Environmental Impacts, Resource Management and Mitigations Actions Administrative and Policy Measures

By

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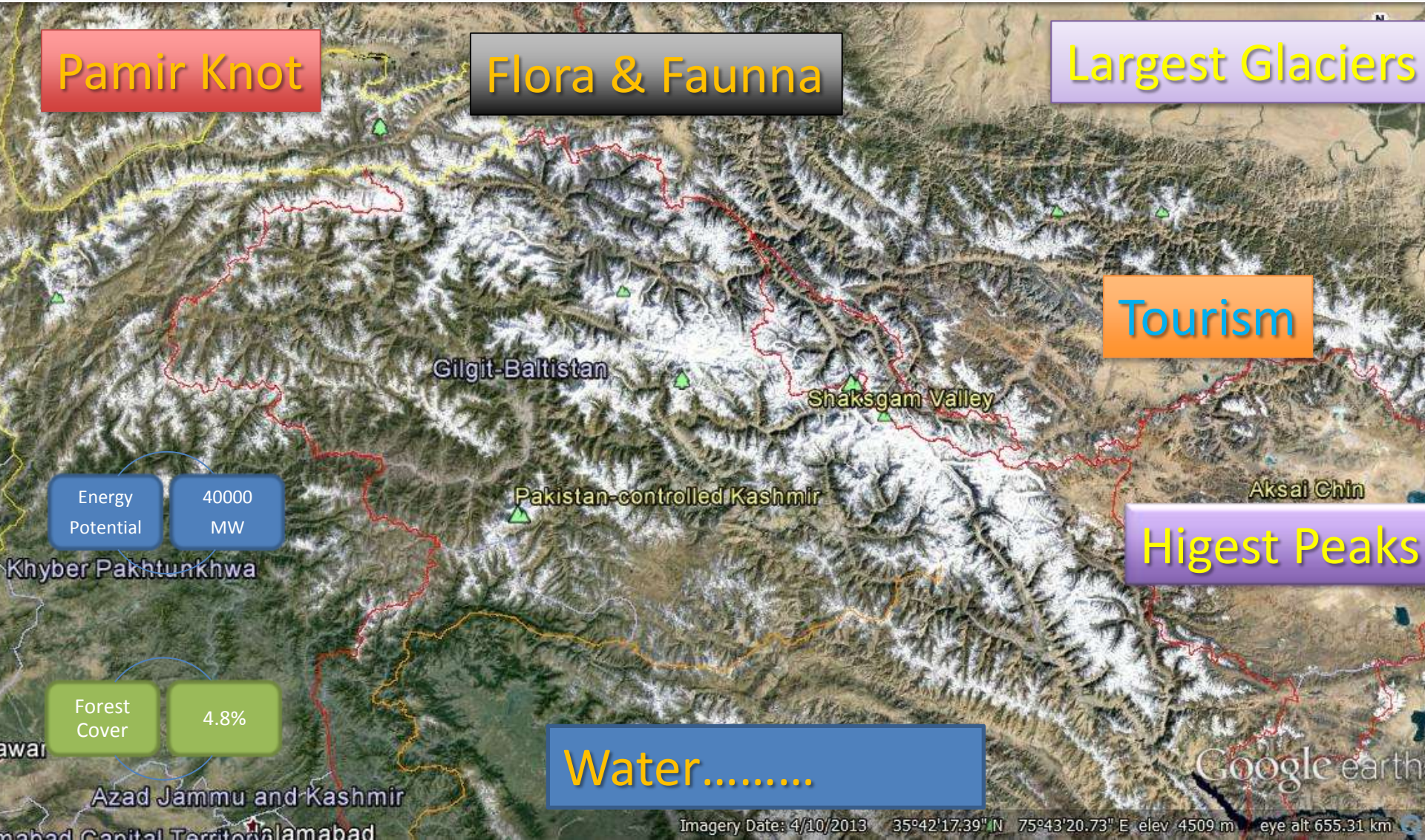
Secretary Environment GB

