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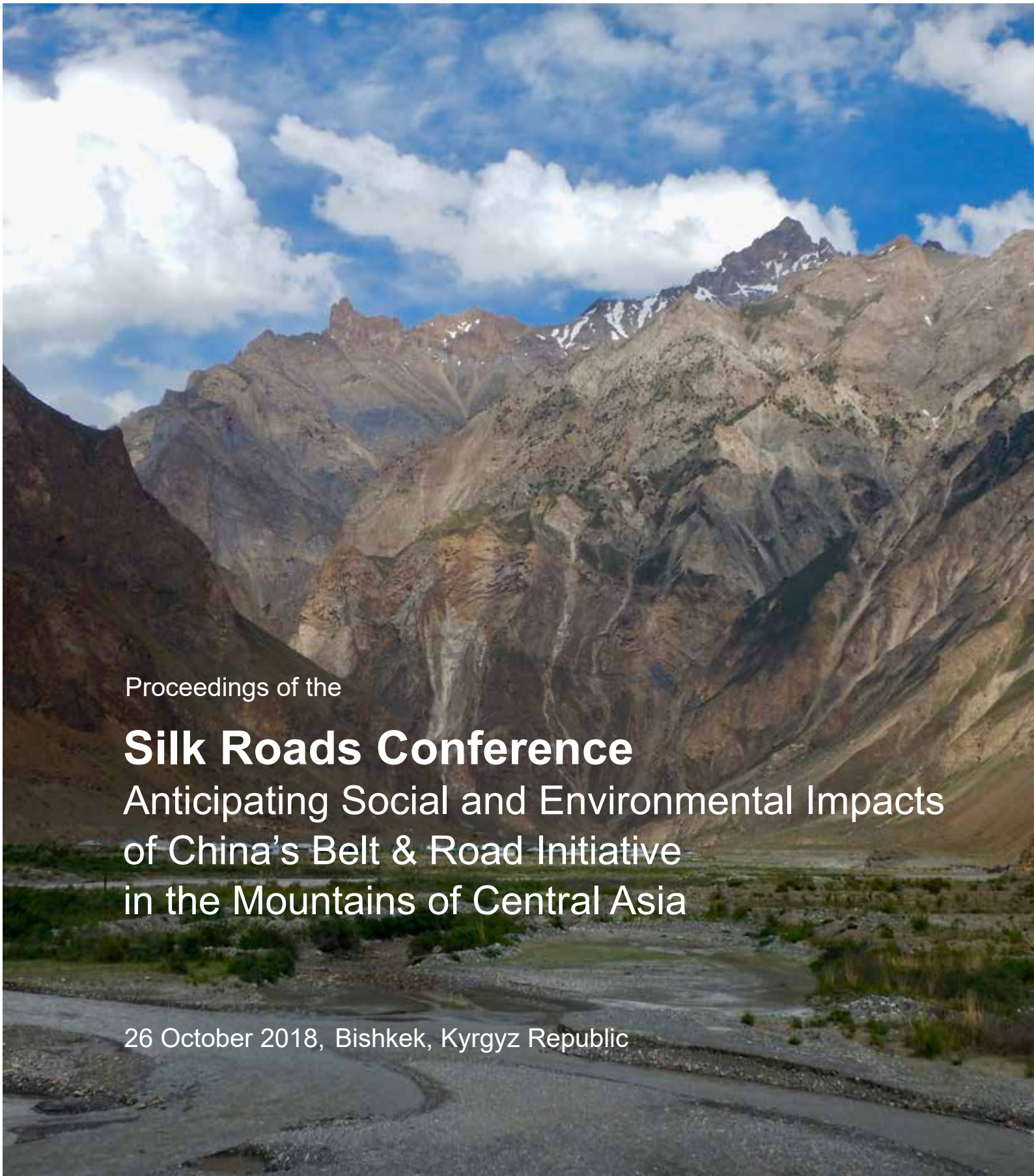

Proceedings of the

Silk Roads Conference

Anticipating Social and Environmental Impacts of China's Belt & Road Initiative in the Mountains of Central Asia

26 October 2018, Bishkek, Kyrgyz Republic

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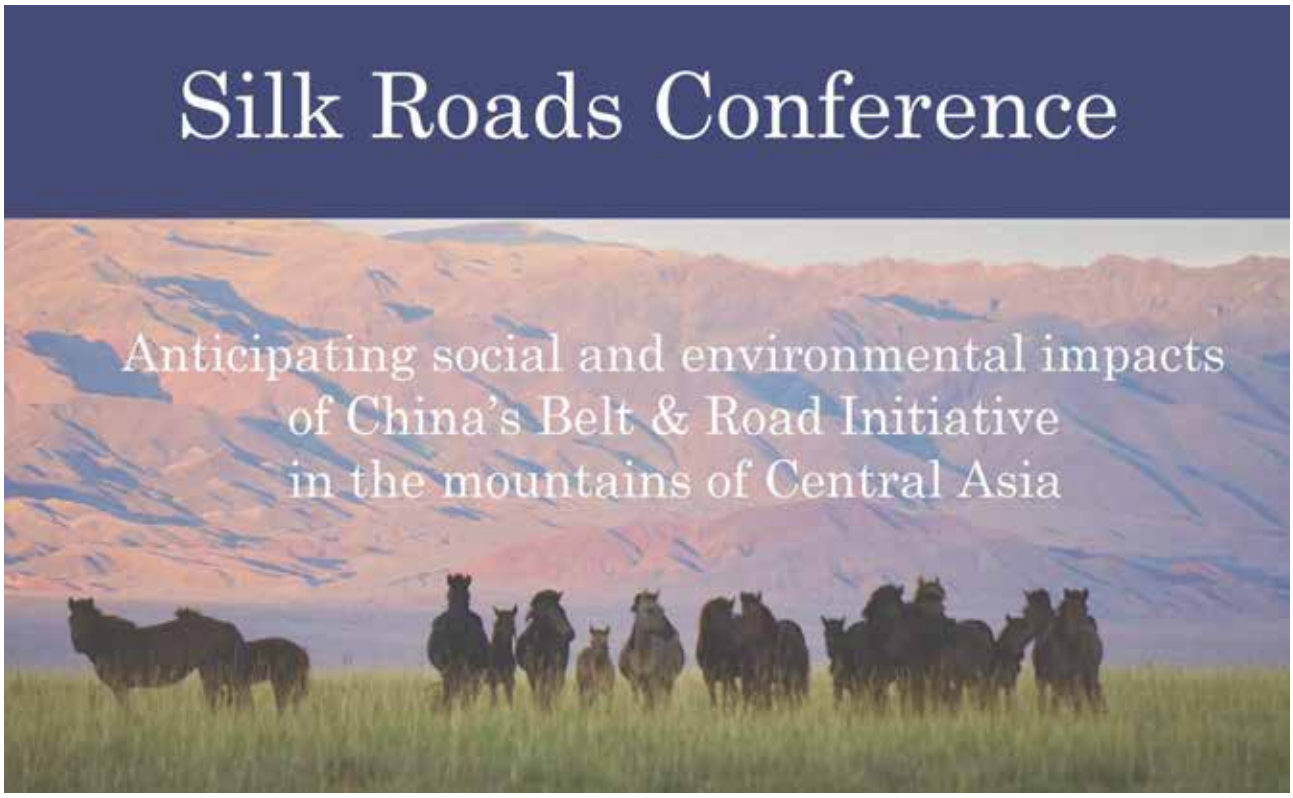

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GRADUATE SCHOOL OF DEVELOPMENT
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Silk Roads Conference

Anticipating social and environmental impacts of China's Belt & Road Initiative in the mountains of Central Asia

Bishkek, Kyrgyz Republic
26th October 2018

Mountain Societies Research Institute
University of Central Asia (UCA)
138 Toktogul Street, Bishkek
Kyrgyz Republic, 720001
msri@ucentralasia.org

The Federal Government
Event organized with support from the Government of Germany

Foreword

China's flagship global enterprise known as the 'Belt & Road Initiative' (BRI) is well and truly underway. Emerging further as an economic powerhouse while still based on a strong labour economy, in recent years China has begun to expand its horizons and now reaches further to the west than ever before in modern times. Through the BRI's massive foreign investment in infrastructure and industry, along both land and sea routes, China is rapidly becoming the world's foremost driver of international connectivity and globalization, in a time when other traditional powers may be pursuing alternative options for foreign engagement and partnerships.

Initiated in 2013, the multi-faceted effects of BRI are beginning to reveal themselves. Along the land route through Central Asia and the Middle East into Europe, initial characterization and trends include rapidly evolving development trajectories, as roads, railways, and pipelines plough through mountains, deserts, forests and wetlands between China and Europe. Meanwhile, along the sea routes, the ports linking China to Africa and Europe are growing in number and catalyzing secondary developments on land as well. However, there are still many unknowns. The scale of the BRI makes the study and 'decoding the myths' surrounding this massive enterprise into its component parts and concrete plans for development, both figuratively and literally, an urgent priority.

Considering the huge range of societies, sectors, landscapes and ecosystems through which the BRI traverses, projects must be grounded in their specific natural and sociopolitical geographies, taking into account all contextual social and environmental factors that could enable, constrain, or be impacted by the projects. In the current global development arena, informed and guided by the widely endorsed Sustainable Development Goals (SDGs), China's BRI has a major role to play. Achieving the SDGs through the Initiative is, in fact, essential for its long term success, for delivering on its stated ambition to bring "great benefit to all peoples around the world." This can only be achieved through equitable, inclusive, environmentally friendly and financially secure investments.

The Silk Roads Conference, hosted by the Mountain Societies Research Institute (MSRI) of the University of Central Asia, follows on from the inaugural *Silk Roads in the Mountains Central Asia* workshop held in Dushanbe, Tajikistan in October 2017, both expanding its scope in Central Asia and also drawing on recent experiences from Africa and Southeast Asia. Altogether, nearly 40 academics and development practitioners working across China, Central and West Asia, Europe and Africa convened to discuss emerging issues associated with China's Belt & Road Initiative. What do we already know of existing projects? Where, who, and what sectors are being impacted? And, how could the Initiative bring about more positive transformations in these sectors towards sustainable mountain development?

The University of Central Asia was delighted to host the conference, and wishes to thank all the participants, especially session chairs and presenters, who facilitated meaningful discussion and whose insights were gladly received. We also are incredibly grateful to the Federal Government of Germany, whose generous contribution enabled this event and thus helped both to consolidate and disseminate the findings and outcomes from the conference. Special thanks also is hereby extended to all the MSRI team, whose work prior to, during, and following this one-day special conference made it a success.

Sincerely,

About Mountain Societies Research Institute (MSRI), University of Central Asia (UCA)

The Mountain Societies Research Institute operates at the interface of academia and development. It envisages a future in which local communities, government, development practitioners, policy makers, and the private sector collaborate in the generation of interdisciplinary knowledge and its application for sustainable development in the mountains of Central Asia and beyond.

MSRI's primary concern is the quality of life and wellbeing of the people and communities residing in the mountains of Central Asia, and the major drivers and factors affecting their livelihoods, economies, and environments.

MSRI has five key objectives:

- To generate knowledge on mountain societies through original scientific research
- To serve as a knowledge hub for scholars, development practitioners, and policy-makers
- To enhance regional capacity to conduct research relevant for mountain societies
- To inform policy and practice through engagement with key development partners
- To disseminate knowledge amongst the full range of mountain stakeholders

Major research themes include:

- Natural resources management and sustainable food systems
- Social dynamics and transformations, including resilience
- Mountain livelihoods, alternative incomes, poverty, equity
- Mountain hazards and disaster risk management
- Ecosystem services and conservation of biodiversity

Cross-cutting themes:

- Adaptation to climate change in mountain regions
- Local and regional disparities in socioeconomic development
- Assessing the Sustainable Development Goals in Central Asia

For more information:

https://msri.ucentralasia.org/

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The Silk Roads Conference

26 October 2018

Hosted by the Mountain Societies Research Institute, University of Central Asia
With support from the Federal Government of Germany

China's Belt and Road Initiative (BRI) will connect communities, countries and economies in unheralded scope and scale. Over three trillion dollars of investment in more than 60 countries in the form of roads, railways, pipelines and other infrastructure projects will transform the economies of the BRI partner countries. However, such transformations also carry great environmental and social challenges. Ensuring the BRI can positively contribute to sustainable development will be contingent on mitigating negative impacts, promoting inclusive development, facilitating resilience and adaptive capacity to modern drivers of change, identifying and promoting responsible financial structures, and encouraging adoption of landscape-level and transboundary approaches to all of these challenges.

Addressing the above issues must be built on solid understanding of contexts and plans, formulated through interdisciplinary processes. Whilst there is growing recognition in certain sectors and 'partner countries' about environmental and social implications of BRI, there is still much to do towards more fully understanding and mitigating the challenges. This workshop aimed to consider the likely impacts and potential opportunities for social and economic development and the conservation of biodiversity associated with the Belt & Road Initiative, and the policy avenues that could be leveraged to maximize positive development and environmental outcomes.

Building on the inaugural *'Silk Roads in the Mountains of Central Asia: Ancient Routes and Modern Challenges in Times of Global Change'* conference held in Dushanbe, Tajikistan in October 2017, this one-day meeting encouraged interdisciplinary discussion, comparing and contrasting varied impacts of the BRI in different geographical contexts, including Africa and Asia, as well as between disciplines, to generate an enhanced, grounded *shared understanding* of the environmental, socio-cultural and development dimensions in Central Asian countries and regions targeted for BRI investments.

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The Silk Roads Conference aimed specifically to address the following issues, in the context of current understanding of the Belt & Road Initiative:

- Conservation and sustainable use of biodiversity
- Economic assessments and international trade
- Hazards affecting and affected by linear infrastructure
- Impacts on adaptation and mitigation of climate change
- National frameworks of partner countries for environmental protection
- Integrated agro-ecosystems and medicinal and aromatic plants
- Transboundary cooperation and networks of protected areas (PAs)
- Protecting Indigenous and Community Conserved Territories and Areas (ICCAs)
- Development policy recommendations

Workshop outcomes have included:

- Better understanding of current trends and dynamics in “Belt & Road” projects, including spatially explicit review of the BRI’s impacts on key biodiversity areas (KBAs)
- Broadly agreed priorities for further research in Central Asian partner countries
- Greater awareness of the mechanisms through which sustainable development goals may be strengthened along the Belt & Road Initiative routes
- Strengthened partnerships between researchers and development practitioners.

Outline for the day:

Activity	Theme	Chair
Session 1	What we know: Overview of the Belt & Road Initiative	Dr. Roy Sidle
Session 2	Social and environmental impacts, challenges and opportunities	Dr. Marc Foggin
Session 3	Role of ‘protected areas’ in regional landscapes	Mr. Ashiq Khan
Special workshop	“Identifying areas and sectors of special concern in Central Asia, and mechanisms to address them”	Mr. Matthew Emslie-Smith & Dr. Alice Hughes
Session 4	Lessons learned & policy recommendations	Mr. Wali Modaqiq

Session 1: What we know- Overview of the Belt & Road Initiative

Chair: Dr. Roy Sidle

Presentation:
Dr. Yuri Badenkov,
Senior Research Scientist, Institute of Georgraphy, Russian Academy of Sciences

"Economic vs. ecological corridors in Central Asia in the emerging Belt & Road context"

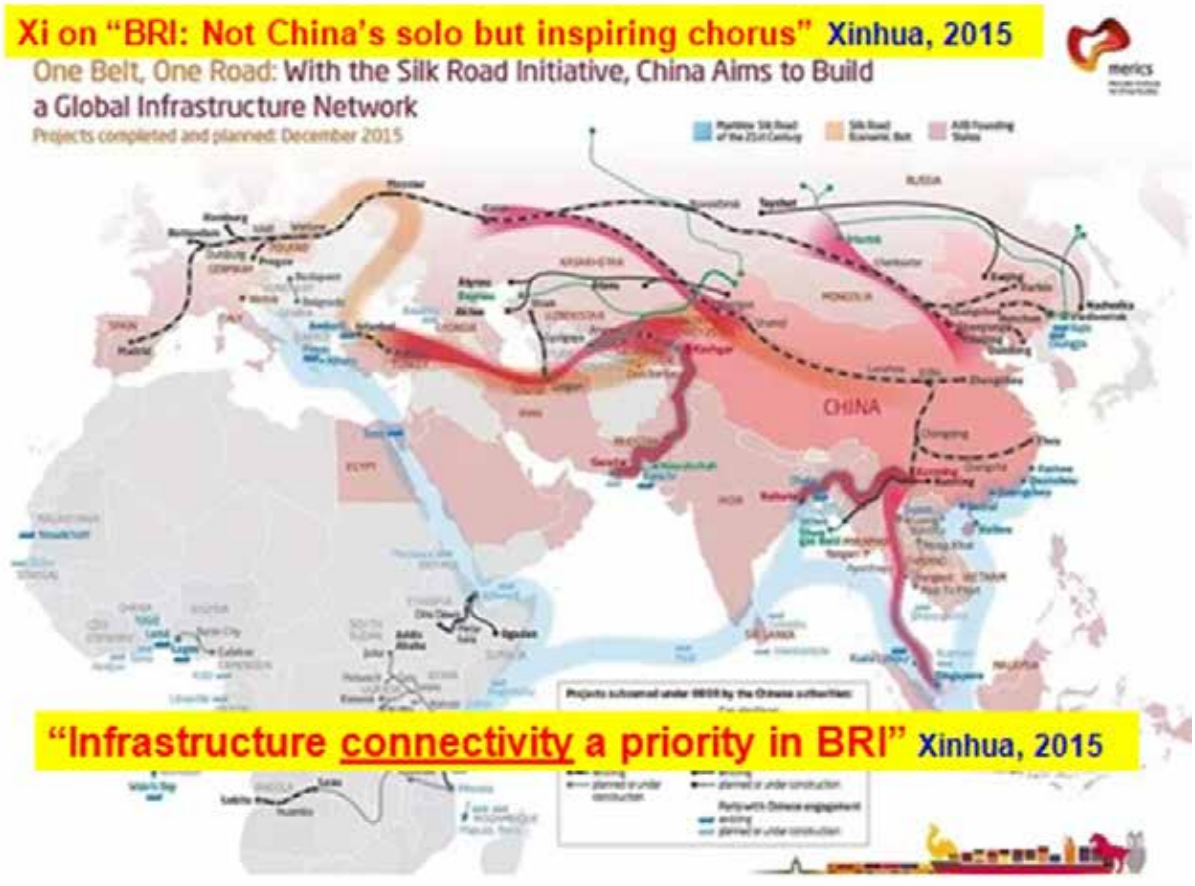
Key points:

1. Economic and ecological corridors exist in key transboundary mountain regions of High Asia.
2. IUCN Connectivity Conservation approach can be furthered in the context of BRI.
3. B&R Field Research Stations approach was announced by Chinese delegation in Irkutsk, to be conceptually aligned with MAB Biosphere Reserve and recommended to target transboundary regions of the Altai, Tien Shan and Pamir mountain ranges.

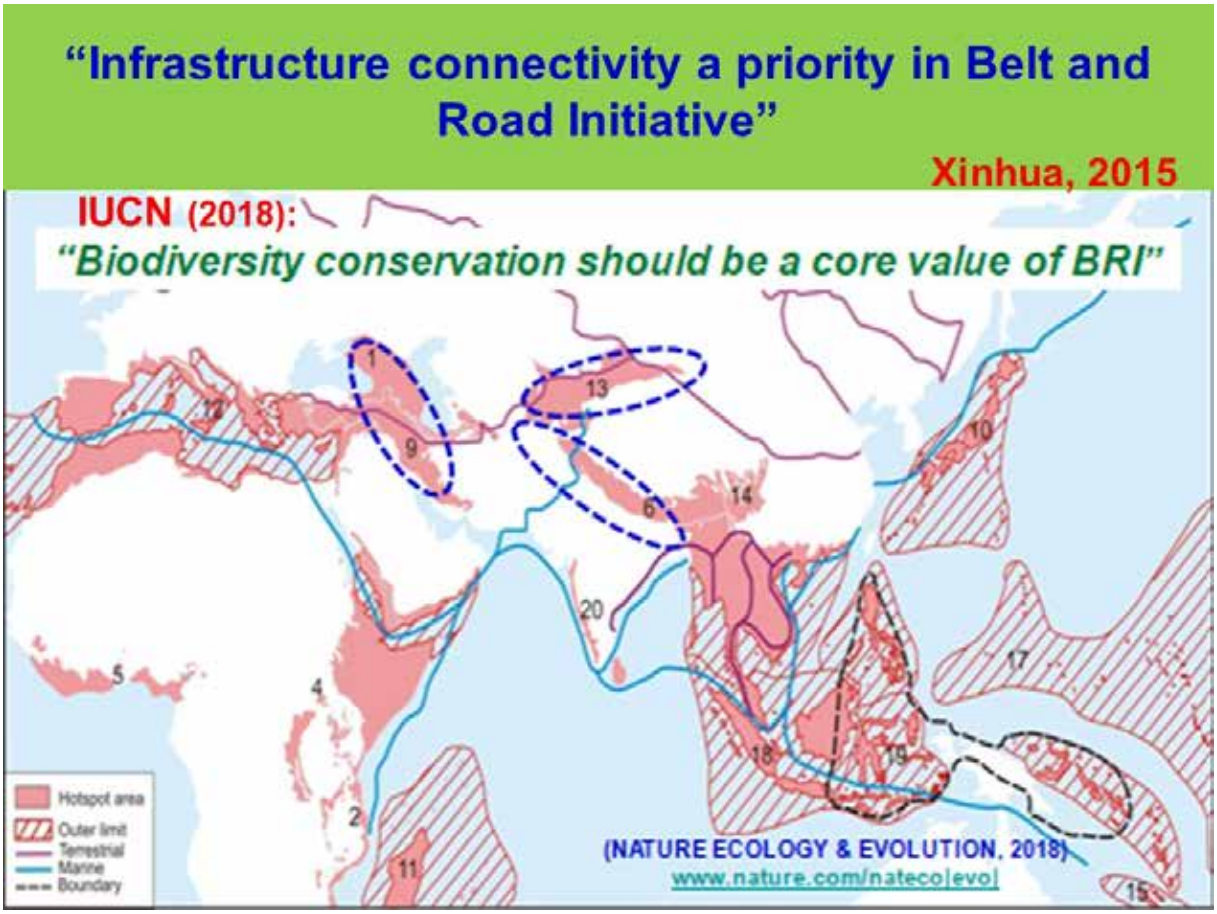
3 Themes

1. **Economic and ecological corridors in key transboundary mountain regions of High Asia**
2. **IUCN Connectivity Conservation approach in context of B&R impact and local socio-ecological systems response**
3. **B&R Field Research Stations. Chinese proposal 2018.**

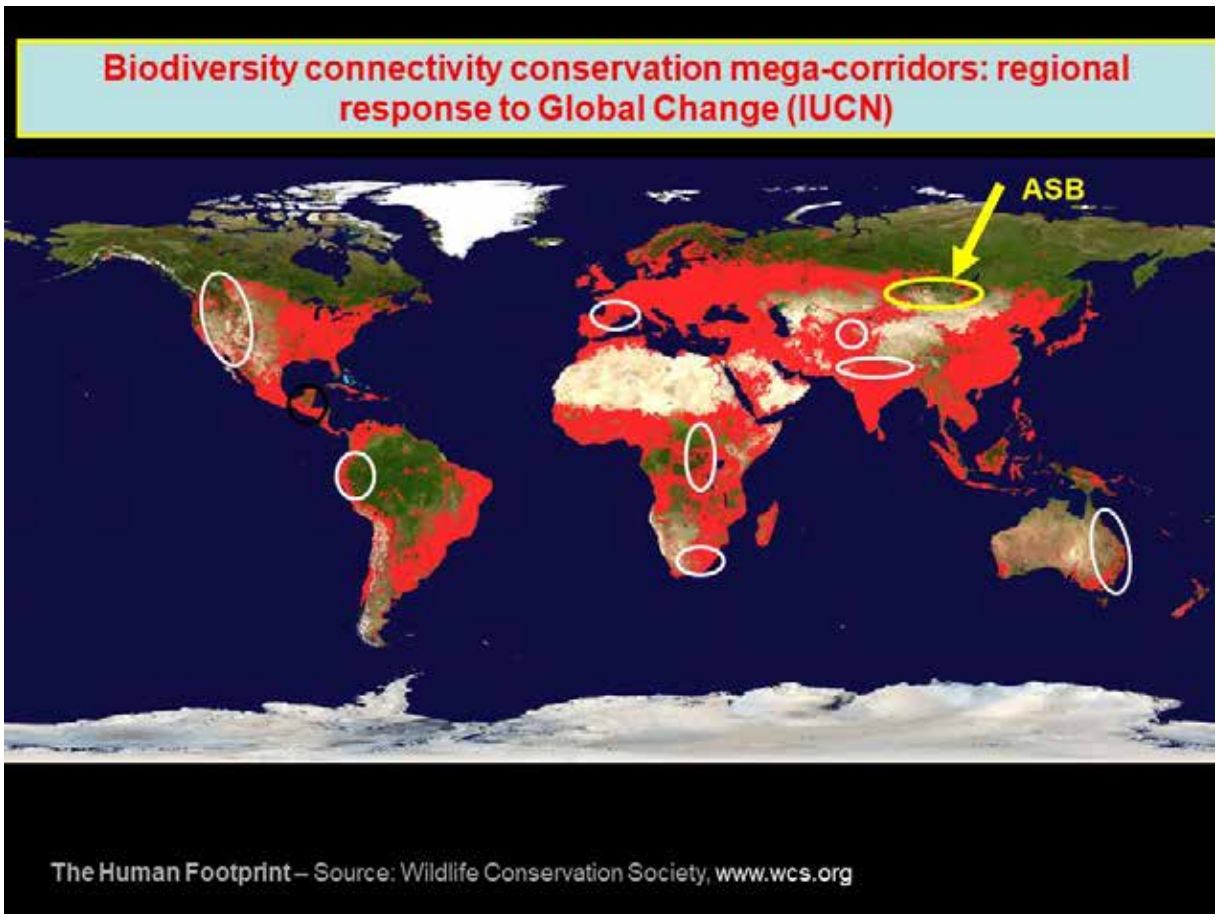
Xi on "BRI: Not China's solo but inspiring chorus" Xinhua, 2015

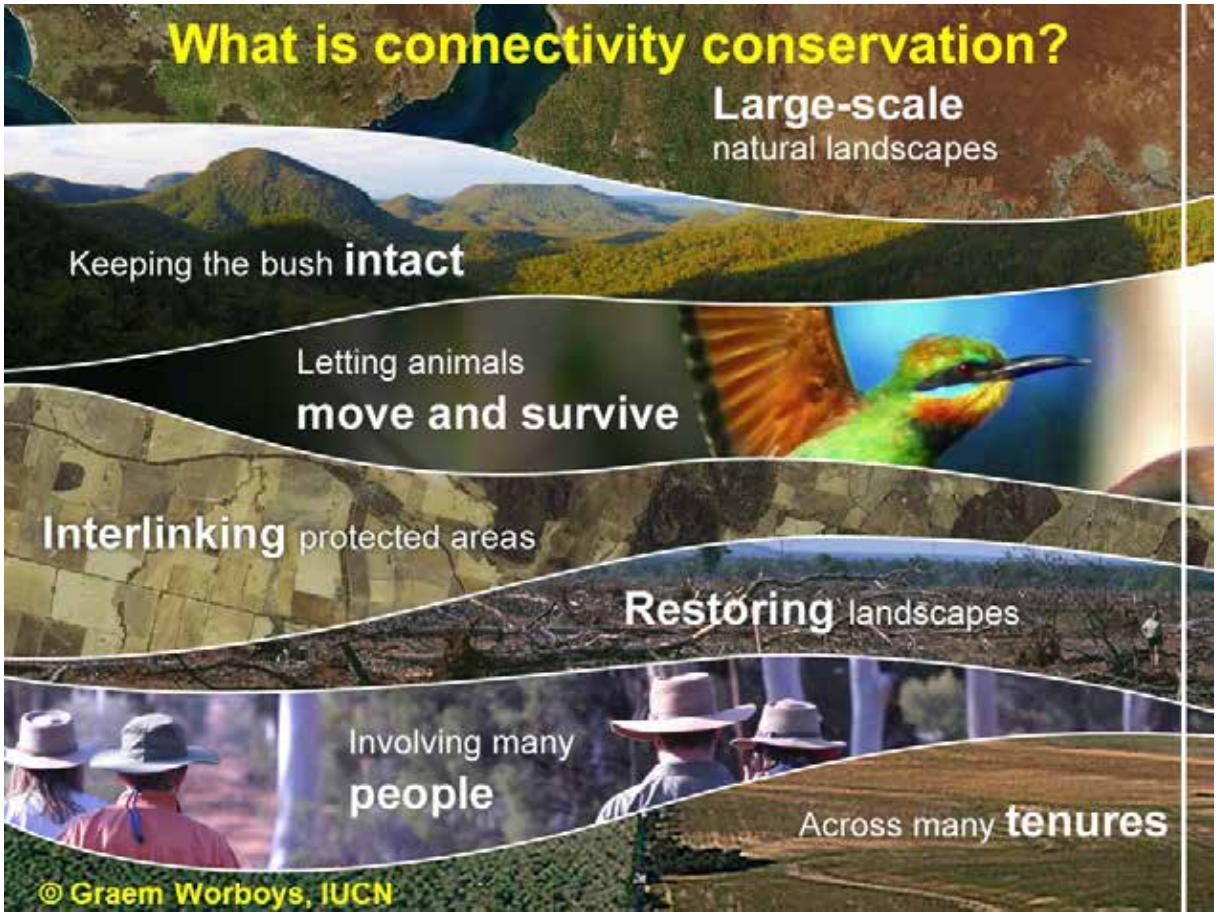


"Infrastructure connectivity a priority in BRI" Xinhua, 2015


"Infrastructure connectivity a priority in Belt and Road Initiative"
Xinhua, 2015
IUCN (2018):
"Biodiversity conservation should be a core value of BRI"
Hotspot area
Outer limit
Terrestrial
Marine
Boundary
(NATURE ECOLOGY & EVOLUTION, 2018)
www.nature.com/natecolevol


REGIONAL B&R CORRIDORS
Россия
Казахстан
Монголия
Китай
Индия
Baikal
Russia - Mongolia - China
Altai
Khorgos
Pamir
Pakistan


Biodiversity connectivity conservation mega-corridors: regional response to Global Change (IUCN)
ASB
The Human Footprint – Source: Wildlife Conservation Society, www.wcs.org


What is connectivity conservation?
Large-scale
natural landscapes
Keeping the bush intact
Letting animals
move and survive
Interlinking protected areas
Restoring landscapes
Involving many
people
Across many tenures
© Graem Worboys, IUCN

USA
Y2Y

Yellowstone to Yukon

- Length: 3207 km's
- Width: 202-805 km's
- Average height: 1,067 metres

Landcover:
- 1.5% bare rock
- 18.9% tundra
- 59% forested
- 13.5% shrublands
- 4.5% grasslands
- 2.6% agricultural

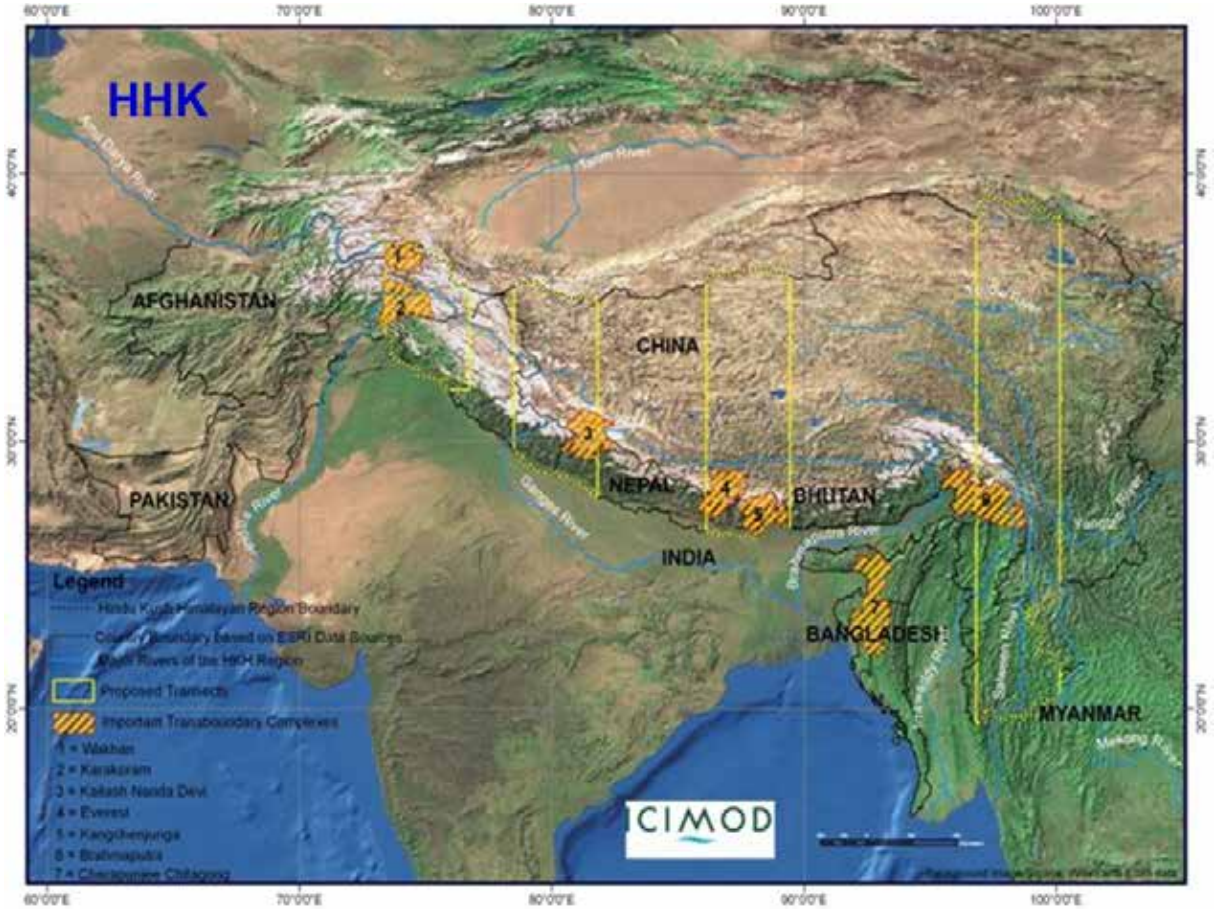
Australia

Green:
Protected Areas

Yellow:
Indicative A2A corridor

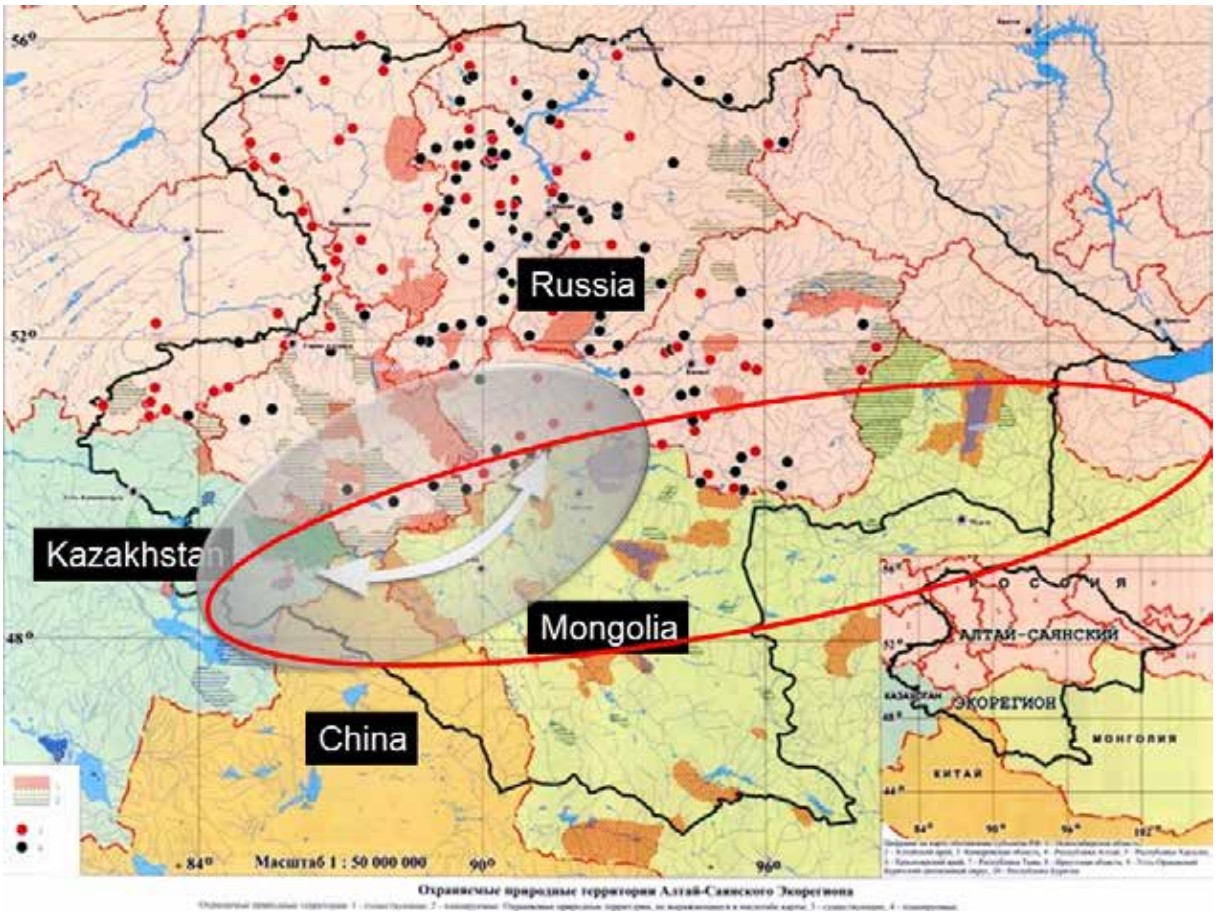
Black Line:
Great Dividing Range

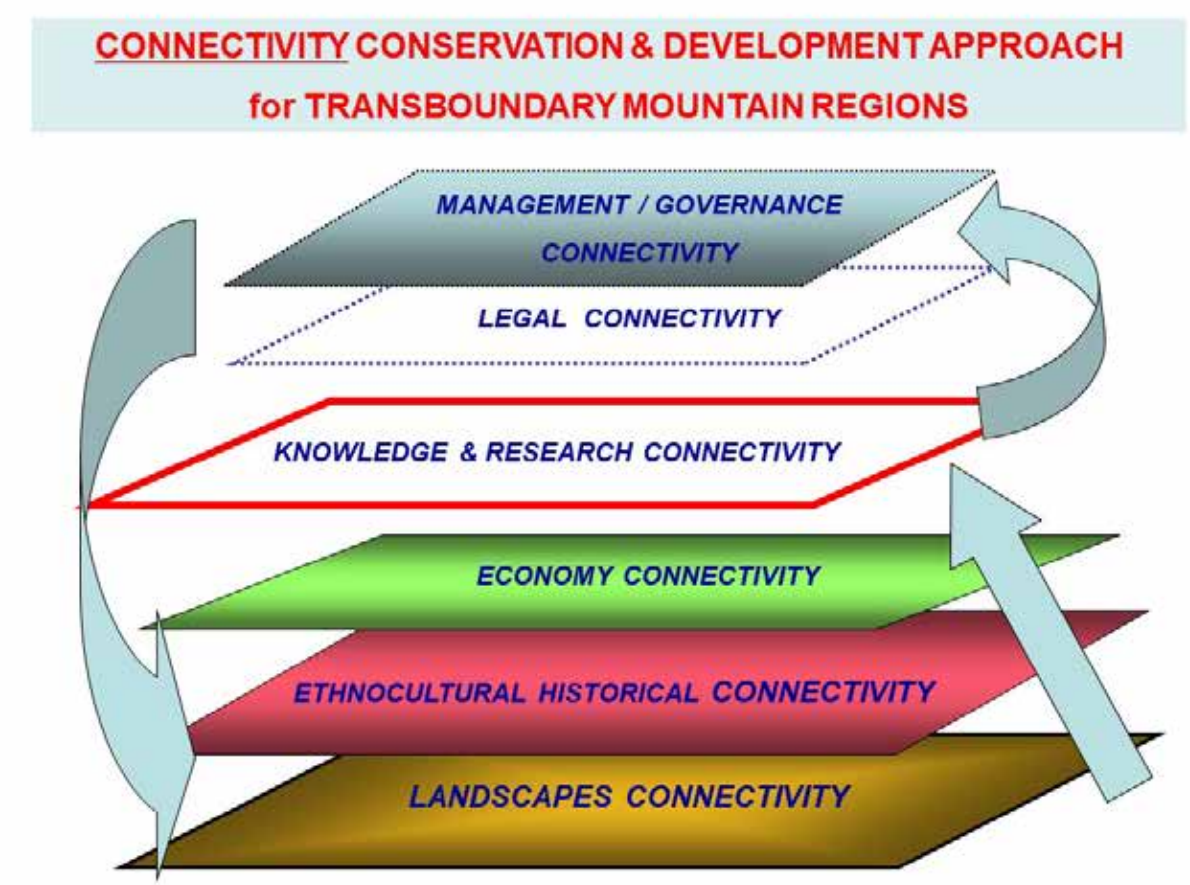
Red Line:
Great Escarpment of Eastern Australia

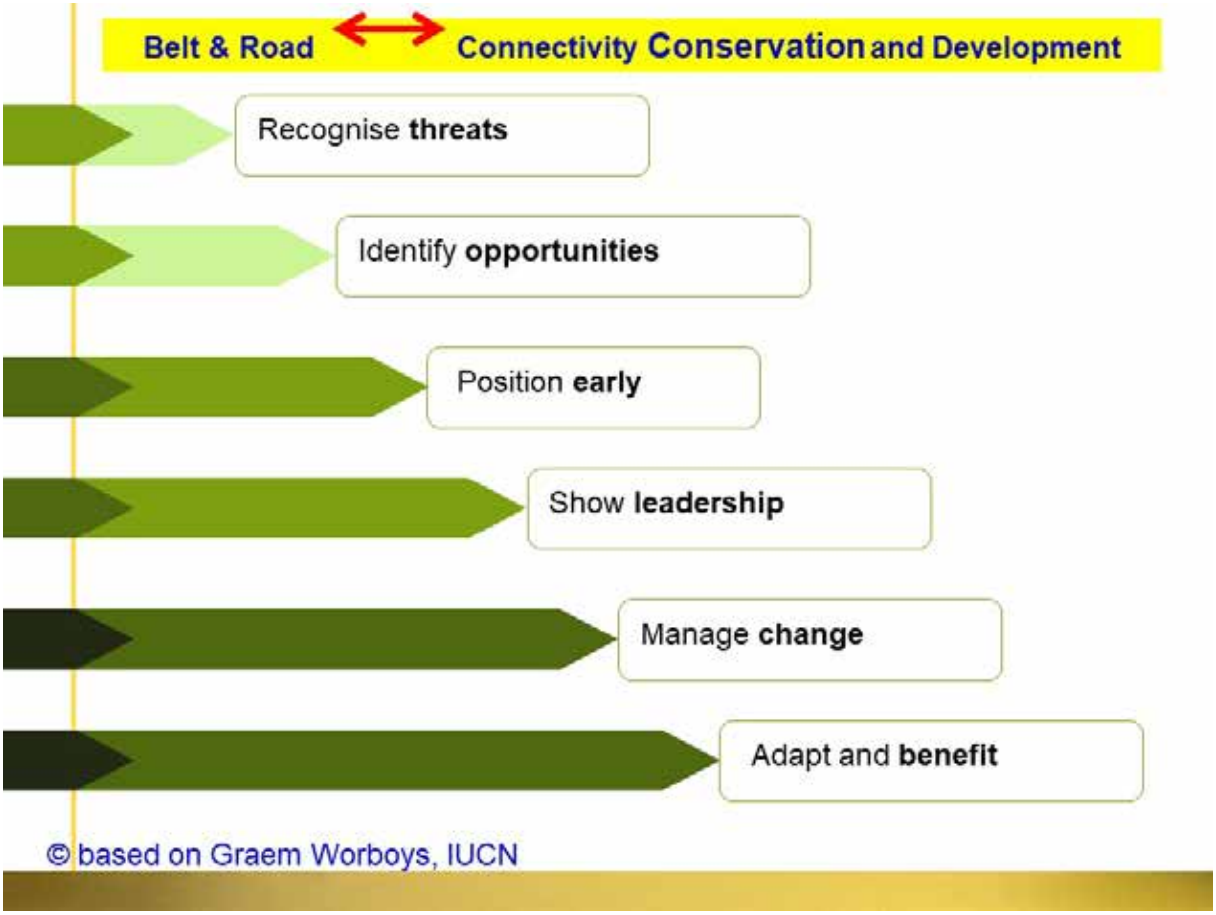


Altai-Sayan-Baikal mega-corridor of connectivity conservation

по Ю.П.Баденков, Г.Ворбойз, И.Н.Ротанова, Т.В.Яшина, 2010


Russia
Kazakhstan
Mongolia
China
Масштаб 1 : 50 000 000
Охраняемые природные территории Алтай-Саянского Экорегиона
РОССИЯ
АЛТАЙ-САЯНСКИЙ
ЭКОРЕГИОН
МОНГОЛИЯ
КИТАЙ


CONNECTIVITY CONSERVATION & DEVELOPMENT APPROACH
for TRANSBOUNDARY MOUNTAIN REGIONS
MANAGEMENT / GOVERNANCE CONNECTIVITY
LEGAL CONNECTIVITY
KNOWLEDGE & RESEARCH CONNECTIVITY
ECONOMY CONNECTIVITY
ETHNOCULTURAL HISTORICAL CONNECTIVITY
LANDSCAPES CONNECTIVITY


Belt & Road
Connectivity Conservation and Development
Recognise threats
Identify opportunities
Position early
Show leadership
Manage change
Adapt and benefit
© based on Graem Worboys, IUCN


Altai mountains

1996 Continental economic bridge Xinjang-Siberia
pre-Silk road initiative First call.

Лю Цзань-фу, Гу Цзя-юй;
Раздумья о вопросе транснационального освоения *Восточно среднеазиатской экономической зоны*

Altai transboundary knot

Строительство Евразийского континентального моста (ж/д)

Road-guide in Kosh-Agach Town (Altai Republic)
July, 2000:

MONGOLIA ⇑ ⇒ CHINA **2000**

Belt & Road Field Stations approach: research – monitoring - development

- **B&R Field Research Stations approach was announced in Irkutsk by Chinese delegation** ("China – Mongolia – Russia Economic Corridor Conference", 2018)
- B&R FRS should be conceptually linked with UNESCO MAB World Biosphere Reserves Network for research and monitoring of B&R impact on social-ecological systems and development
- 3 mountain transboundary regions of High Asia could be recommended as key areas for transdisciplinary research and monitoring of B&R implementation and development – **Altai, Pamirs,Tien-Shan,**

China Action Plan for UNESCO MAB BR 2015 - 2025

中国科学院 CHINESE ACADEMY OF SCIENCES

In June of 2017, China's action plan submitted to the 29th MAB international coordination meeting

© Li Fujia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2. Strategy Objective
(1) Integrate the MAB reserves protection into national and regional development strategies actively, support mutually and achieve win-win development
(2) promote the sustainable development and the residents welfare improvement of the surrounding area
(3) Continued improve the ecosystem service function of the world biosphere reserve network and efficient utilization of resources;
(4) Data and information sharing and scientific utilization of the world biosphere reserve network;
© Li Fujia


GLOBAL vs LOCAL:
two orbits of development,
two parallel Worlds?

