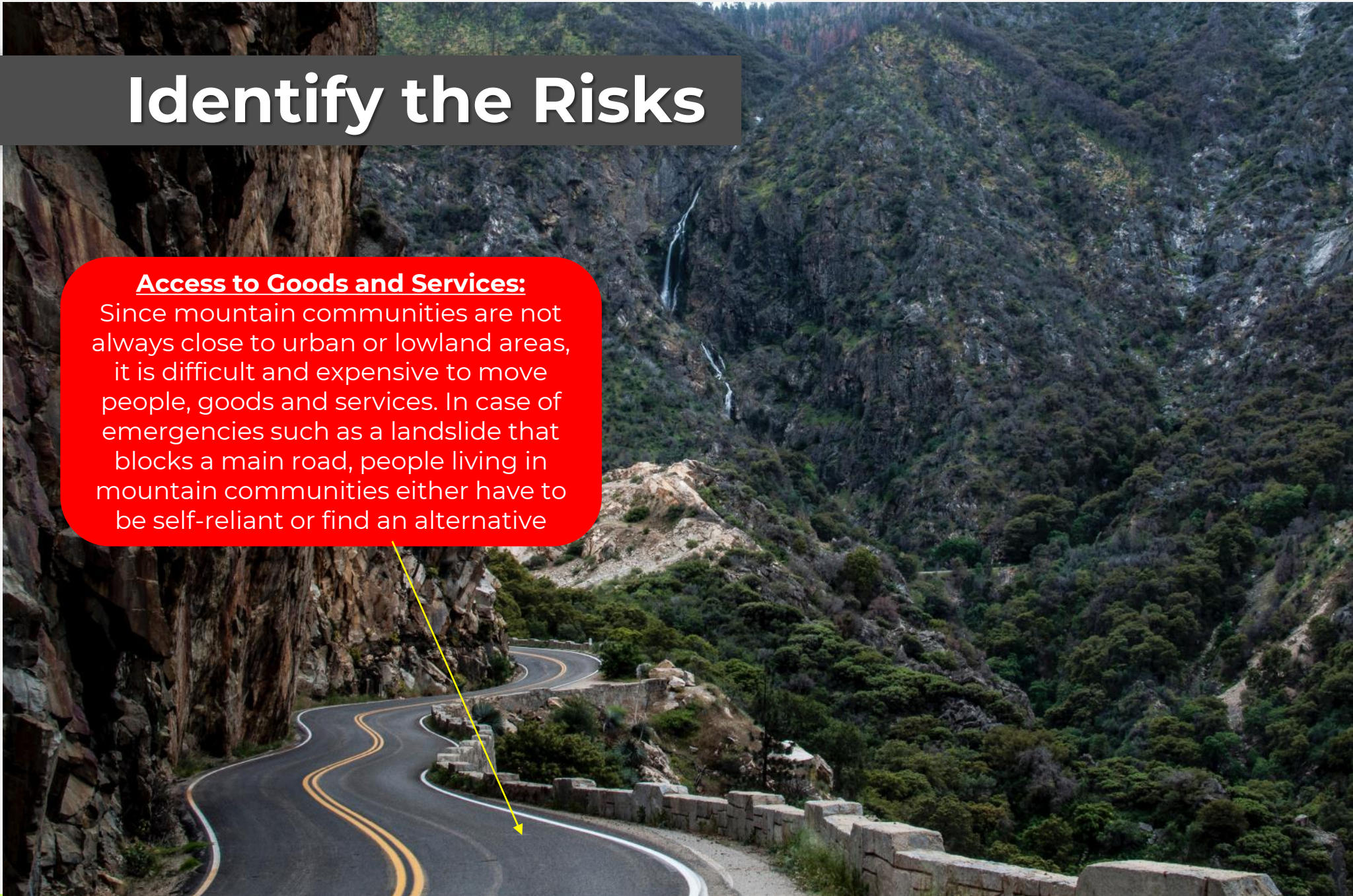




# Identify the Risks

## **Access to Goods and Services:**

Since mountain communities are not always close to urban or lowland areas, it is difficult and expensive to move people, goods and services. In case of emergencies such as a landslide that blocks a main road, people living in mountain communities either have to be self-reliant or find an alternative