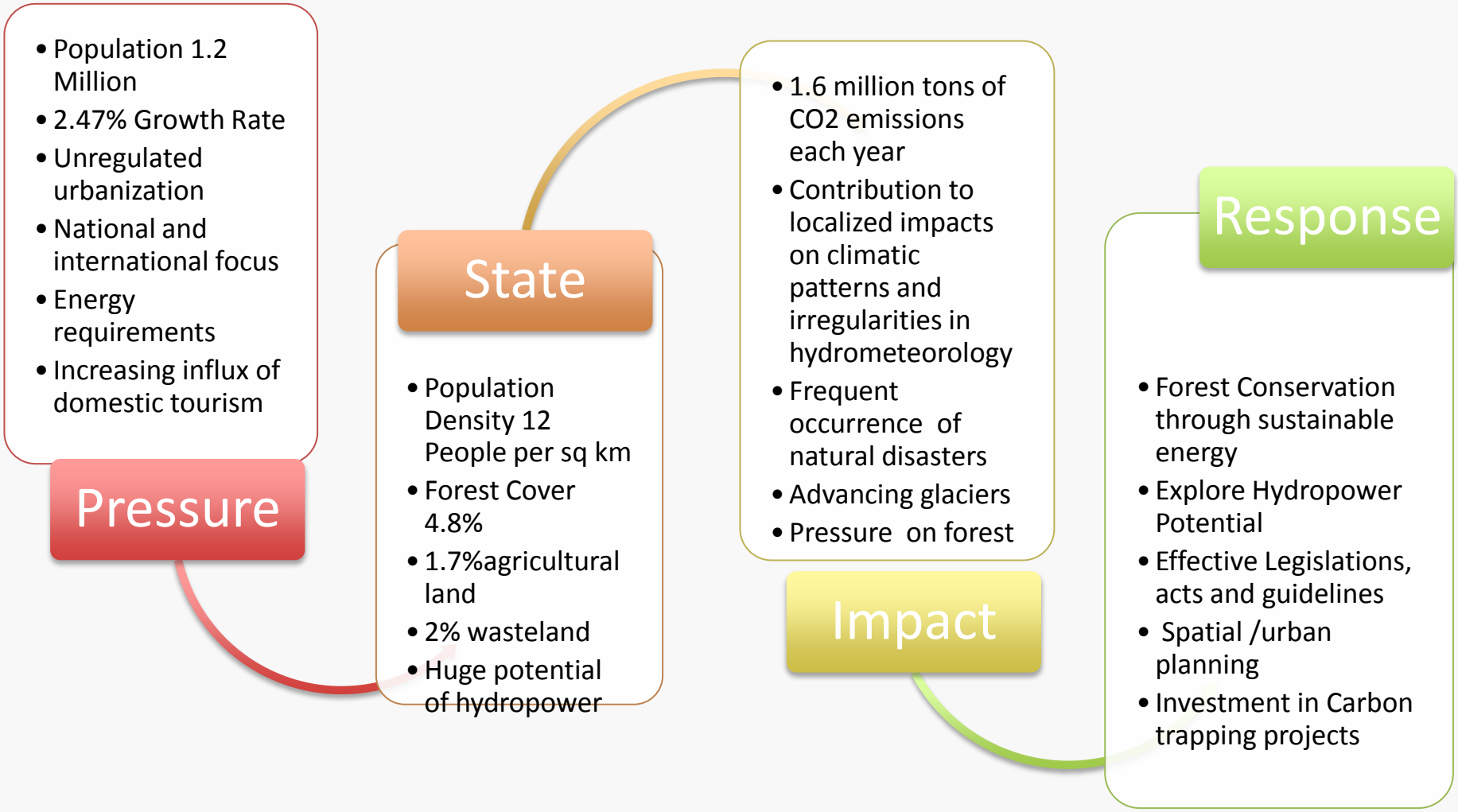
Gilgit-Baltistan State of Environment




Economic Development
Environmental Quality


How can we help community members and local officials to take a leadership role in ensuring that future development reflects environmental protection as well as fiscal, social and economic community goals.

PSIR


Population 1.2 Million
2.47% Growth Rate
Unregulated urbanization
National and international focus
Energy requirements
Increasing influx of domestic tourism
Pressure
State
Population Density 12 People per sq km
Forest Cover 4.8%
1.7%agricultural land
2% wasteland
Huge potential of hydropower
1.6 million tons of CO2 emissions each year
Contribution to localized impacts on climatic patterns and irregularities in hydrometeorology
Frequent occurrence of natural disasters
Advancing glaciers
Pressure on forest
Impact
Response
Forest Conservation through sustainable energy
Explore Hydropower Potential
Effective Legislations, acts and guidelines
Spatial /urban planning
Investment in Carbon trapping projects

Environmental Impacts

Summary of death, Injured and Affected **1935 to 2011**

Types of Disasters	Total Death	Total Injured	Total Affected
Floods	**9,313**	**4,206**	**45,652,022**
Rain and Snow Fall	**1,116**	**666**	**7,000,000**
Earthquake	**138,653**	**87,020**	**4,650,000**
Cyclone and Flood	**330**		**2,500,000**
Drought	**200**		**2,200,000**
Landslides	**200**		**8,000**
Avalanche	**149**	**81**	**3,633**
Flash Floods			**1,400**
Monsoon Rains	**112**		
Wind Storm	**10,908**	**458**	
Wind Storm tornado	**60**	**600**	
Grand Total	**161041**	**92981**	**61,965,055**

Climate Change Manifested

Year	Nature	Population Affected	Persons Died	Consequence
1992	Flood	15.000 million	1334	Agriculture Infrastructure Water Social Health Education
1995	Flood/landslide	1.200 million		
1998	Flood	1.100 million	1000	
2000	Draught	2.200 million		
2003	Flood	1.000 million		
2004	Tsumani	millions	+200000	
2005	Earthquake		78000	
2006	Flood/Landslide			
2010	Flood/Landslide	12.000 million	3000	
2011	Flood	5.300 million	434	
2012	Flood	2.800 million	400	
2013	Flood	1.2 million	300	