Presentation:

Dr. Roman Mogilevskii,
Associate Director, Institute of Public Policy & Administration, University of Central Asia

"Economic assessment of current and potential future Belt & Road projects in the Kyrgyz Republic"

Key points:

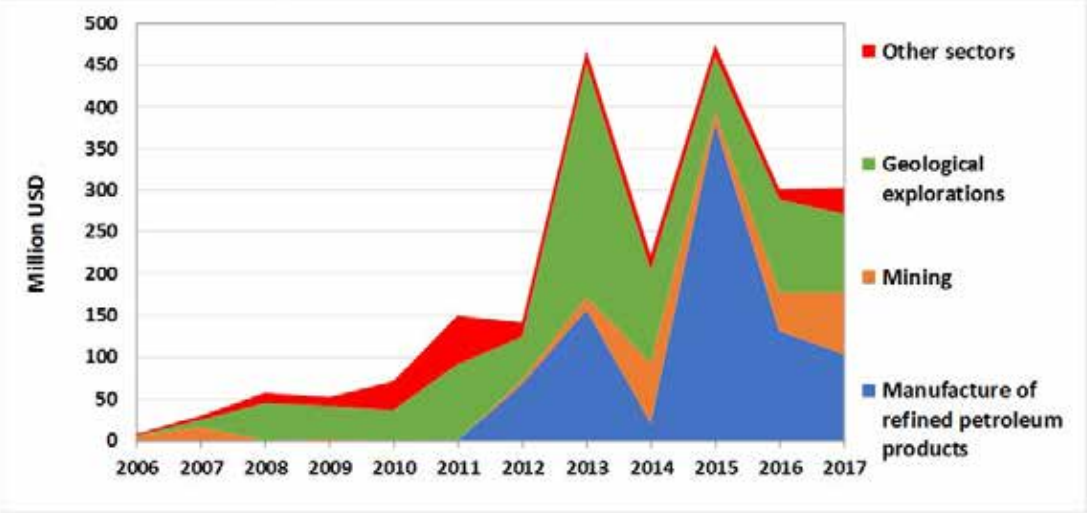
1. China has become the main international creditor of the Kyrgyz Republic in just a few years, and there is little room for further borrowing.
2. Despite infrastructure development in recent years, there has been no significant increase in trade with China.
3. Foreign Direct Investments in the future should take into account environmental, secondary infrastructure development considerations, and debt sustainability.

Public Infrastructure Projects

- Automobile roads, energy projects, urban development
- 12 loan/grant agreements with total costs of USD2.2 billion (of which USD2.1 billion in loans)
- Concessional terms (typical repayment period of 20 years, grace period of 5-11 years, interest rate 2.5%)
- Key internal and international transit roads (USD1.1 billion)
- The roads are parts of CAREC corridors
- Electricity transmission line Datka-Kemin and substation Datka, Bishkek Heat and Power Plant (USD1.0 billion)
- Street network in Bishkek (USD0.1 billion)
- Transit natural gas pipeline (FDI)

FDI Projects

- For 2006-2017, the cumulative gross Chinese FDI inflow was equal to USD2.3 billion – 25-50% of total FDI to Kyrgyzstan equivalent to 2-7% of the country's GDP
- Chinese FDI by sector



Effects of BRI Projects

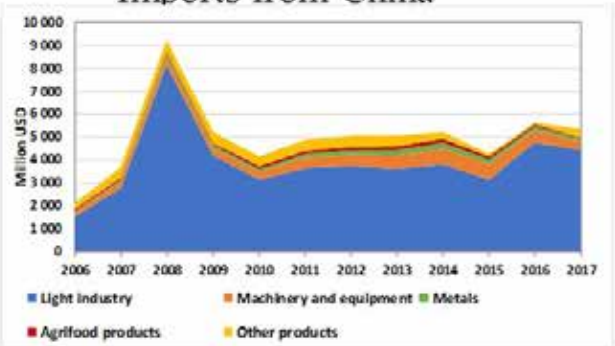
- Total inflow of resources for 2011-2017 – USD4.1 billion (7-8% GDP per annum)
- Average GDP growth rate up from 4.2% (2000-2010) to 4.8% (2011-2017)
- Impact on GDP is larger than on domestic demand
- Increase in employment – several thousand jobs or 0.1-0.3% of total employment
- Contribution to the government revenue – KGS3.7 billion in 2017 (USD53 million or 2.5% of total government revenue)
- Two thirds of these taxes paid by the oil refinery Zhongda

Effects of BRI Projects (2)

- Exports of gold concentrate and oil products (2-3% of total exports of goods); export response on FDI – USD0.05-0.1 per USD1 invested
- Imports of machinery and equipment (6-10% of total imports of goods); import response on FDI – USD0.9 per USD1 invested
- No traceable impact of improved road infrastructure on trade with China

Exports to China

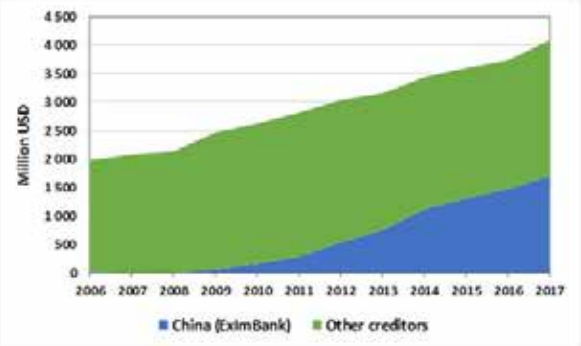
Imports from China



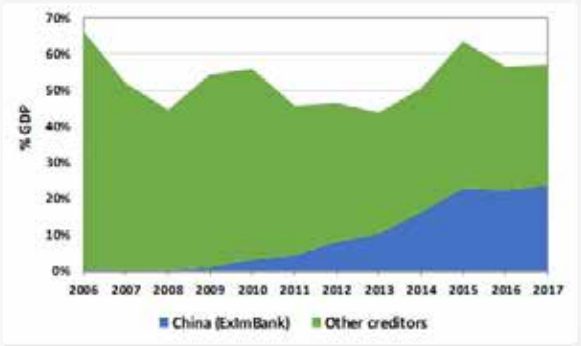
Effects of BRI Projects (3)

- In just few years, China has become main creditor of Kyrgyzstan
- Room for further borrowing is limited

External debt's nominal value



External debt, % GDP



Potential BRI Activities in the Future

- Railroad China-Kyrgyzstan-Uzbekistan – debt sustainability risks
- Automobile transit via Kyrgyzstan – assessing potential benefits
- Infrastructure maintenance – budget spending or user fees
- FDI projects
  - relationships with local population
  - mining: setting taxation right
  - agricultural exports to China and elsewhere:
    (a) veterinary and phytosanitary issues, (b) insufficient market knowledge, (c) no access of the Kyrgyz tracks to China, (d) economies of scale, (e) no land ownership for foreigners

Potential BRI Activities in the Future (2)

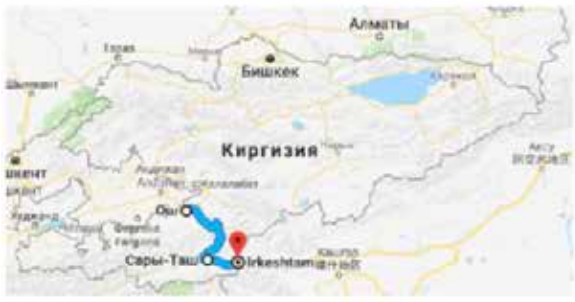
- FDI projects
  - manufacturing: a) unit labor costs of 77.1% of GDP per employed in China vs. 95.6% in Kyrgyzstan; b) transport flow asymmetry; c) modern technologies; d) environmental impacts
  - tourism: environmental concerns
- Regional development: secondary infrastructure
- Debt sustainability: concessions, FDI into infrastructure projects

Road Projects in Kyrgyzstan

Bishkek-Naryn-Torugart

Alternative road North-South

Osh-Sarytash-Irkeshtam



Osh-Batken-Isfana

Roman Mogilevskii, Institute of Public Policy and Administration, UCA

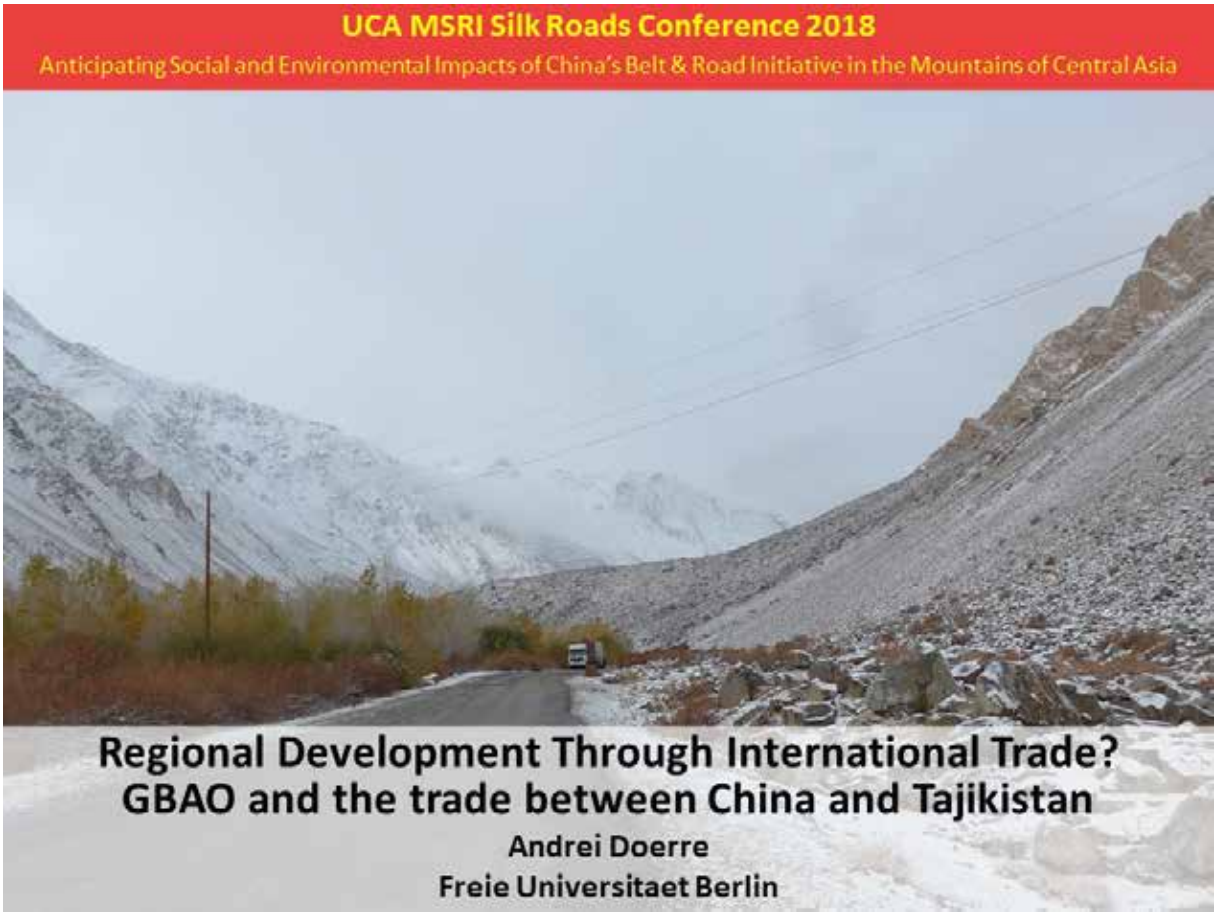
Presentation:

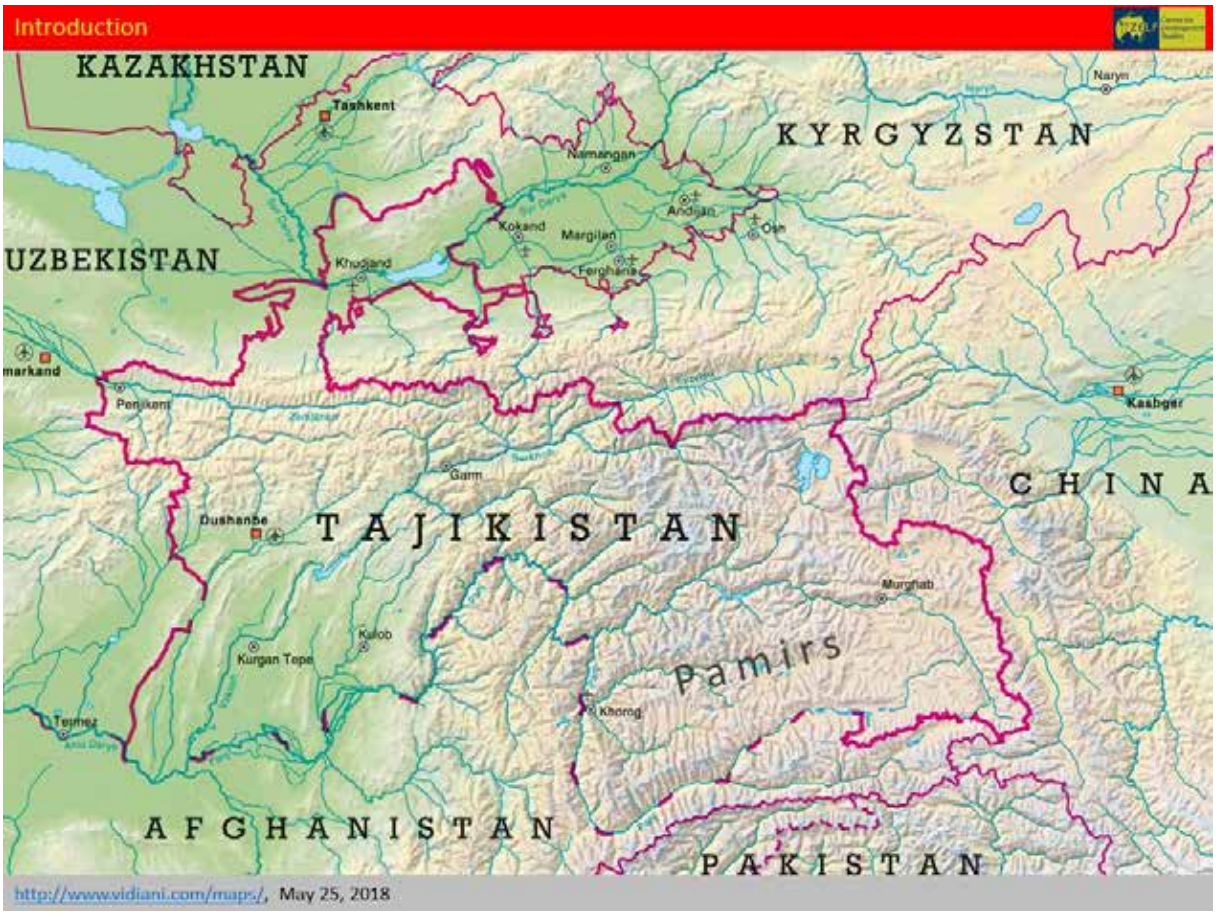
Dr. Andrei Dörre,
Researcher, Department of Geography, Free University of Berlin

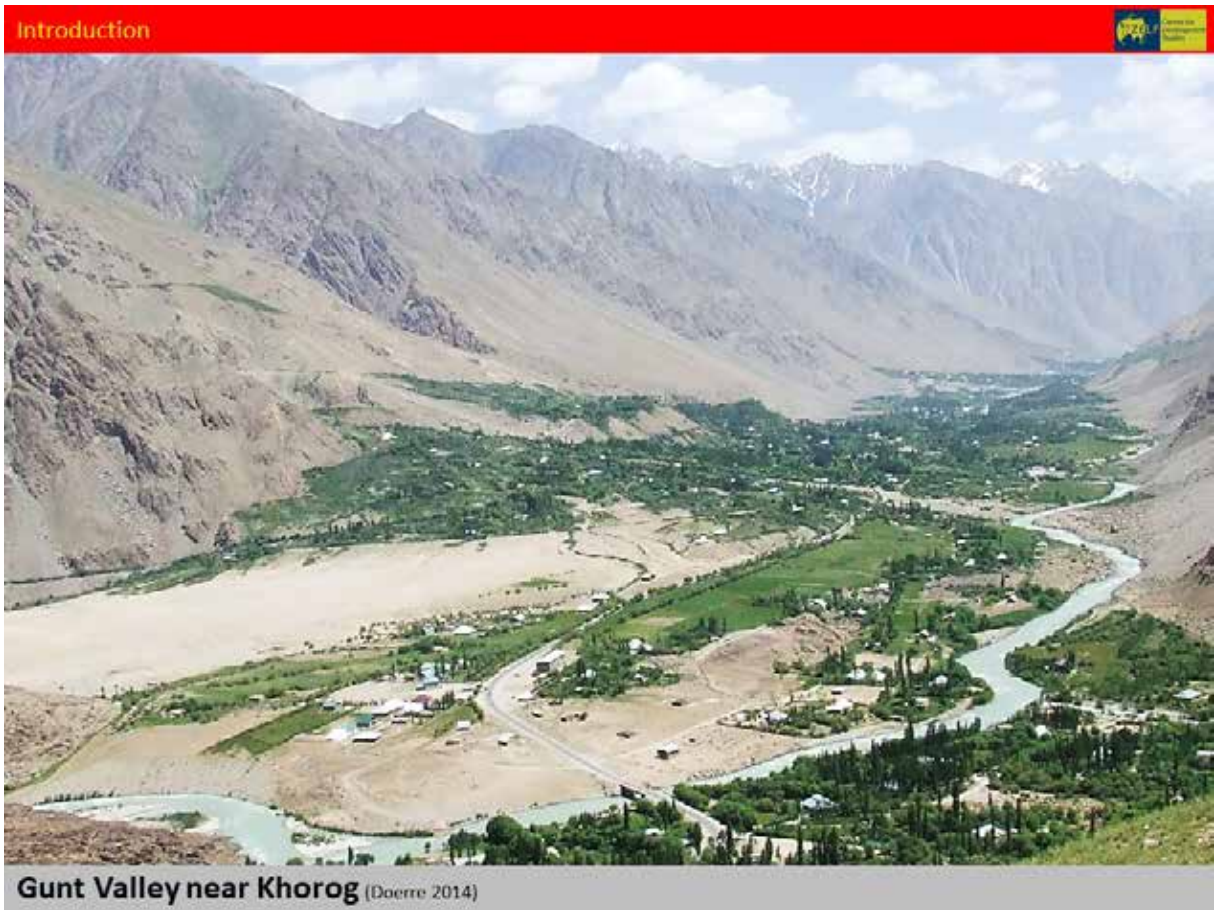
"Regional development through international trade? GBAO and the trade between China and Tajikistan"

Key points:

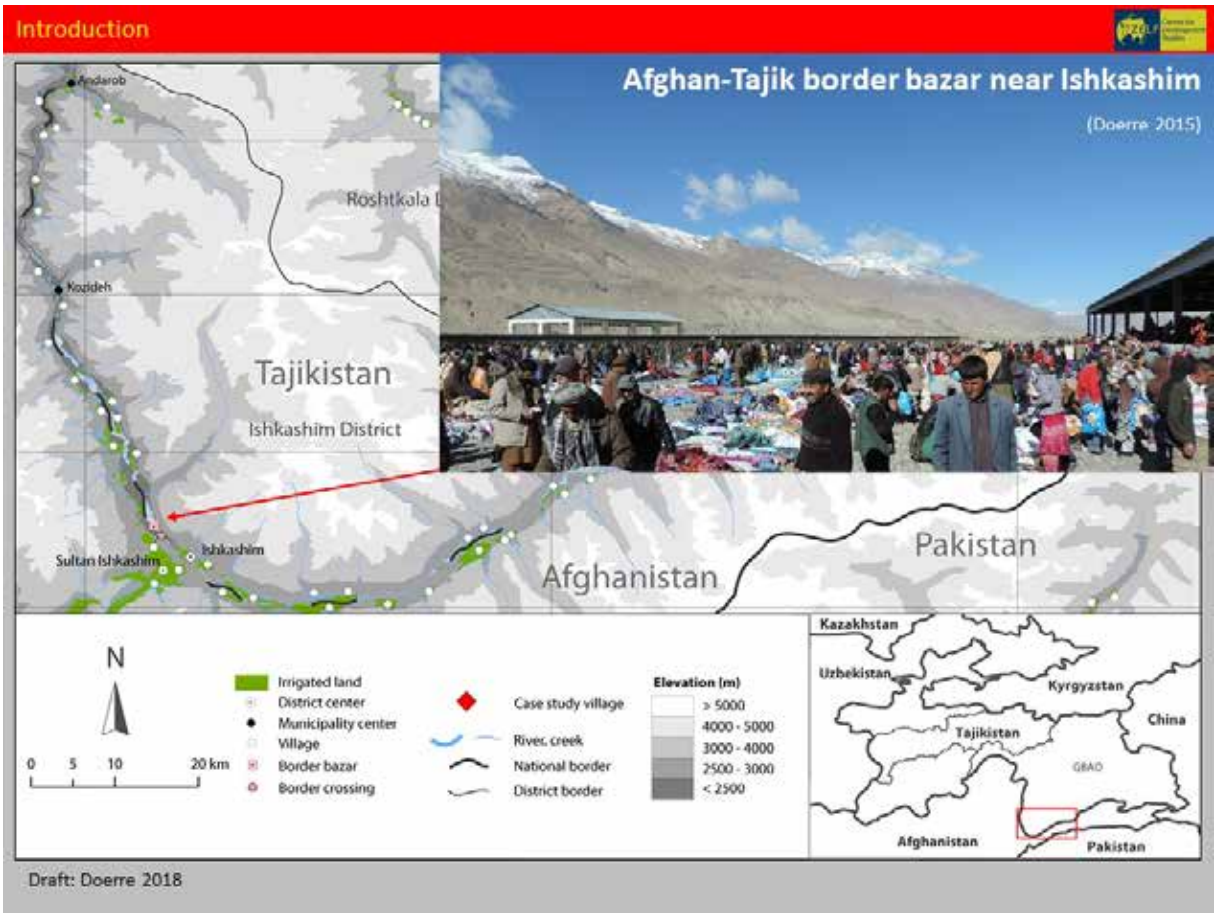
1. Gorno Badakhshan Autonomous Oblast (GBAO), Tajikistan is not well integrated into the national/international markets.
2. While prices in GBAO are above the national average, the regional purchasing power is lower.
3. To date, the transport business has not led to development or to wealth creation in GBAO.
4. Trading is mainly done with goods imported by third parties from the capital.




Introduction
KAZAKHSTAN
Tashkent
KYRGYZSTAN
Naryn
Namangan
Andijan
Osh
Kokand
Margilan
UZBEKISTAN
Khujand
Ferghana
Kashgar
Penjikent
Garm
CHINA
Dushanbe
TAJIKISTAN
Murghab
Kulob
Kurgan Tepa
Pamirs
Khorog
Termez
AFGHANISTAN
PAKISTAN
http://www.vidiani.com/maps/, May 25, 2018

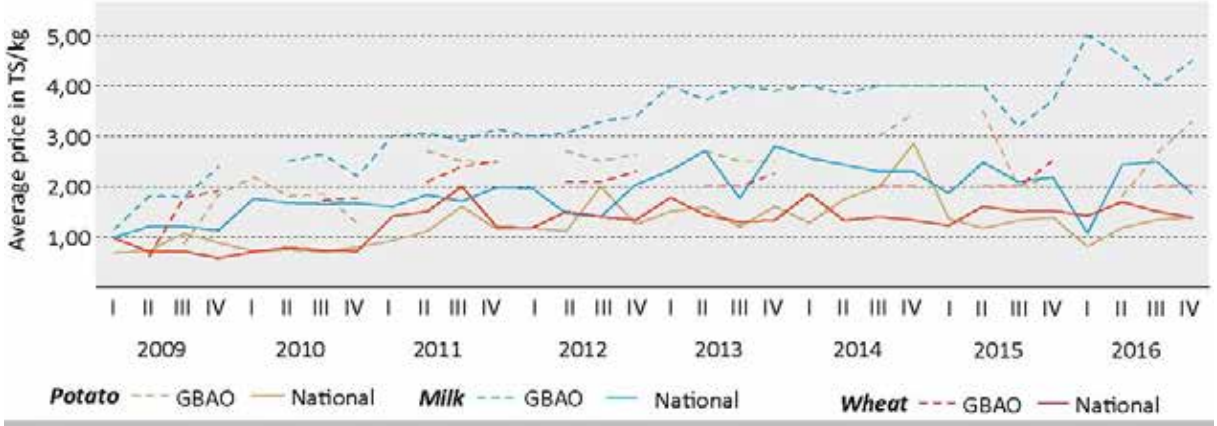

Introduction
Gunt Valley near Khorog (Doerre 2014)

Difficult passage on the highway M41 connecting GBAO with Dushanbe (Doerre 2018)



Introduction

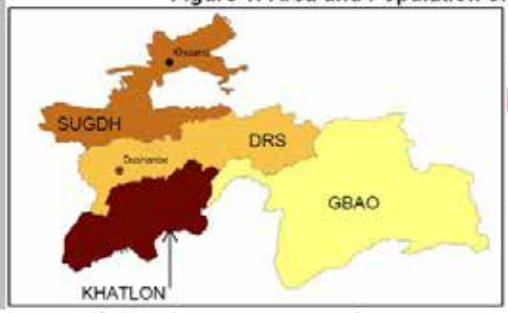
Latest development of average prices for selected food products



Draft: Doerre 2017 based on data from the Agency for Statistics under the President of the RT 2012–2017

Introduction

Figure 1: Area and Population of the Regions of Tajikistan

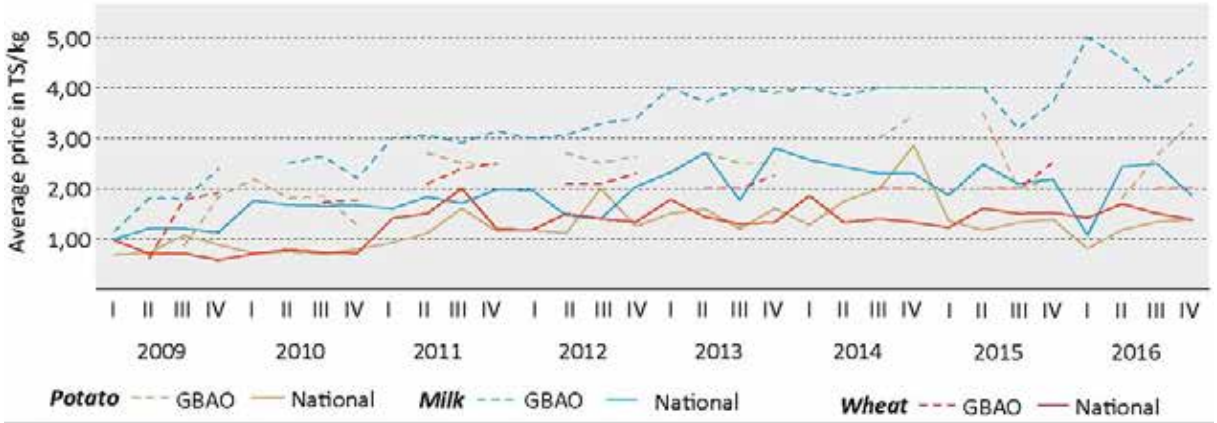


Regions	Population[a] ('000)	Area ('000 km²)	Poverty Rate (%)
Dushanbe	775.8	0.1	19.16
GBAO	212.1	64.1	51.53
DRS	1,874.0	28.6	45.56
Sugdh	2,400.6	25.2	23.93
Khatlon	2,898.6	24.6	39.24
Total	**8,161.1**	**142.6**	**35.6**

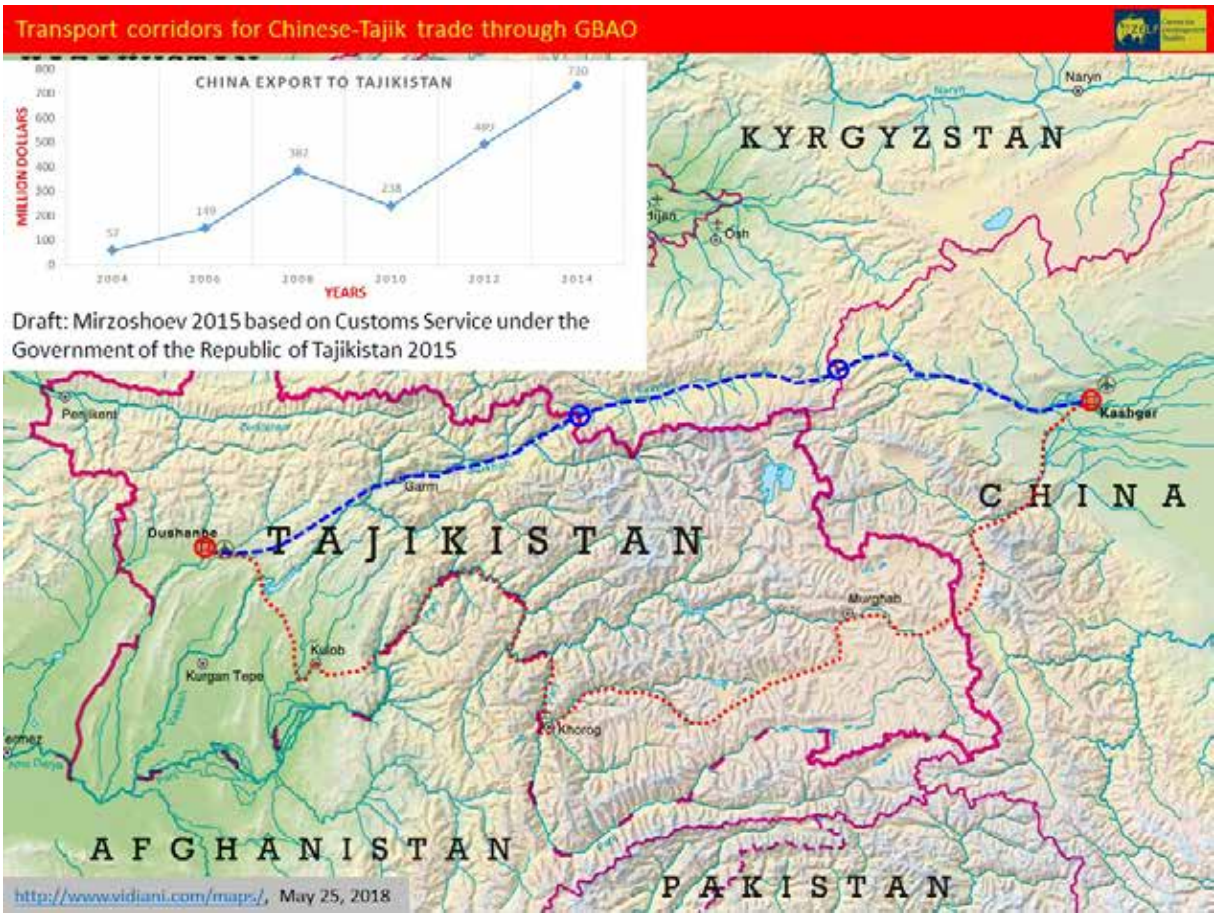
[a] As of December 2013.