# Identify the Risks



## **Access to Goods and Services:**

Since mountain communities are not always close to urban or lowland areas, it is difficult and expensive to move people, goods and services. In case of emergencies such as a landslide that blocks a main road, people living in mountain communities either have to be self-reliant or find an alternative

**Gully Erosion:** When water removes soil from areas of mountains, they can slump the sides of walls and lead to landslides.



# Identify the Risks

## **Access to Goods and Services:**

Since mountain communities are not always close to urban or lowland areas, it is difficult and expensive to move people, goods and services. In case of emergencies such as a landslide that blocks a main road, people living in mountain communities either have to be self-reliant or find an alternative

**Gully Erosion:** When water removes soil from areas of mountains, they can slump the sides of walls and lead to landslides.

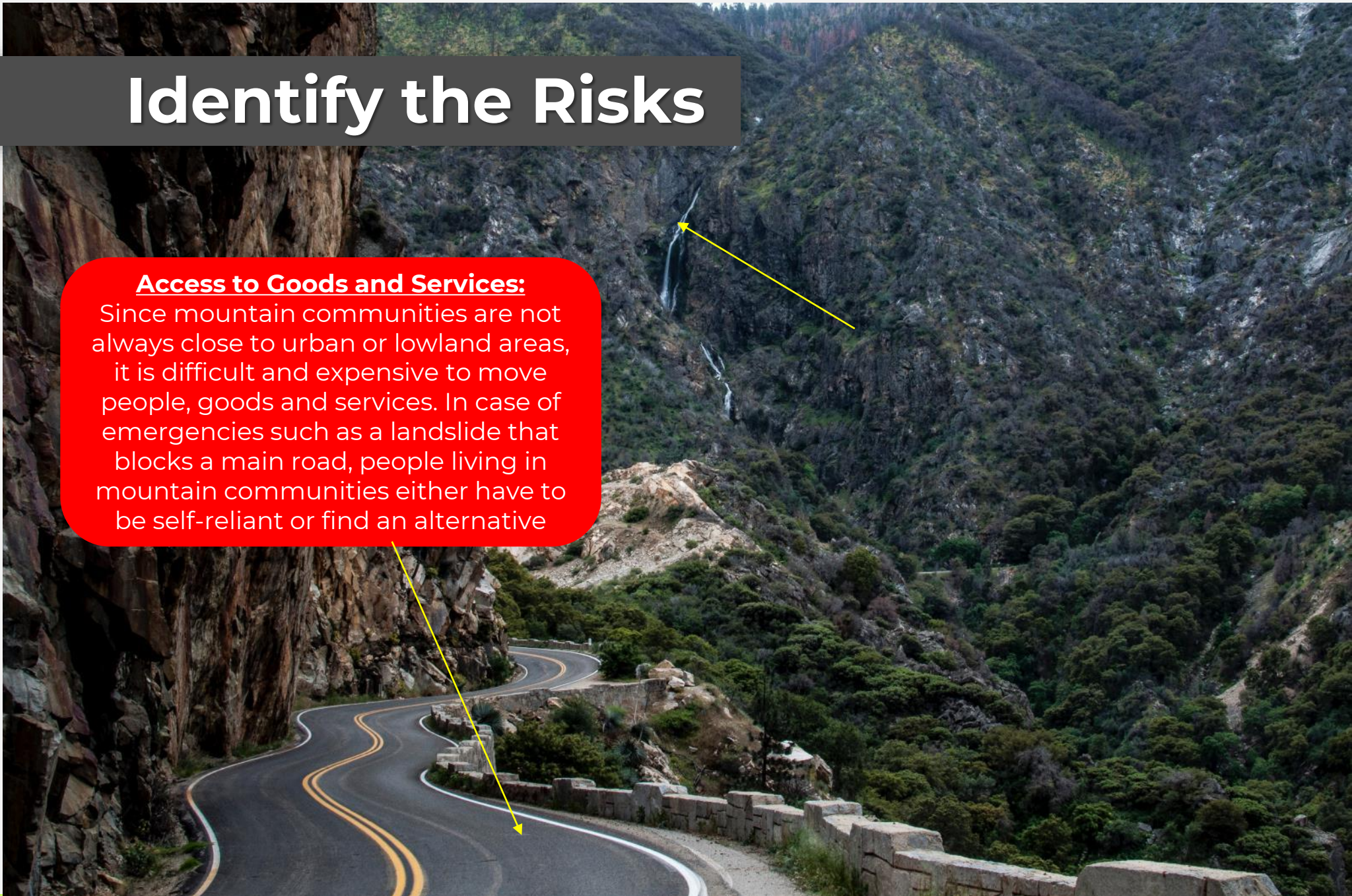




# Identify the Risks

## **Access to Goods and Services:**

Since mountain communities are not always close to urban or lowland areas, it is difficult and expensive to move people, goods and services. In case of emergencies such as a landslide that blocks a main road, people living in mountain communities either have to be self-reliant or find an alternative





# Identify the Risks





# Identify the Risks



**Slope Failure:** Mountain farmers don't just have to battle the elements: they must also fight gravity. Terraces like this one, have been used in mountains for millennia to compensate for lack of even ground. During heavy rains, these slopes can fail unexpectedly, leading to loss of harvest. In this picture, farmers have put down hay to slow the effects of erosion. and thus, slope failure



# Identify the Risks





# Identify the Risks



## **Poor and Shallow Soil:**

Mountain soils are not as old or as developed as soils found in the plains. This means soils found in mountains are typically more shallow and lack micronutrients. This makes agriculture more difficult and unreliable.