Environmental Statistics

Parameter	National	Gilgit-Baltistan
Share in global Emission	0.4%	
Per Capita CO	0.8 tonnes	13.3tonnes
Cost of environmental neglect	Rs. 365 billion	
Forest cover	5.2%	4.8%
Protected Area	11.3%	
Per capita water availability	1090 m3	
Land slide susceptibility		65%
% of forest shrinkage	3.1%	
Glacial Lakes	2420	60%
Dangerous GLOFs	52	75%
Largest CNG user in Asia		

In the year 2010 the world pumped in 564 million ton extra carbon into the atmosphere than the emission in 2009 at the whopping increase rate of 6%

Impact Anaalysis

- Advance our approach to climate change adaptation
- Prepare for long term changes
- Identify most vulnerable assets
  - Target resources to address sustainable climate change adaptation
  - Inform spatial planning,
  - Inform and management
  - Inform objective setting… national character areas

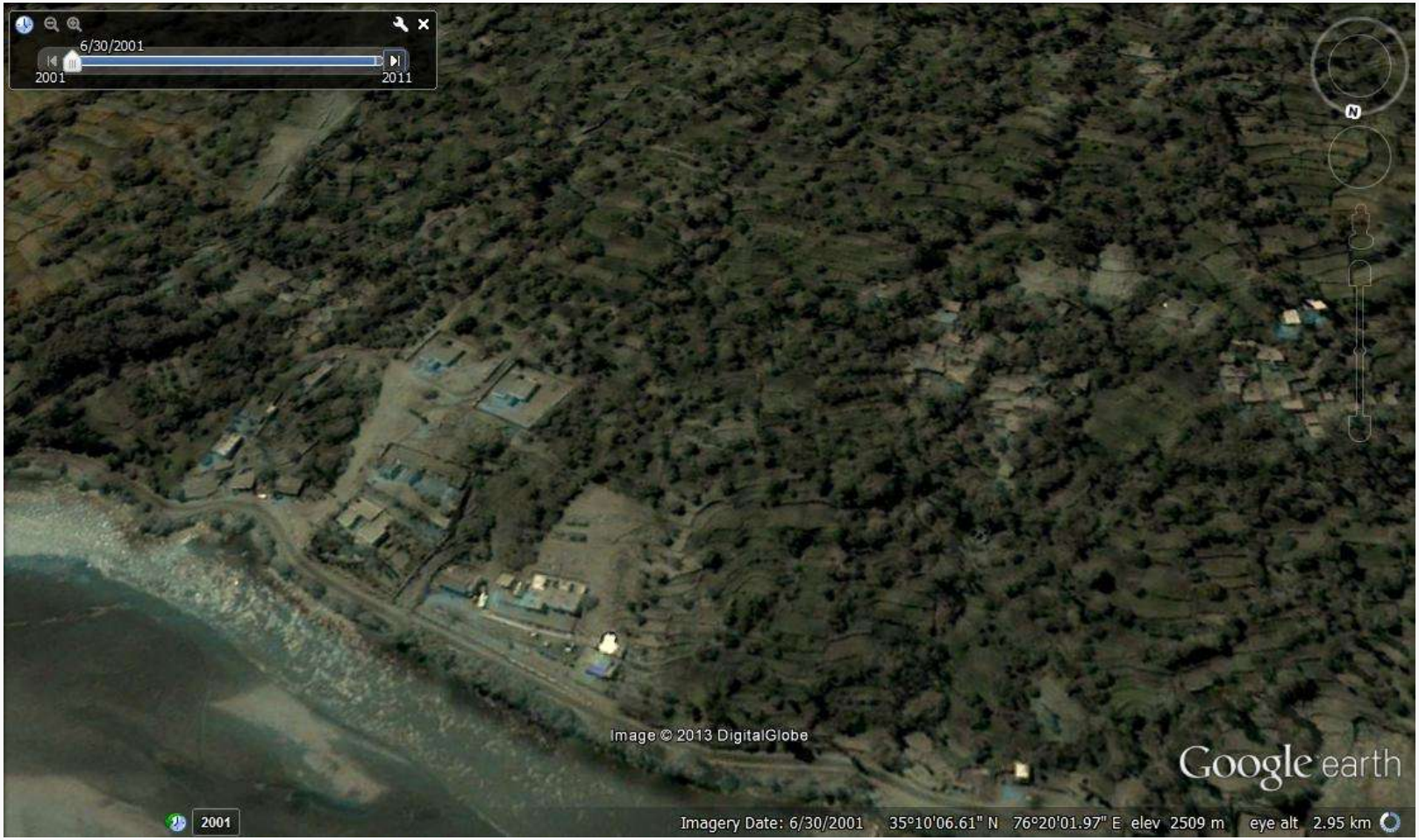
Principles of Inform Adaptive Capacity

- Conservation of existing biodiversity
- Reduce sources of harm linked to climate
- Develop ecologically resilient and varied landscape
- Establish ecological networks through habitat protection, restoration and creation
- Make second decision based on analysis
- Integrate adaptation and mitigation measures into conservation management, planning and practice