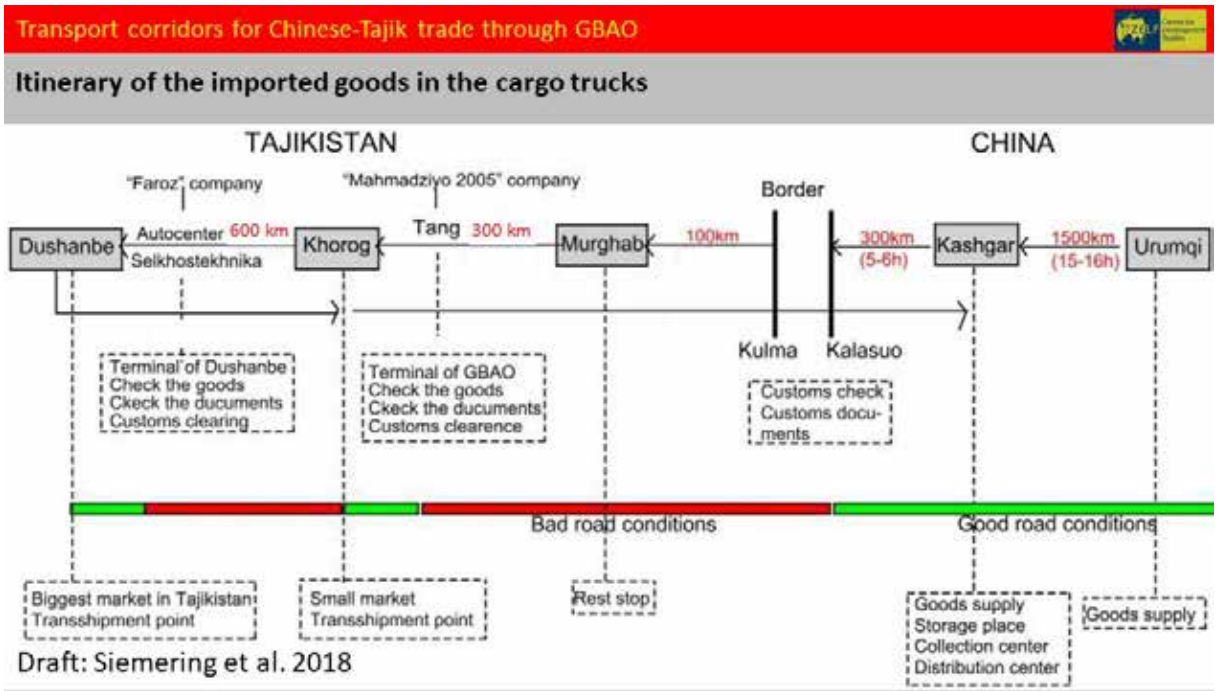
Source: ADB 2016

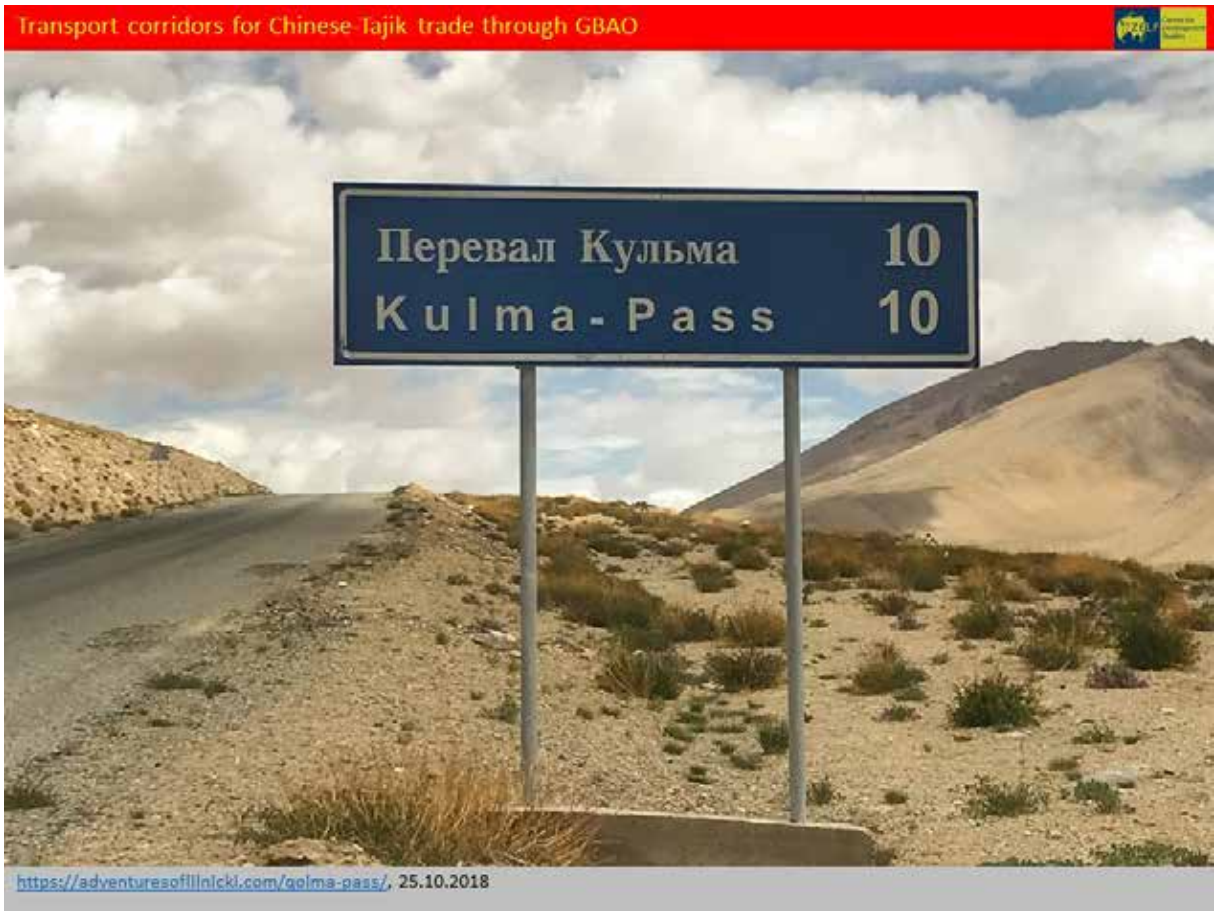
Latest development of average prices for selected food products

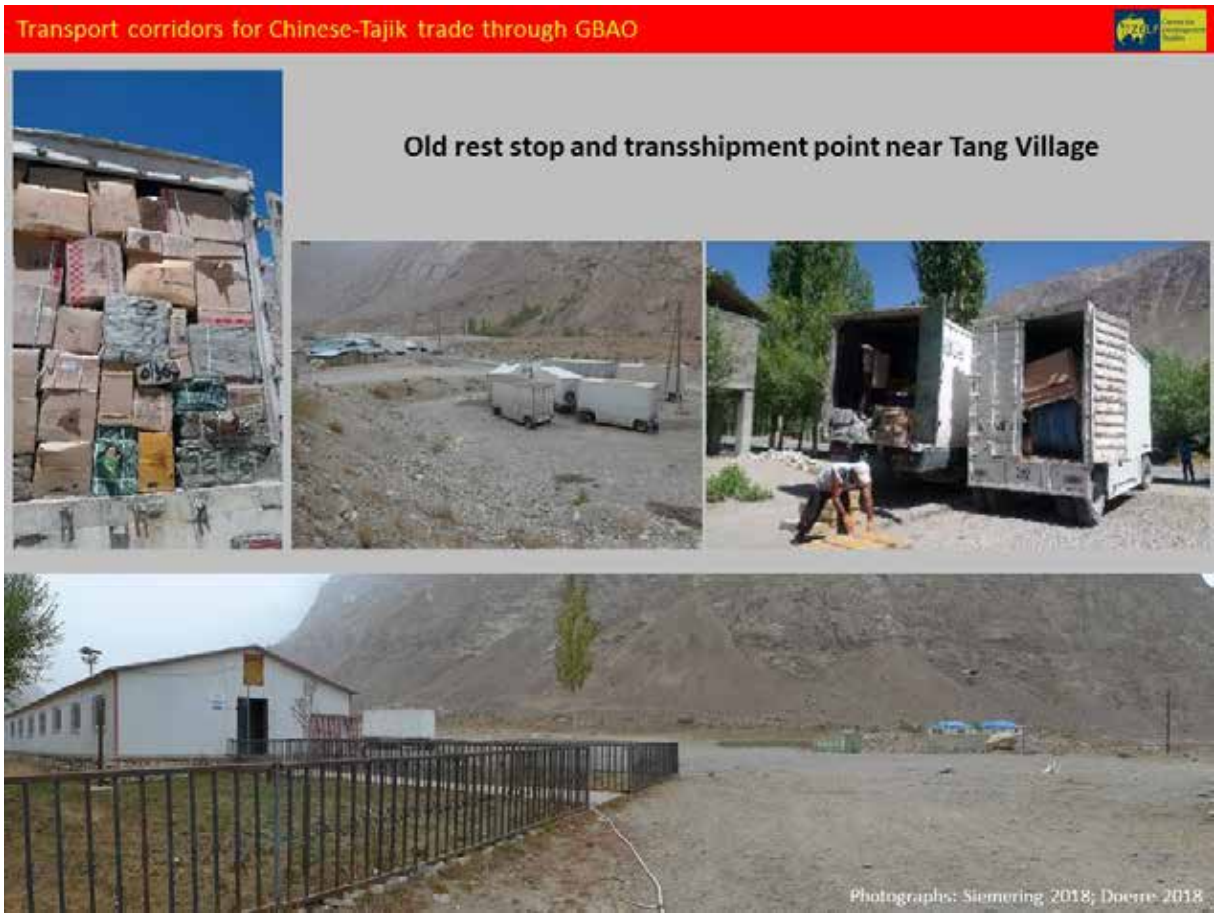


Draft: Doerre 2017 based on data from the Agency for Statistics under the President of the RT 2012–2017


Transport corridors for Chinese-Tajik trade through GBAO
CHINA EXPORT TO TAJIKISTAN
MILLION DOLLARS
YEARS
2004
2006
2008
2010
2012
2014
57
149
382
238
493
730
Draft: Mirzoshoev 2015 based on Customs Service under the Government of the Republic of Tajikistan 2015
KYRGYZSTAN
Naryn
Osh
Kashgar
CHINA
Panjakent
Garm
Dushanbe
TAJIKISTAN
Murghab
Kulob
Kurgan Tepe
Khorog
AFGHANISTAN
PAKISTAN
http://www.vidiani.com/maps/, May 25, 2018

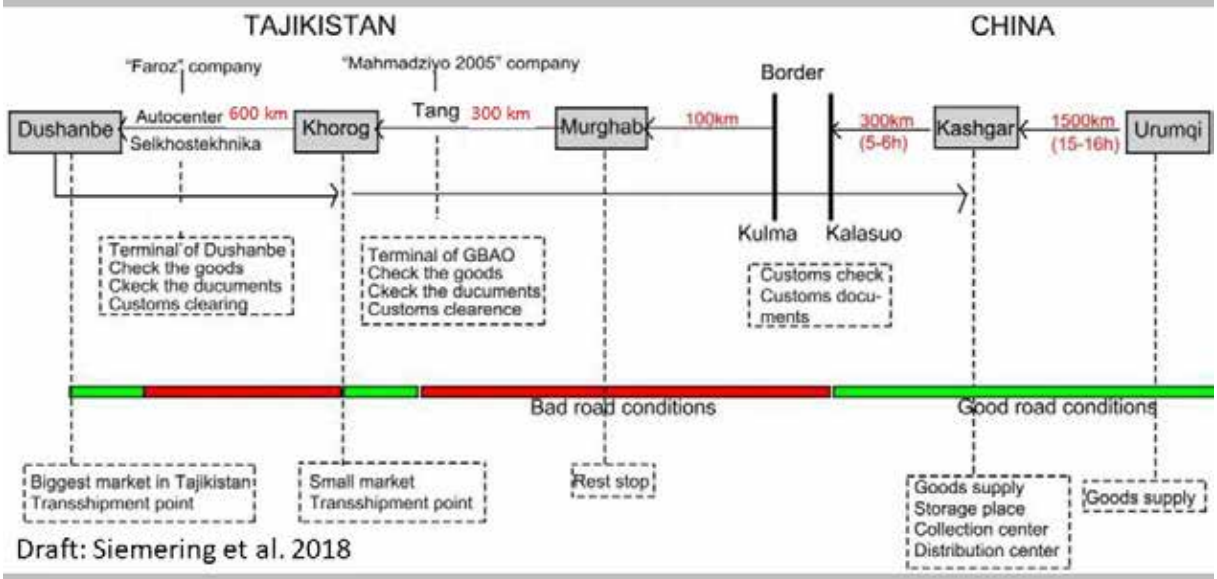

Transport corridors for Chinese-Tajik trade through GBAO
Itinerary of the imported goods in the cargo trucks
TAJIKISTAN
CHINA
"Faroz" company
"Mahmadziyo 2005" company
Border
Dushanbe
Autocenter
Selkhostekhnika
600 km
Khorog
Tang
300 km
Murghab
100km
300km
(5-6h)
Kashgar
1500km
(15-16h)
Urumqi
Kulma
Kalasuo
Terminal of Dushanbe
Check the goods
Ckeck the ducuments
Customs clearing
Terminal of GBAO
Check the goods
Ckeck the ducuments
Customs clearence
Customs check
Customs docu-
ments
Bad road conditions
Good road conditions
Biggest market in Tajikistan
Transshipment point
Small market
Transshipment point
Rest stop
Goods supply
Storage place
Collection center
Distribution center
Goods supply
Draft: Siemering et al. 2018


Transport corridors for Chinese-Tajik trade through GBAO
Перевал Кульма 10
Kulma-Pass 10
https://adventuresofIIInIckI.com/qolma-pass/, 25.10.2018


Transport corridors for Chinese-Tajik trade through GBAO
Old rest stop and transshipment point near Tang Village
Photographs: Siemering 2018; Doerre 2018

Transport corridors for Chinese-Tajik trade through GBAO

Itinerary of the imported goods in the cargo trucks



Draft: Siemering et al. 2018

First observations and conclusions

- Few newly developed service facilities along the transport corridor;
- Drivers minimize service-related expenditures on the way;
- Khorog Town is used mainly as a thoroughfare;
- Largest share of profit from transport business is made by external actors

Trade with Chinese products in GBAO

- Economies of scale
- Small market in terms of limited demand and low purchasing power
- More extended networks
- Maladministration of border and customs clearance (corruption) in connection with informal agreements with gatekeepers and decision makers

-> reproduction of power asymmetries and consolidation of economic stratification?

Price of selected consumer goods in Khorog and Dushanbe, June 2015 (Mirzoshoev 2015)

	Electric Kettle	TV set	Shovel
Khorog	45 TS (7.20 US$)	1950 TS (311.50 US$)	24 TS (3.80 US$)
Dushanbe	40 TS (6.40 US$)	1260 TS (201.30 US$)	10 TS (1.6 US$)



Trade with Chinese products in GBAO

So-called Tangen Minibuses: means for public city transport, and regional low distance mobility

Source: https://www.advantour.com/img/tajikistan/khorog/khorog5.jpg, 22.10.2018

References

ADB Asian Development Bank (2016): Country Partnership Strategy: Tajikistan, 2016–2020, Poverty Analysis (Summary)
https://www.adb.org/sites/default/files/linked-documents/cps-taj-2016-2020-pa.pdf; accessed January 26, 2017.

ASPRT Agentstvo po Statistike pri Prezidente Respubliki Tajikistan (2012-2017): Prodovol'stvennaya bezopasnost' i bednost'. Dushanbe: Tajstat.
www.stat.tj/ru/publication/e-version; accessed January 22, 2018.

Customs Service under the Government of the Republic of Tajikistan (2015): Statistics of Foreign Trade of the Republic of Tajikistan.
http://www.customs.tj/index.php?option=com_content&view=category&layout=blog&id=49&Itemid=49&lang=en; accessed April 4, 2015

Haughton G. & D. Counsell (2004): Regions, Spatial Strategies and Sustainable Development. London/Seaford: Routledge.

Mirzoshoev M. (2015): Price Discrepancy: Why Are the Prices of Chinese Products Higher in Khorog Than in Dushanbe? (unpublished research paper).

Siemering S., Yang Y. & Kh. Safarmamadova (2018): International Trade: Khorog as a Transit Station between China & Dushanbe (Presentation at the Workshop "Aspects of Regional Development in Khorog, Tajikistan", July 25, 2018). Khorog

Storper M. (1997): The Regional World. Territorial Development in a Global Economy. London: Guilford.

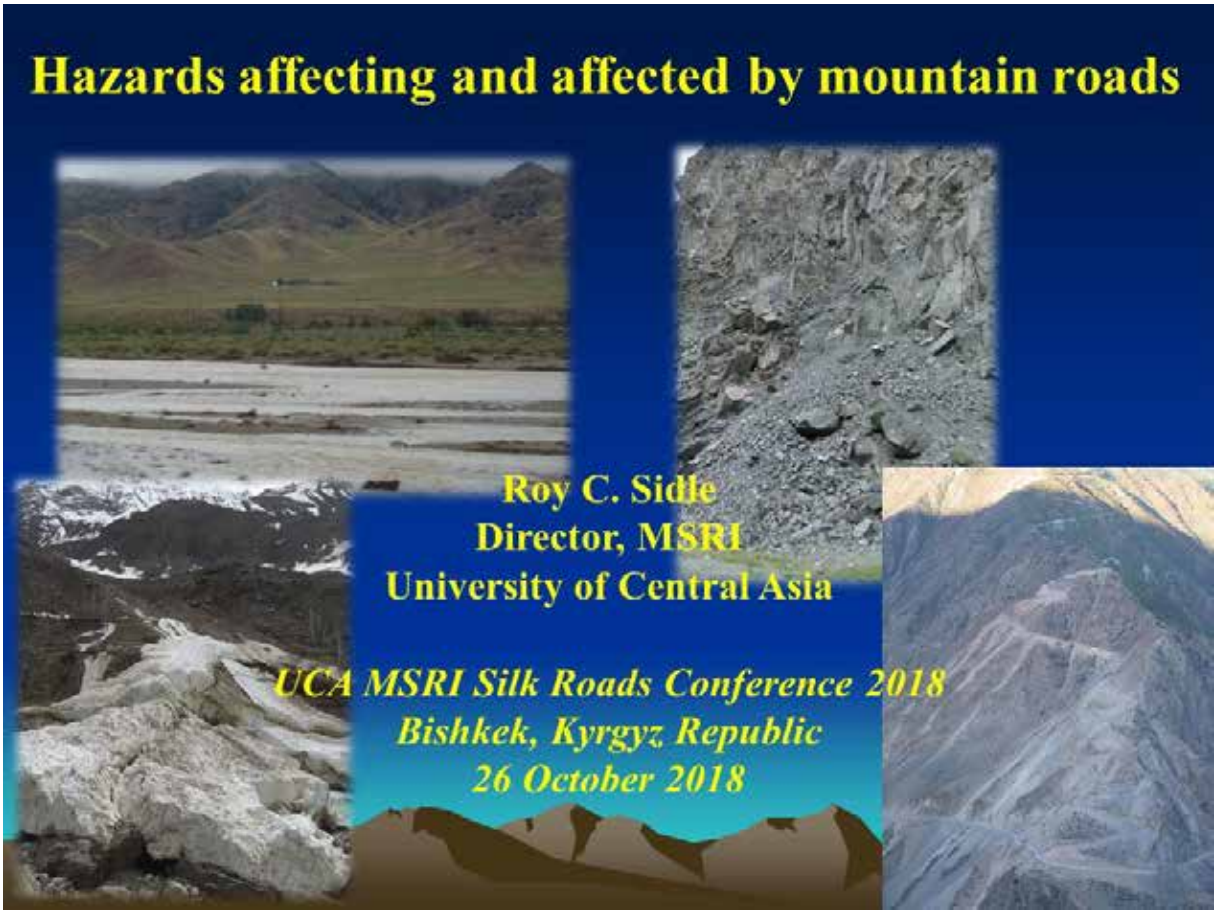
Presentation:

Prof. Roy Sidle,
Director, Mountain Societies Research Institute, University of Central Asia

"Hazards affecting and affected by mountain roads"

Key points:

1. Mountain roads serve important functions, but nevertheless are vulnerable to many hazards and exacerbate some of these hazards.
2. Roads can also exacerbate or predispose hillslopes to hazards.
3. Roads alter water pathways, and thus can…
   a. Increase landslides and debris flows
   b. Initiate rockfalls and rock slides
   c. Augment storm runoff and flooding



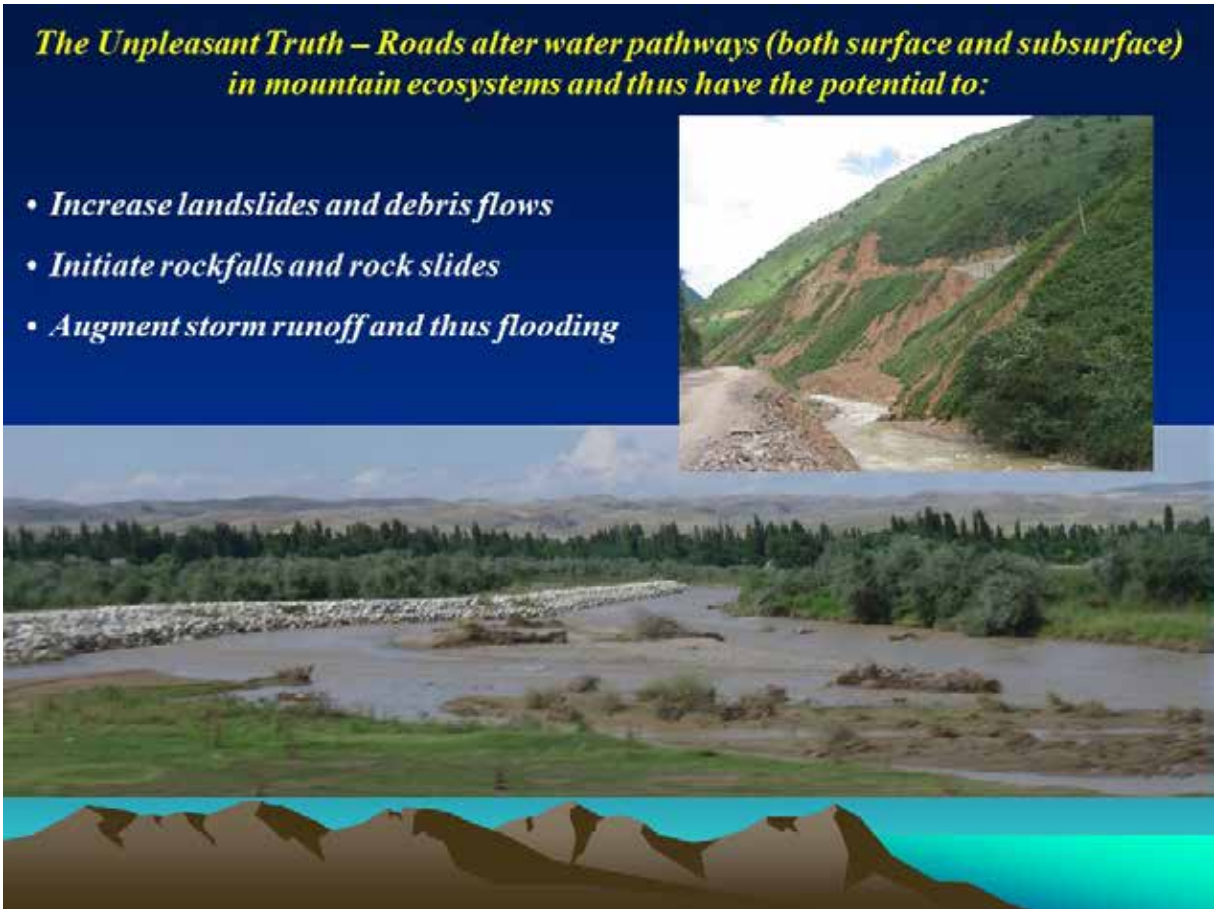
Mountain roads serve important functions:

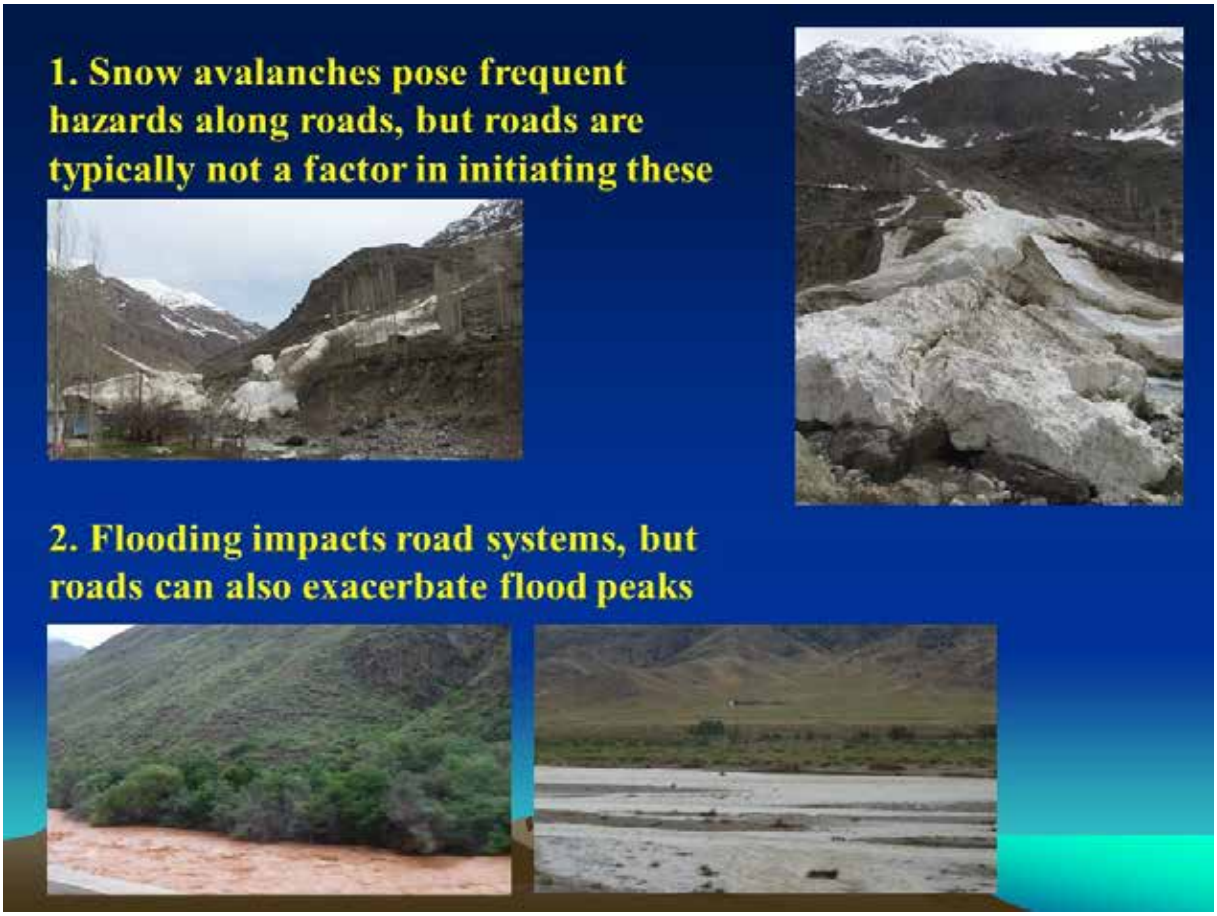
- Long-distance transport of materials/supplies and people
- Travel corridors for local people
- Logging roads in managed forests
- Maintenance and access to croplands and rangelands
- Emergency evacuation routes and military access
- Access to recreation areas
- Access to hydropower, mining and oil exploration sites

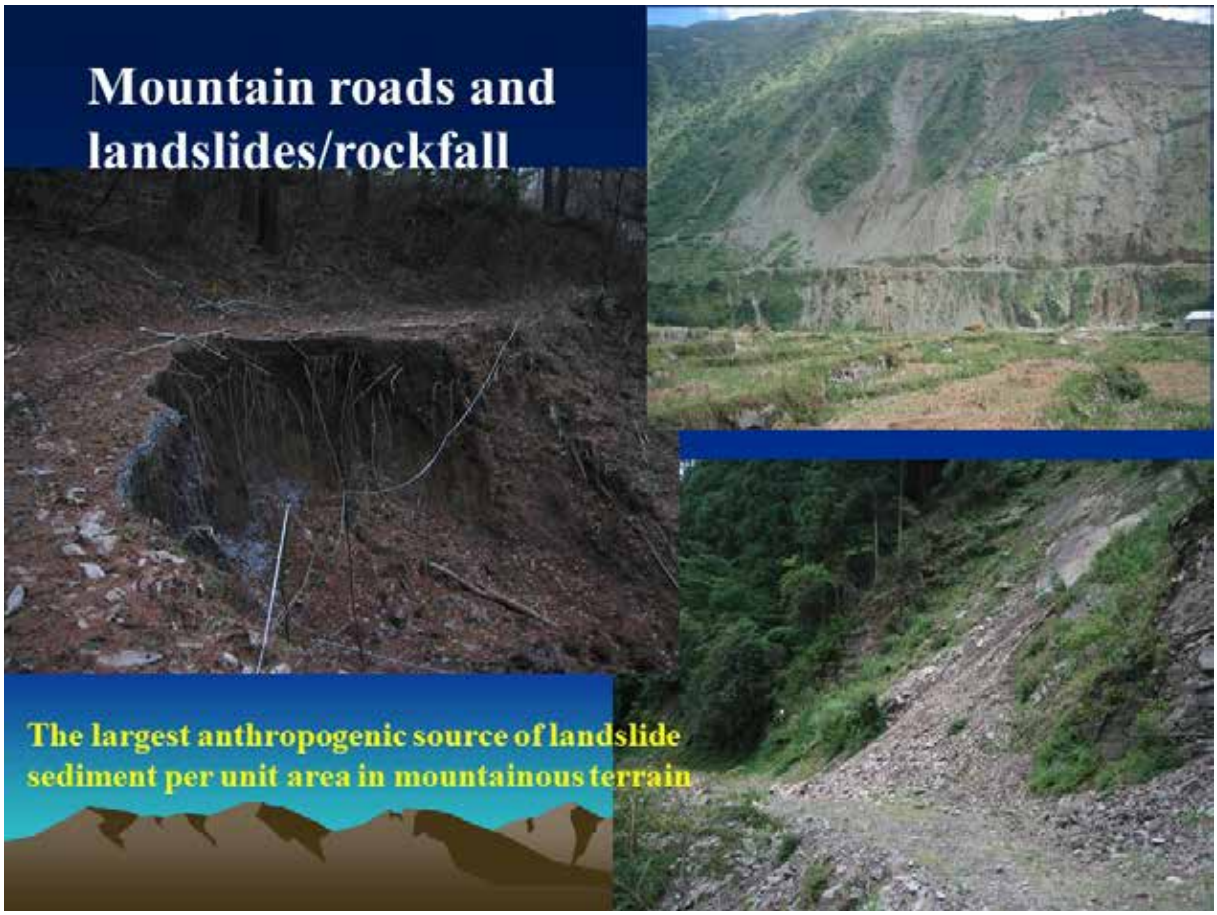
♦ *Nevertheless mountain roads are vulnerable to many hazards and exacerbate some of these hazards, including:*

- ➢ *Landslides and debris flows*
- ➢ *Snow avalanches*
- ➢ *Rockfall*
- ➢ *Flooding*

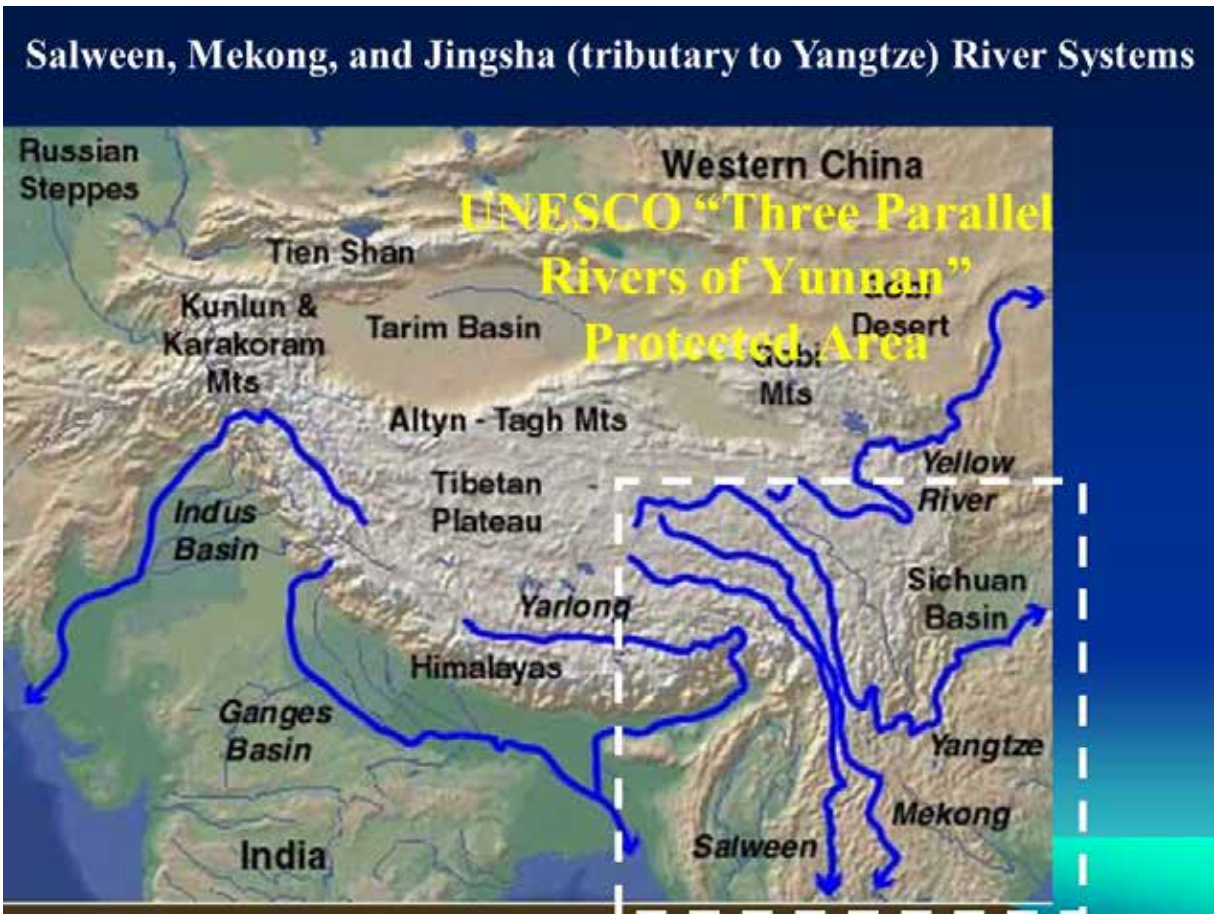
Natural hazards impact roads when they are in the hazard path, but they can also exacerbate or predispose hillslopes to hazards due to excavation, construction & vegetation clearing

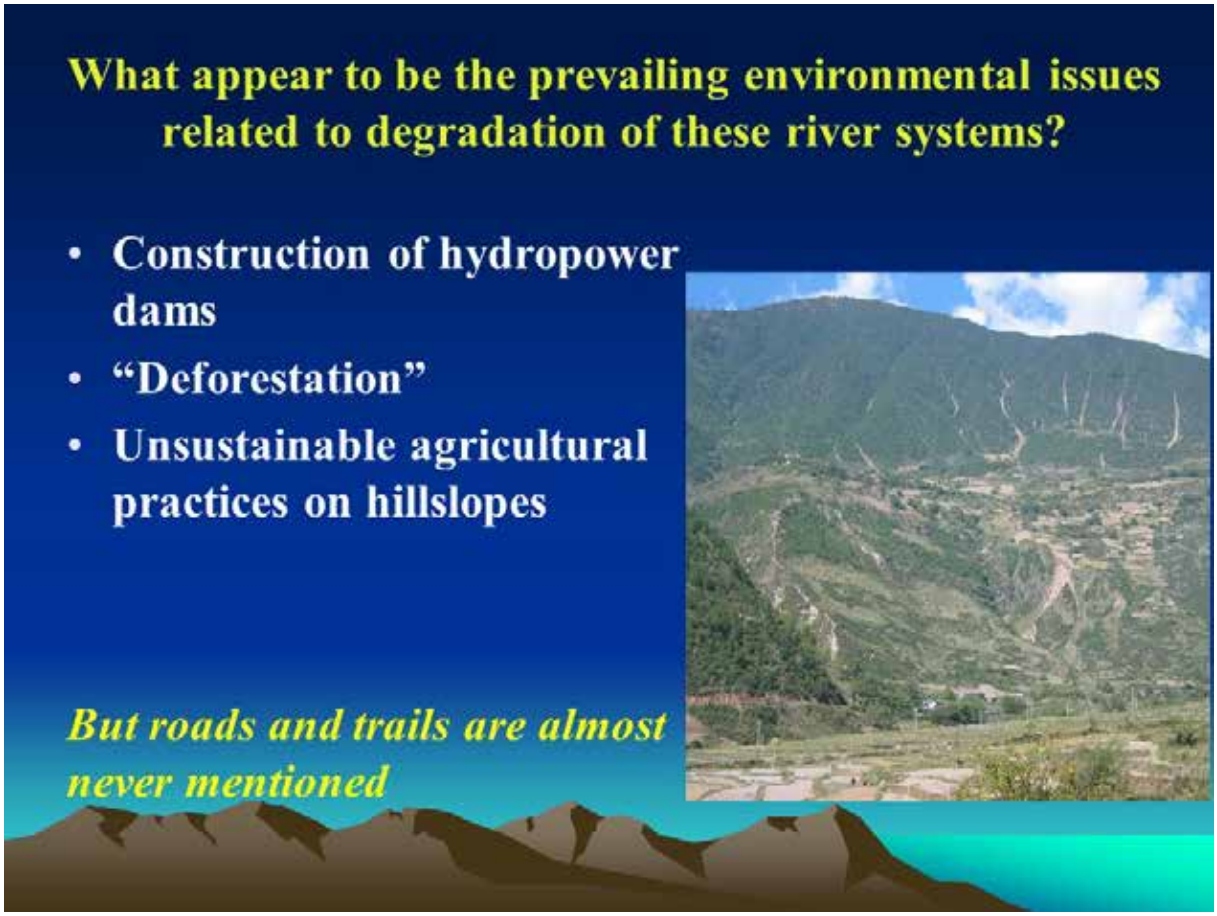

The Unpleasant Truth – Roads alter water pathways (both surface and subsurface) in mountain ecosystems and thus have the potential to:
• Increase landslides and debris flows
• Initiate rockfalls and rock slides
• Augment storm runoff and thus flooding

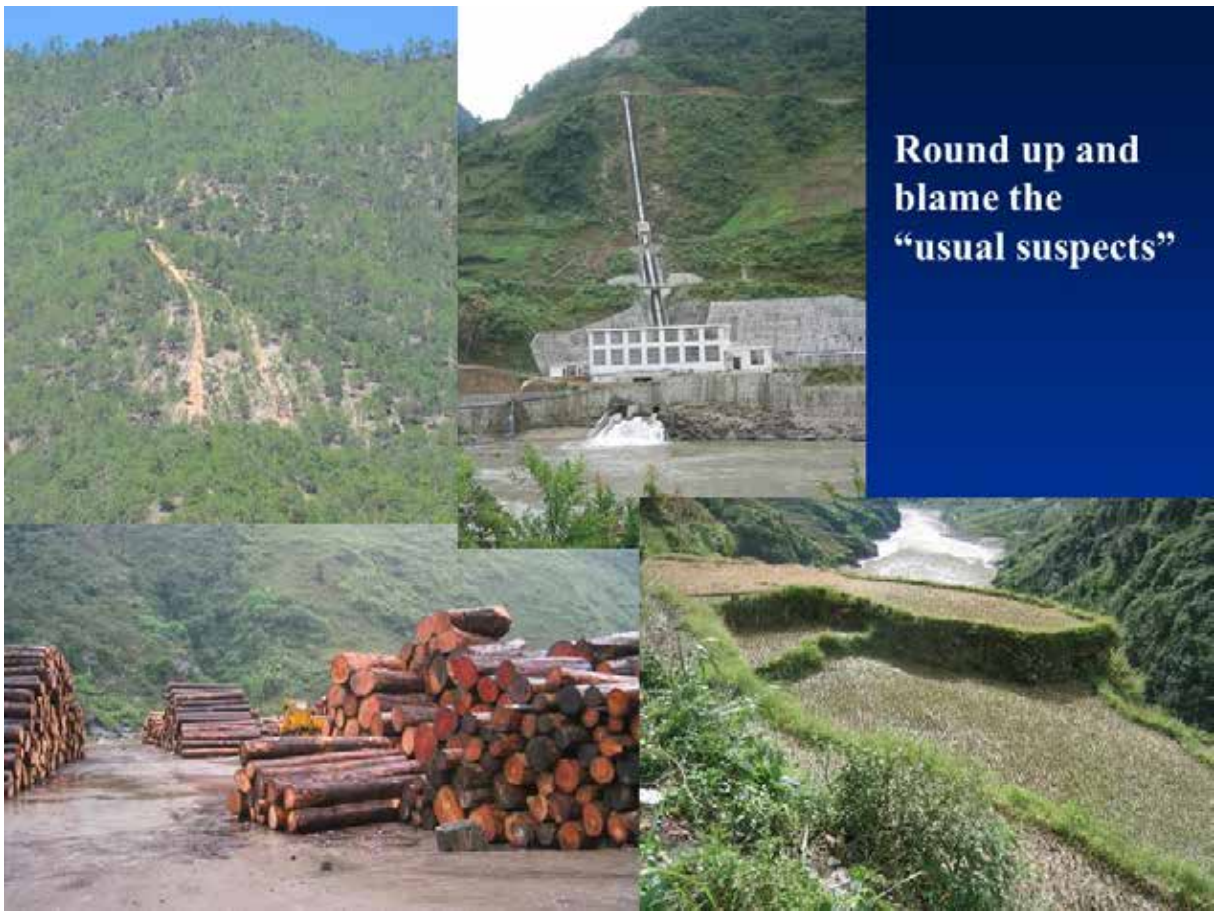

1. Snow avalanches pose frequent hazards along roads, but roads are typically not a factor in initiating these
2. Flooding impacts road systems, but roads can also exacerbate flood peaks

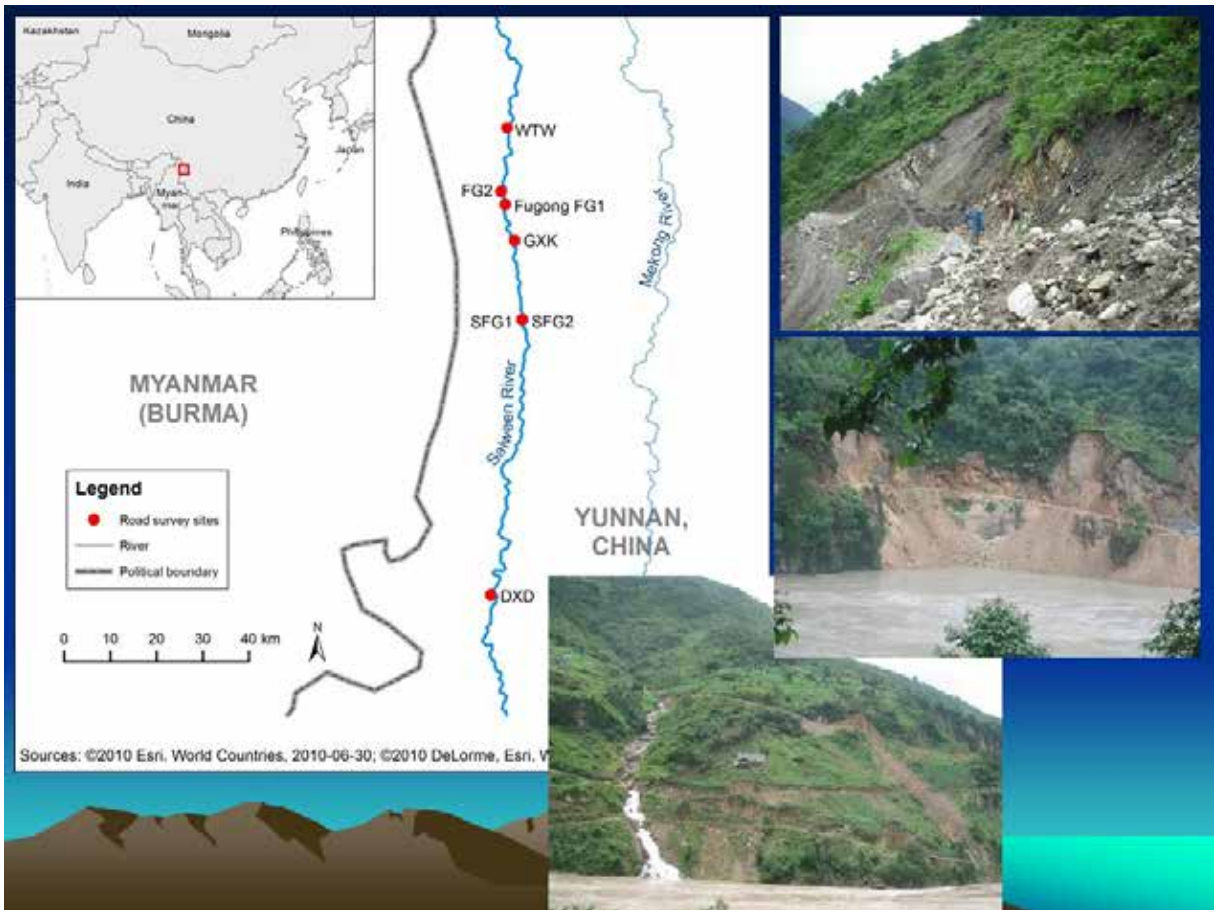

Mountain roads and landslides/rockfall
The largest anthropogenic source of landslide sediment per unit area in mountainous terrain