# Identify the Risks

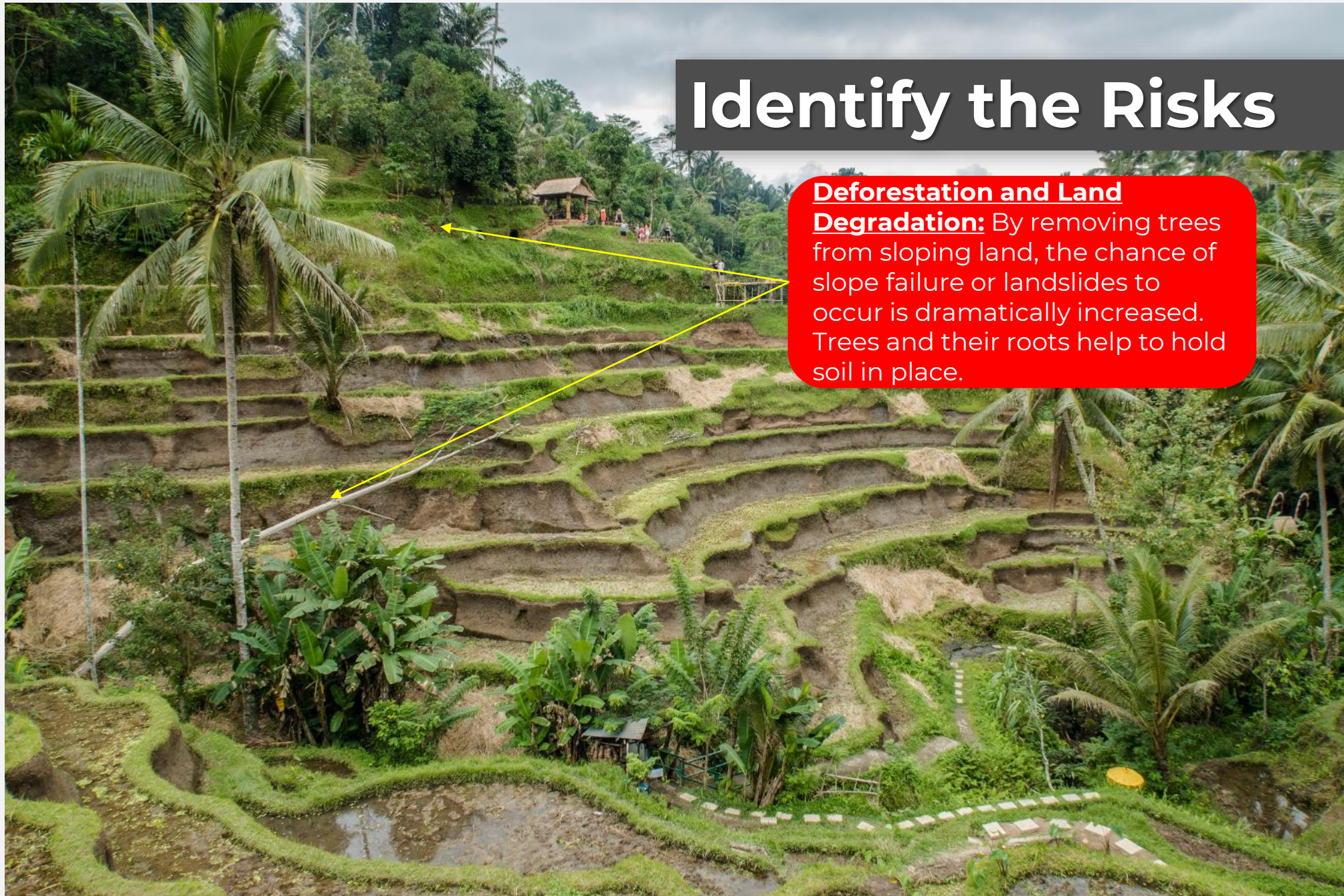




# Identify the Risks

## **Deforestation and Land**

**Degradation:** By removing trees from sloping land, the chance of slope failure or landslides to occur is dramatically increased. Trees and their roots help to hold soil in place.





# Identify the Risks





# Identify the Risks



Hint: This is a glacial lake, located high up in a mountain range



Hint: This is a montane river, located throughout a mountain range



# Identify the Risks

**GLOF:** A Glacial Lake Outburst Flood (GLOF) can happen at any moment in river systems with glaciers. Let's learn how these floods form.



Hint: This is a glacial lake, located high up in a mountain range



Hint: This is a montane river, located throughout a mountain range



# Identify the Risks



Hint: This is a glacial lake, located high up in a mountain range



Hint: This is a montane river, located throughout a mountain range



# Identify the Risks



**Formation:** A GLOF begins as a glacial lake, formed when glaciers melt. These lakes drain into rivers, but can be restricted in this process if a lot of ice or debris forms a dam.