Khaplu Town


1/25/2013
2000
2013
Image NASA
Image © 2013 DigitalGlobe
Google earth
2004
Imagery Date: 10/15/2011 35°10'00.06" N 76°19'30.39" E elev 2538 m eye alt 3.32 km

Khaplu 2001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2011
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Image © 2013 DigitalGlobe
Google earth
2001
Imagery Date: 6/30/2001 35°10'06.61" N 76°20'01.97" E elev 2509 m eye alt 2.95 km

Khaplu 2011


10/12/2011
2001
2011
N
Image © 2013 DigitalGlobe
Google earth
2001
Imagery Date: 10/12/2011 35°10'06.61" N 76°20'01.97" E elev 2509 m eye alt 2.95 km

Khaplu 2001


6/30/2001
N
Image © 2013 DigitalGlobe
Google earth
2001
Imagery Date: 6/30/2001 35°10'14.66" N 76°19'15.86" E elev 2473 m eye alt 2.69 km

Khaplu 2011


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Image © 2013 DigitalGlobe
Google earth
2001
Imagery Date: 10/12/2011 35°10'14.66" N 76°19'15.86" E elev 2473 m eye alt 2.69 km

Khaplu 2001


6/30/2001
N
Image © 2013 DigitalGlobe
Google earth
2001
Imagery Date: 6/30/2001 35°09'44.63" N 76°20'07.26" E elev 2594 m eye alt 2.89 km

Khaplu 2011


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2001
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Image © 2013 DigitalGlobe
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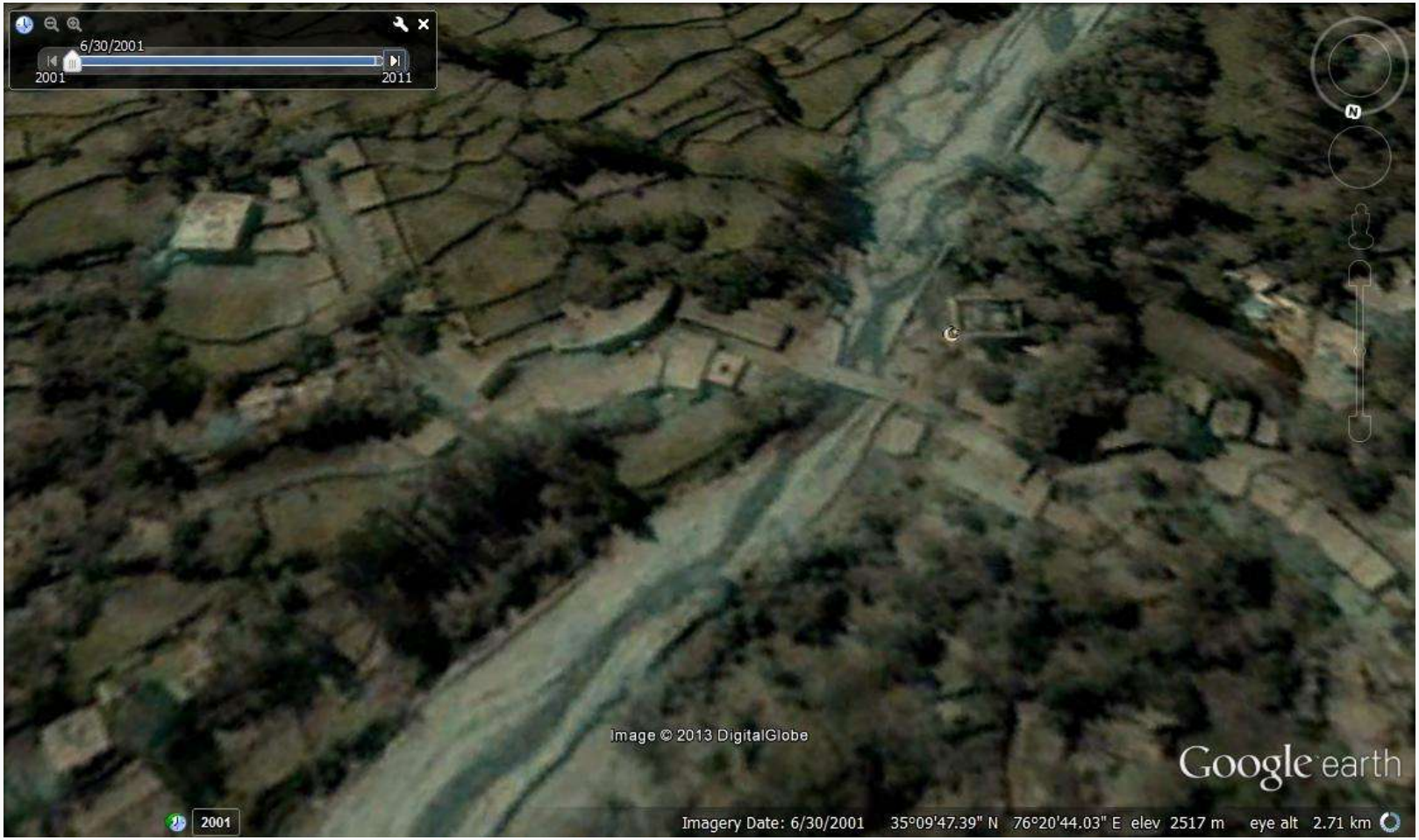
2001
Imagery Date: 10/12/2011 35°09'44.63" N 76°20'07.26" E elev 2594 m eye alt 2.89 km