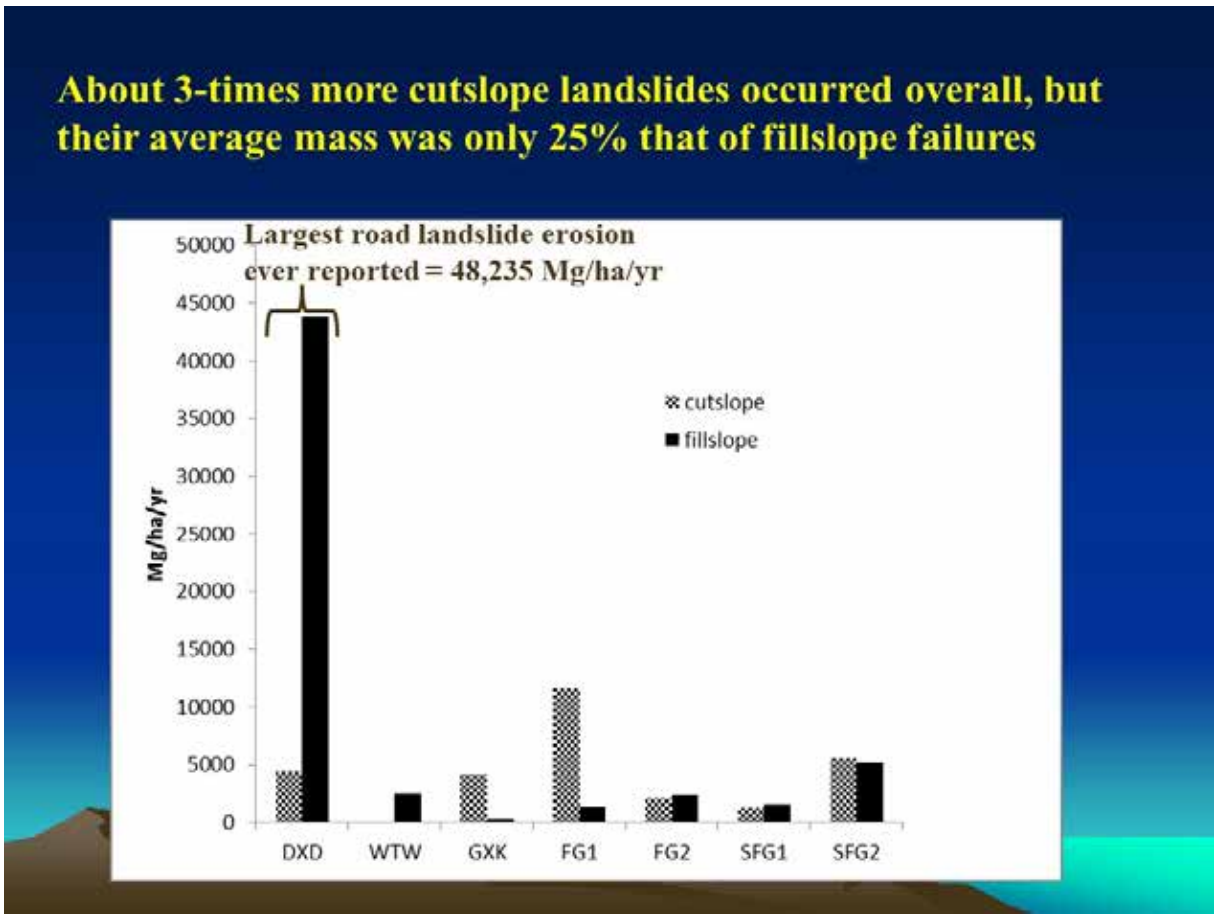

Mountain roads decrease slope stability in several ways:
• Undercutting steep slopes and thus removing support on the downslope side
• Overloading slopes with fill materials
• Oversteepening both the cut and fill slope materials
• Concentrating road drainage onto unstable sites below the road

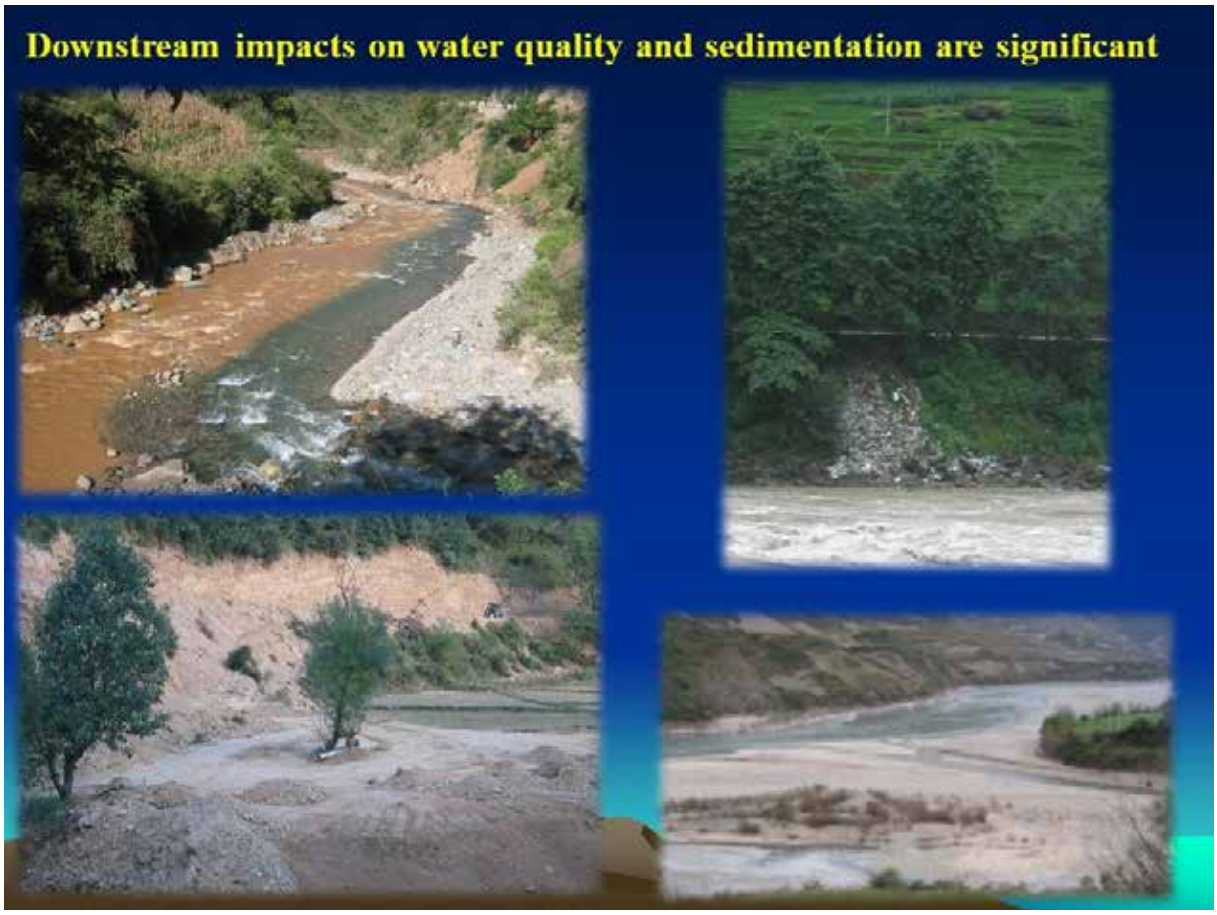

Salween, Mekong, and Jingsha (tributary to Yangtze) River Systems
Russian Steppes
Western China
UNESCO "Three Parallel Rivers of Yunnan" Protected Area
Tien Shan
Kunlun & Karakoram Mts
Tarim Basin
Desert
Mts
Altyn - Tagh Mts
Tibetan Plateau
Yellow River
Indus Basin
Sichuan Basin
Yarlong
Himalayas
Ganges Basin
Yangtze
Mekong
Salween
India


What appear to be the prevailing environmental issues related to degradation of these river systems?
• Construction of hydropower dams
• "Deforestation"
• Unsustainable agricultural practices on hillslopes
But roads and trails are almost never mentioned


Round up and
blame the
"usual suspects"


Kazakhstan
Mongolia
China
Japan
India
Myan-
mar
Philippines
WTW
FG2
Fugong FG1
GXK
SFG1
SFG2
Mekong River
Salween River
MYANMAR
(BURMA)
YUNNAN,
CHINA
DXD
Legend
Road survey sites
River
Political boundary
0 10 20 30 40 km
N
Sources: ©2010 Esri, World Countries, 2010-06-30; ©2010 DeLorme, Esri, V


About 3-times more cutslope landslides occurred overall, but their average mass was only 25% that of fillslope failures
Largest road landslide erosion ever reported = 48,235 Mg/ha/yr
Mg/ha/yr
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
cutslope
fillslope
DXD
WTW
GXK
FG1
FG2
SFG1
SFG2


Downstream impacts on water quality and sedimentation are significant

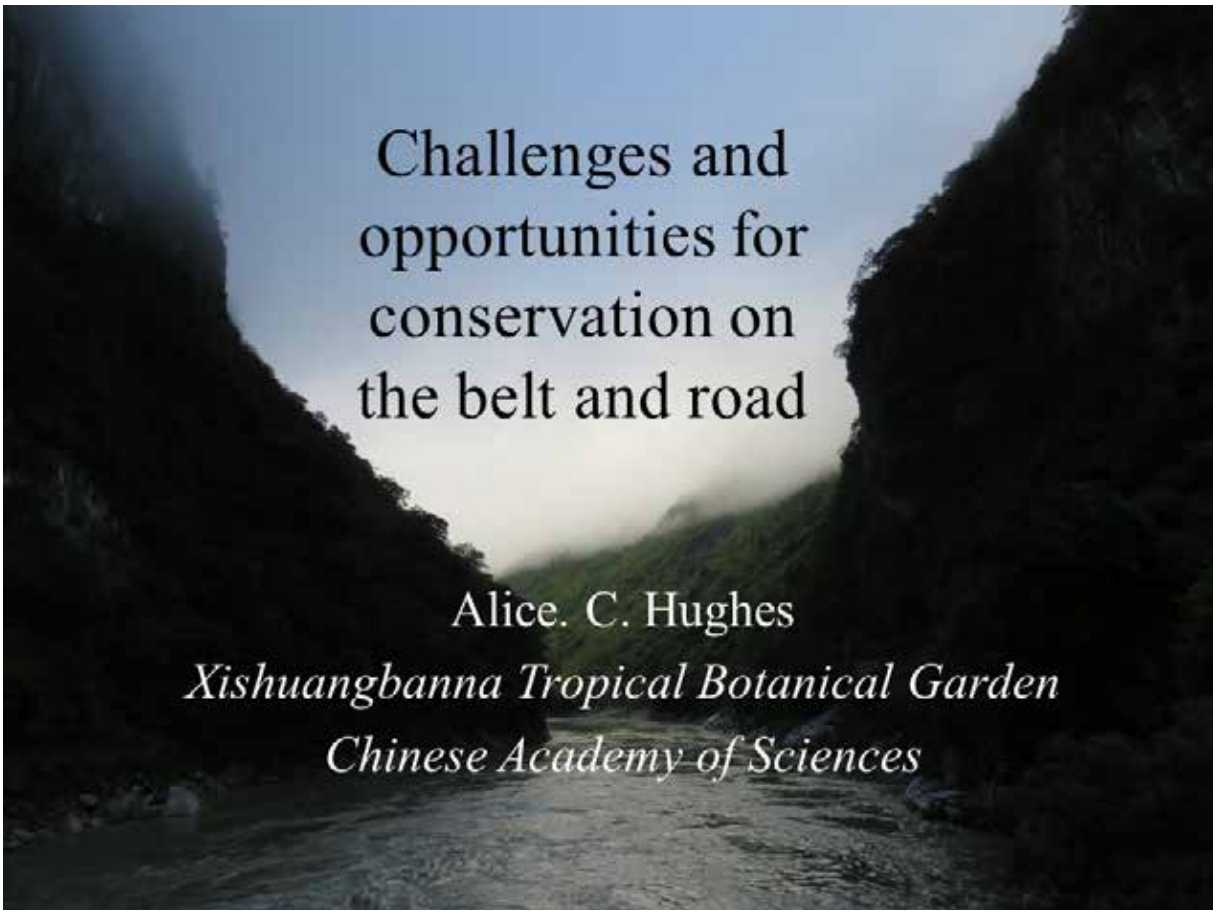
Session 2: Social and environmental impacts, challenges and opportunities of the Belt & Road Intitiative

Chair: Dr. Marc Foggin
Presentation:
Dr. Alice Hughes,
Assistant Professor, Centre for Integrative Conservation, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Science

"Understanding and minimizing the environmental impacts of the Belt & Road Initiative"

Key points:

1. Understanding what the risks are, and how to mitigate them through constructive dialogue and engagement is essential.
2. Deforestation, mining, and increased wildlife trafficking are issues which may be exacerbated by the BRI.
3. Infrastructure construction should be avoided through KBAs, especially in intact ecosystems, and proper environmental impacts assessments should be present in all projects.
4. Pre-existing financial mechanisms and agreements such as the Convention on Biological Diversity should be leveraged to achieve biodiversity conservation along BRI routes.



Current status of the belt and road

- Over 10,000 projects funded
- Despite cancellations in some regions the BRI is going to proceed
- We need to understand **what** the risks are, and
- **How** to mitigate them
- Alarmism & Hyperbole only prevents constructive dialogue & engagement

Biodiversity & the belt and Road

- Over 7000 projects have already been funded in 2017 alone
- Economic development without strict procedure for impact assessment will further fragment forests across the region
- Increased connectivity will facilitate the transport of timber and may further exacerbate logging
- Without strict customs at **all** borders new infrastructure may act as express freight for valuable wildlife
- Increase access to diverse regions may mean these areas are vulnerable to exploitation

Deforestation along the route

- Railways, 22% of forest fell within 50 km with 24.5% of this area is forested, and 5.7% of national deforestation.
- 2.1% of the area within 50 km of a proposed rail route was lost over 2001-20017, accounting for 1.41% of deforestation overall, 7.9% of mean national deforestation.
- 32% of the deforestation within 50 km fell in 14 km of Roads, despite only having 25% of the tree coverage.
- Rail; 21.7% of deforestation within the 50 km buffer was within 14 km, as only 11.7% of forest cover.
- In total, 36.4% of all forest was lost between 2001-2016

Patterns and problems

- Centres of diversity and threat along the route vary by taxa
- No single solution exists for areas which should be avoided to avoid risks to all species
- Instead over-arching solutions should aim to prevent the construction through intact forest, and areas of noted diversity
- EIAs also need to be instigated with international oversight

Biodiversity & the belt and Road

- China releases 25% of global Emissions
- To offset emissions forest corridors should follow the course of the road across tropical regions
- By elevating the road forest fragmentation and access to forests will be reduced
- Limestone used for cement should come from surface mining in low diversity regions
- Areas along the route of the road should have standardized Environmental impact assessments to avoid vulnerable regions

Other issues

1. Border security: preventing new routes being conduits of trade
2. Legislating against local projects in key sites for diversity in the vicinity of the route
3. Power generation and dam development
4. Over-exploitation of formerly inaccessible ecosystems
5. The spread of disease, invasive species and even fire along the route

OBOR Choices

- Though environmental protection guidelines have been drafted for the OBOR they do not include many key issues

Sustainable OBOR

1. Energy generation and resources to build the OBOR must be sourced sustainably
2. Carbon release should be offset by afforestation along the route
3. Key sites and fragile ecosystems should be protected
4. Partnership agreements and guarantees which state key criteria should be developed to prevent unsustainable use and implement EIAs
5. Tight screening and controls will be needed across the route

Unsustainable OBOR

1. Continued reliance on fossil fuel & increased emissions. Diverse ecosystems-cement
2. Further fragmentation and forest loss along the route
3. Fragile ecosystems developed, or exposed to unsustainable use
4. Few protocols to prevent the development or destruction of diverse ecosystems
5. Increased trafficking of wildlife along the route

Mechanisms

- Rather than protesting and preventing constructive dialogue instruments which facilitate sustainable development are needed
- Financial mechanisms (i.e. pressure banks to require standard EIAs to approve loans)
- Use pre-existing agreements –i.e. CBD
- International infrastructure should also be treated like embodied emissions when it comes to diversity loss-attribution mechanisms are needed

Scanning issues

- The issues are complex and require a holistic exploration
- We intend to use the scanning method to explore the potential issues associated with the BRI
- We aim to "*Identify future headaches and possible solutions to those headaches*"
- We call for your inputs and interest in understanding potential associated issues with the BRI
- Focus on environmental ***issues that are beginning to emerge and whose impact is uncertain***: *Horizon Scanning*
- We will also include **known issues**, because we want to create a comprehensive reference

Horizon Scanning Methodology

1. Assemble Core Group of 25-30 authors
2. Create Long List of issues
   1. each Author consults with 10-20 collaborators and the literature. Target >500 individuals total
   2. Authors identify candidate issues: each is one paragraph with references. Target 150-200 issues total (5-8 issues per author)
3. Vote on Short List of issues
4. Publish Final List

Alice C. Hughes
Ach_conservation2@Hotmail.com
Douglas Yu: ***dougwyu@mac.com***

Presentation:

Dr. Muhammad Zafar Khan,
Assistant Professor of Environmental Sciences, Karakoram International University

"Environmental perspectives of the Belt & Road Initiative in high mountain ecosystems of Northern Pakistan"

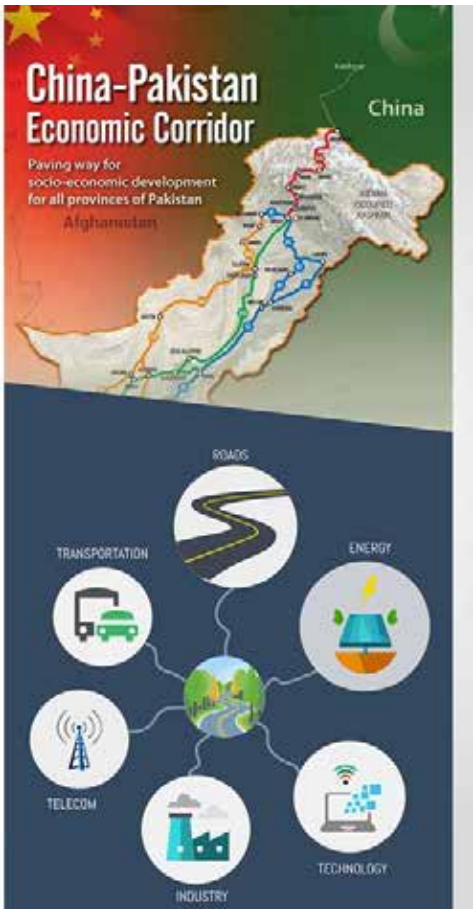
Key points:

1. Improved connectivity, trade liberalization, advances in communication and transportation, and creation of trans-border supply chains is a game changer for environmental conservation in the China-Pakistan Economic Corridor (CPEC).
2. Protected areas cover over 60% of the total land surface of Gilgit-Baltistan, within which there are a number of endangered species and ecosystems.
3. BRI associated potential threats to wildlife could be habitat fragmentation, illegal hunting, pollution, invasive species, and disruption of watershed hydrology.
4. However, BRI can bring increased ecological connectivity through increased financing, protected area networks, and academic exchanges, which can be implemented through the "Belt & Road Ecological and Environmental Cooperation Plan."

Fusion of multiple developments in global, regional and local contexts.... through improved connectivity, trade liberalization, advances in communication and transportation, infrastructure and creation of trans-border supply chains

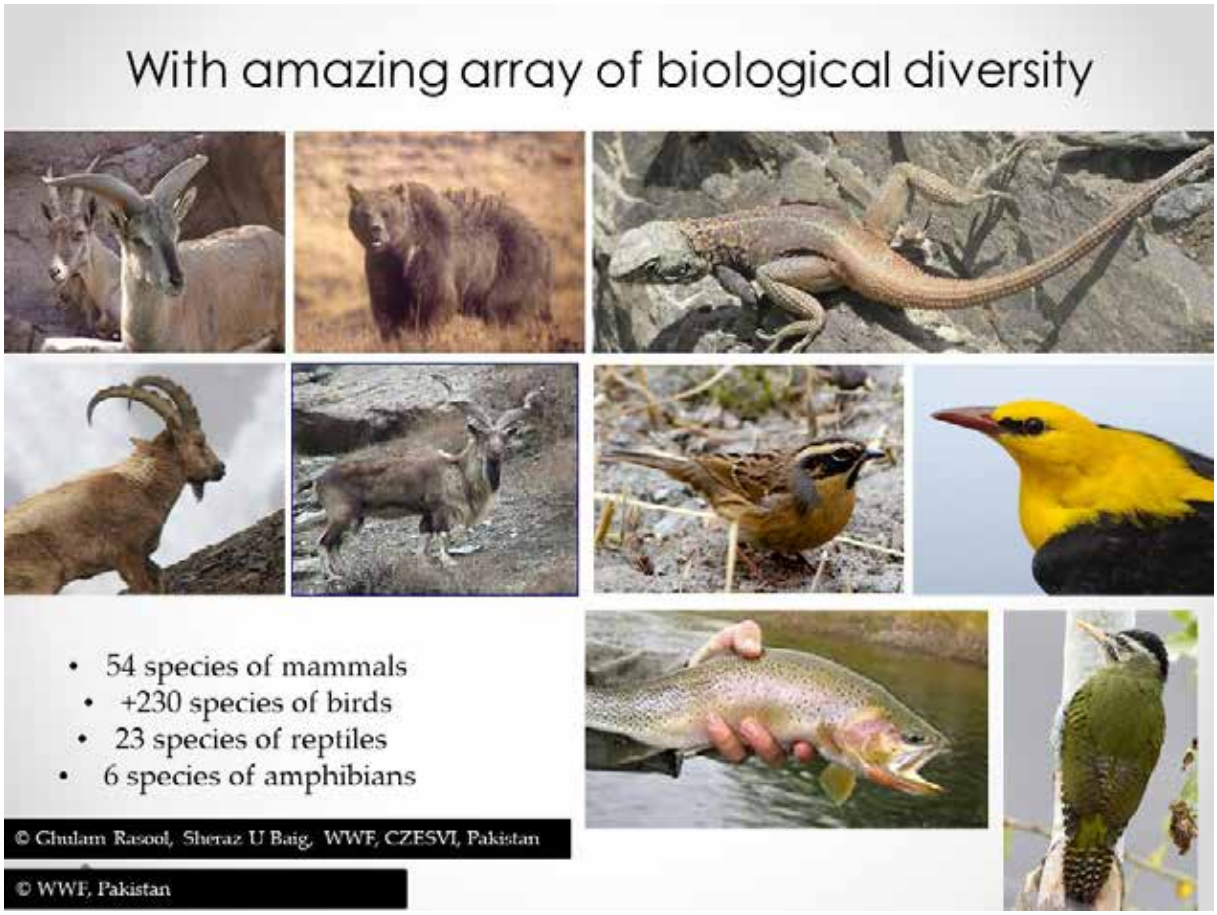
Game changer

https://www.pc.gov.pk/web/cpec



Ecological..... concerns and comforts...Green Economic Transformation.....


© KutwalConservation and Tourism Promotion Society
Highly diverse, yet a fragile mountain ecosystem...

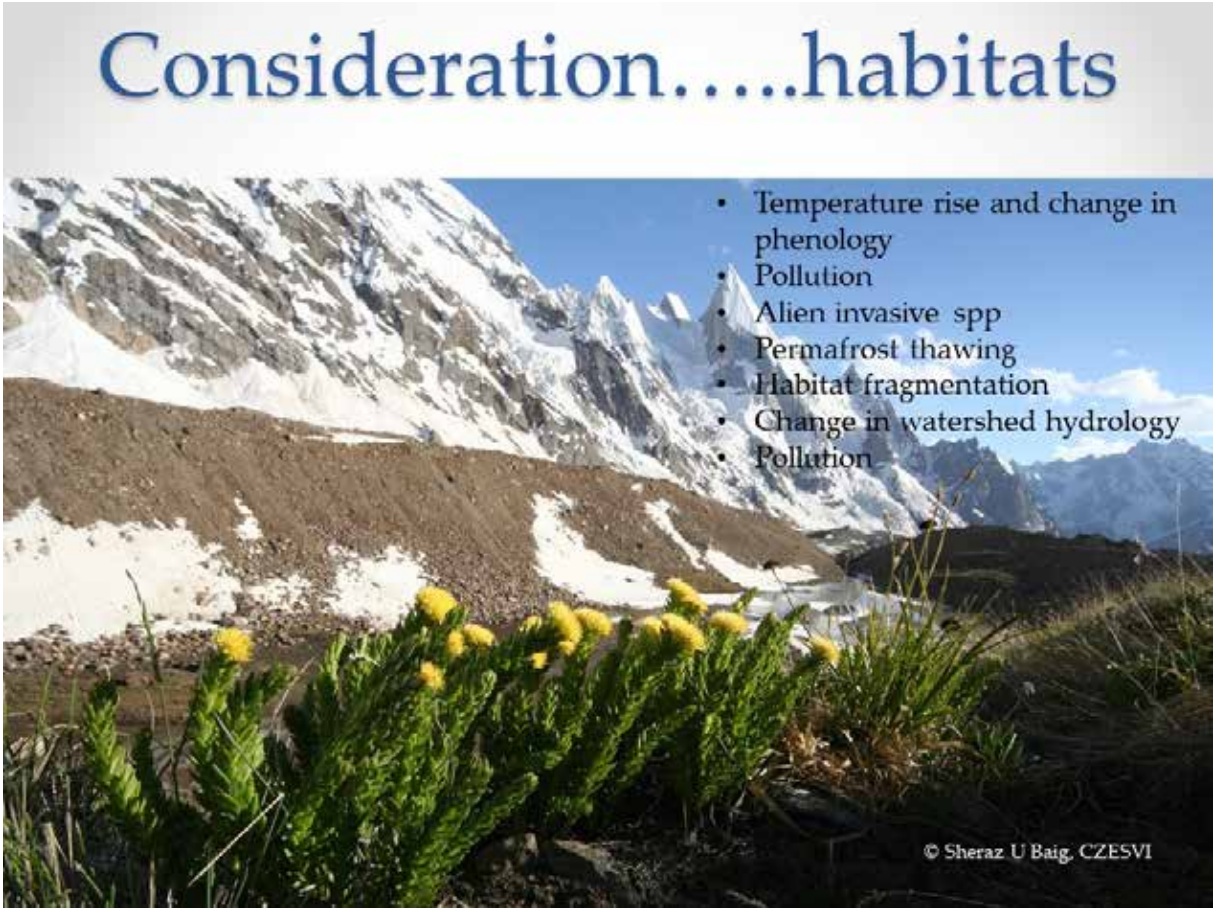

With amazing array of biological diversity
• 54 species of mammals
• +230 species of birds
• 23 species of reptiles
• 6 species of amphibians
© Ghulam Rasool, Sheraz U Baig, WWF, CZESVI, Pakistan
© WWF, Pakistan

+800 species of wild plants, including rare and highly valued medicinal herbs

Protected Areas

- 5 National Parks
- 41 Community-controlled hunting areas or community-managed protected areas
- Spanning over more 60% of the total land surface of Gilgit-Baltistan (GB P& WD), while the National PA coverage of Pakistan is 10% (worldbank.org).


Consideration….species
Himalayan ibex on KKH, 2018, © Saleem Khan


Consideration…..habitats
• Temperature rise and change in phenology
• Pollution
• Alien invasive spp
• Permafrost thawing
• Habitat fragmentation
• Change in watershed hydrology
• Pollution
© Sheraz U Baig, CZESVI

Comforts…..

- The Belt and Road Ecological and Environmental Cooperation Plan
- Ecological connectivity……wildlife crossing or corridors/networking of PAs
- More investments….conservation financing (Park entry fee, ecotourism)
- More partnerships…..academic collaborations

Way forward

Good Science in support of:

- Long-term ecological monitoring
- Collaborative Research

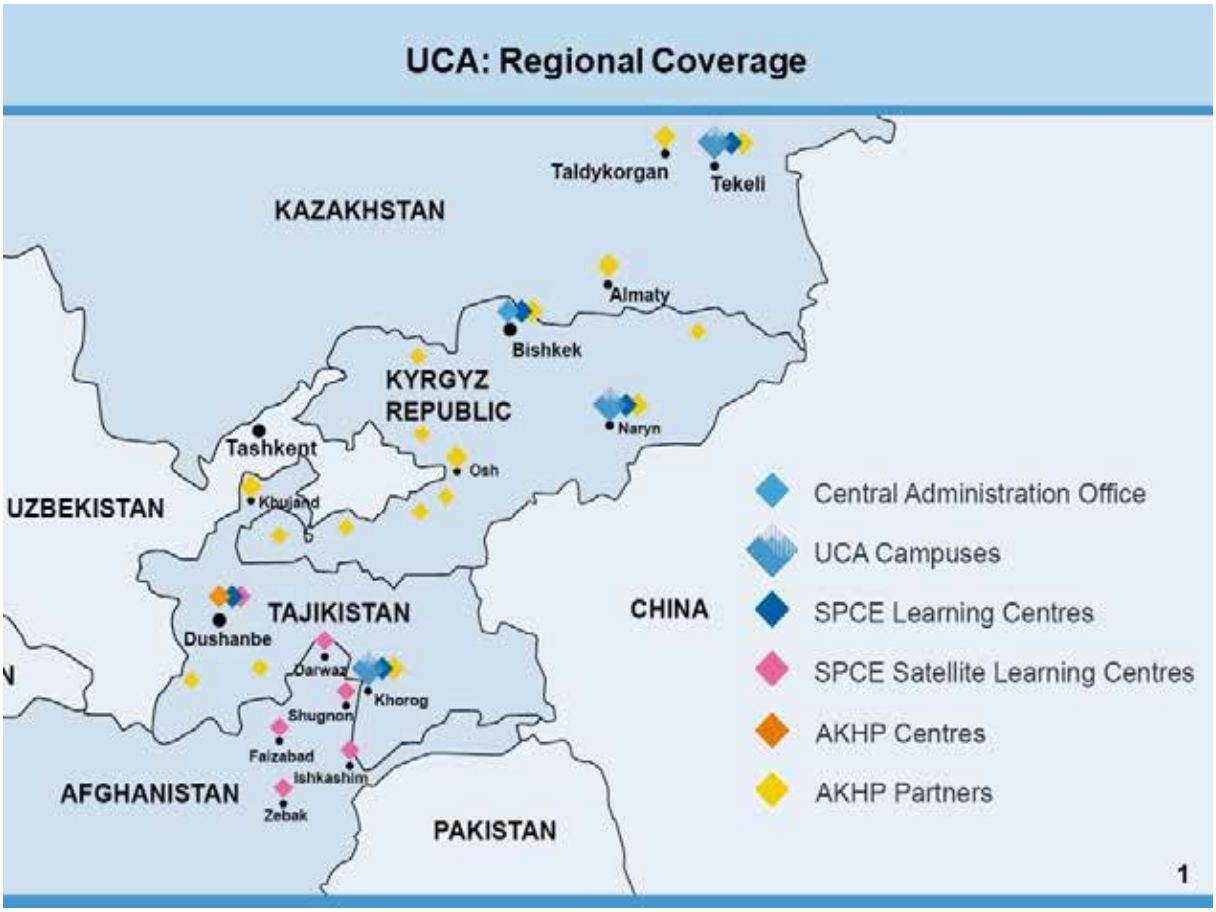
Presentation:

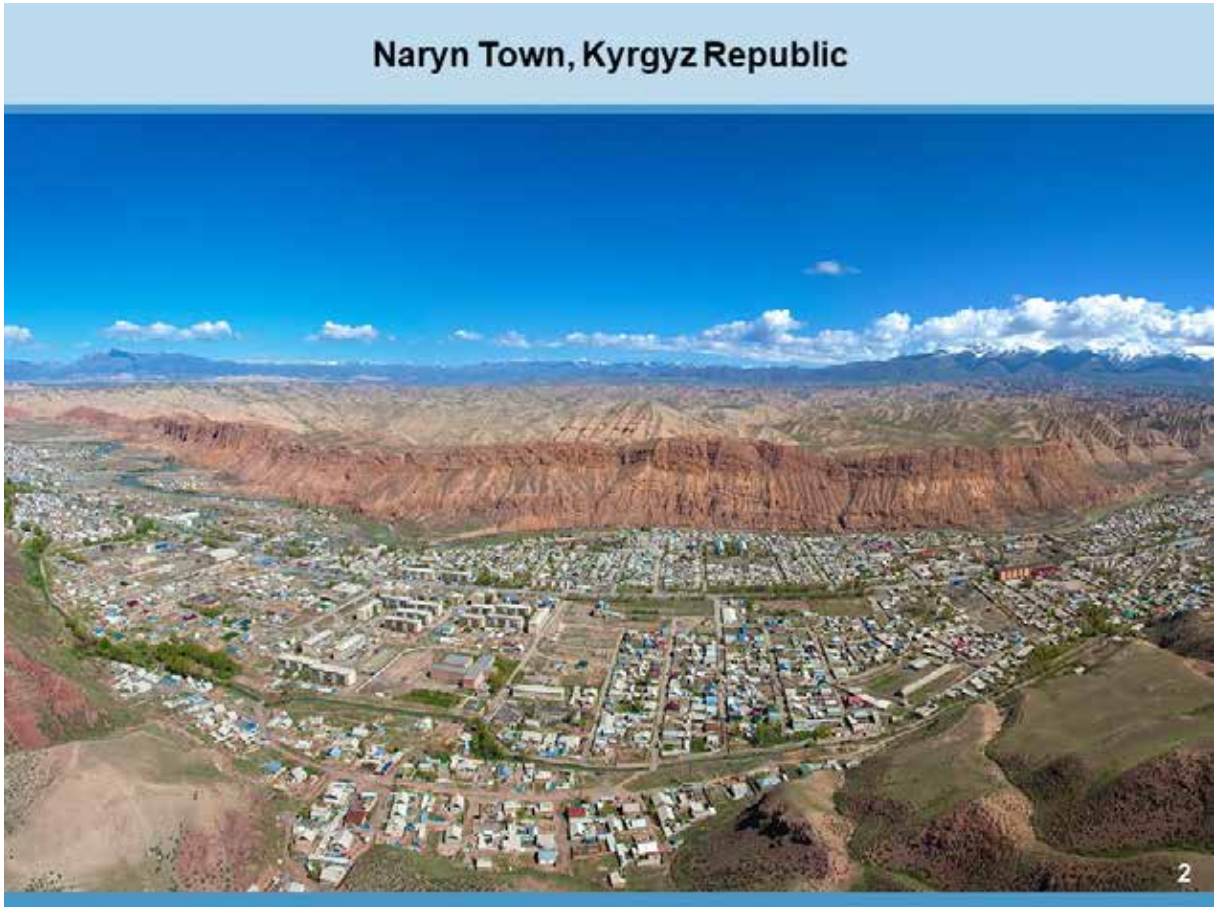
Mr. Dastanbui Mamadsaidov,
Project Manager, University Town Development Program, University of Central Asia

"UCA initiatives in town development planning in two 'campus towns', Naryn, Kyrgyz Republic and Khorog, Tajikistan. "

Key points:

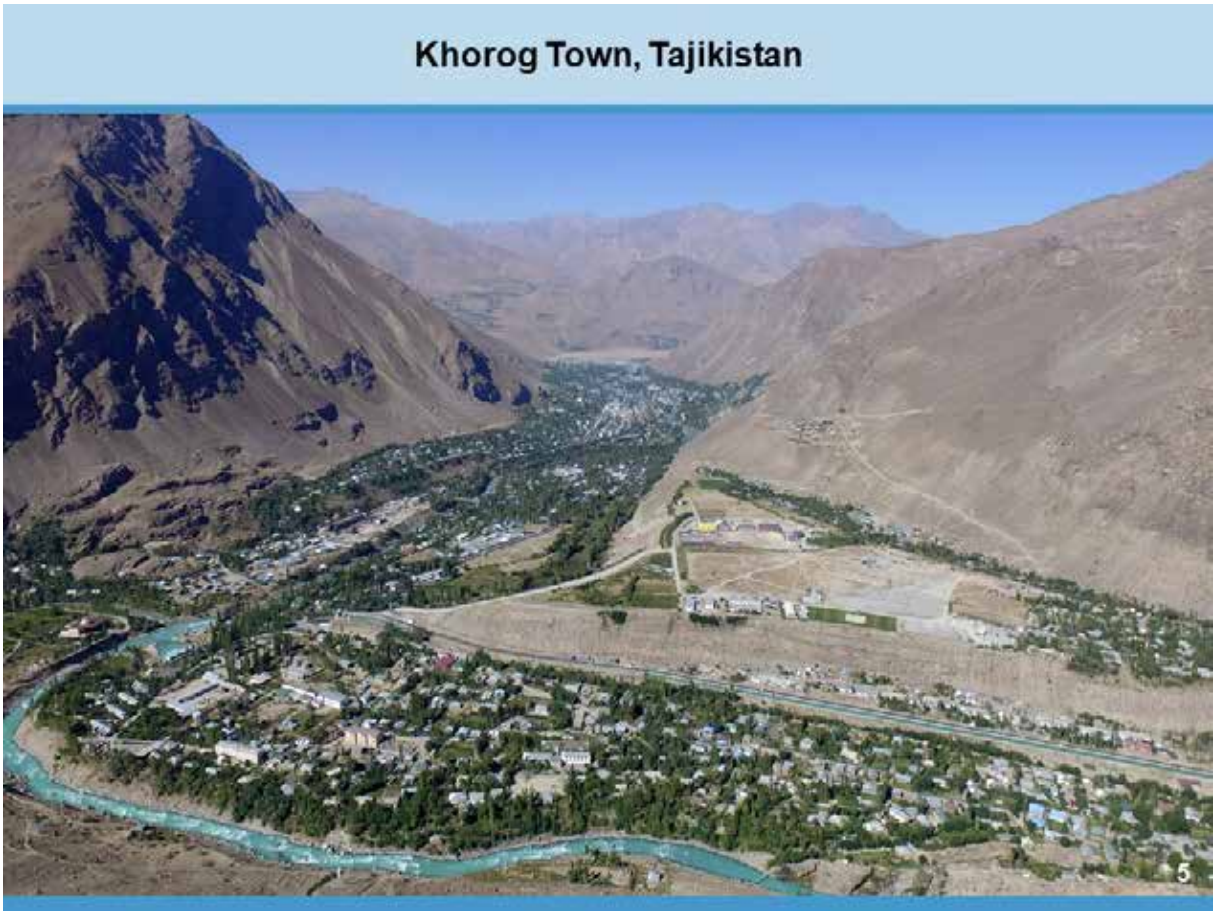
1. UCA is partnering with local government and sister Aga Khan Development Network (AKDN) agencies to develop the host mountain towns into vibrant university communities while boosting local economies.
2. Current projects include medical centres, a public park, strengthening road and water infrastructure to the broader region in Naryn, Kyrgyzstan. Whilst in Khorog, UCA has invested in transport infrastructure, including roads, paving and street lighting, and has improved early childhood education in the town by setting up two kindergartens and a training centre for early childhood educators building schools.
3. UCA continues to identify the potential for new initiatives, activities, enhanced impact and possible new directions in University Town Development.




Naryn Town, Kyrgyz Republic
2


UCA Naryn Overall Masterplan
3


UCA Naryn Campus Phase I
4


Khorog Town, Tajikistan
5


UCA Khorog Phase I Masterplan
6


UCA Khorog Campus Phase I


Tekeli Town, Kazakhstan
8


Tekeli Campus – Overall Masterplan
9

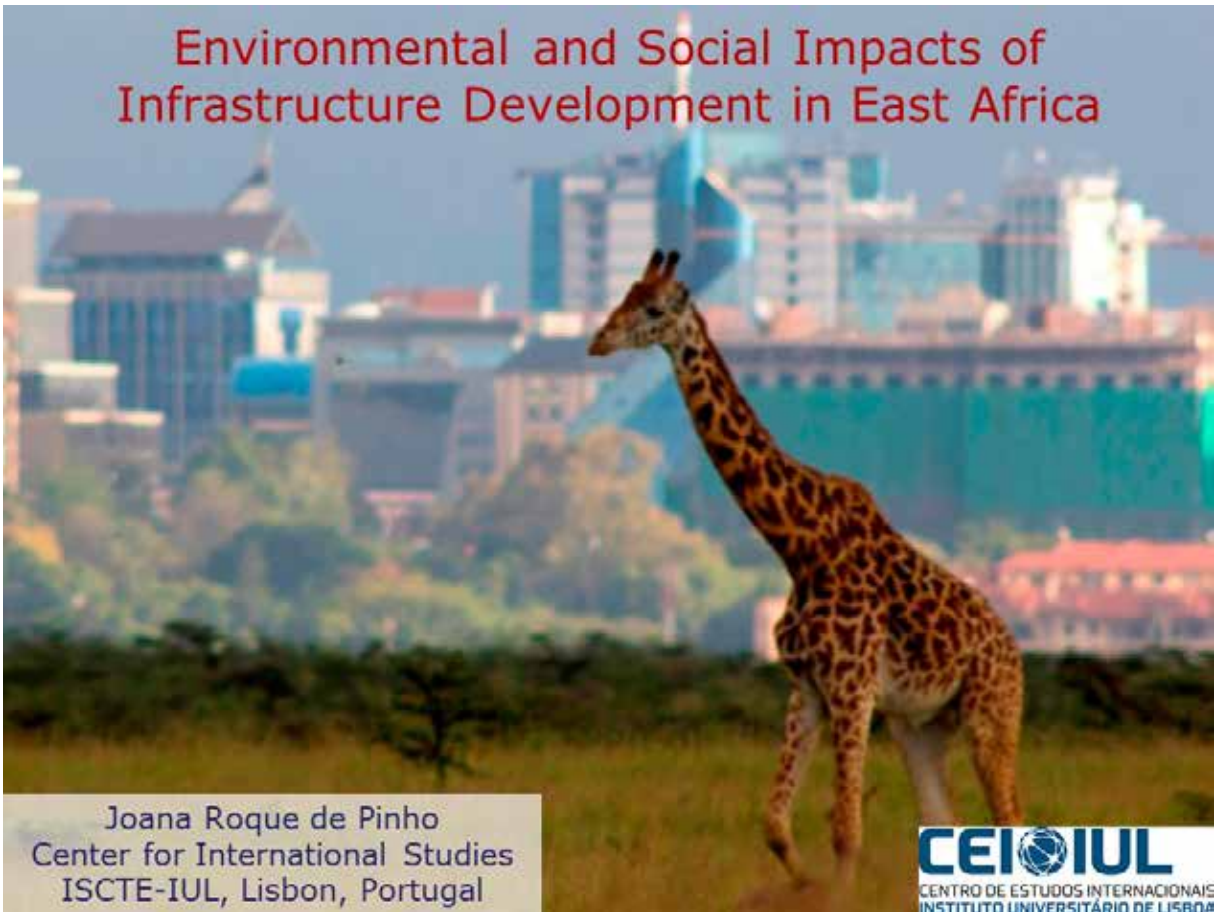
Presentation:

Dr. Joana Roque De Pinho
Postdoctoral Researcher, Centre of International Studies,
ISCTE University Institute of Lisbon

"Environmental and social impacts of infrastructure development in East Africa"

Key points:

1. Many mega-projects are underway within development corridors in Africa, focused on mineral and oil extraction, along with auxiliary infrastructure developments; including Kenya's Standard Gauge Railway project, the largest post-independence project.
2. East African savannah ecosystems and local livelihoods are highly vulnerable to habitat fragmentation from linear infrastructure, especially due to the importance of mobility for both migratory wildlife and livestock.
3. Independent EIAs and free, prior and informed consent (FPIC) from local communities is necessary to reduce social and environmental impacts.
4. New linear infrastructure should be located where costs are smaller, in highly settled areas with high agricultural potential, and built with mitigating infrastructure to avoid ecosystem fragmentation.