Hint: This is a glacial lake, located high up in a mountain range



Hint: This is a montane river, located throughout a mountain range



# Identify the Risks



Hint: This is a glacial lake, located high up in a mountain range



Hint: This is a montane river, located throughout a mountain range

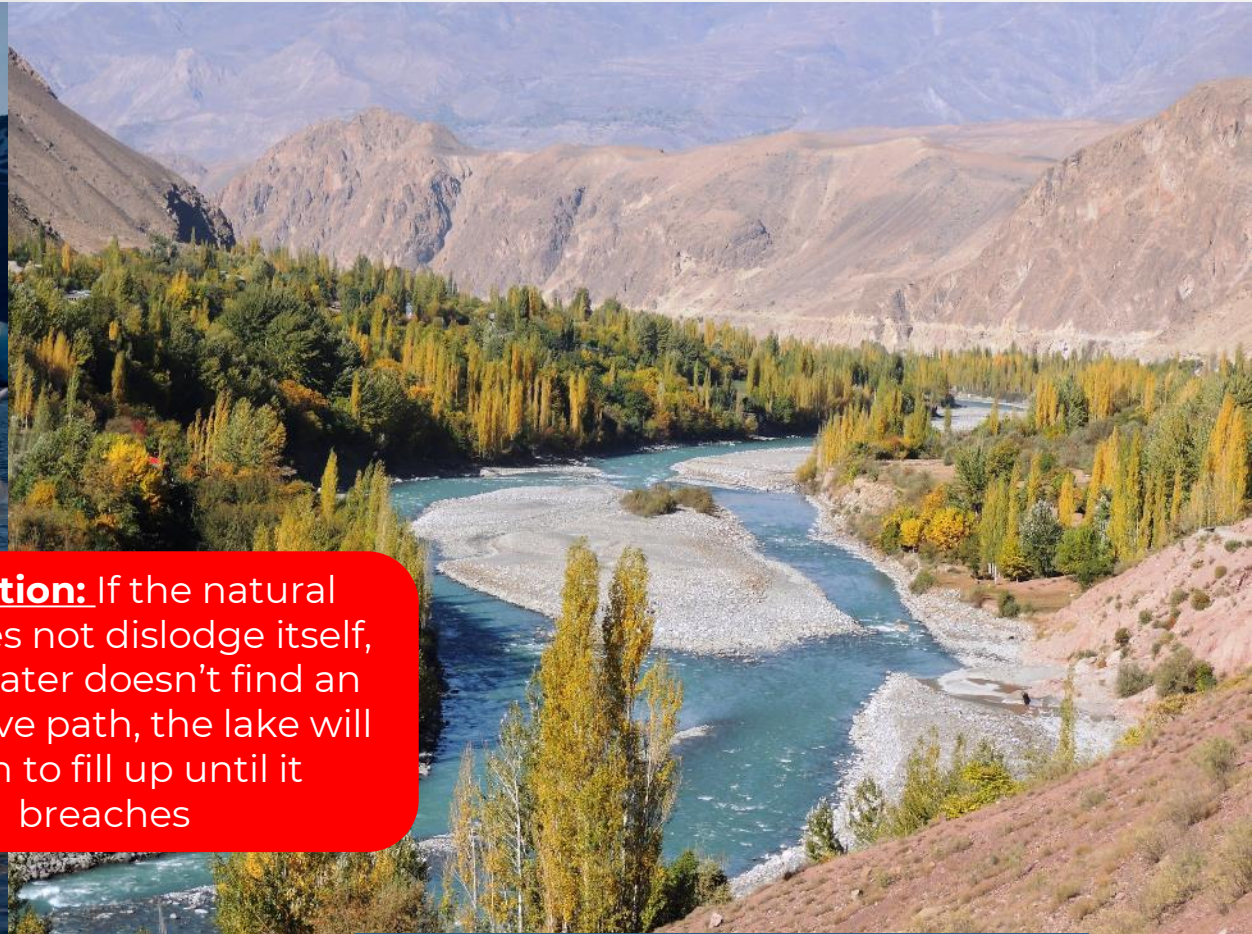


# Identify the Risks



Hint: This is a glacial lake, located high up in a mountain range

**Formation:** If the natural dam does not dislodge itself, or the water doesn't find an alternative path, the lake will begin to fill up until it breaches



Hint: This is a montane river, located throughout a mountain range



# Identify the Risks



Hint: This is a glacial lake, located high up in a mountain range



Hint: This is a montane river, located throughout a mountain range



# Identify the Risks



Hint: This is a glacial lake, located high up in a mountain range

**GLOF**: Once breached, the GLOF will expel all water, sediment, debris and ice - a “silent tsunami”, as it is called in Bhutan.

This island of sediment was produced by a GLOF. After the sediment settled, it formed a smaller dam that was then breached again.