Khaplu 2001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2011
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Image © 2013 DigitalGlobe
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2001
Imagery Date: 6/30/2001 35°09'47.39" N 76°20'44.03" E elev 2517 m eye alt 2.71 km

Khaplu 2011


10/12/2011
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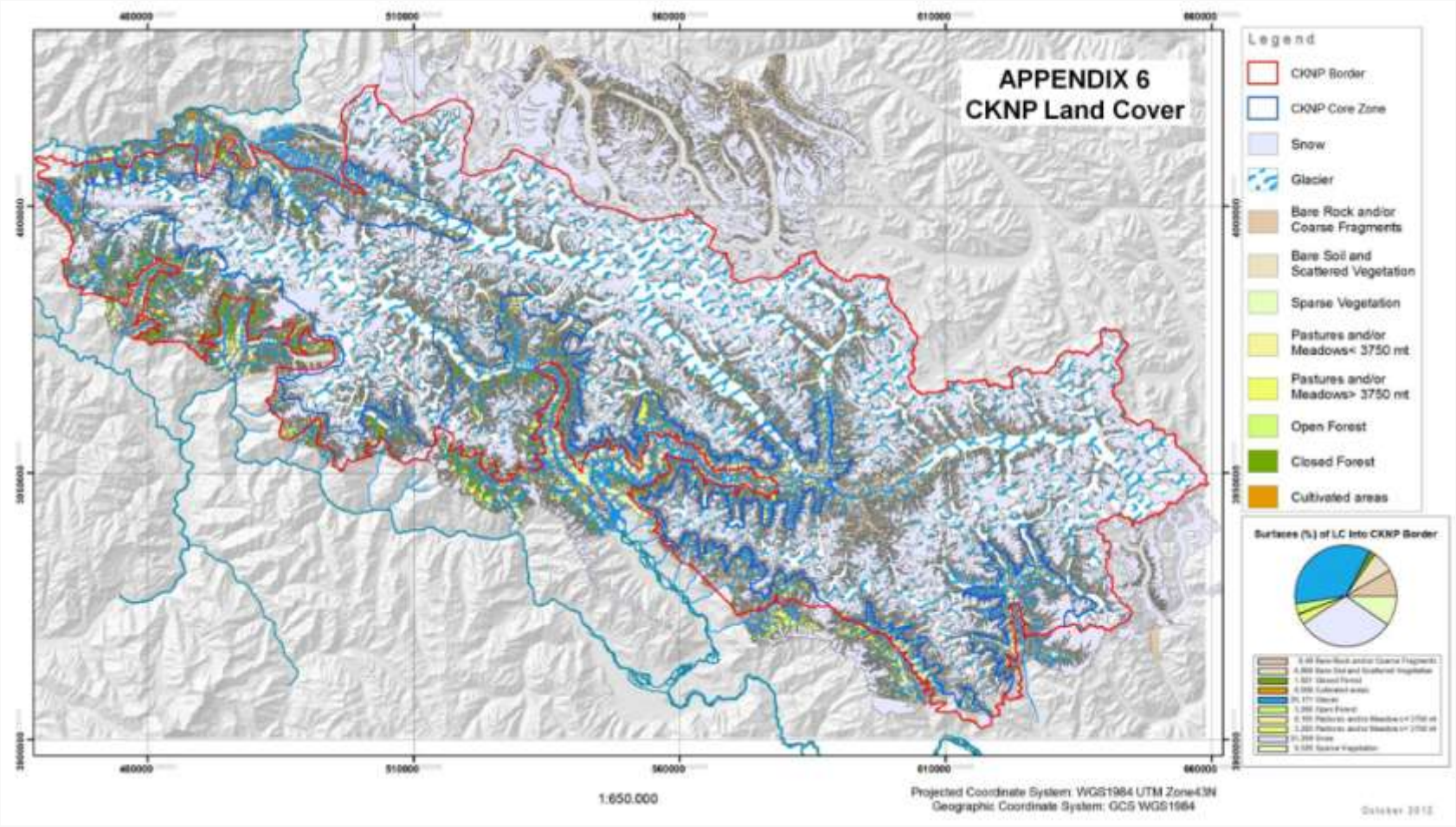
Image © 2013 DigitalGlobe
Google earth
2001
Imagery Date: 10/12/2011 35°09'47.39" N 76°20'44.03" E elev 2517 m eye alt 2.71 km