Global infrastructure expansion

Africa

Foreign investment frenzy

Economic growth

Mega-projects: natural resources extraction, transportation, energy

Variety of proponents

"China in Africa"

Non-interference policy

"Resources for infrastructure"

Access natural resources too remote or risky for West

Benefits for African countries

Chinese expertise & products more adapted to African realities

Loans:

- Interesting interest rates
- Long repayment periods
- Can repay in resources
- "No strings attached" contracts

Chinese contractors' speed & efficiency

Risks for African countries & communities

"No interference" policy – also in environmental standards

Environmentally sensitive sectors + impactful infrastructure

Remote & ecologically fragile regions

Countries with weak governance

China's domestic environmental policies => export their problems

Dependence on Chinese technology, knowledge & labor => social problems

Biggest road expansion in history

Positive impacts

Improve rural livelihoods

Access to markets, fertilizers, new technologies, health, education

Roads

Negative impacts

Deforestation & habitat disruption

Land degradation

Landscape fragmentation

Restrict wildlife movement

Spread of diseases

Road killings

Illegal activities

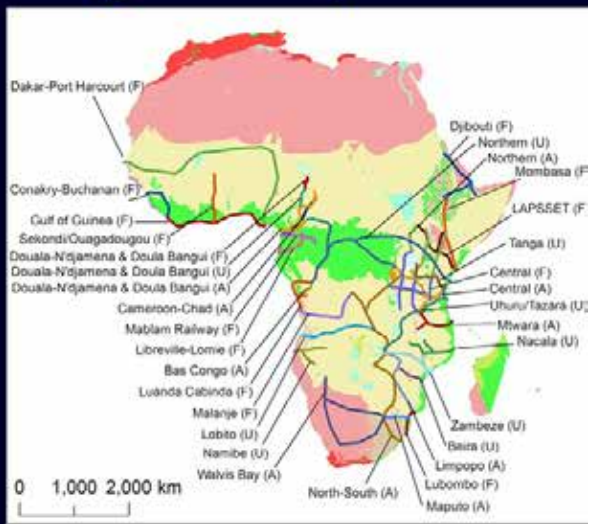
Development Corridors in Africa

Laurance et al. (2015). Estimating the environmental costs of Africa's massive "development corridors". Current Biology 25, 3202-3208.

Assessed 33 planned/existing "development corridors"

Roads – railways – pipelines – ports

For agricultural production, mineral exports, economic integration



Findings

5 "promising corridors"

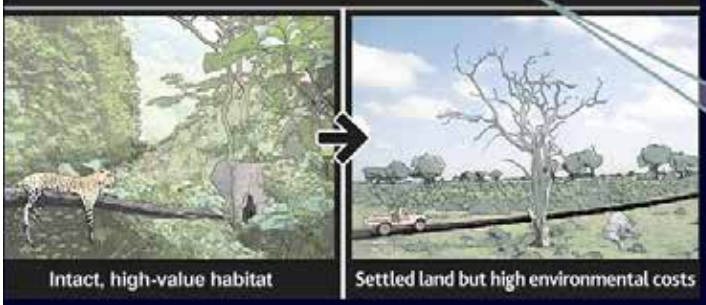
Desirable development corridor

22 "marginal" corridors

Need stringent regulation, law enforcement, mitigation & offset strategies

(includes LAPSSET & Northern corridor)

Undesirable development corridor



6 "inadvisable"

East African savanna ecosystems

Sensitive to infrastructure development

Drylands

Animal mobility is crucial

Non-equilibrial ecosystems

Temporal & spatial variability in water & resources for animals & people

Restrictions to animal movements => land degradation, ecosystem collapse

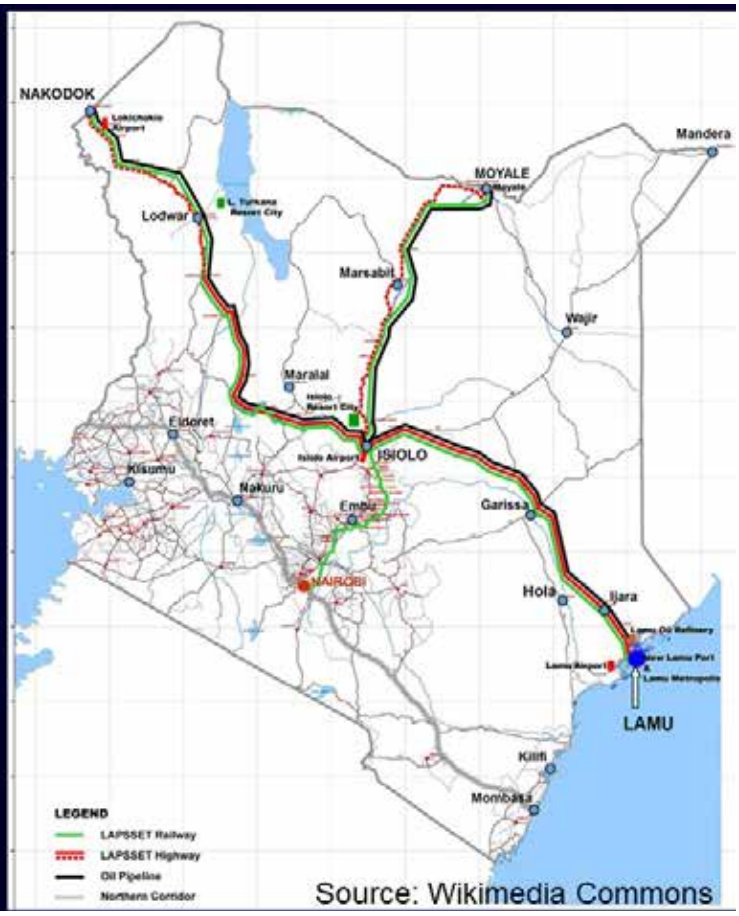
Undergoing massive changes

Project #1: The LAPSSET Corridor

The Lamu Port South Sudan Ethiopia corridor

Public-private partnership (PPP) Kenya/South Sudan/Ethiopia

Port
Oil pipeline & refinery
Road & railway
Resorts, airports



Source: Wikimedia Commons

Official narrative

Kenya Vision 2030

Anticipated benefits

Enhance regional trade & logistics

Unlock S. Sudan & Ethiopia

Marginalized northern Kenya: the new frontier

The problems

Project launched *before* Environmental Impact Assessment

Non-independent EIA

Lack of information & transparency

No longer needed for Ethiopia

Expensive

Massive environmental & social costs

Impacts on coastal communities & biodiversity

Degrading mangroves, sea grass, coral reefs & fishing livelihoods

Port construction => eviction & landlessness

No compensation

Land speculation

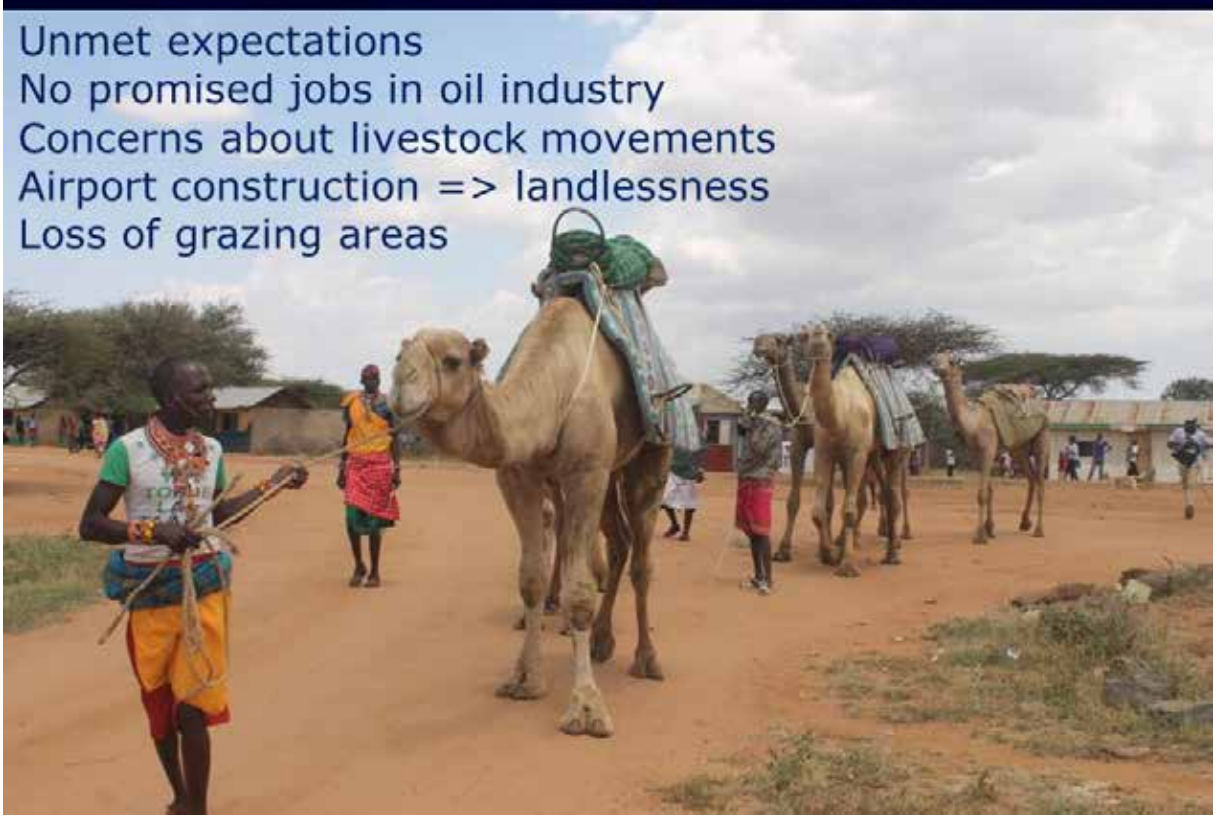
Unclear land rights & ethnic/political violence

AFRICATECH MAY 4, 2018 / 3:19 AM / 6 MONTHS AGO

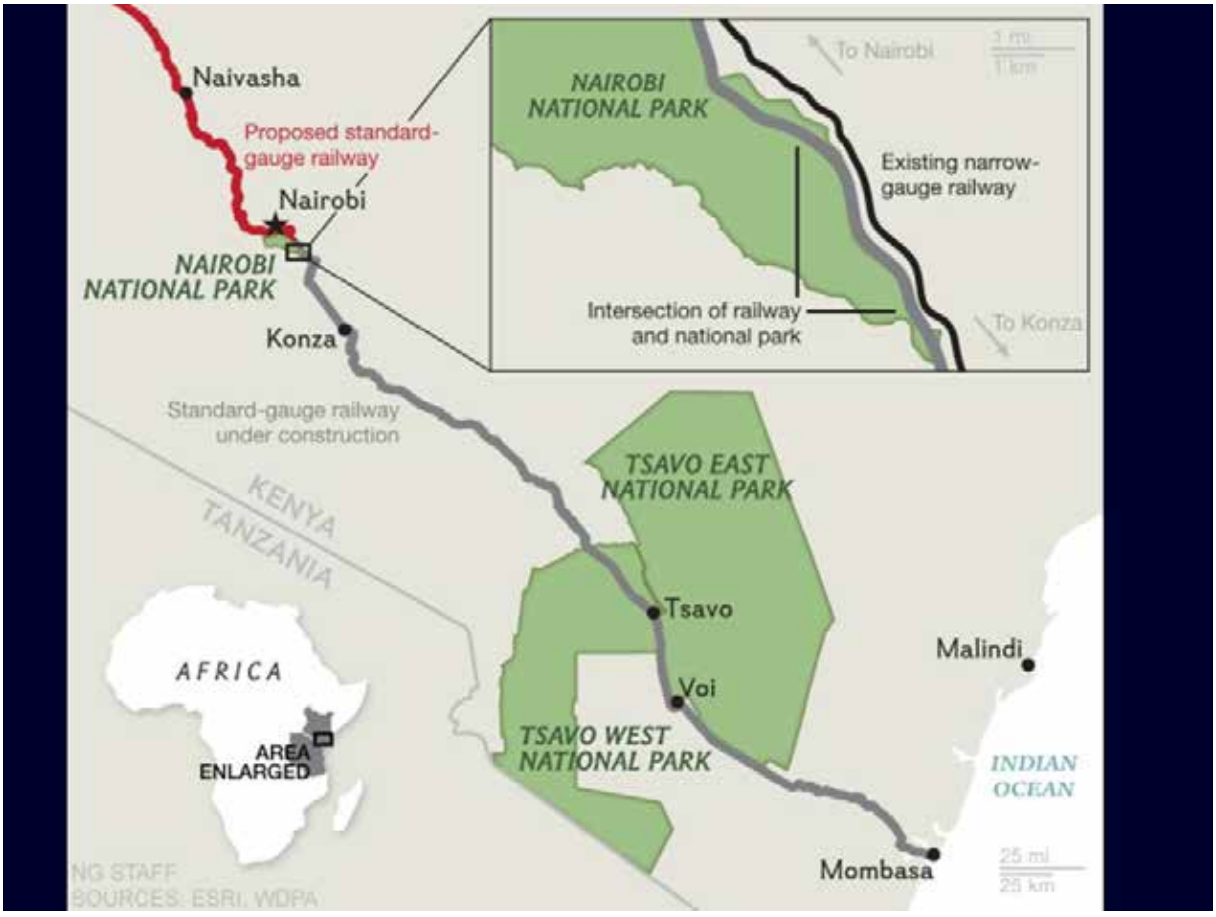
Kenyan fishermen win millions for loss of rights to new port

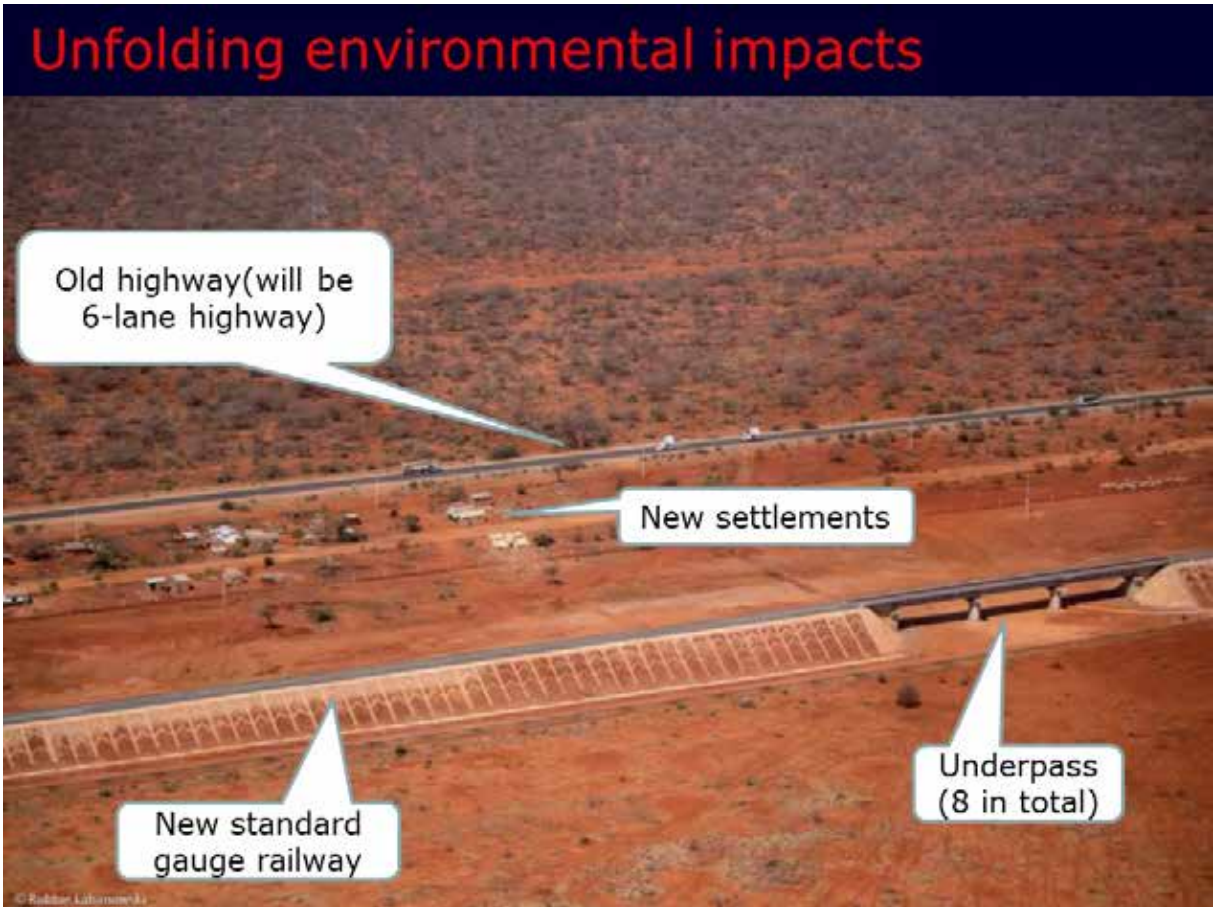
Kevin Mwanza 4 MIN READ

Impacts on Northern Kenya's pastoralists




Project #2: The Northern Corridor
BRI project – to connect East African countries
South Soudan
Juba
Nadapal
D.R.Congo
Gulu
Uganda
Tororo
Kampala
Kisumu
Mbarara
Kigali
Nairobi
Mombasa
Scale
0 50 100 200 300 400 500 Km
N
The new Standard Gauge Railway (SGR)
Mombasa-Nairobi
China-funded & built
Biggest infrastructure project since Independence
NEC Main Line
NEC Branch Line


Naivasha
Proposed standard-gauge railway
Nairobi
NAIROBI NATIONAL PARK
Konza
Standard-gauge railway under construction
KENYA
TANZANIA
AFRICA
AREA ENLARGED
TSAVO EAST NATIONAL PARK
TSAVO WEST NATIONAL PARK
Tsavo
Voi
Malindi
Mombasa
INDIAN OCEAN
To Nairobi
Existing narrow-gauge railway
Intersection of railway and national park
To Konza
25 mi
25 km


Unfolding environmental impacts
Old highway(will be 6-lane highway)
New settlements
Underpass (8 in total)
New standard gauge railway


Tsavo Conservation Area: largest elephant population (12,000)
Animal Mortality
Credit: Tsavo Trust

Northern Corridor social impacts

Noise pollution

Wetland destruction, stream blocking => impacts on communities

Sanitation problems

Poor payment & ill-treatment of staff

Workers' strike

Some lessons

Consultation with local communities

Information & transparency

Independent EIAs

Location of new roads

Where costs smaller

Highly settled areas

With highest agricultural potential

Avoid ecosystem fragmentation

With mitigating infrastructure

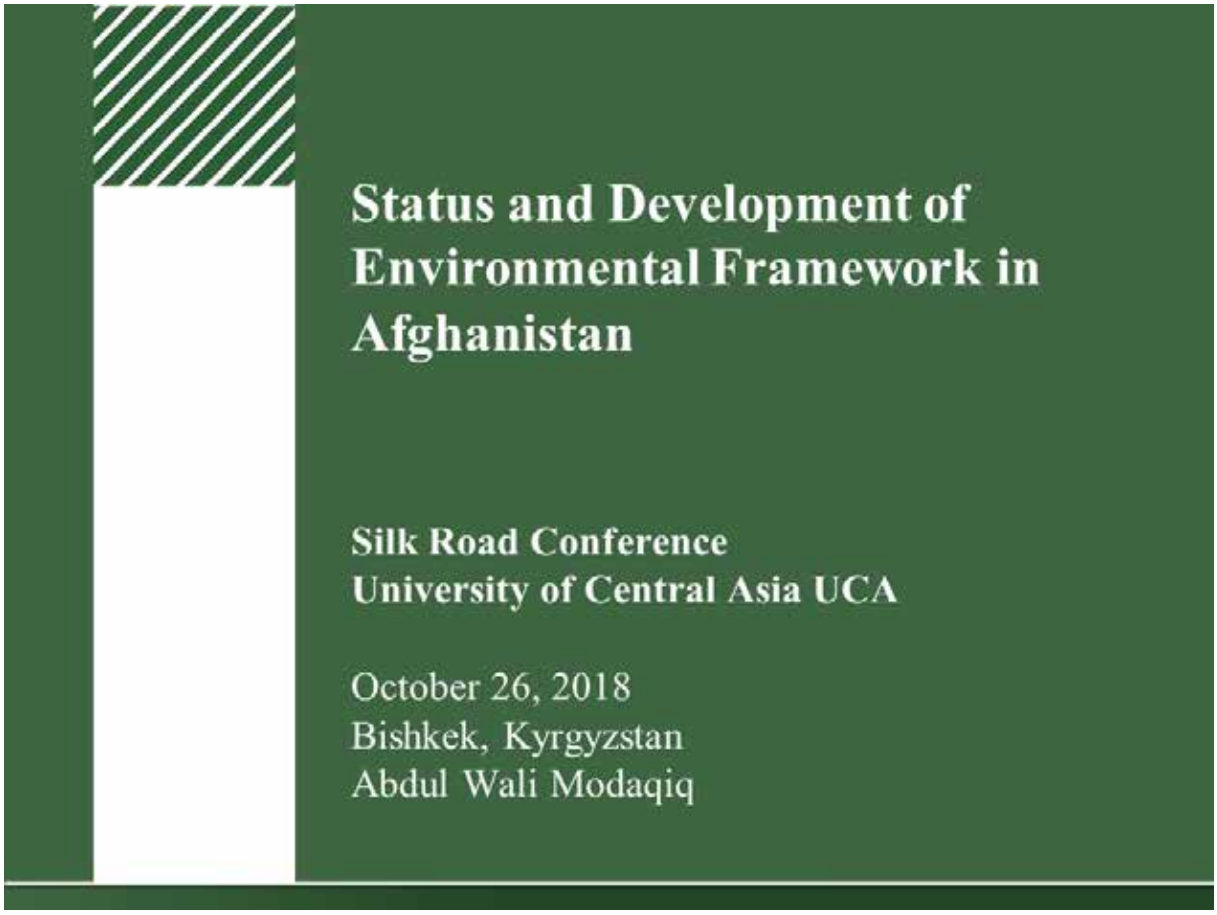
Presentation:

Mr. Wali Modaqiq,
Freelance National Consultant, Afghanistan

"Status and development of environmental framework in Afghanistan"

Key points:

1. Afghanistan has well developed national frameworks, strategies and action plans for environmental conservation.
2. However, there is currently a high dependency on international experts for conducting environmental and social impacts (ESIA) studies in major projects.
3. Implementing environmental policy in the social and conflict contexts of Afghanistan remain extremely challenging.



Afghanistan Environmental Legal Framework

- Article 15 of the constitution
  - Environment Law Approved by the National assembly in January 2007
  - Land Management Law, Forest Management Law, Wildlife Management and Hunting Law (Draft) and Seeds Law
  - PAs (Interim), ESIA, Waste Management, Air Quality procedures
  - 14 Multilateral environmental agreements

Chapters covered by Environment Law

- General Provisions
- Functions and Powers
- Management of Activities affecting the Environment
- Integrated Pollution Control
- Environmental considerations relevant to water resource conservation and management
- **Biodiversity and natural resource conservation and management**
- Environmental information, education, training and research
- Compliance and enforcement
- Miscellaneous orders

Institutions Map

- National Environmental Protection Agency (NEPA) is the leading national institution to ensure the implementation of Environment Law 2007
- Central Office in Kabul and provincial offices in all 34 provinces of Afghanistan

- **Coordination Mechanisms:**
  - National Environmental Advisory Council
  - High Council of Land, Water and Environment
  - Committee for Environmental Coordination (central and provincial level)
  - High Commission on Air Pollution
  - High Level Commission on Environmental Inspection
  - National Committee on Climate Change
  - Afghanistan Wildlife Executive Committee

National Frameworks, strategies and action plans for environment

- Environment Strategy-ANDS (2008-2013)
- Afghanistan National Peace and Development Framework (ANPDF)
- National Biodiversity Strategy and Action Plan (NBSAP)
- National Climate Change Strategy and Action Plan (NCCSAP)
- National Environmental Education and Outreach Strategy
- Natural Resources Management National Strategy

Global Frameworks

- Sustainable Development Goals (SDGs)
- United Nations Framework Convention on Climate Change (1992)
- Kyoto Protocol (1997)
- Paris Agreement (2016)
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
- Convention on Biodiversity and the Cartagena Protocol on Biosafety
- Convention on International Trade in Endangered Species of Wild Fauna and Flora CITES
- United Nations Convention on Migratory Species CMS
- Minamata Negotiations on Mercury
- Montreal Protocol on Substances that Deplete the Ozone Layer
- Stockholm Convention on Persistent Organic Pollutants

Action Plans

- National Environmental Action Plan (NEAP)
- National Protected Areas System Plan (NPASP)
- National Snow leopard Landscape Plan (NSLEP)
- National Biodiversity Strategy and Action Plan (NBSAP
- List of Afghanistan's Protected Species (Red List)
- Air Pollution Prevention Action Plan (Big cities)
- National Implementation Plan (NIP) for POPs

Environmental Impact Assessments and Strategic Environmental Assessments

- Interim EIA Regulation and EIA Administrative Guideline introduced in 2008-to initiate the mainstreaming of environment into development projects
- New comprehensive ESIA Regulation replaced the EIA Regulation to make the procedures more effective, efficient and transparent
- Strategic Environment Assessment is not a Priority for the Govt.

- ESIA Board of Experts constituted to make the evaluation system more transparent and independent
- Experts from Government Ministries and Universities involved in the Board
- High dependency on international experts for conducting ESIA studies in major projects
- Challenge of preparing national capacity (experts to conduct studies) to produce quality ESIA reports

Session 3: Role of 'protected areas' in regional landscapes

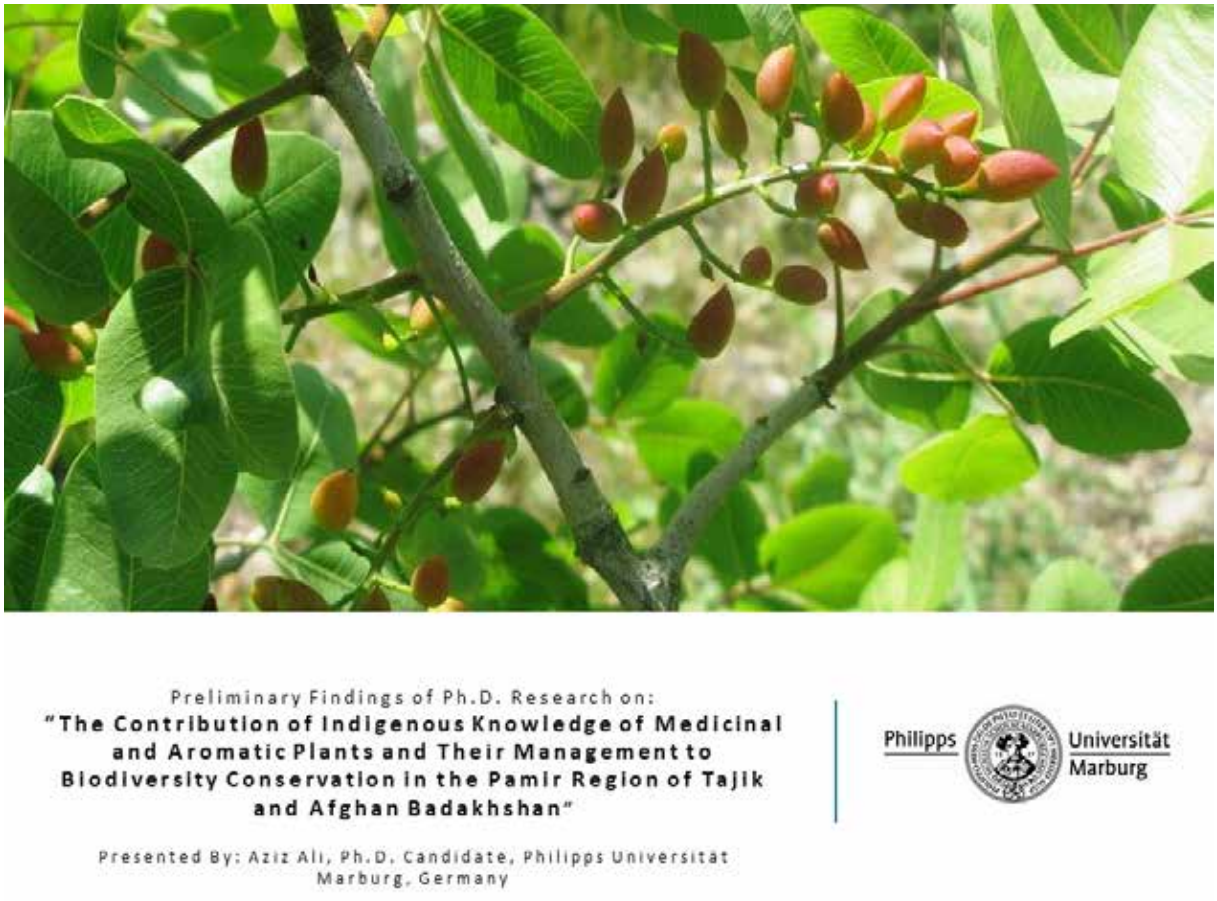
Chair: Mr. Ashiq Khan

Presentation:
Dr. Aziz Ali Khan,
Research Fellow, University of Central Asia

"The Contribution of Indigenous Knowledge of medicinal and aromatic plants and their Management to biodiversity conservation and social/community resilience in the mountains of Central Asia"

Key points:

1. Indigenous knowledge contributes to biodiversity conservation and natural resource management – in support of the rural livelihoods in the Pamir Region.
2. Knowledge on herbal medicine and remedies has diminished in recent years and is primarily restricted to aging local healers. Reduced accessibility and availability of medicinal and aromatic plants (MAPs) to the local communities may ultimately lead to diminishing knowledge on herbal remedies and practices.
3. Degradation of MAPs has occurred due to overexploitation for export, exacerbated by lack of regulations for conservation of MAPs and by competing land use strategies including intensive livestock grazing and shifting cultivation.



INTRODUCTION TO THE PAMIR REGION

- The Pamir Region lies at the junction of Asia's great mountain ranges – the Him, KK, HK & Tian Shan
- Catchment of many important international rivers, Oxus River, Tarim River and Indus River, thus has great conservation value
- For millennia, the region has been an important corridor through which many influential ethnic groups migrated across Euroasia, between east to west and north to south
- The connectivity and affinity exhibited in the Pamir mountain region offers diverse habitats to a wide array of unique species
- Medicinal and Aromatic Plants (MAPs) play a vital role in local food security, maintenance of human health, and ecological services e.g. watershed protection
- The long tradition of using such plants is in jeopardy, mostly due to anthropogenic stresses

Research Study Sites Pamir Region of Tajik and Afghan Badakhshan

RATIONALE FOR RESEARCH STUDY

Issue

- Indigenous knowledge on herbal medicine and remedies has diminished;
- Restricted to local healers and transfer to younger generations virtually non-existent
- Medicinal plant population declining from natural habitat

Consequences

- Risk of losing important cultural heritage
- Loss of biodiversity
- Negative impact on livelihoods, production systems and
- Negative impact on health of local communities

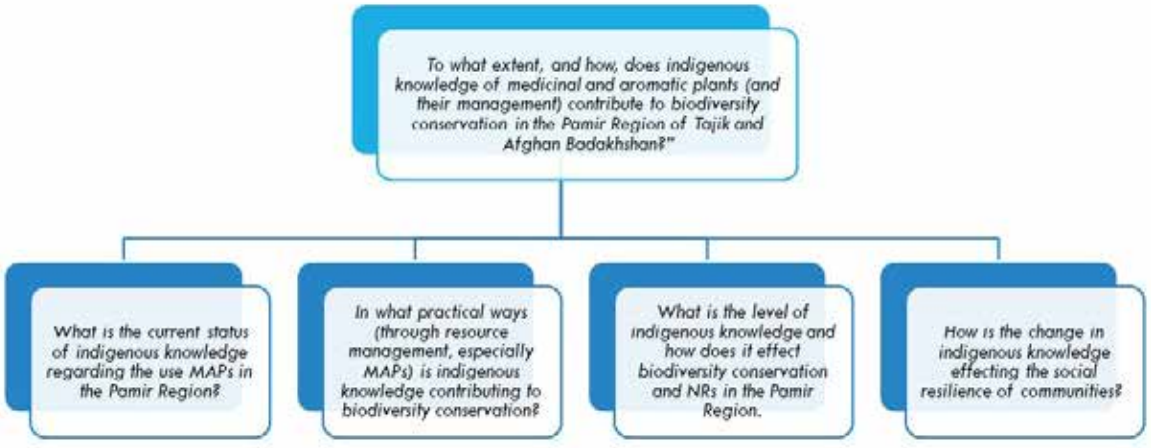
Opportunities

- Study & document indigenous knowledge systems
- Assess & Understand how indigenous knowledge contributes to biodiversity conservation
- Belt and Road initiative and New Markets

KEY OBJECTIVES OF THE RESEARCH STUDY

1. To investigate and explore **the contribution of farmers' and herders' indigenous knowledge to biodiversity conservation** in the Pamir region of Tajik and Afghan Badakhshan.
2. To **assess the contribution of medicinal and aromatic plants to local food and health systems** in the Pamir region.
3. To **explore and document traditional knowledge** critical to Pamir region for conservation, adaptation and resilience of these communities.
4. To explore the **most valuable and marketable medicinal plant species** for conservation and promotion for local income generation.

RESEARCH QUESTIONS



RESEARCH METHODOLOGY & APPROACH

This research moves forward current scholarly debates around the future roles and importance of medicinal plants and associated knowledge (conservation, ecological, therapeutic and economic) and threats to the biodiversity with the following approach and methodology:

- *General literature review about the traditional use of medicinal plants in Badakhshan and else where*
- Qualitative and quantitative methods to collect data in the study area
- A structured questionnaire designed as investigation tool

RESEARCH METHODOLOGY & APPROACH CONTD...

- Focus group discussions (FGDs) held to assess biodiversity conservation efforts.
- Key informant interviews (KIIs) conducted as triangulation and confirmation of the collected information.
- Individual interviews conducted with government personnel associated with resource management.

RESEARCH FINDINGS

OVERVIEW

- 280 individual respondents - 56 % women - revealed that in Gorno-Badakhshan, local residents use 92 different species of plants belonging to 34 families and 60 genera. Among this number, 25 species are included in the official Pharmacopeia of the former USSR (State Pharmacopeia of USSR, 1990)
- 95 MAP species were listed; Ephedra, Rosehips, Ferula (stinking gum), Ziziphora, Capparis (Caper), Hippophae (seabuckthorn), Mentha (mint), Ribes (Black currant), Nepeta (cat mint), Glycyrhizza (licorice), Peganum (harmala), Achillea (yarrow), Barberis (barberry) and Bunium persicum (Black cumin) were the most common
- Reponses between Afghanistan and Tajikistan remained relatively consistent

RESEARCH QUESTION 1

WHAT IS THE CURRENT STATUS OF INDIGENOUS KNOWLEDGE REGARDING THE USE OF MAPS IN THE PAMIR REGION?

All 95 plants were listed as having medicinal value with treatment for ailments including:

- abdominal pain
- anemia
- blood pressure
- broken bones
- common cold
- dandruff
- diabetes
- diarrhea
- eczema
- fever
- git
- gynecological issues
- indigestion
- Inflammation
- cystitis
- liver aches
- malaria
- pancreatic pain
- toothaches

In both Badakhshans:

- 37% of plants are used for treatment of cardiovascular system
- 30% for digestive systems
- 22.8% for musculoskeletal problems
- 16% for female diseases such as colpitis, vaginitis, menorrhagia (hypermenorrhea) and metrorrhagia (polymenorrhea)
- 15% for skin diseases such as exzema, quinqe edema, erysipelas, furunculosis, and carbuncle
- 14% for the urogenital system

RESEARCH QUESTION 1

WHAT IS THE CURRENT STATUS OF INDIGENOUS KNOWLEDGE REGARDING THE USE OF MAPS IN THE PAMIR REGION?

- 68 plants were listed as being used for food including for juices, jams, salads, soups, teas, as well as spices
- 89 plants were sold mostly in local markets with the flower, fruit/seed of the plant being the most valuable part
- 60 varieties were grown within the surrounding vicinities of households/farms
- Over 50 varieties were listed as growing in farms, fields, mountain areas, and local forests
- 16 species are used in ethno-veterinary medicines such as injuries, tumor, menorrhagia, indisposition, sensory apparatus.

RESEARCH QUESTION 2

IN WHAT PRACTICAL WAYS IS INDIGENOUS KNOWLEDGE CONTRIBUTING TO BIODIVERSITY CONSERVATION?

- 46% of responses indicated that 50 species of plants have decreased over the last 10 years
- 89% of responses indicated that the factors contributing to the conservation of plants are:
  - Education on indigenous knowledge of plants
  - The usage of plants for medication
  - The usage of plants for food
  - Culture and traditions

RESEARCH QUESTION 3

WHAT IS THE LEVEL OF INDIGENOUS KNOWLEDGE AND HOW DOES IT EFFECT BIODIVERSITY CONSERVATION AND NRS IN PAMIR REGION?

10 Years Ago	2017-18
40% village members **knew about** medicinal and aromatic plants	**> 60%** village members **knew about** medicinal and aromatic plants
40% of their fellow village members **used** medicinal and aromatic plants	**> 60%** of their fellow village members **used** medicinal and aromatic plants
40% of their fellow village members **knew about conservation** of medicinal and aromatic plants	**> 60%** of their fellow village members **knew about conservation** of medicinal and aromatic plants

RESEARCH QUESTION 3

WHAT IS THE LEVEL OF INDIGENOUS KNOWLEDGE AND HOW DOES IT EFFECT BIODIVERSITY CONSERVATION AND NRS IN PAMIR REGION?

100% of respondents felt that knowledge of medical plants increasing with improvement in education

- 100% of respondents felt the use of medicinal plants for various human ailment increasing
- 88% of respondents felt that the main visible change regarding the conservation methods was the increased use of medicinal and aromatic plants.

Thus retention of indigenous knowledge of medicinal plants is important for biodiversity conservation.

RANKING OF THE COUNTRIES IMPORTING MAPS FROM AFGHANISTAN

Country	Value of MAP imported	Percentage
India	$ 72.58 million	47%
Iran	$ 20.117 million	13%
Pakistan	$ 20.116 million	13%
China	$ 3.925 million	3%
Europe, USA, Australia, and Japan	$ 2.011 million	1%
Europe	$ 0. 898 million	0.6%
Tajikistan	$ 0.427 million	0.3%

Source: Islamic Republic of Afghanistan, Ministry of Commerce and Industry, Export Promotion Agency, 2015.

VALUE OF EXPORTED MAPS WHICH WERE REPORTED AS GROWING IN BADAKHSHAN

MAP growing in Badakhshan (not exclusively)	Value in Million USD	Percentage of the total of exported MAP	Average price per kg in USD
Liquorice (Glycyrrhiza glabra)	$ 25.133	16%	$ 3
Asafoetida (Ferula asafoetida)	$ 20.161	13%	$ 65
Black cumin (Bunium persicum)	$ 4.098	3%	$ 2
Saffron (Croccus sativa)	$ 3.281	2%	$ 1,543
Espand (Peganum harmala L.)	$ 2.003	1%	$ 0.6
Total	**$ 54.678**	**35%**	

Source: Islamic Republic of Afghanistan, Ministry of Commerce and Industry, Export Promotion Agency, 2015.