GLOFs are extremely fast and unpredictable, making them especially deadly to mountain communities and environments



Hint: This is a montane river, located throughout a mountain range



# Activity 2: Brainstorm/Discuss

- According to an international survey conducted by Mountain Partnership, people consider mountain products to be 'healthy' and of high quality. If this is the case, why aren't they sold in stores more?
- How can the presence of mountains affect the culture of a place?





# Activity Ideas

- Teacher shows photo(s) of mountain people in various situation. Have students write a creative short story about what is depicted. Great photos can be found on the [Mountain Partnership Flickr page](#).
- Come up with a list of mountain vocabulary words and teach them in a language class. (See photo)
- Project Idea: Each student randomly chooses a mountain or mountain range and must research points about them and present it to the class. Points may vary depending on the class but could include: altitude, country the mountain is present in, what indigenous people live there, if any, food products originating there, challenges of the mountain (weather, slope etc), what is unique about the mountain.
- Read [poems about mountains](#).



Satpal Singh



**Happy International Mountain Day 2019!**  
**#MountainsMatter**





## Presentation Notes

### Presentation Ages 11-16

#### Slide 2:

- The 17 Sustainable Development Goals (SDGs) were adopted by the United Nations General Assembly in 2015
- These goals act as a blueprint for the entire world to live better lives, free from extreme poverty, hunger and inequality
- But what is “sustainable development”?
- Watch the video below to learn more!

#### Slide 3:

- While every SDG can be applied to mountains, these six represent the most important to mountain communities
- Mountain peoples are among the most vulnerable to poverty and hunger, yet also the most isolated, making development efforts a challenge
- Mountains are additionally important for the SDGs due to their wealth of natural resources and untapped potential. This will be a key asset in maintaining biodiversity and mitigating climate change

#### Slide 5:

- Mountains are home to life at different altitudes or heights.
- Slope: The inclined surface that forms a mountainside.
  - -Slope is the steepness in mountains. The steeper the mountain, the harder it can be to grow crops.
  - -Slopes can be good for mountain sports like skiing or hiking.
- Aspect: The direction a side of a mountain faces.
  - -Certain aspects have lots of sun and not much rain, making it very desert-like
  - -Other aspects have less sun and lots of rain which is perfect for forests to grow
- Altitude: The elevation of a mountain
  - -Mountains can be very high and some animals, like mountain goats and brown bears can live at higher elevations. Other animals are better suited to live at lower elevations such as orangutans. This is because of various factors such as temperature affect their environment and food sources.
  - -Vegetation is also affected by altitude. We can usually more plants and flowers at lower altitudes.
- -On average, the temperature decreases 4°C every 500 metres climbed (NASA



Slide 6:

- Cover 27 percent of the globe; home to 40 percent of the world's forests
- Mountain environments can be very difficult places to live due to a variety of **risks and natural circumstances**
- These risks have been made worse by **climate change** and will continue to do so over the coming decades
- To achieve the SDGs, **mountain environments and peoples must be included** in projects and policies
- **Let us explore why #MountainsMatter** for five reasons: Water, Biodiversity, Food, Forests and People!

Slide 7:

- Mountains help to collect, clean, store and release the world's most precious resource: **WATER!**
- Between **60 and 80 percent** of the world's freshwater comes from mountain regions, benefitting between **4.6 and 6.1 billion people**
- **Every major river** in the world begins in the mountains!