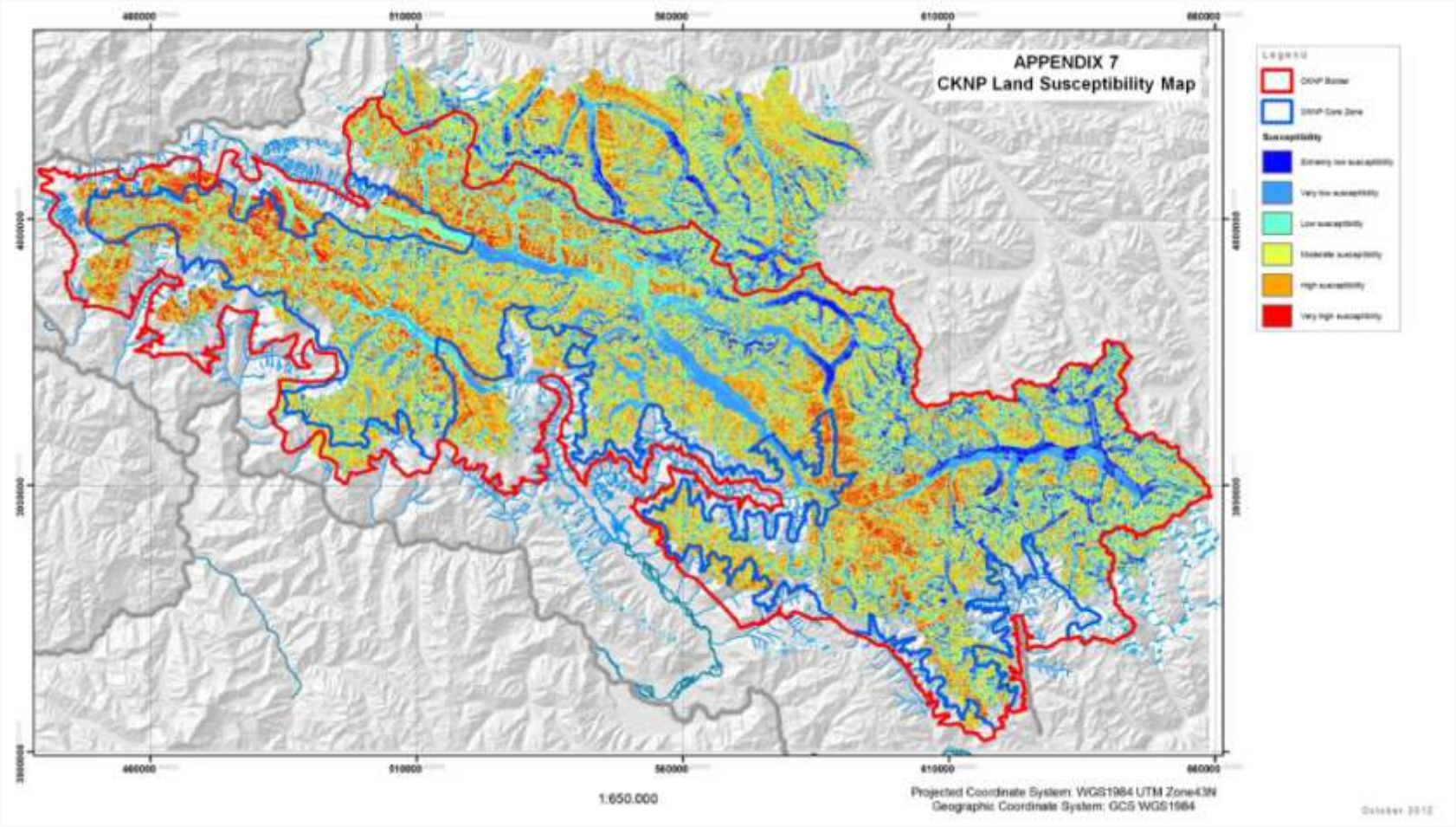
Snow Line Retreat

Glacier in CKNP



Vegetation Retreat

Land Slide Susceptibility



Permafrost

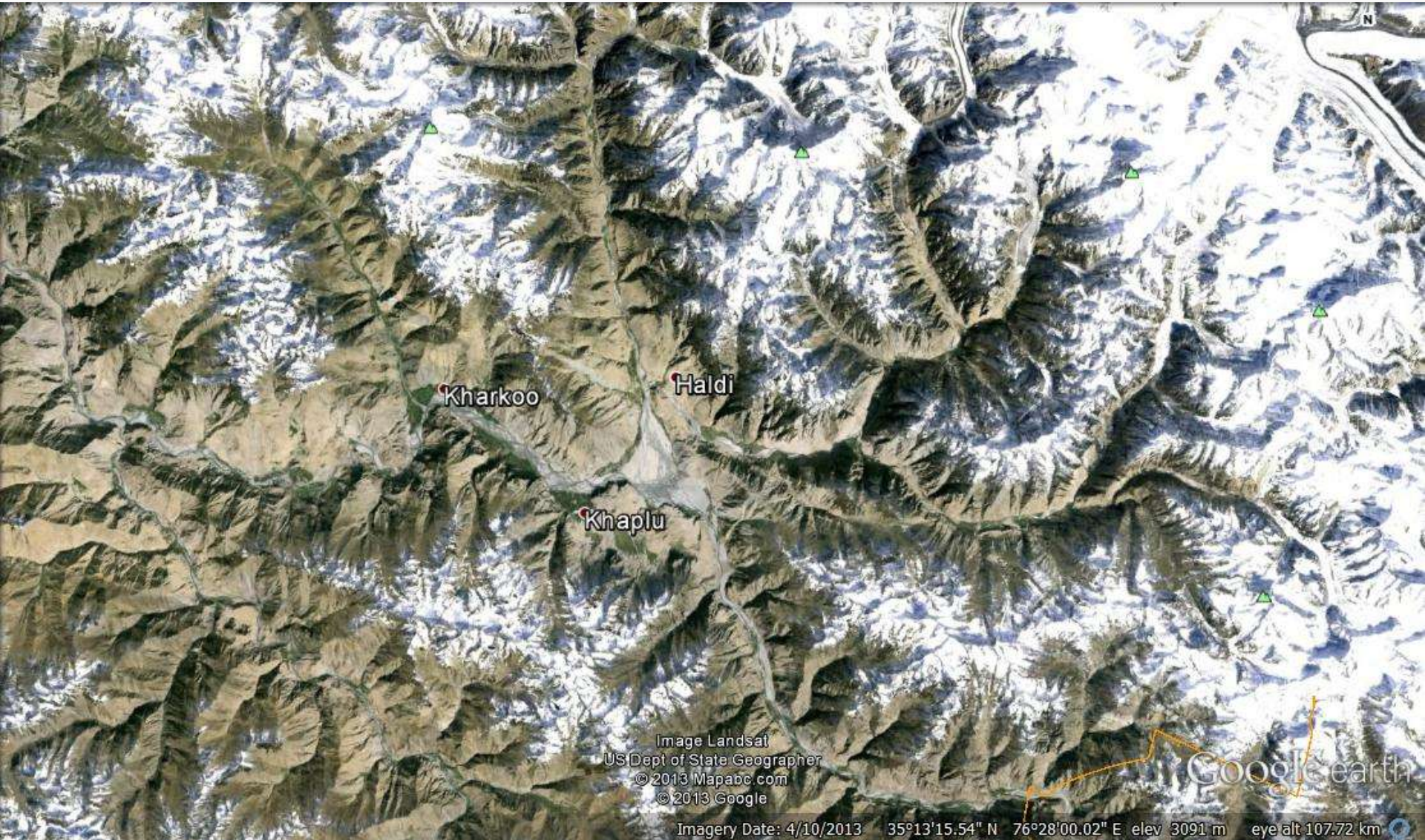

Kharkoo
Haldi
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