MAJOR REASONS FOR DEPLETION OF MEDICINAL PLANTS

- Lack of awareness among the communities regarding the importance of MAPs for their livelihoods and sustenance.
- No clear government policy for the conservation and management of non timber forest products (NTFPs)
- Overexploitation and unsustainable harvesting of medicinal plants by the local dwellers
- Removal of vegetative cover from the mountain slopes for fuel and fodder purposes
- Climate change/Prolong drought coupled with desiccating winds in high altitude pastures and rangelands
- Over grazing of pastures and rangelands by local residents as well as nomads

INTERVIEW WITH LOCAL HERBALISTS/HEALERS

HERBALIST DR. SHIRINBEK AVJ ISHKASHIM TAJIK BADAKHSHAN AND XELION MARKET DUSHANBE

MAPS BUSINESS /TRADE IN CITY AND VILLAGE

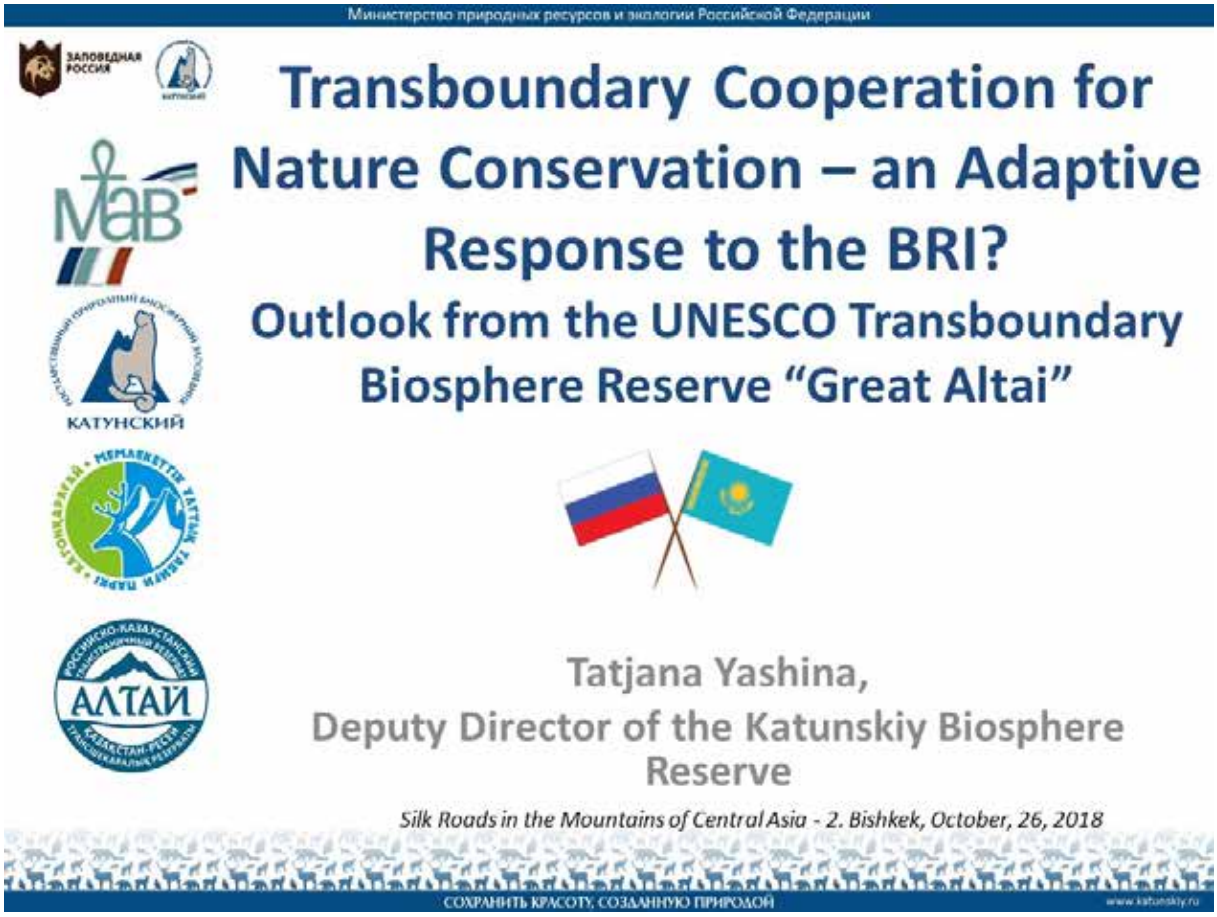
Presentation:

Ms.Tatjana Yashina,
Deputy Director, Katunskiy Biosphere Reserve, Russia

"Transboundary cooperation of protected areas in Central Asia- an adaptive response to the BRI"

Key points:

1. Potential adaptive responses for biodiversity conservation include:
    a. increasing capacities of existing protected areas (PAs)
    b. establishment of internationally designated PAs
    c. promotion of transboundary PAs and conservation projects
2. The 'Great Altai' Transboundary Reserve was officially recognized by UNESCO in 2017.
3. The reserve should comply with obligations under international UNESCO designation, including reporting standards, joint intergovernmental coordination, integration of conservation and science, and adopting sustainable development models with participatory management approaches that involve all stakeholders. Thus it could be considered as a model for adaptation of transboundary mountain regions to the Belt and Road Initiative.
4. The International Alliance of Protected Areas (IAPA), run by China, could serve as a platform and driving force for increasing capacities of protected areas along the Belt and Road corridor.



Министерство природных ресурсов и экологии Российской Федерации

Some Potential Adaptive Responses For Biodiversity Conservation at local and regional levels

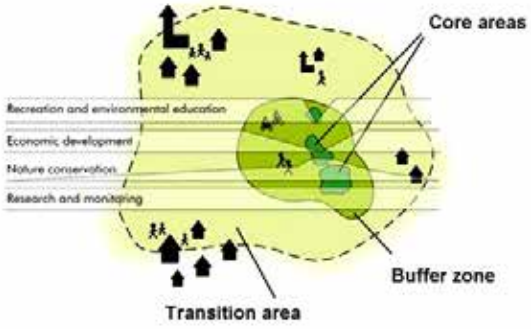
- Increasing capacities of existing protected areas
- Establishment of internationally-designated PAs
- Promotion of transboundary conservation projects and protected areas

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ

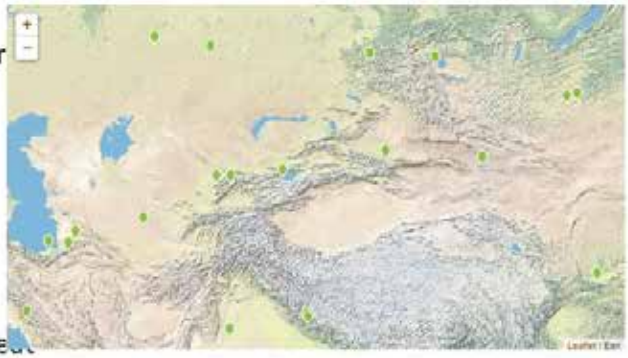
Министерство природных ресурсов и экологии Российской Федерации

UNESCO Biosphere Reserves

- **'Science for Sustainability support sites'** – special places for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity.
- Three interconnected functions: conservation, development and logistic support;



- 686 biosphere reserves in 122 countr



- Kazakhstan: 10 BRs
- Kyrgyzstan: 2 BRs
- Turkmenistan: 1 BR
- Uzbekistan: 1 BR
- China: 34 BRs

- 20 transboundary BRs (1 in Asia – Great Altai)

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ

Министерство природных ресурсов и экологии Российской Федерации

Transboundary Cooperation on the Altai region

Dr. Yuri Badenkov, RAS

1998: announcement of the idea to establish TBR between Russian, Kazakhstan, Mongolia and China and to launch the Altai Convention in order to provide coordinated regional policy for protection and sustainable development of the mountain areas.

Vassily Manyshev,
Government of the Altai Republic

PROTOCOL OF INTENTIONS

Considering the importance of implementing Chapter 13 of Agenda 21 (Rio de Janeiro, 1992), and considering that we must resolve the problems of sustainable development of mountain regions together,

On the initiative of the government of the Altai Republic, the representatives of governmental institutions of China, Kazakstan, Mongolia and the Russian Federation (hereinafter the four countries) participating in the Second International Conference on Strategic Considerations in the Development of Central Asia (Urumqi, China) have discussed the need to adopt an intergovernmental Altai Mountain Areas Convention on Sustainable Development („Altai Convention").

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ www.katunskiy.ru

Министерство природных ресурсов и экологии Российской Федерации

- 2004: site-level cooperation between **Katunskiy Biosphere Reserve** (Russia) and **Katon-Karagaiskiy National Park** (Kazakhstan) was established
- 2011: official intergovernmental agreement between two states on the establishment of the international **transboundary reserve "Altai"** on the basis of these two protected areas

Руководители Катунского заповедника и Катон-Карагайского национального парка на переговорах о сотрудничестве. Фото Т. Яшиной
Directors of Katunskiy BR and Katon-Karagaiskiy NP at T. Yashina

РОССИЙСКО-КАЗАХСТАНСКИЙ ТРАНСГРАНИЧНЫЙ РЕЗЕРВАТ
АЛТАЙ
ҚАЗАҚСТАН-РЕСЕЙ ТРАНСШЕКАРАЛЫҚ РЕЗЕРВАТЫ

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ www.katunskiy.ru

Министерство природных ресурсов и экологии Российской Федерации

2013: Joint Management Commission of the TR "Altai"

Фото: П. Белая

- Members: representatives of the federal Ministry of Nature Resources and Ecology (RU), Ministry of agriculture (KZ), regional authorities, MAB Committee (RU), NGOs, PA managers + external consultants if required
- Parties agreed that they will continue efforts to establish the UNESCO Transboundary Biosphere Reserve.
- Joint Commission was proposed as a tool to coordinate all TBR activities.

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ

Министерство природных ресурсов и экологии Российской Федерации

Development of the management plan of the TBR

- Based on methodology of *Conservation Open Standards*
- Consultative process involving different stakeholders
- The management plan officially approved by the Joint Commission

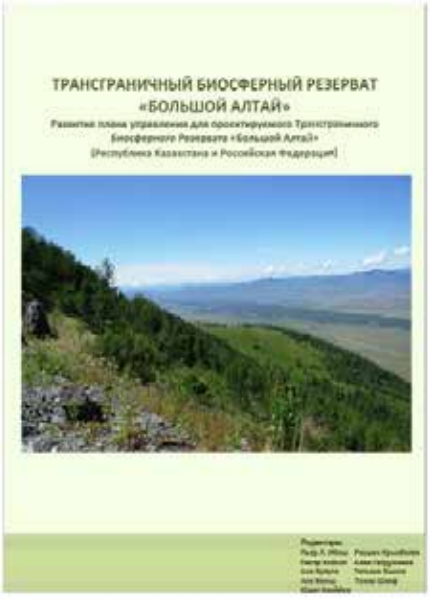
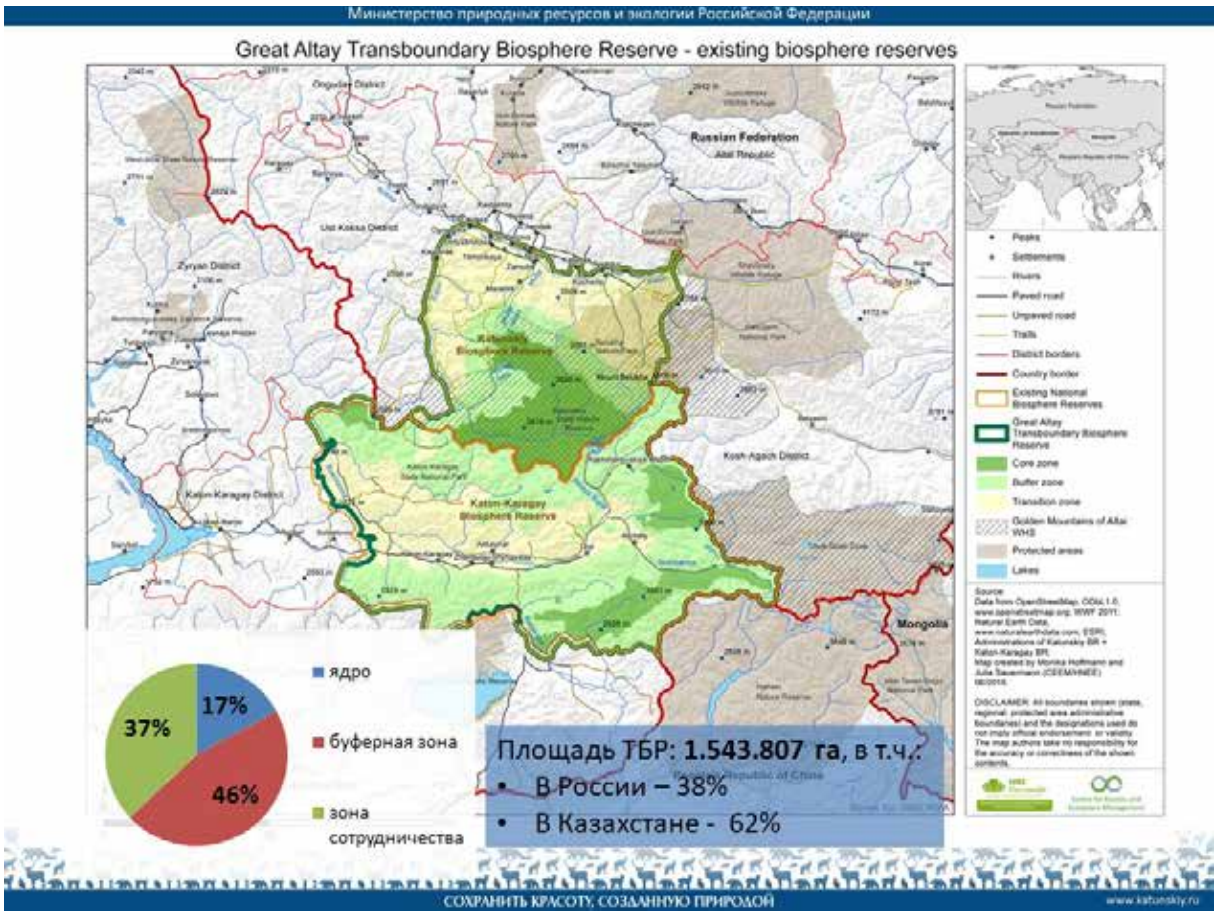


Фото: Т. Ершова

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ


Министерство природных ресурсов и экологии Российской Федерации
Great Altay Transboundary Biosphere Reserve - existing biosphere reserves
Russian Federation
Mongolia
Katun-Karagay Biosphere Reserve
Peaks
Settlements
Rivers
Paved road
Unpaved road
Trails
District borders
Country border
Existing National Biosphere Reserves
Great Altay Transboundary Biosphere Reserve
Core zone
Buffer zone
Transition zone
Golden Mountains of Altai WHS
Protected areas
Lakes
17%
37%
46%
ядро
буферная зона
зона сотрудничества
Площадь ТБР: 1.543.807 га, в т.ч.:
• В России – 38%
• В Казахстане - 62%
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Министерство природных ресурсов и экологии Российской Федерации
ЗАПОВЕДНАЯ РОССИЯ
Daily activities of the TBR
Annual international fire fighting trainings
joint patrolling of the border zone
use of the anti-poaching technologies
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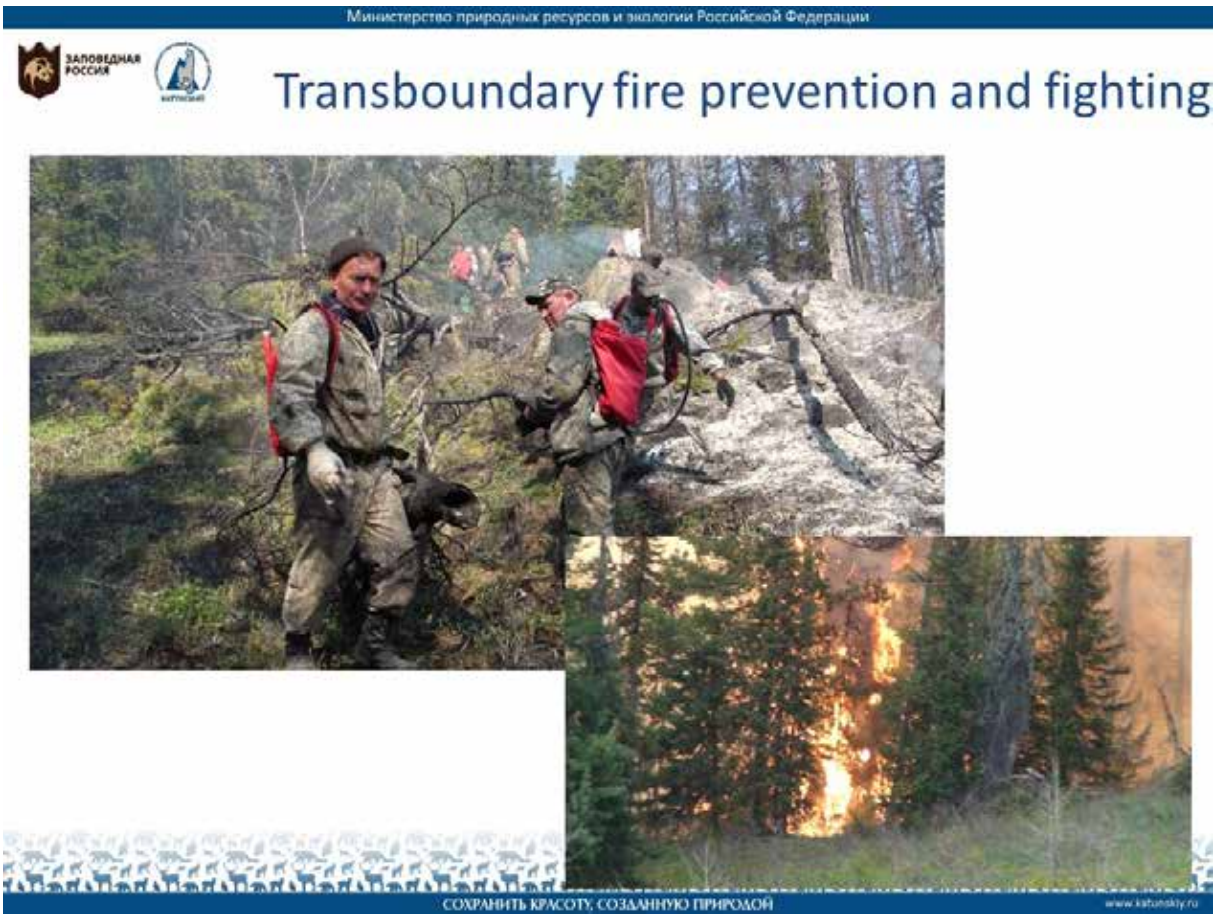
Министерство природных ресурсов и экологии Российской Федерации
ЗАПОВЕДНАЯ РОССИЯ
Transboundary fire prevention and fighting
СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ
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Министерство природных ресурсов и экологии Российской Федерации
ЗАПОВЕДНАЯ РОССИЯ
Joint research and monitoring of endangered and migrating species
© Катон-Карагайский ГНПП, 2015
Фото ирбиса с регистраторов Катон-Карагайского парка
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Министерство природных ресурсов и экологии Российской Федерации

ЗАПОВЕДНАЯ РОССИЯ

Joint studies of climate change and responses of mountain environments

One of 25 model mountain BRs to tackle climate change under UNESCO GLOCHAMORE project

Use of international monitoring protocols for combined monitoring of climate and ecosystem change

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ

Министерство природных ресурсов и экологии Российской Федерации

ЗАПОВЕДНАЯ РОССИЯ

Ecological education of local communities

- More then 10 000 participants annually

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ

Министерство природных ресурсов и экологии Российской Федерации

ЗАПОВЕДНАЯ РОССИЯ

Alternative livelihoods for local communities

- **Goal**: to support local people in raising income from development of ecological and rural tourism as an alternatve for poaching and unsustainable land use practices

Financial support of microenterprises (interest-free microcredits)

Trainings (business planning, touristic giudes, mini-hotel and camping running, financial management etc)

Assisted promotion of the good and services (special web site, catalogues at touristic fairs)

WWF citi Алтае-Саянское горное партнерство

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ЗАПОВЕДНАЯ РОССИЯ

Results over 5 years

- 255 business-plans ready to implement,
- 165 families received financial support,
- More then 600 new jobs are created

(including 113 all-year)

- Through trainings 150 people received education (and relevant university-issued diplomas) in various aspects of tourism

Фото: Т. Филиппова

UNESCO feedback

Katunsky Biosphere Reserve (Russian Federation)

The Advisory Committee welcomed this first periodic review report for this biosphere reserve designated in 2000. It noted with satisfaction the implemented changes especially in the field of participative management and coordination of the biosphere reserve through establishment of multi-stakeholder Public Council of Katunskiy Biosphere Reserve. The work focusing on sustainable development and helping with creation of alternative sources of income for local communities and for reduction of the human impact on the environment was also noted with high satisfaction and could serve as a model for other biosphere reserves.

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Министерство природных ресурсов и экологии Российской Федерации

ЗАПОВЕДНАЯ РОССИЯ

International Alliance of Protected Areas

- Methodological support
- Annual meetings and trainings
- Potential platform for cooperation under BRI

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ www.katunskiy.ru

Министерство природных ресурсов и экологии Российской Федерации

ЗАПОВЕДНАЯ РОССИЯ

International Forum "Nature Without Borders" Republic of Altai, Russia, September 2018 RESOLUTION

- 60+ participants from Russia, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Belarus and Lithuana.

- Call for activization of the international cooperation of the research institutions, protected areas, UNESCO Biosphere Reserves, NGOs and other stakeholders in the frames of the BRI for conservation of natural and cultural diversity and sustainable development of local communities,
- Regular field schools for the protected areas staff for the Central Asia states – members of the CIS to increase capacities of existing protected areas

СОХРАНИТЬ КРАСОТУ, СОЗДАННУЮ ПРИРОДОЙ www.katunskiy.ru

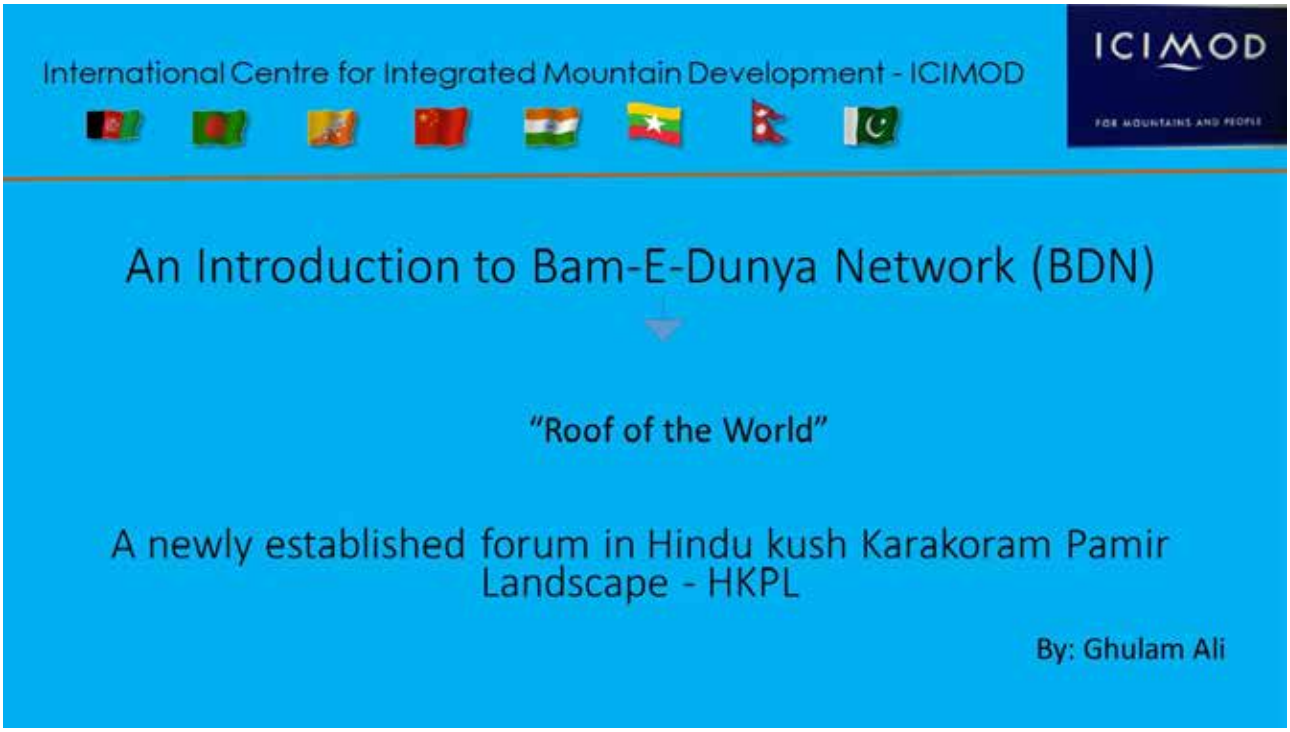
Presentation:

Dr. Ghulam Ali,
Programme Coordinator, Hindu Kush Karakoram Pamir Transboundary Landscape,
ICIMOD

"Introduction to the recently established BameDuniya Network of protected areas"

Key points:

1. The Bam-e-Duniya Protected Area Network, spanning the mountains of Central Asia (including Afghanistan, China, Pakistan, Tajikistan) was launched in September 2018.
2. The network aims to promote conservation and development with socio –economic and ecological resilience in protected areas, with particular focus on harmonizing policies and management approaches, and on facilitating the sharing of scientific data and knowledge, good practices, as well as on mutual learning to improve connectivity of biological corridors.

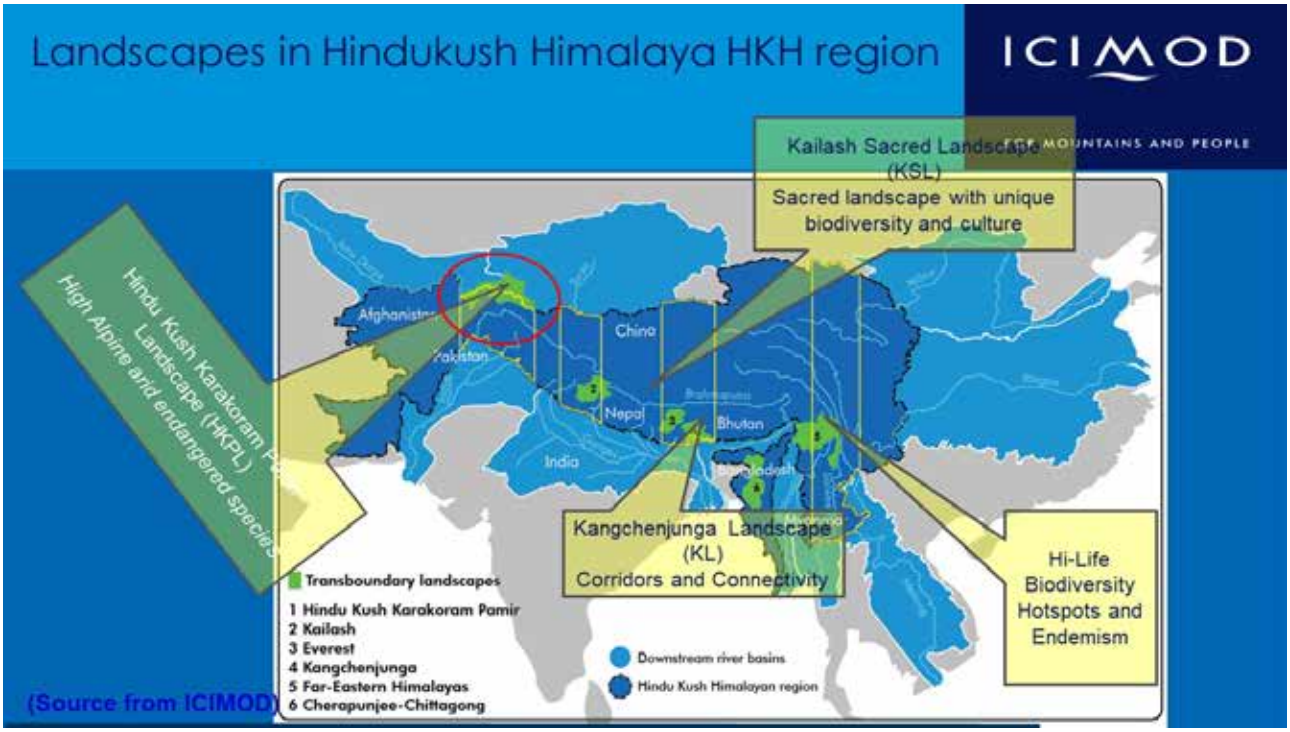


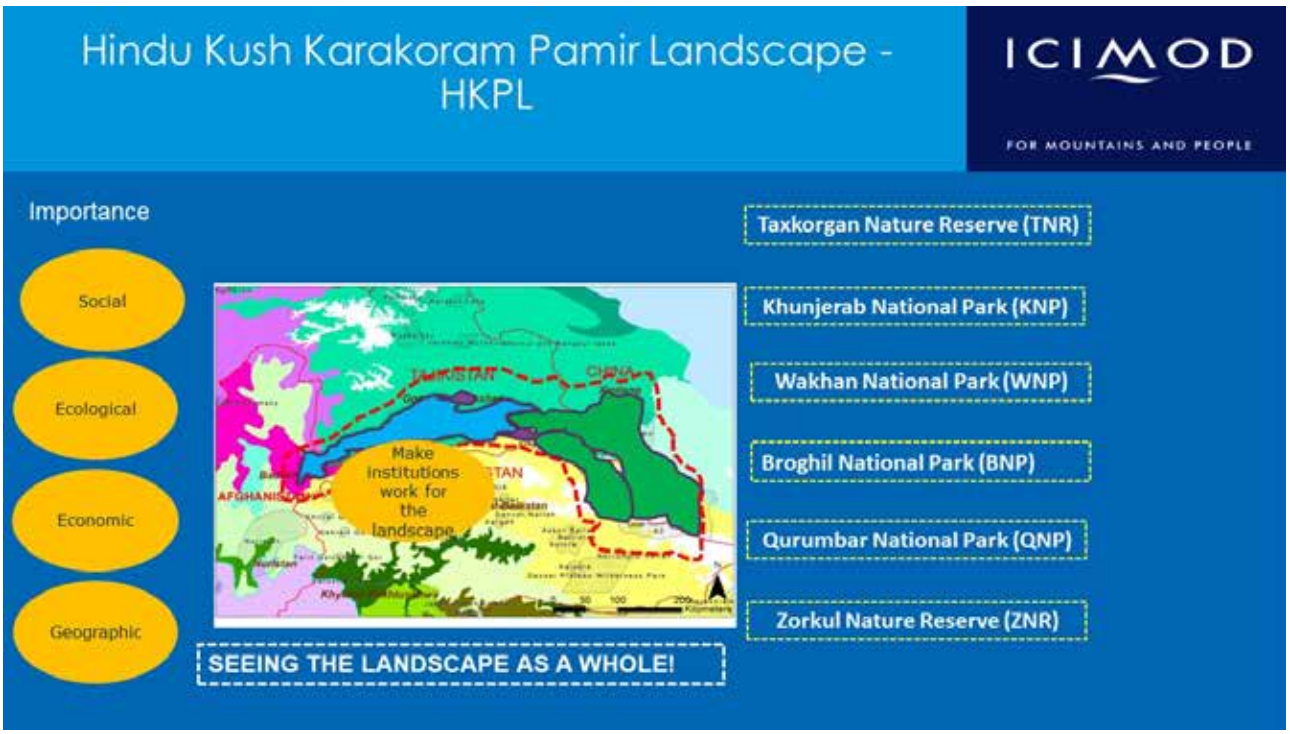

International Centre for Integrated Mountain Development – ICIMOD
Mission
To enable sustainable and resilient mountain development for improved and equitable livelihoods through knowledge and regional cooperation
Inter-governmental non-political international organization
Mountain learning, knowledge and enabling centre
Promote regional cooperation
Build capacities
Link research with policy and practice
ICIMOD

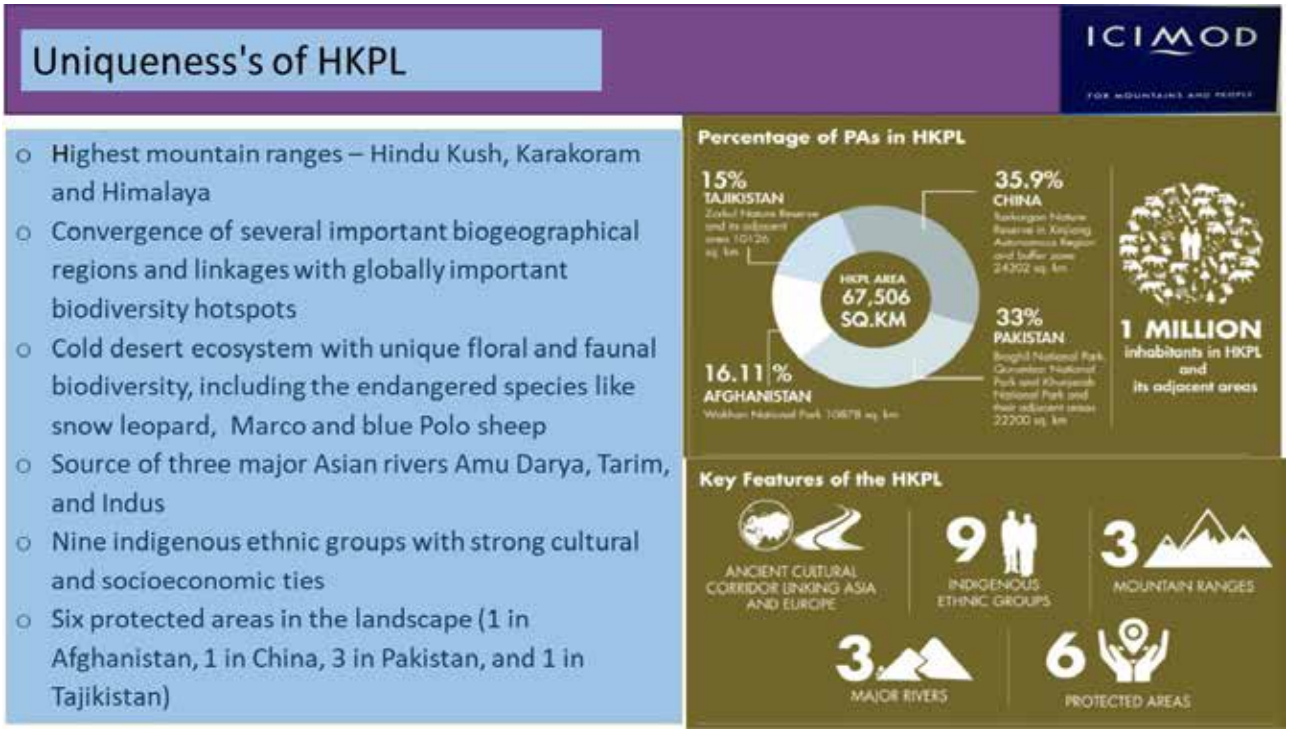

Diversity in the HKH:
Over 1,000 living languages

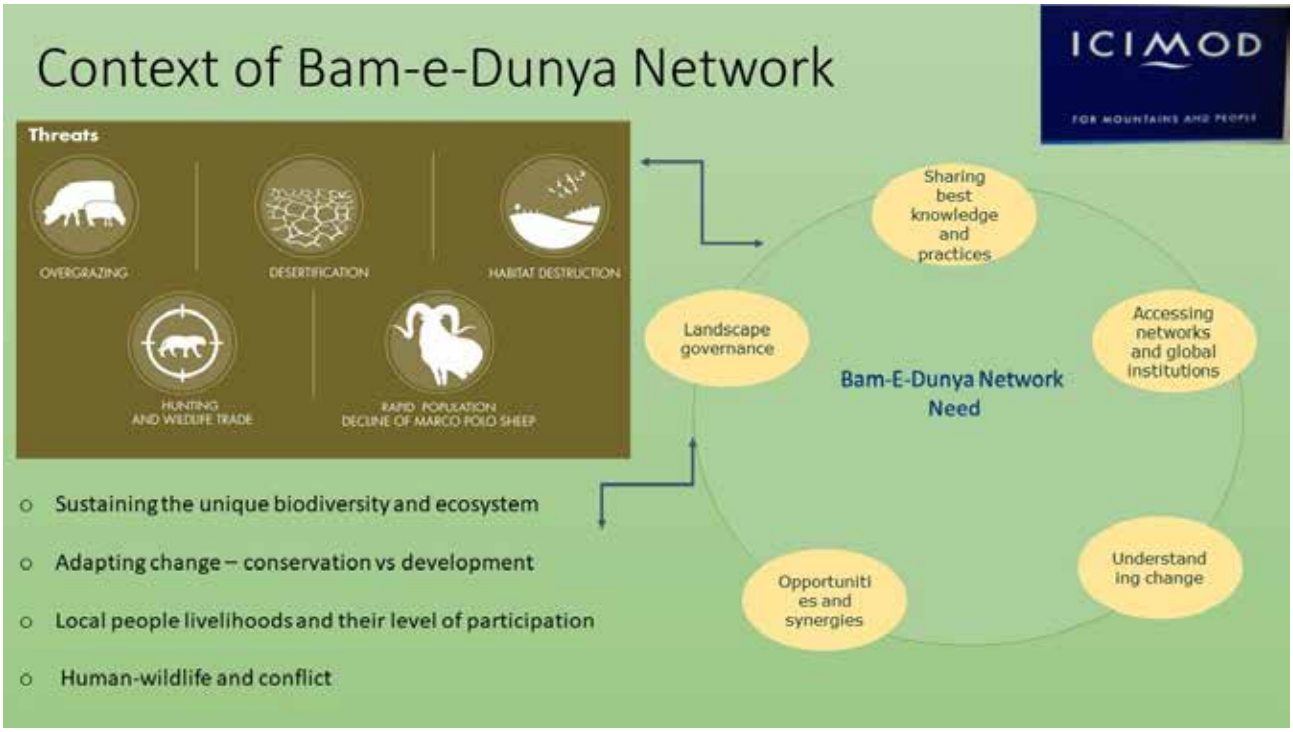

Iconic species....
ICIMOD


The living rhythms
ICIMOD
Citrine Wagtail Gilgit-Baltistan
Blue-throated Barbet (Megalaima asiatica), Jalalabad
Peregrine falcon
Bearded vulture)
Laggar falcon
Greylag Goose (Anser anser)
TRESURES


Landscapes in Hindukush Himalaya HKH region
ICIMOD
FOR MOUNTAINS AND PEOPLE
Kailash Sacred Landscape (KSL)
Sacred landscape with unique biodiversity and culture
Hindu Kush Karakoram Pamir Landscape (HKPL)
High Alpine arid endangered species
Afghanistan
Pakistan
China
Nepal
Bhutan
India
Bangladesh
Kangchenjunga Landscape (KL)
Corridors and Connectivity
Hi-Life Biodiversity Hotspots and Endemism
Transboundary landscapes
1 Hindu Kush Karakoram Pamir
2 Kailash
3 Everest
4 Kangchenjunga
5 Far-Eastern Himalayas
6 Cherapunjee-Chittagong
Downstream river basins
Hindu Kush Himalayan region
(Source from ICIMOD)


Hindu Kush Karakoram Pamir Landscape - HKPL
ICIMOD
FOR MOUNTAINS AND PEOPLE
Importance
Social
Ecological
Economic
Geographic
Make institutions work for the landscape
Taxkorgan Nature Reserve (TNR)
Khunjerab National Park (KNP)
Wakhan National Park (WNP)
Broghil National Park (BNP)
Qurumbar National Park (QNP)
Zorkul Nature Reserve (ZNR)
SEEING THE LANDSCAPE AS A WHOLE!


Uniqueness's of HKPL
ICIMOD
FOR MOUNTAINS AND PEOPLE
Highest mountain ranges – Hindu Kush, Karakoram and Himalaya
Convergence of several important biogeographical regions and linkages with globally important biodiversity hotspots
Cold desert ecosystem with unique floral and faunal biodiversity, including the endangered species like snow leopard, Marco and blue Polo sheep
Source of three major Asian rivers Amu Darya, Tarim, and Indus
Nine indigenous ethnic groups with strong cultural and socioeconomic ties
Six protected areas in the landscape (1 in Afghanistan, 1 in China, 3 in Pakistan, and 1 in Tajikistan)
Percentage of PAs in HKPL
15%
TAJIKISTAN
35.9%
CHINA
HKPL AREA
67,506
SQ.KM
33%
PAKISTAN
16.11 %
AFGHANISTAN
1 MILLION
inhabitants in HKPL
and
its adjacent areas
Key Features of the HKPL
ANCIENT CULTURAL CORRIDOR LINKING ASIA AND EUROPE
9
INDIGENOUS ETHNIC GROUPS
3
MOUNTAIN RANGES
3
MAJOR RIVERS
6
PROTECTED AREAS


Context of Bam-e-Dunya Network
ICIMOD
FOR MOUNTAINS AND PEOPLE
Threats
OVERGRAZING
DESERTIFICATION
HABITAT DESTRUCTION
HUNTING AND WILDLIFE TRADE
RAPID POPULATION DECLINE OF MARCO POLO SHEEP
Sustaining the unique biodiversity and ecosystem
Adapting change – conservation vs development
Local people livelihoods and their level of participation
Human-wildlife and conflict
Sharing best knowledge and practices
Landscape governance
Accessing networks and global institutions
Bam-E-Dunya Network Need
Opportunities and synergies
Understanding change

Highlights from Lanzhou, China

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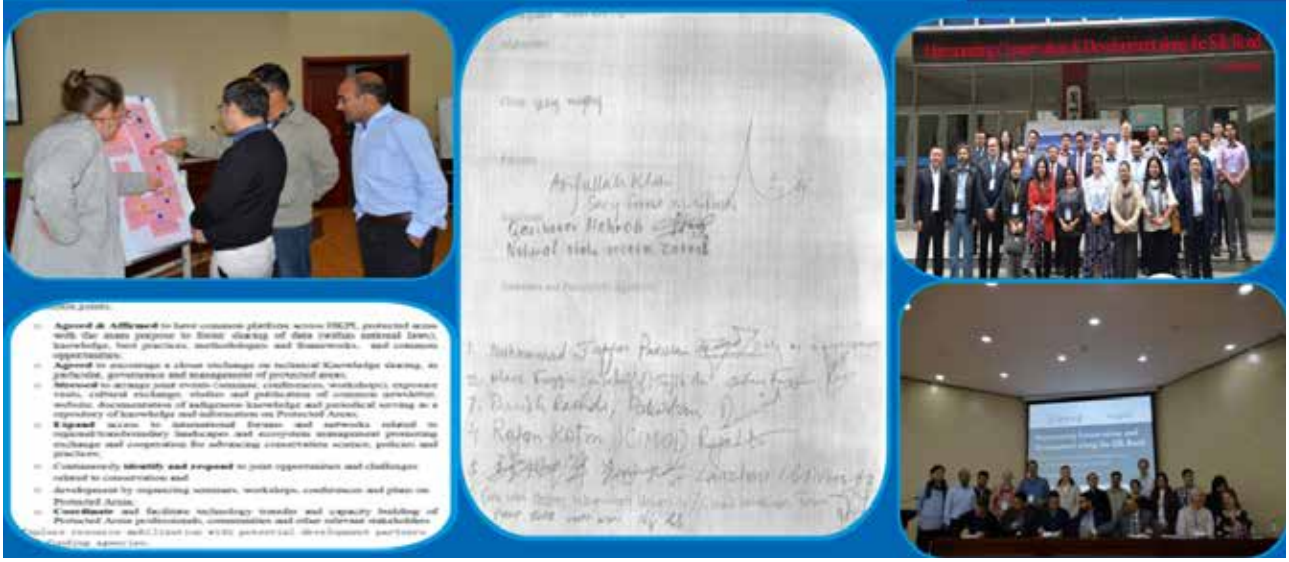
FOR MOUNTAINS AND PEOPLE



Purpose, activities and focus

ICIMOD
FOR MOUNTAINS AND PEOPLE

Purpose - collectively identified by the participants in plenary:

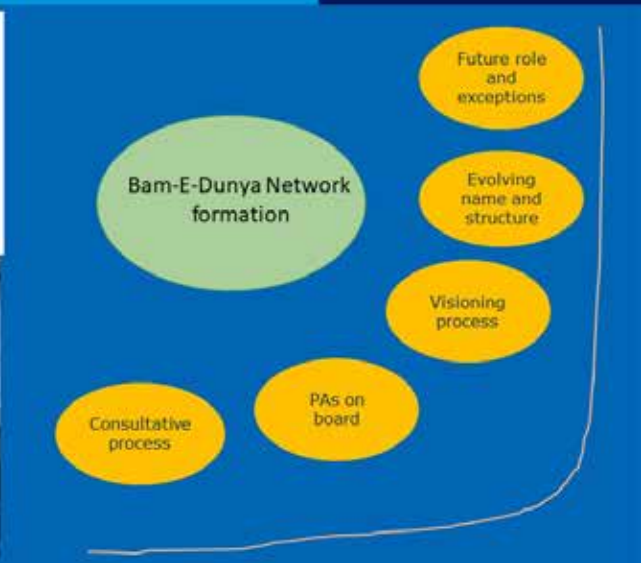
"To promote conservation and development with socio -economic and ecological resilience in PA with the particular focus on, harmonizing policies and management approaches, facilitate sharing of variety of scientific data, good practices and mutual learning to improve connectivity of biological corridors".