Slide 8:

- Mountains' unique topography, compressed climatic zones and isolation has created the conditions for a **wide spectrum of organisms**
- Mountains host around **25 percent of all terrestrial life**, meaning 1 out of every 4 living organisms on land lives in mountains!
- **85 percent of mammals, birds and amphibians**—the most complex of species—**live in mountains!** (click to see data)

Slide 9:

- Mountains are the source of **6 of the 20 most important food crops**
- These 6 crops include: Apples, Potatoes, Corn, Barley, Tomatoes and Sorghum

Slide 10:

- **ecosystem services** such as:
  - oxygenation of the atmosphere
  - removing and storing of carbon
  - cleansing and storing of water
  - home to a wide array of plants and animals (including humans!)
- Essential to **combating climate change!**



Slide 11:

- Mountains are **home to 1.1 billion people (about 15 percent of the world's population)**
- Mountain people have **extremely unique** languages, religions, cultures and ethnic groups
- People living in mountains are among the most vulnerable populations in the world, where **more than one in three suffer from malnutrition, poverty and hunger**

Slide 12:

- If glaciers found within mountains disappear, a large portion of the world's population could be exposed to **water scarcity**
- Climate projections also indicate that **snowfall will decrease by 25 percent** in mountains over the coming years, while **rainfall will increase by 5 to 20 percent**
- These changes might not seem significant, but will **drastically alter mountain environments and escalate the opportunity for risks** in alpine regions!

Slide 13:

- Despite all the challenges and risks facing mountain communities and peoples, **the future is still in our hands!**
- Our actions today, and everyday, will **determine our planet's future!** Everyone has consumer power which can shape the demand toward more sustainable products. We just have to buy them!

Slide 18/19:

- Possible answers: logistics - complicated and expensive transport, low supply since mountain farming is generally family farming and cannot be done in industrial quantities, products not marketed enough to be discovered, producers don't have the expertise or resources to develop their business.
- Possible answers: mountains provide a unique territory for farming, for example the volcanic soil near the volcano 'Vesuvio' in Italy is a fantastic place to grow tomatoes and wheat. When native crops grow well in an area for generations, they become part of the food culture. Weather and local animals could also play a role in traditional clothing, for example wool ponchos in Peru.



## Presentation Ages 5-12

### Slide 2:

- A mountain is the result of land being pushed together over millions of years
- As land is pushed, the earth is folded above and below itself
- When many mountains are in the same area, this is called a “mountain range”
- Mountains cover 27 percent of the planet and occur on all continents
- Mountains are defined as any land formation over 300 meters in height

### Slide 3:

- Mountains are home to life at different altitudes or heights.
- Slope: The inclined surface that forms a mountainside.
- Slope is the steepness in mountains. The steeper the mountain, the harder it can be to grow crops.
- Slopes can be good for mountain sports like skiing or hiking.
- Aspect: The direction a side of a mountain faces.
- Certain aspects have lots of sun and not much rain, making it very desert-like
- Other aspects have less sun and lots of rain which is perfect for forests to grow
- Altitude: The elevation of a mountain
- Mountains can be very high and some animals, like mountain goats and brown bears can live at higher elevations. Other animals are better suited to live at lower elevations such as orangutans. This is because of various factors such as temperature affect their environment and food sources.
- Vegetation is also affected by altitude. We can usually more plants and flowers at lower altitudes.
- On average, the temperature decreases 4°C every 500 metres climbed (NASA)

### Slide 4:

- Mountains cover 27 percent of the planet and occur on all continents

### Slide 6:

- Mountains provide many services to our society and to YOU!
- Many important foods that we eat every day originate in mountains like corn, potatoes and apples
- Mountain activities in all seasons of the year
- People live in mountains
- Mountains are home to many diverse habitats for many animals
- They also provide us with water
- Children like you live in mountains with their families



Slide 11:

- (clockwise from first image) Nepal, Vietnam, Bolivia, Afghanistan, Ecuador, Afghanistan, and China

Slide 13:

- Drawing shows the mountains and culture of Dagestan
- What can you find in mountains? – bugs, ice, snow, rocks, etc
- Show photos of mountain people in a situation (see Mountain Partnership Flickr for Photos). Have students write a creative short story about what is depicted.
- Show a topographic map of the world and children should point out where they see mountains and talk about how much of the world they make up.
- Explain that family farming is small scale farming where the family runs the farm and sells in local markets