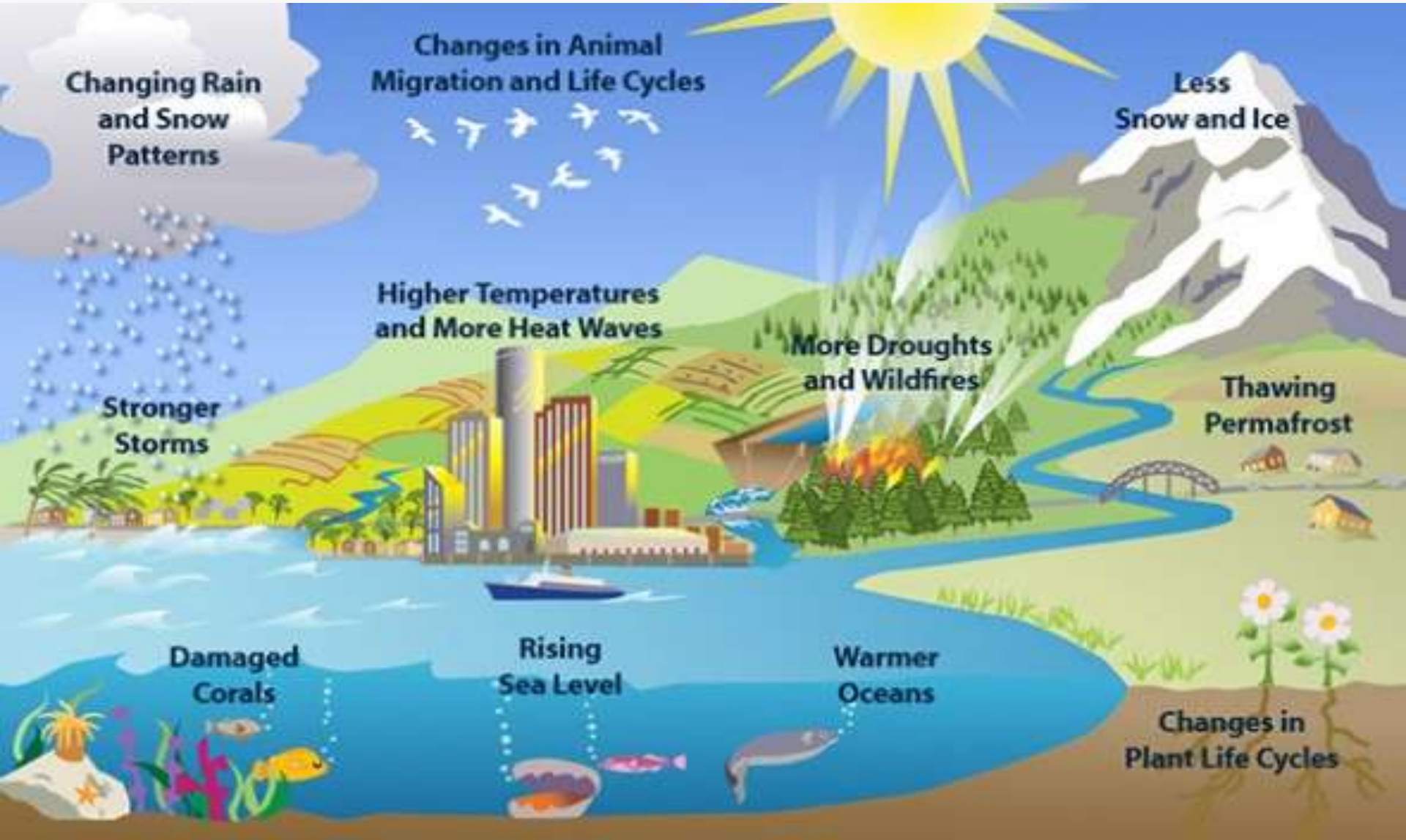
Image Landsat
US Dept of State Geographer
© 2013 Mapabc.com
© 2013 Google
Google earth
Imagery Date: 4/10/2013 35°13'15.54" N 76°28'00.02" E elev 3091 m eye alt 107.72 km