- Strengthen PAs;
- Promote Advocacy for PAs in the region;
- Improve Ecosystem conservation plans;
- Promote landscape management;
- Strengthen cross border collaboration;
- Harmonizing policies and frameworks;
- Corridor connectivity;
- Promote collective and mutual learnings;
- Increase Resilience to social shock/response to challenges;
- Develop safeguards to mitigate large scale development through
- strategic and environmental Assessment/valuations;
- Sharing of scientific Data and good practices;
- Facilitate Large scale as well as scoping study/joint researches;
- Social responsibility/investment;
- Clear role of government;
- Include private sector;
- Promote Tourism sustainability/local products value chain;

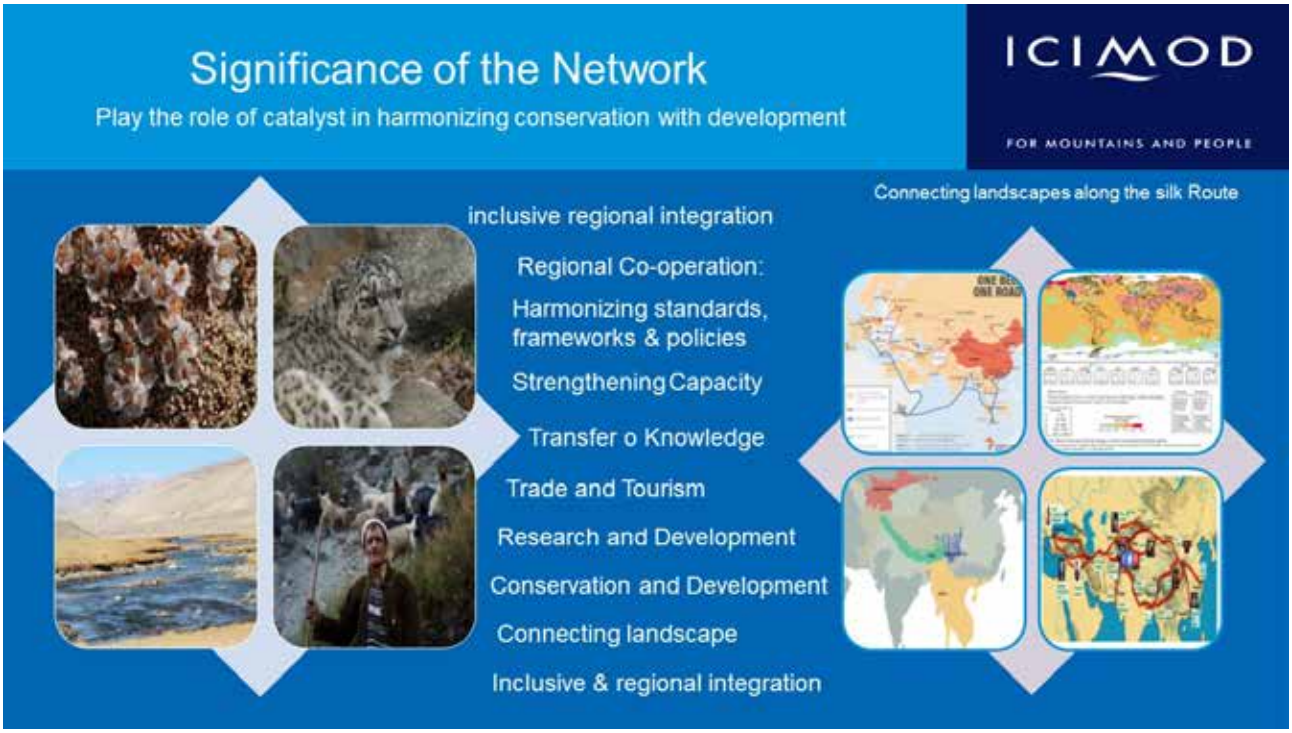
Process flow of formation of Bam-E-Dunya

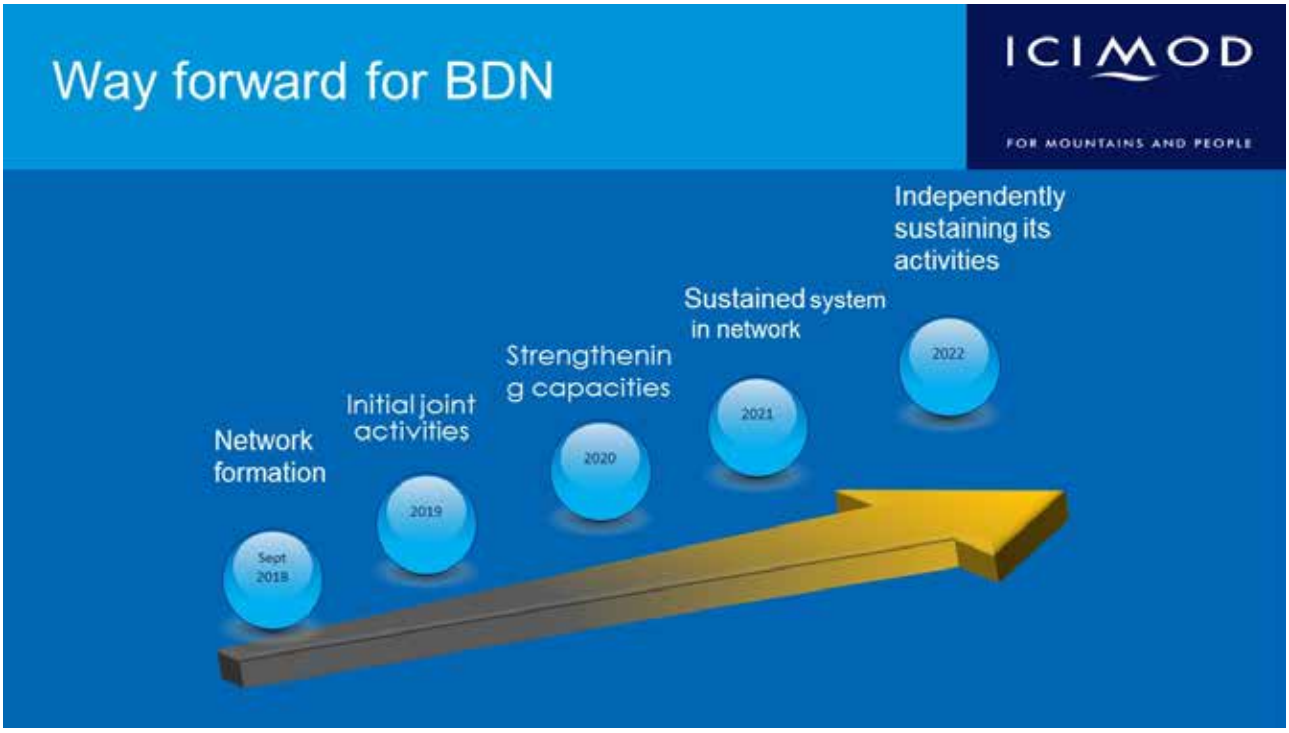
ICIMOD
FOR MOUNTAINS AND PEOPLE

- Consultative workshop
- Engagement of international expertise and institutions
- Participatory and engaging
- People, biodiversity and ecosystem as center of agenda



Structures	Commitments
Afghanistan	
PA management department	Liaison Unit mobilization of budget and resources
Wildlife executive committee (MAIL-NEPA-Universities)	Scientific/technical back stop
Wakhan – Pamir Association	Local governance support, data collection and advocacy
NGO, INGO and Private Sector	Alignment of their Development Plan with Park Management Plan
Local community to community	
China	
Taxkorgan Nature Reserve	Experimental base
Local Governments	• Communication with local government; • organize field surveys; • decision making
Kashi University	Scientific papers
Xinjiang Institute of Ecology and Geography, CAS	• Recommendations making equipment available • Data/knowledge sharing
Pakistan	
Establishment of " green Belt Green Roads" secretariat	• Data Sharing and sharing of Best practices • Policies revisions and recommendations • Revamping legislation and recommendations • Facilitation to Regional Research activities • Exchange experts from Forestry & Wildlife Department
Administrative Body • Members from LA/PA of GB and KP • Concerned Department secretaries/rep • Member from Cabinet Committee on Environment and CC	
Technical Committee • Head of concerned Departments • Rep from local communities • Rep from local Civil Societies • Rep of Research Institution/Academia	
Tajikistan	
Zorkul Nature Reserve	
UCA	


Significance of the Network
Play the role of catalyst in harmonizing conservation with development
ICIMOD
FOR MOUNTAINS AND PEOPLE
inclusive regional integration
Regional Co-operation:
Harmonizing standards, frameworks & policies
Strengthening Capacity
Transfer o Knowledge
Trade and Tourism
Research and Development
Conservation and Development
Connecting landscape
Inclusive & regional integration
Connecting landscapes along the silk Route


Way forward for BDN
ICIMOD
FOR MOUNTAINS AND PEOPLE
Network formation
Sept 2018
Initial joint activities
2019
Strengthenin g capacities
2020
Sustained system in network
2021
Independently sustaining its activities
2022

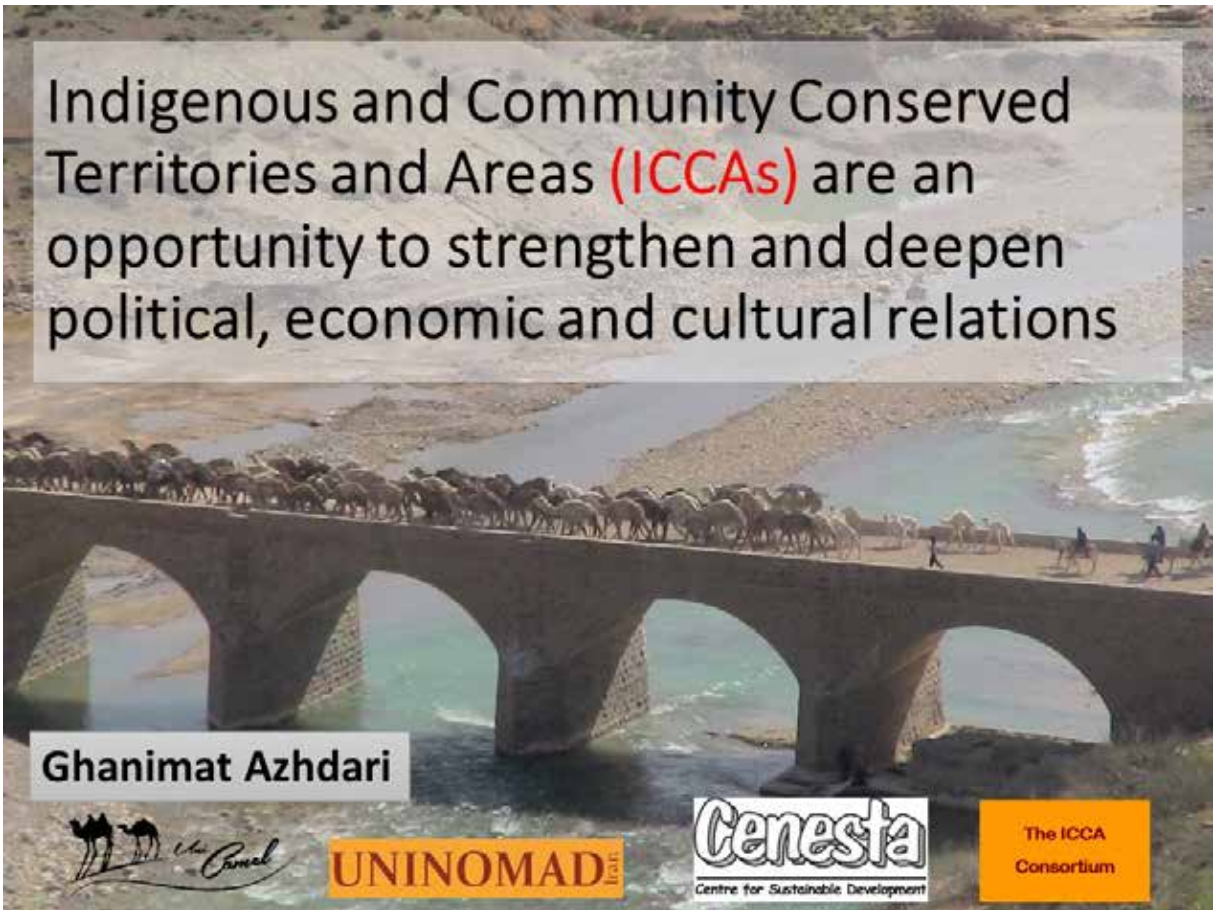
Presentation:

Ms. Ghanimat Azhdari,
Senior Expert, Cenesta & council member, ICCA Consortium

"Indigenous and Community Conserved Territories and Areas (ICCAs) are an opportunity to strengthen and deepen political, economic and cultural relations"

Key points:

1. Indigenous people and local communities are often effective custodians of biodiversity in their ICCAs-territories of life.
2. China's BRI will bring about both threats and opportunities for ICCAs in Iran. Threats such as economic dependency for IPs/LCs and compromised food sovereignty.
3. Cultural transformation associated with greater connectivity has the potential to disrupt ICCAs and would be helpful for transboundary ICCAs which are located in two or more political borders of the countries.

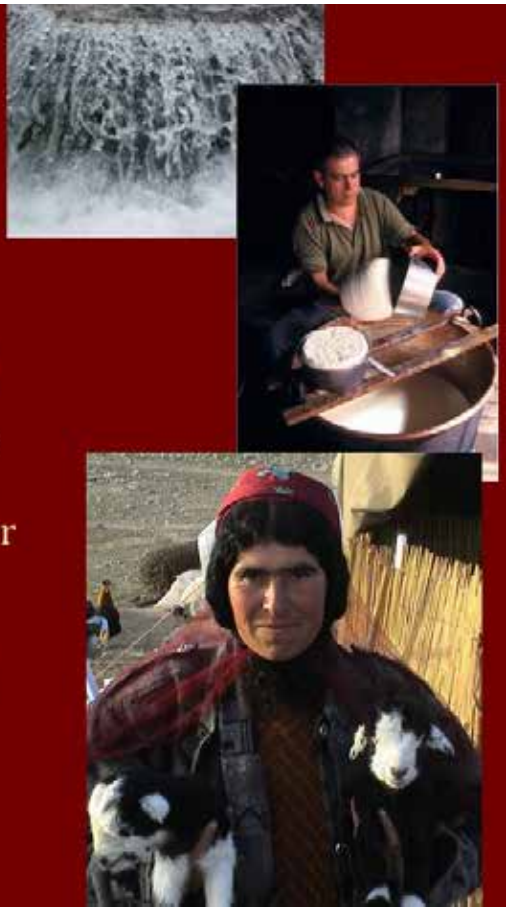



"ICCAs" is an abbreviation for:
indigenous peoples' and community conserved territories and areas
or the "jewels", the "heart", the "seeds" ...
...of bio-cultural diversity around the world!


ICCAs are found in all world regions, span all types of ecosystems and cultures, have thousands of local names and are extremely diverse...

ICCAs are successful examples of collective decision-making about nature... the oldest form of "conservation" on earth... closely related to peoples' livelihoods, culture and identity...

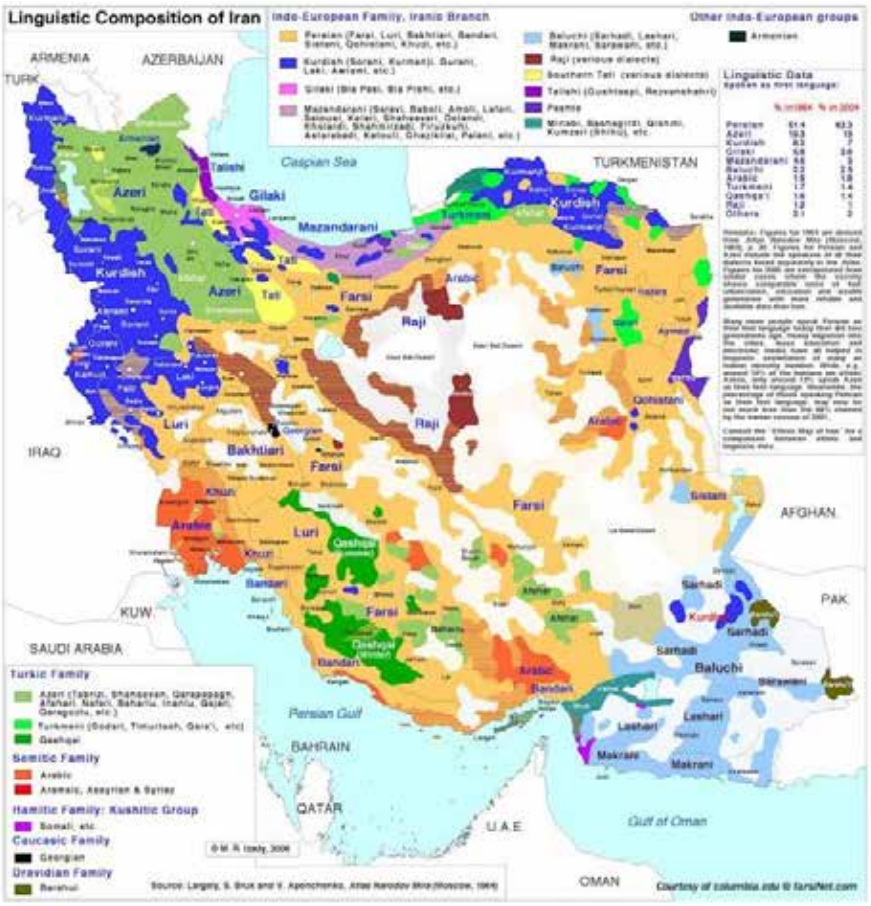
ICCAs conserve nature but also secure livelihoods... in unique ways for unique contexts...



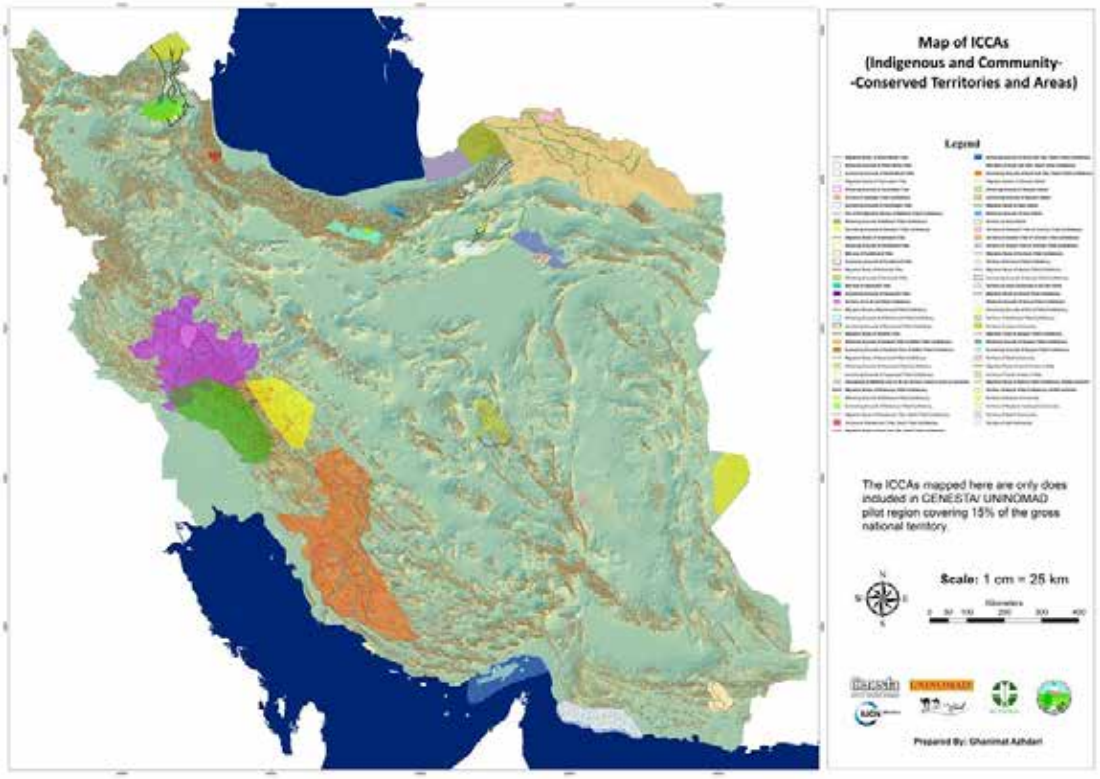
- they encompass a huge range of ecosystems, habitats , species and genetic resources, maintain ecosystem functions and provide biodiversity connectivity in the landscape/seascape
- they secure energy, food, water, fodder and income for millions of people
- their coverage has been estimated at 23% of terrestrial areas– i.e., much larger than the coverage of formal protected areas (13%)...

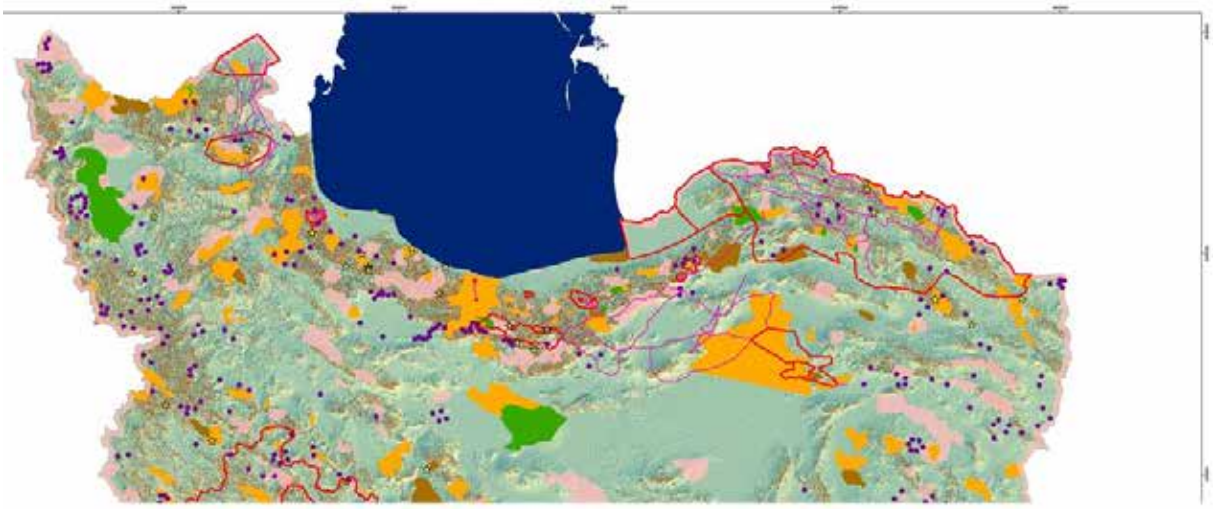
& probably more if we include defined + disrupted + desired ICCAs

Ethno-linguistic Diversity of Iran

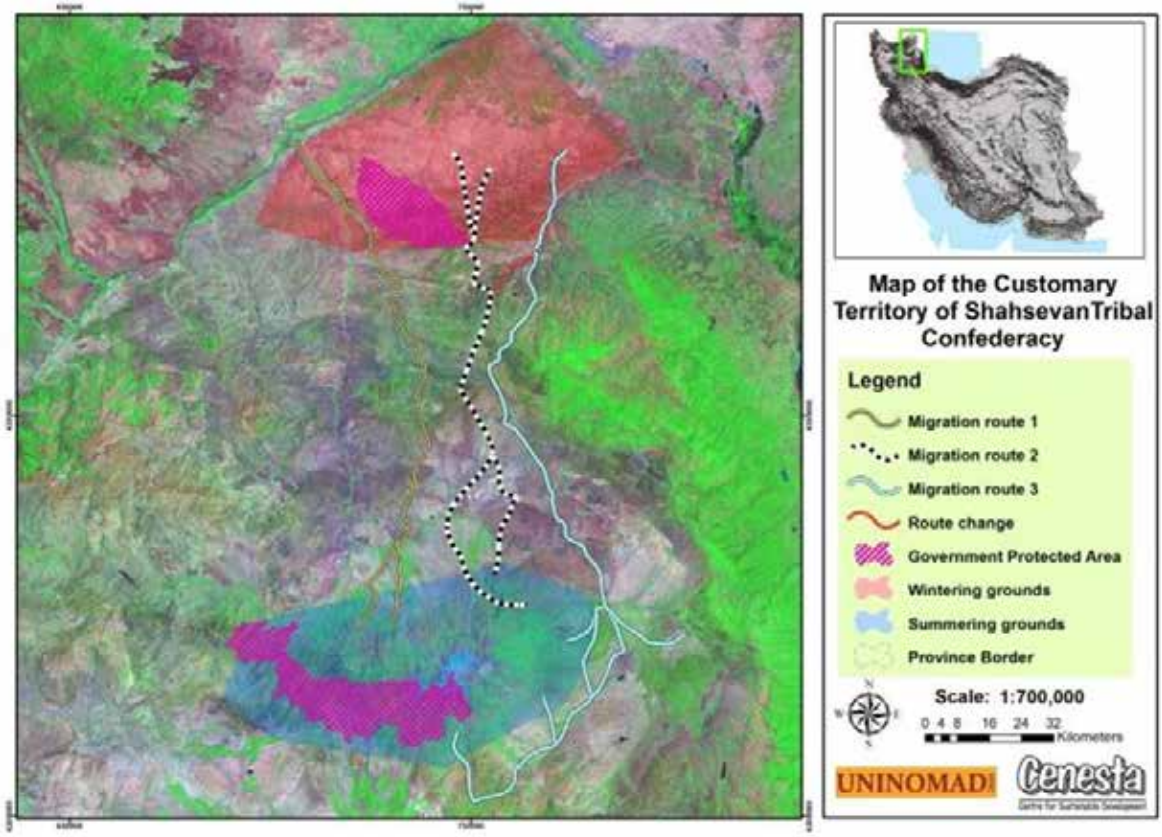


Cenesta's Pilot ICCAs





Social and ecological hotspots in Iran overlapped with BRI

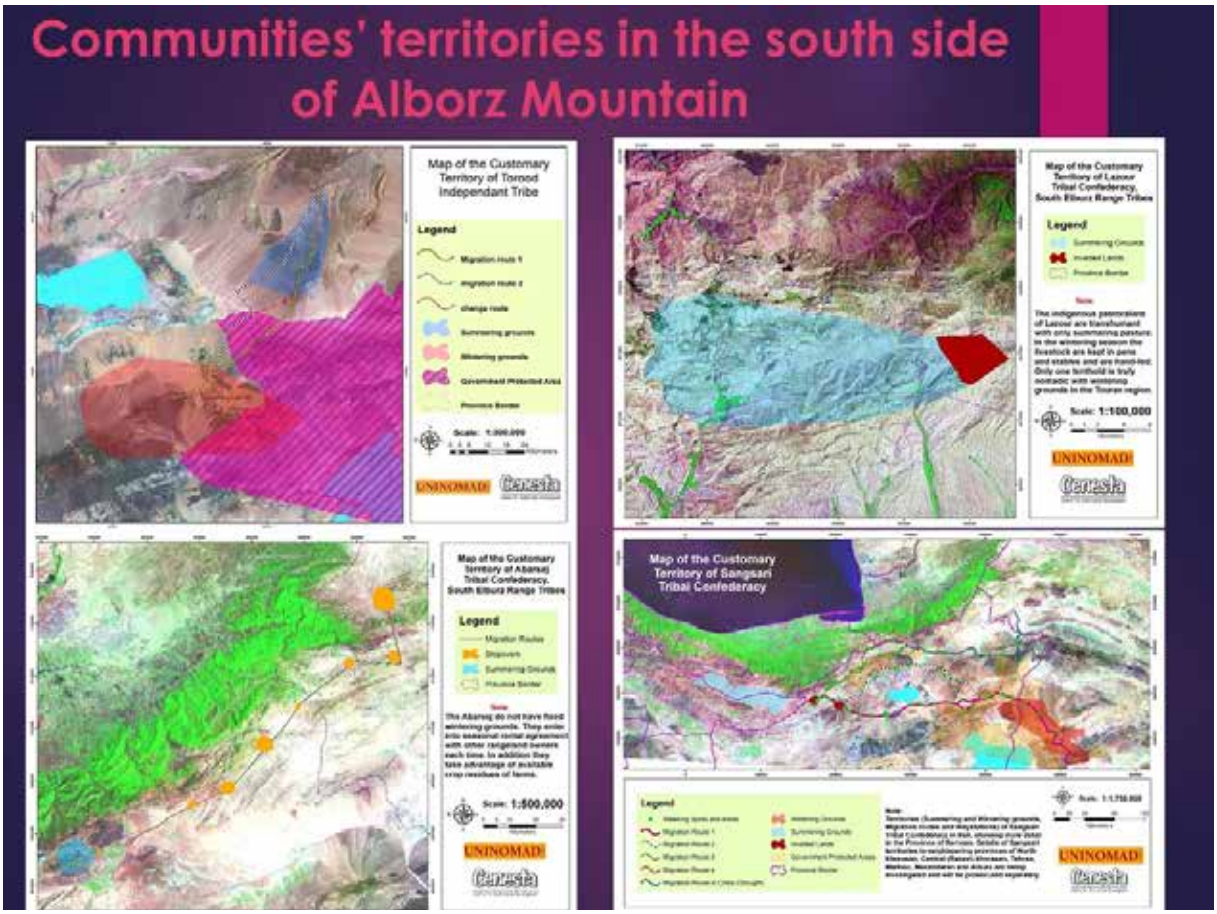


CASPIAN HYRCANIAN MIXED FORESTS

Mammal species: 98
Bird species: 296

Communities:
Talesh Tribal Confederacy
Galesh Independent Tribes

Communities' territories in the south side of Alborz Mountain



Governance

- Nomadic pastoralist lifestyle and migration for conservation and sustainable use
- Governance exerted by IPs/LCs
- Nearly the whole country used to be covered by ICCAs except for pure deserts.
- 59% of national territory is under nomadic governance (director of ONPI)

The typical nomadic governance institution

Livelihoods and economic

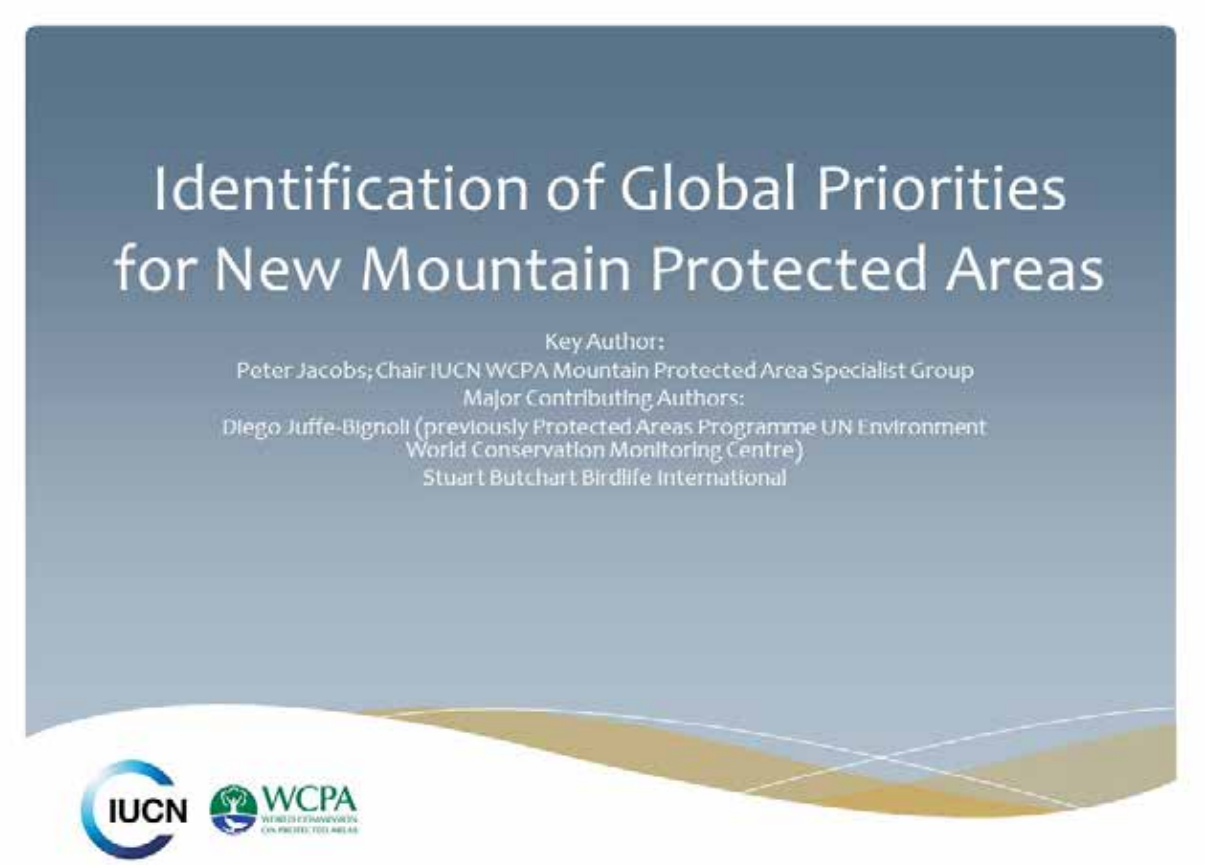
Presentation:

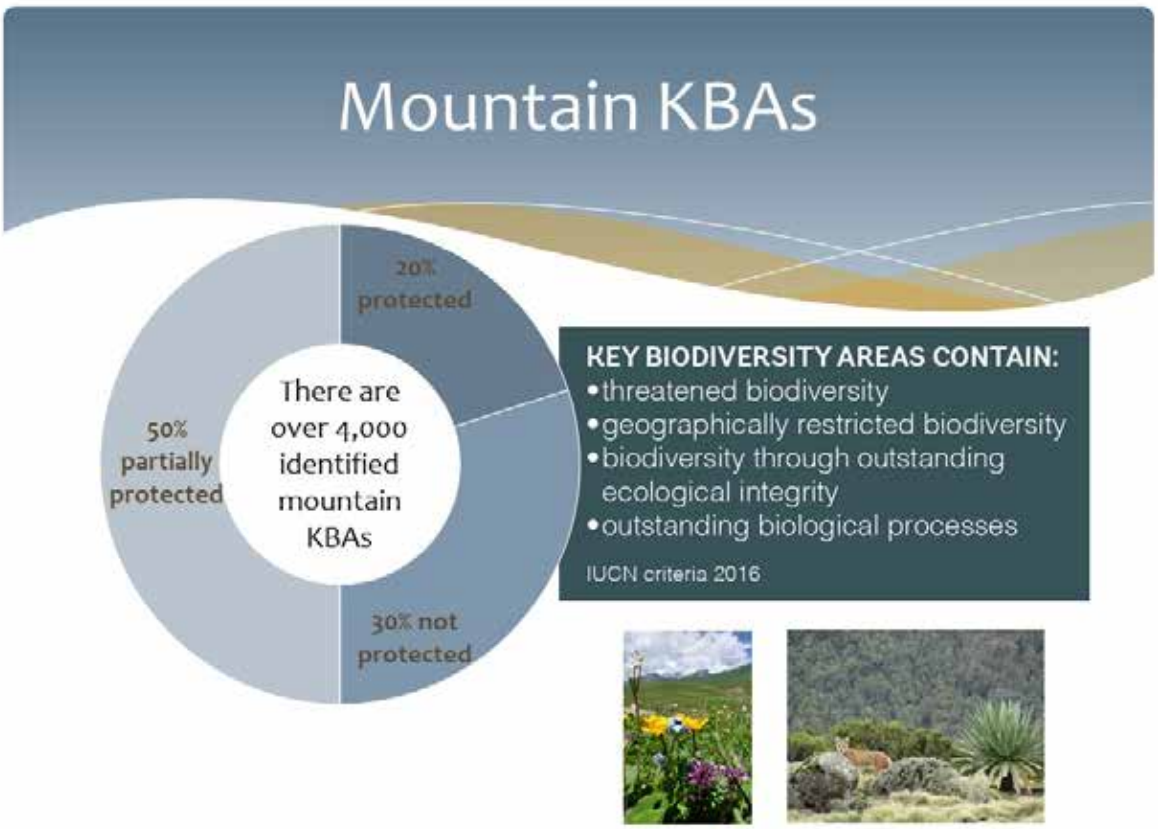
Mr. Sonigitu Ekpe,
National Focal Point (Nigeria), IUCN-WCPA

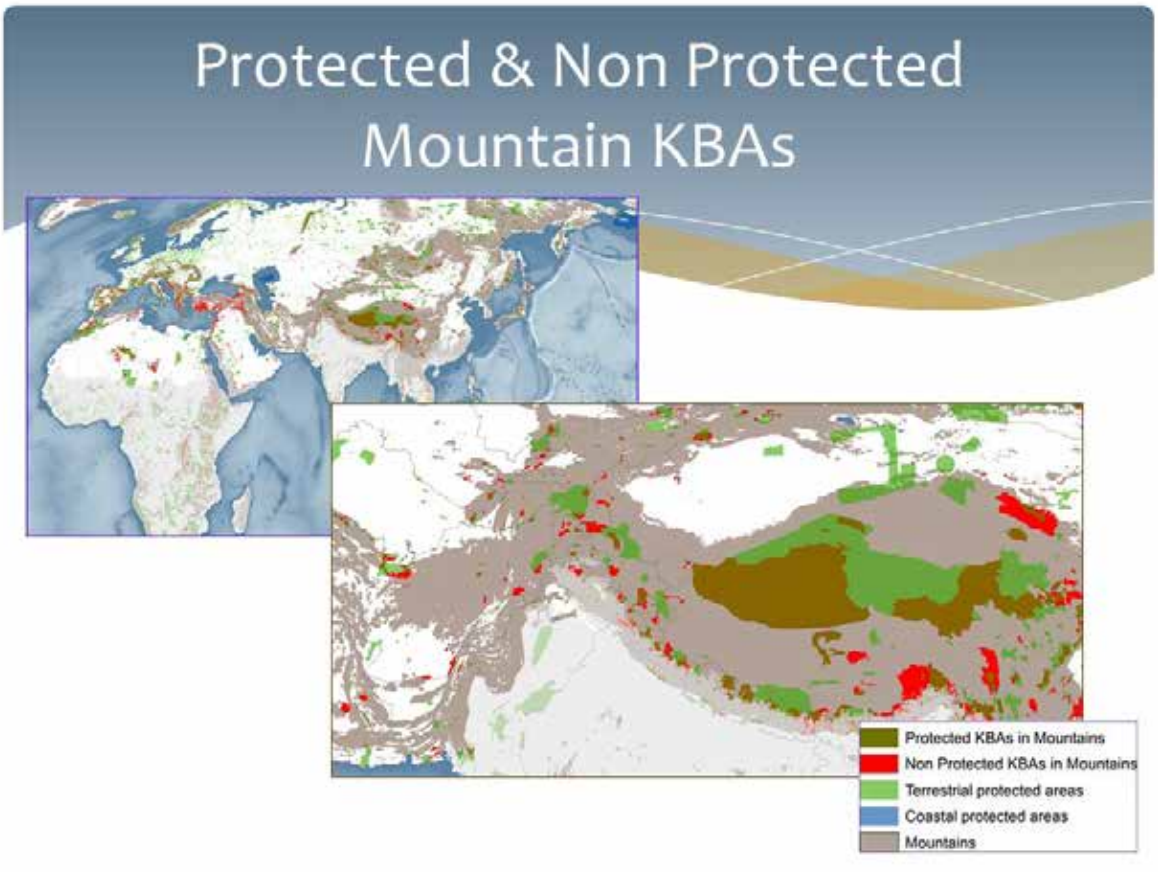
"Identification of global priorities for new mountain protected areas"

Key points:

1. IUCN's work program has categorized key biodiversity and protected areas.
2. The current project to identify global priorities for establishment of new mountain PAs has noted inadequately protected key biodiversity areas (KBAs) and areas where the WCPA Mountains Specialist Group should build strategic partnerships and focus its outreach and advocacy.
3. Future work will classify key biodiversity areas based on their contributions to human society.
4. Promote sustainable consumption and production of citizens' participation in the circular economy, this shall foster better protection of Protected Areas.




