

Title of class: Climate change, glaciers and environmental conflict in the Himalaya region
Nr.: 63-112
Lecturers: Angelika Humbert, Jürgen Scheffran
Time: Mi 13.30-15.00
Location: Grindelberg 5, Raum 008
Start: 13.04.2011 (preparatory meeting 30.03./06.04.2011)

Content: In this seminar, we focus on the Himalaya region and assess various consequences of climate change on glaciers and water cycles. We study recent environmental changes and potential problems climate change would induce in that area. This is an interdisciplinary seminar, with contributions from glaciology, geology and geography. The seminar starts by introducing the dynamics of glaciers and water flows and their response to climate change generally. Subsequently, we investigate specific areas, e.g. the Siachen Glacier, and compare them with a broad assessment of the state and impacts of the cryosphere in this region. After analyzing the environmental changes, we will focus on the consequences and risks to the societies in the wider Himalaya region. Here some of the world's major rivers originate, and their combined drainage basin is home to almost half of the world's population. Major changes in climate, water, biodiversity and agriculture (e.g. in the Monsoon, river flooding in South Asia or droughts in Central Asia) can have severe implications for environmental security and conflict. Approaches for crisis management and conflict resolution will be discussed.

Goal: The seminar will provide an understanding of key factors and mechanisms of climate change, glaciers and environmental conflict in the Himalaya region. The seminar will provide an understanding of glacier dynamics and responses to climate change; risks and impacts from changing glaciers on water cycles, including the river systems for South and Central Asia; human-environment interaction in the Himalaya region, with a focus on the role of glaciers in environmental conflict. Students will discuss the relevance of natural cycles on agriculture, social systems and conflict potentials, Tasks will be to prepare a scientific presentation and a written summary.

Conditions: BSc in any field relevant to the topic of this class.

Grading: 20% class contribution, 40% presentation, 40% term paper

Term Paper: Deadline : 1. August 2011;

- Format: 10 pages text (Arial, 11pt, left, right, top, bottom 2cm, line spacing single, block); additional titlepage, bibliography and figures
- Structure of the text: Abstract, Introduction, Hypotheses, Methods, Results, Discussion, Own assessment/hypothesis, Conclusions

Presentation: 30-45 min oral presentation; 2-page handout; prepare three questions and/or hypothesis to the audience, which lead into the discussion

Related Books:

- D.I. Benn, D.J.A. Evans (1997) *Glaciers and Glaciation*.
- D.N. Dhungel, S.B. Pun (2009) *The Nepal-India Water Relationship: Challenges*, Springer.
- K.S. Gulia (2007) *Ecology & Environment in the Himalayas*, Isha Books
- T. Hofer, B. Messerli (2007) *Floods in Bangladesh - History, Dynamics and Rethinking the Role of the Himalayas*, UN University Press
- J.D. Ives, B. Messerli (1989) *The Himalayan Dilemma - Reconciling Development and Conservation*, UN University, Routledge, 1989, unu.edu/unupress/unupbooks/80a02e/80A02E00.htm
- P.G. Knight (2006) *Glacier Science & Environmental Change*
- T. Rawat (2008) *Environment of the Himalayas*
- A. Rotmans, N. Tashi (2003) *Ecoregional Approaches to Mountain Agriculture: Tools for Planning and Development*
- M.B. Sharma, V. Kaul, V. Sarkar, B. Joardar, Eds. (2009) *Bio-Cultural Profile of Central & Western Himalayas*, Serials Pub.

Climate change, glaciers and environmental conflict in the Himalaya region

Seminar Program:

1) April 13: Introduction to the physics of glaciers

Angelika Humbert

2) April 20: Introduction: Human-environment interaction and environmental conflicts

Jürgen Scheffran

3) April 27: Climate change in the Himalaya region

Maya Bhatt

4) May 4: Glaciers & water

Yi-Wen Chang, Irina Petrova

5) May 11: Glacier response to climate change

Timmy Schwarz, Nina Wilkens

6) May 18: Climate gate and the 2035 issue

Mike Schäfer

7) May 25: Siachen Glacier and the Kashmir conflict

Nicola Frank

8) June 1: Geo-strategic interests

Antje Schütz, Diana Süsser

9) June 15: Human-environment interactions and conflicts in the Himalaya region

Tobias Kawohl, Christin Meyer

10) June 22: Northwestern Himalaya Region: Central Asia

Jule Biernatzki, Daniel Jahncke

11) June 29: Southern Himalaya region: Bangladesh / South Asia

Janina Bornemann, Lisa-Michele Bott

12) July 5: Eastern Himalaya region: China

Kesheng Shu, Liang Yang