Drivers

- **Landfills** – Release methane, one of the most prevalent greenhouse gases. Also landfills release pollution.
- **Transportation** – Cars release pollution as they burn gasoline, these results in depletion of the ozone layer.
- **Using Electronics** – Electronics like cell phones laptops and TV's release a lot of heat, hence adding to the heat trapped in the earth's surface
- **Deforestation** – Cutting down trees destroys the cycle of photosynthesis; this process involves converting carbon dioxide (CO2) into oxygen. With less forestation there will be more CO2 in the atmosphere.
- **Disturbance in Permafrost**

Climate Change



Defining Climate Mitigation and Adaptation

Climate mitigation is any action taken to permanently eliminate or reduce the long-term risk and hazards of climate change to human life, property.

- The International Panel on Climate Change (IPCC) defines mitigation as: "***An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases***."

Climate adaptation refers to the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damage, to take advantage of opportunities, or to cope with the consequences.

- The IPCC defines adaptation as the, "***adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities***."

Adaptive Capacity

- It is crucial to reducing vulnerability to climate change. While mitigation tackles the causes of climate change, adaptation tackles the effects of the phenomenon. The potential to adjust in order to minimize negative impact and maximize any benefits from changes in climate is known as adaptive capacity. A successful adaptation can reduce vulnerability by building on and strengthening existing coping strategies.

Mitigation Strategies

Climate change involves complex interactions between climatic, environmental, economic, political, institutional, social, and technological processes. It cannot be addressed or comprehended in isolation.

In the United Nations Framework Convention on Climate Change (UNFCCC) three conditions are made explicit when working towards the goal of greenhouse gas stabilization in the atmosphere:

a. That it should take place within a time-frame sufficient to allow ecosystems to adapt naturally to climate change;

b. That food production is not threatened and;

c. That economic development should proceed in a sustainable manner

Adaptation Strategies

- The United Nations Framework Convention on Climate Change refers to adaptation in several of its articles: Article 4.1(f): All Parties shall “Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change.”

Mitigation Measures

- Promoting cost-effective fuel switching measures from high carbon fuels to low carbon fuels.
- Implementing energy efficiency measures by providing energy efficiency improvement projects.
- Improving existing policies and practices to limit emissions like controlling subsidies on fuels.
- Measures to raise and expand carbon sinks that trap carbon dioxide such as forest management and proper land management etc.
- Improving technology and developing techniques to control methane, nitrous oxide and other greenhouse gas emissions from the source.
- Pre-planning for the adaptation to climate change consequences in the worst case scenario.
- Promoting the use of non-fossil energy sources and conducting research to reduce emissions from existing fossil fuels

Mitigation Measures contd

- Revising and implementing the energy efficiency standards to check emissions.
- International collaboration among various climate groups and organizations to better understand the causes and impacts of climate change.
- Continued research to reduce critical scientific uncertainties and improve existing climate models for better predictions of climate change.
- Promoting environmental education and awareness training in schools and colleges for climate change and associated environmental issues.
- Conducting volunteer programs and forming regional action groups to implement climate change mitigation measures

Conclusion

Climate Change Mitigation refers to efforts to reduce or prevent emission of greenhouse gases. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behavior. It can be as complex as a plan for a new city, or as a simple as improvements to a cook stove design. Efforts underway around the world range from high-tech subway systems to bicycling paths and walkways. Protecting natural carbon sinks like forests and oceans, or creating new sinks through silvicultur or green agriculture are also elements of mitigation.

Way Forward for Gilgit-Baltistan

- Environmental Laws
- Urban Planning, Construction and Building Codes
- Promotion of Social Forestry
- Benefit from REDD+ programme
- Extension of CKNP project


Thank You