Mountain KBAs
20% protected
50% partially protected
30% not protected
There are over 4,000 identified mountain KBAs
KEY BIODIVERSITY AREAS CONTAIN:
•threatened biodiversity
•geographically restricted biodiversity
•biodiversity through outstanding ecological integrity
•outstanding biological processes
IUCN criteria 2016


Protected & Non Protected Mountain KBAs
Protected KBAs in Mountains
Non Protected KBAs in Mountains
Terrestrial protected areas
Coastal protected areas
Mountains

Central Asia Mountain KBAs & Proportion Covered by PA's

Kyrgyzstan

* Son-Kul Lake 1.0
* Lake Chatyr-Kul 0.9
* Gorge Tash-Rabat 0.0
* Karkyra Valley 0.0
* Eastern Alai 0.0
* Western Alai, Kok-Suu river 0.0

1.0 is fully protected, locations in red have no protection

Central Asia Mountain KBAs & Proportion Covered by PA's

Kazakhstan

* Big Almaty Gorge 0.0
* Aksu-Dzhabagly SNR 0.6
* Chokpak Pass 0.0
* Upper Charyn 0.0
* Assy Plateau 1.0
* Toraygyr Ridge 0.0
* Altyn-Emel National Park 0.7
* Cherdoyak 0.0
* Almaty State NR 1.0
* Markakol State NR 0.9
* Arkaly Mountains 0.0
* Karabas Mountains 0.0
* Paradise Valley mountain 0.0
* Zhagalbayly,Tuyemoynak 0.0
* Kenshektau Mountains 0.0
* Manyrak Mountains 0.3

Uzbekistan

* Mount Aktau 0.0
* Bashkyzylsay 1.0
* Angren Plateau 0.0
* Nuratau Range 0.6
* Dzhum-Dzhum 0.0
* Kurama Mountain Range 0.0
* Chatkal Mountains BR 1.0
* Sarmysh Nature Park 0.0
* Pulatkhan Gorge 1.0
* Oygaing River Valley 1.0
* Darasay Gorge 0.0
* Sherabad River 0.0
* South-west Gizzar Foothills 0.0
* Gissar State Nature Reserve 0.6

Central Asia Mountain KBAs & Proportion Covered by PA's

Turkmenistan

Koytendag	0.7
Sumbar	0.2
Dushakerekdag	0.0
Gurykhovudan	0.2
Kurtusuv - Khovudan	0.4
Badhyz	0.4
Garachop	0.0
Uly Balkan	0.0
Kurendag - Garagoz	0.0

Afganistan

Big Pamir	0.9
Small Pamir	0.0
Salang Kotal	0.0
Pech and Waygal valleys	0.0
Bande Amir	1.0
Safed Koh	0.0
Dashte Nawar	0.0
Paghman Mountains	0.0

Central Asia Mountain KBAs & Proportion Covered by PA's

Tajikistan

Zorkul Nature Reserve (Lake Victoria)	0.1
Karakul lake and mountains	1.0
Rangkul valley	0.0
Kayrakkum Reservoir	0.4
Dzhavshangoz	0.0
Kondara Gorge	0.0
Iskanderkul lake and mountains	0.5
Drumkul Lake	0.0
Aktash massif	0.2
Mogoltau massif	0.0
Dangara massif	0.0
Kulikalon Lakes	0.0
Ishkashim	0.0
Dashtidjum	0.5
Kattasay and Daganasay Reservoirs	0.0
Sarazm	

Project Aim

Identify:

* Inadequately protected KBAs within the world's mountains that are *priorities* for promoting protected area status
* Priority areas for the WCPA Mountains Specialist Group to establish partners and focus advocacy

4 step process proposed



Step 1 Determine inadequately protected KBAs from mountain database

Mountain KBA more than 80% protected?

YES

No further action for Mountains SG for now, however management effectiveness evaluation may be prudent
Category L

NO

Mountain KBA more than 50% but less than 80% protected?

YES

Reserve list for consideration in later stages of project.
Category K

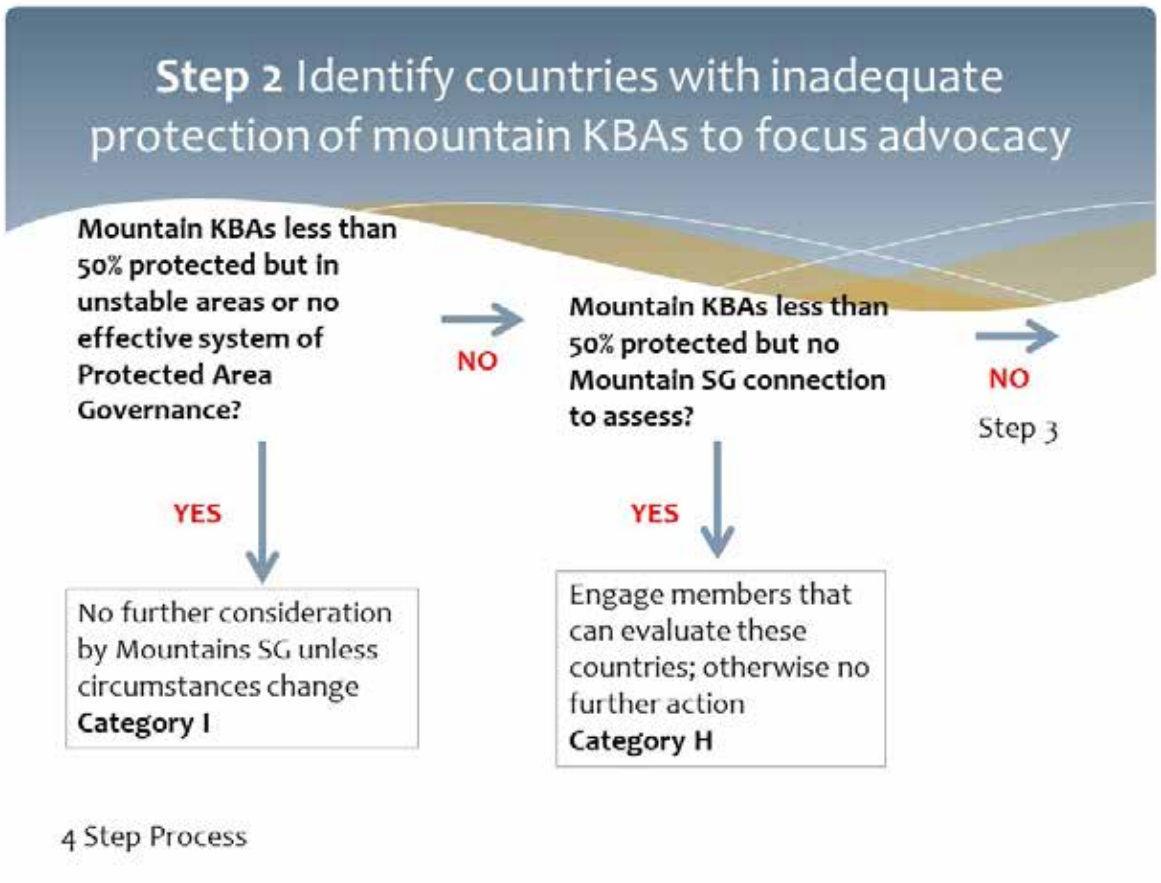
NO

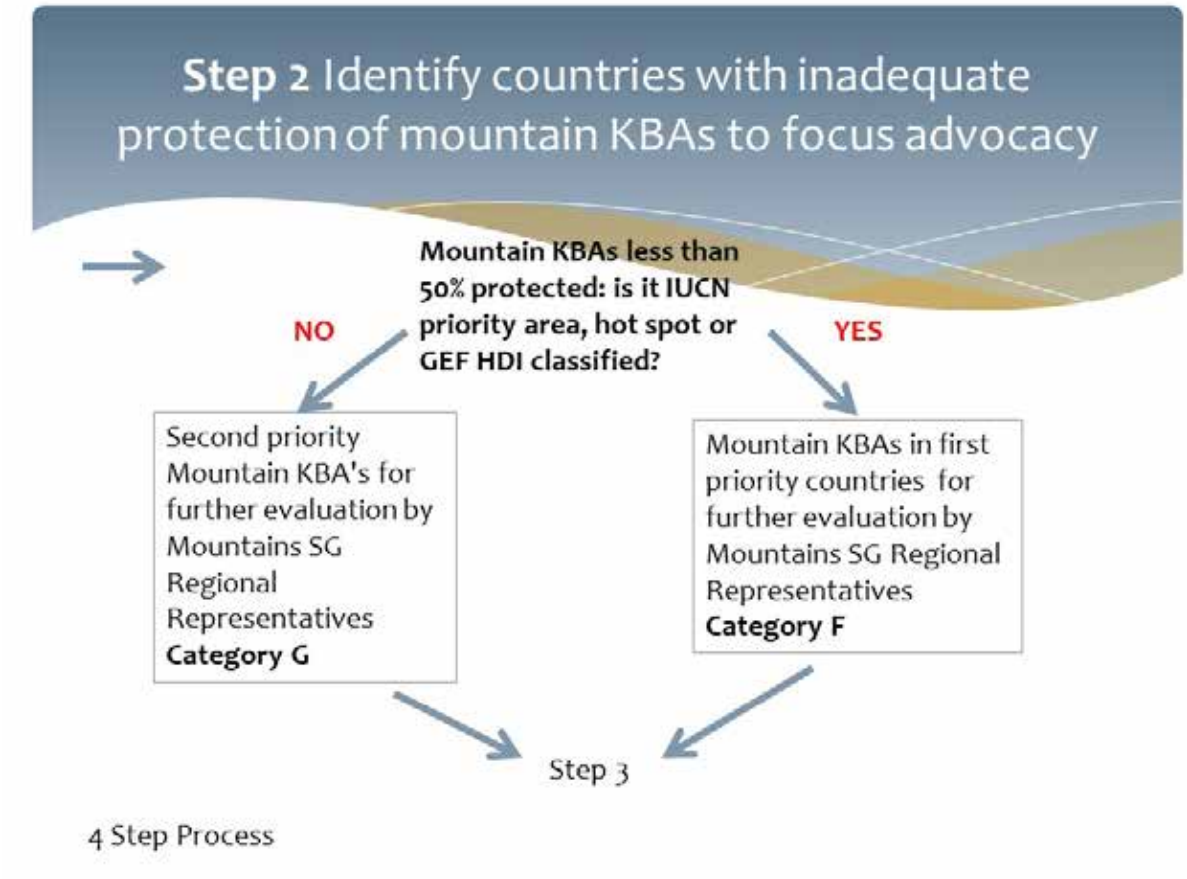
List of inadequately protected Mountain KBA's (2000 sites)
Category J

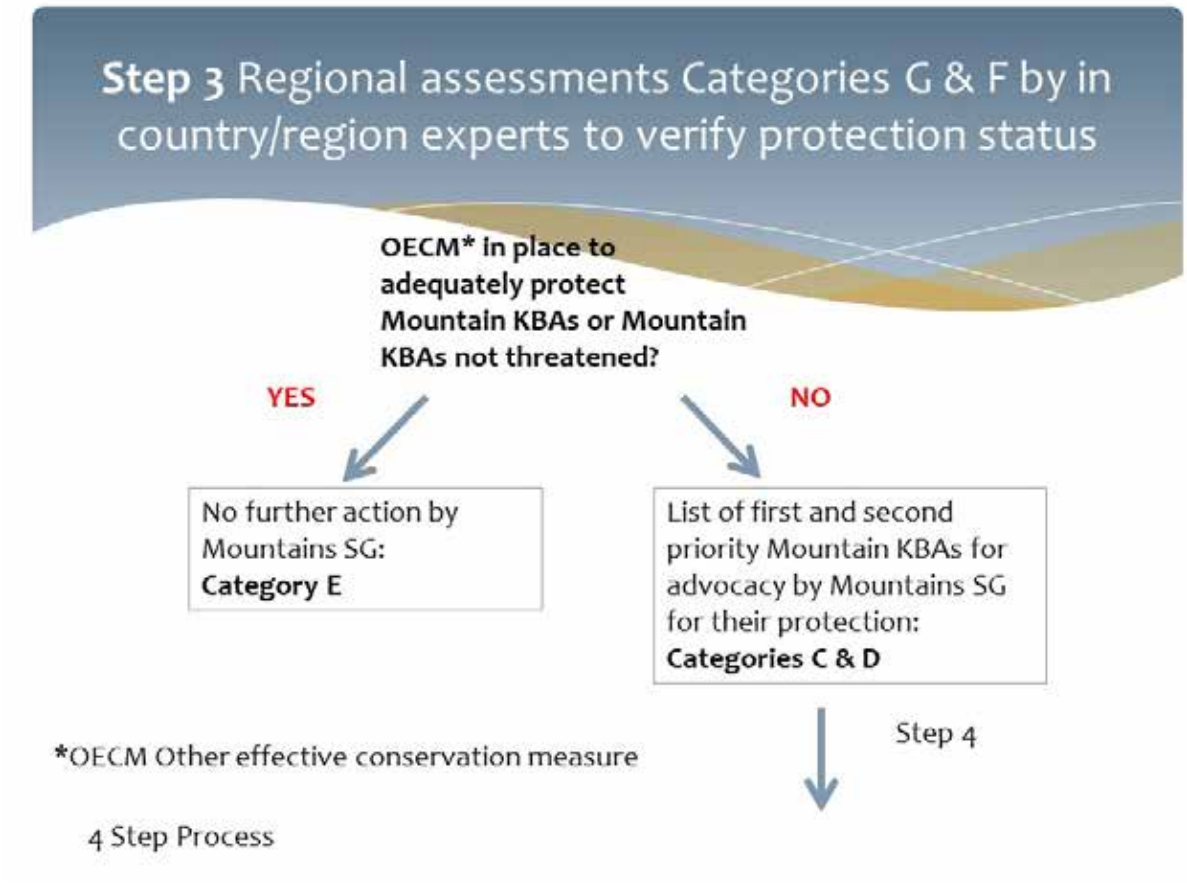
Step 2

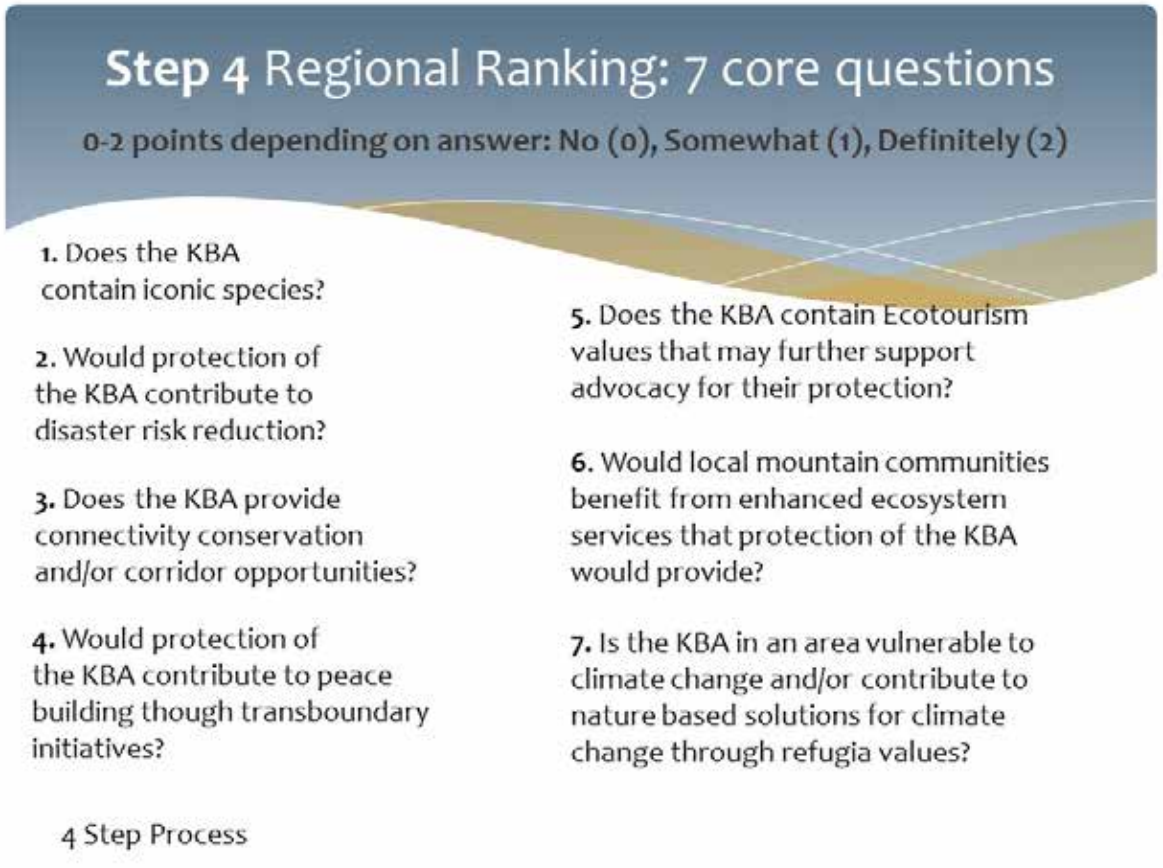
Data from WCMC and Birdlife Australia database of Key Biodiversity Areas

4 Step Process


Step 2 Identify countries with inadequate protection of mountain KBAs to focus advocacy
Mountain KBAs less than 50% protected but in unstable areas or no effective system of Protected Area Governance?
NO
Mountain KBAs less than 50% protected but no Mountain SG connection to assess?
NO
Step 3
YES
No further consideration by Mountains SG unless circumstances change
Category I
YES
Engage members that can evaluate these countries; otherwise no further action
Category H
4 Step Process


Step 2 Identify countries with inadequate protection of mountain KBAs to focus advocacy
Mountain KBAs less than 50% protected: is it IUCN priority area, hot spot or GEF HDI classified?
NO
YES
Second priority Mountain KBA's for further evaluation by Mountains SG Regional Representatives
Category G
Mountain KBAs in first priority countries for further evaluation by Mountains SG Regional Representatives
Category F
Step 3
4 Step Process


Step 3 Regional assessments Categories G & F by in country/region experts to verify protection status
OECM* in place to adequately protect Mountain KBAs or Mountain KBAs not threatened?
YES
NO
No further action by Mountains SG: Category E
List of first and second priority Mountain KBAs for advocacy by Mountains SG for their protection: Categories C & D
Step 4
*OECM Other effective conservation measure
4 Step Process


Step 4 Regional Ranking: 7 core questions
0-2 points depending on answer: No (0), Somewhat (1), Definitely (2)
1. Does the KBA contain iconic species?
2. Would protection of the KBA contribute to disaster risk reduction?
3. Does the KBA provide connectivity conservation and/or corridor opportunities?
4. Would protection of the KBA contribute to peace building though transboundary initiatives?
5. Does the KBA contain Ecotourism values that may further support advocacy for their protection?
6. Would local mountain communities benefit from enhanced ecosystem services that protection of the KBA would provide?
7. Is the KBA in an area vulnerable to climate change and/or contribute to nature based solutions for climate change through refugia values?
4 Step Process

Step 4 Regional assessments by in country/region experts to rank and prioritize Mountains KBAs for action

First priority list ranked in order of priority for advocacy based on importance in contributing to the wider values of the protected area network by application of criteria: **Category A**

Second priority list ranked in order of priority for advocacy based on importance in contributing to the wider values of the protected area network by application of criteria: **Category B**

4 Step Process

Summary & Conclusion

* 17% of Mountain areas are protected globally, however there are many high value mountain areas not adequately protected
* **Key Biodiversity Areas** (KBAs) are one way of identifying values and inadequately protected areas
* There are often **complex reasons** why some areas are not protected
* **Local knowledge** is crucial in assessing priorities and verifying data
* This **draft process** aims to identify key priorities for advocacy by IUCN WCPA Mountain Specialist Group

Session 4: Lesssons Learned & Policy Recommendations

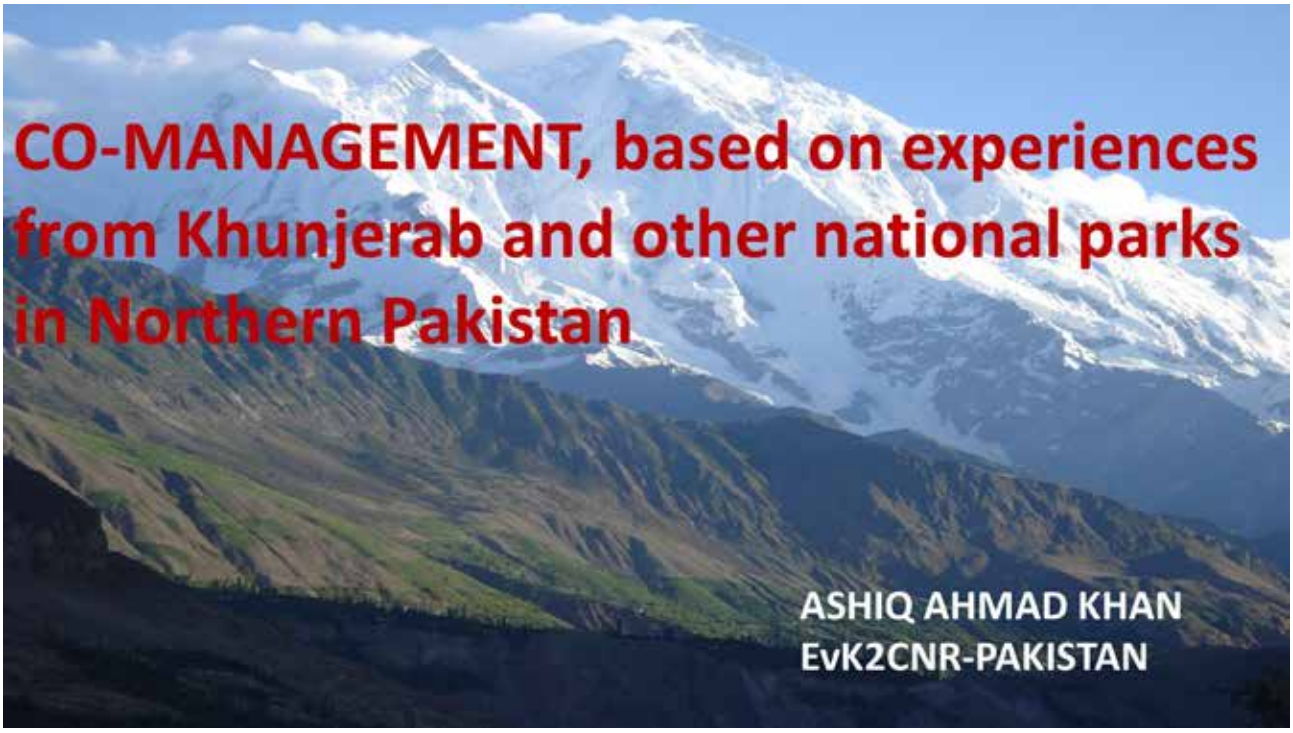
Chair: Mr. Wali Modaqiq

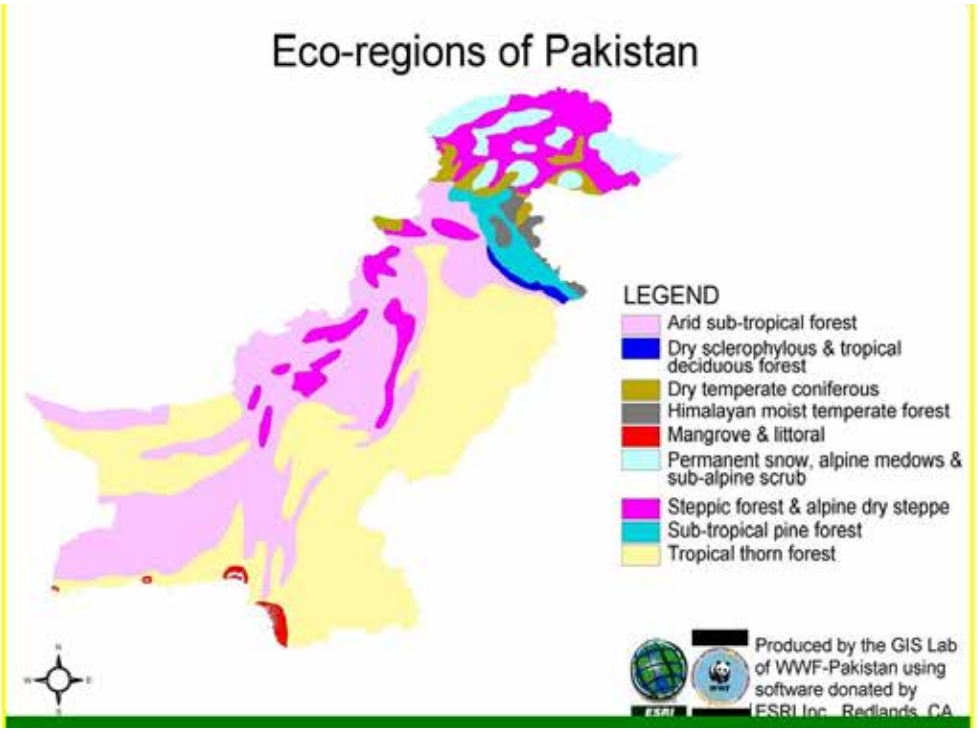
Presentation:
Mr. Ashiq Khan,
IUCN WCPA Regional Representative (South Asia)

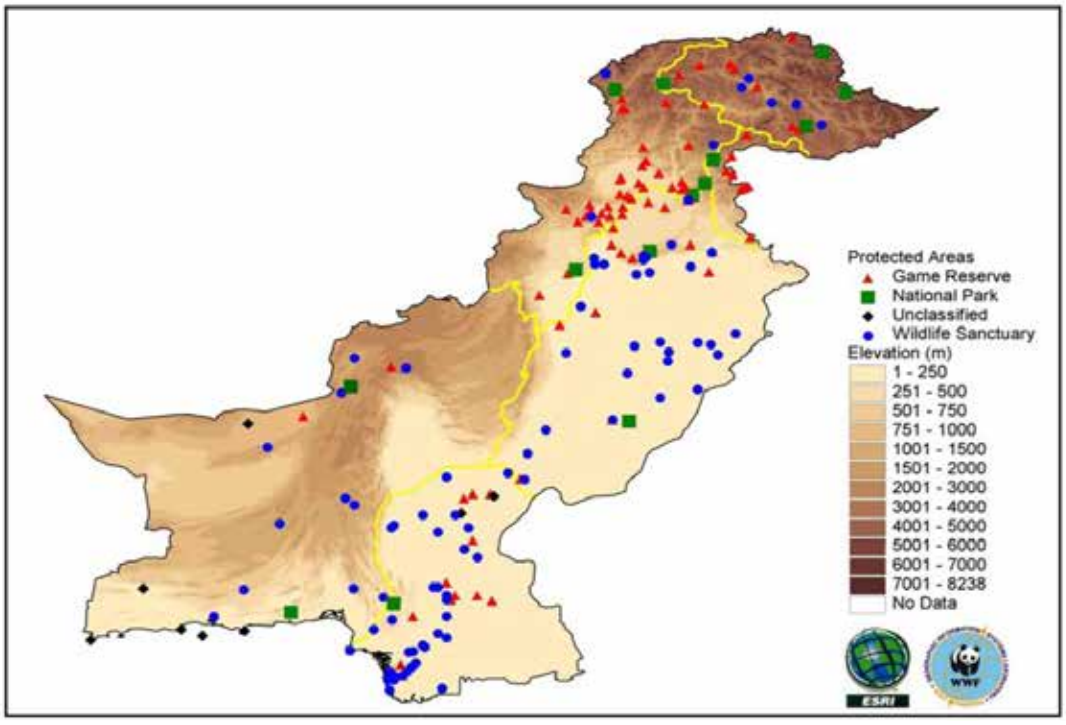
"Lessons in Co-management, based on experiences from Khunjerab and other national parks in Northern Pakistan"

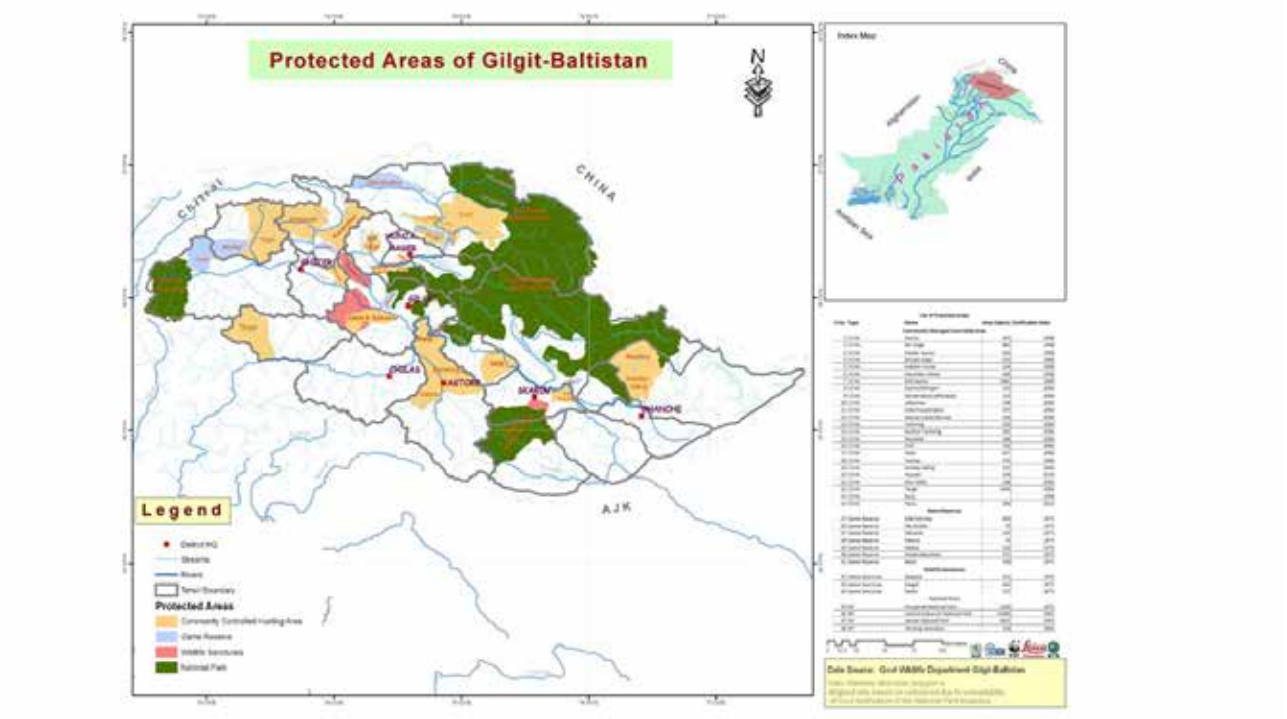
Key points:

1. Community co-management of protected areas for conservation of biodiversity in Pakistan operates under agreed partnership arrangements between the government and custodian communities.
2. Historically, lack of social considerations, not technical, have led to management gaps in Pakistani National Parks.
3. Long-term, adaptive and context specific partnerships with local communities, which respect and foster customary rights and traditions, are essential for successful co-management of protected areas.




Eco-regions of Pakistan
LEGEND
Arid sub-tropical forest
Dry sclerophylous & tropical deciduous forest
Dry temperate coniferous
Himalayan moist temperate forest
Mangrove & littoral
Permanent snow, alpine medows & sub-alpine scrub
Steppic forest & alpine dry steppe
Sub-tropical pine forest
Tropical thorn forest
Produced by the GIS Lab of WWF-Pakistan using software donated by


Protected Areas
Game Reserve
National Park
Unclassified
Wildlife Sanctuary
Elevation (m)
1 - 250
251 - 500
501 - 750
751 - 1000
1001 - 1500
1501 - 2000
2001 - 3000
3001 - 4000
4001 - 5000
5001 - 6000
6001 - 7000
7001 - 8238
No Data



EXISTING CATEGORIES OF NATURAL RESOURCE MANAGEMENT IN PAKISTAN

1. Exclusive management of Natural Resources by the Government under statuary laws

2. Management of Forests on private lands where forests are owned by people but managed by Government

3. *Co-management* of Natural Resources under an agreed partnership between government and custodian community

Existing nomenclature of Protected Areas in Northern Pakistan

National Parks(Statuary laws)
Wildlife Sanctuaries (Statuary laws)
Protected Forests(Statuary Laws)
Game Reserves (statuary laws + customary practices)
Community managed/Conservation areas (Co-management)

MANAGEMENT RESPONSIBILITY OF NATIONAL PARKS IN PAKISTAN

Creation and management of National Parks is the exclusive right and responsibility of respective provincial/Federal governments under the Wildlife Protection Rules 1975 and subsequent amendments

MAJOR GAPS IN THE CREATION AND SUBSEQUENT MANAGEMENT OF NPs IN THE SOCIAL PERSPECTIVES (NOT TECHNICAL)

- Majority of the sites under National Parks remained occupied by people, centuries before these were decreed as National Parks

- People were neither:
  - -Consulted for their consent
  - -nor Compensated for their existing rights and concessions
  - -nor made aware about their future roles in these

The Results are obvious

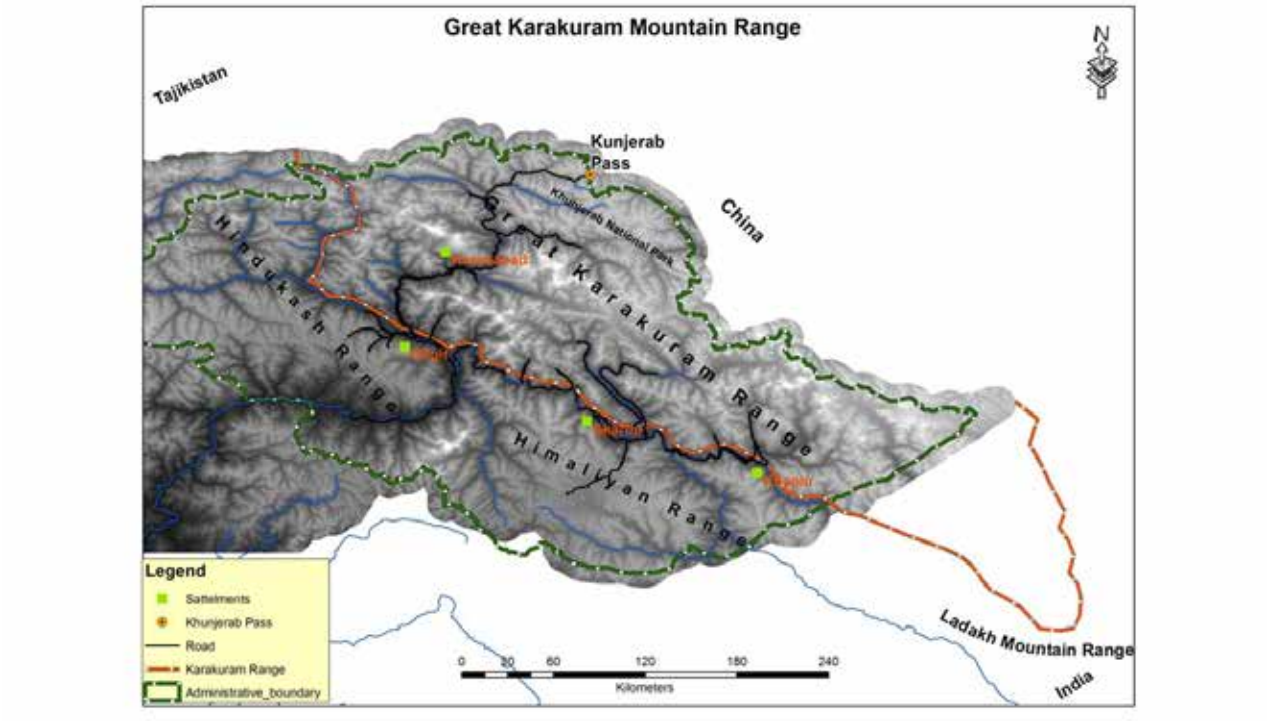
NO ENDING CONFLICTS

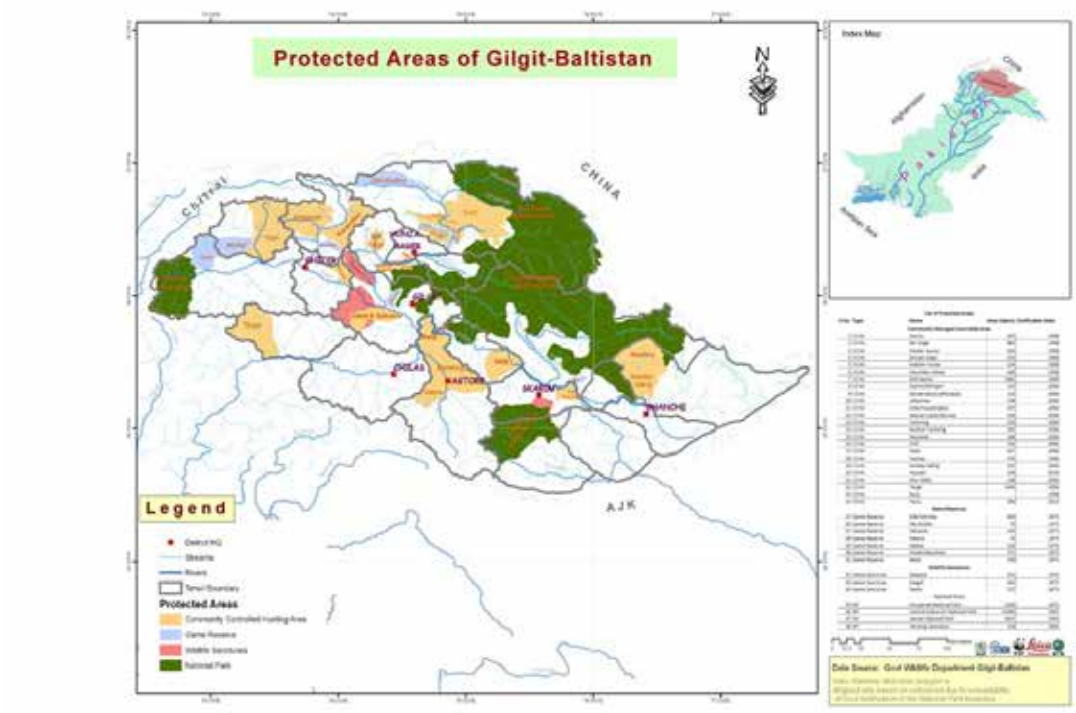
- Absolute resistance to the management planning with subsequent implementation of rules that had to stop certain activities by the stakeholders

(The level of resistance and demands being dependent upon the level of unity and organizational strength of the respective community)

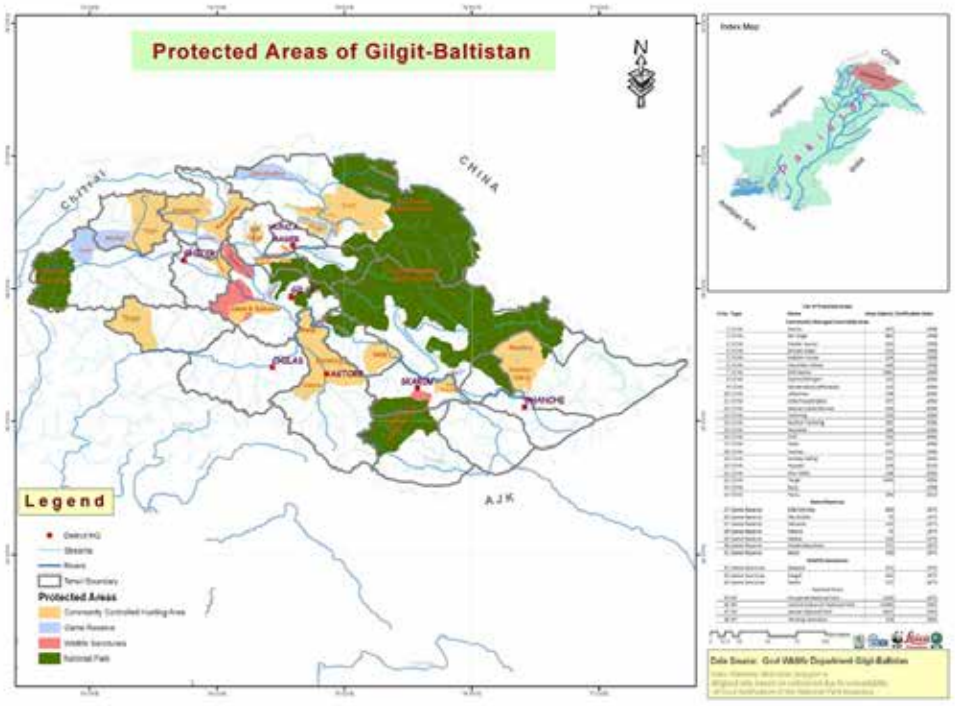
With this back ground....

NATIONAL PARKS AND OTHER PROTECTED AREAS OF THE NORTHERN PAKISTAN


Great Karakuram Mountain Range
Tajikistan
Kunjerab Pass
China
Khunjerab National Park
Hindukash Range
Great Karakuram Range
Himalayan Range
Ladakh Mountain Range
India
Legend
Settelments
Khunjerab Pass
Road
Karakuram Range
Administrative_boundary
0 30 60 120 180 240
Kilometers


Protected Areas of Gilgit-Baltistan
CHINA
Chitral
AJK
Legend
Protected Areas

KHUNJERAB(Khunjerav) NATIONAL PARK (KNP)-A CLASSIC EXAMPLE OF CONFLICTS AND SURVIVAL THROUGH CO-MANAGEMENT



A BRIEF HISTORY OF THE CONFLICT

- Although decreed in 1975, the custodian community didn't accept KNP as a National Park primarily because they could only see the loss of their grazing rights AND no benefits at all.

- Being well organized and united, the custodian community did not only strongly opposed the existence of a National Park over their grazing lands but even challenged it in the court of law.

- Realizing the fatal impacts of this conflict on other National Parks, I volunteered to mediate in between and put the possible solution of a co-management approach for the mutual agreement of stakeholders.

- The proposed agreement was a combination of incentives and disincentives. Where as the people accepted the responsibly of protecting wildlife and their habitats, they had access to lion share of the revenue from tax on entry to the park; and community conservation model(trophy hunting) in the buffer of KNP that I had already established in another valley for protecting Ibex and Snow leopards.
- This was agreed after a series of consultations with both the Government and community

- Based on the agreement, a management plan was formulated that was the first example of co-management in Pakistan. The plan was approved by the Federal Government in 1996.

- As of to-day, out of the total 96 actions, prescribed by the plan for KNP, 17 % have totally been done, 45 %partially done, while 39% are yet to be done

MAJOR LESSONS

- In populous countries like Pakistan, creating and managing protected areas shall remain an uphill journey till combined with livelihood options and opportunities also
- Whatever is possible to be protected today, may not be that easy tomorrow
- Out of the available options, co-management is more appropriate, specially on candidate sites that are burdened with the traditional rights and concessions of uses.
- Irrespective of the degree of success of a co-management initiative, results may get diluted over time if regular contacts with custodian community are not maintained.
- There is no single recipe to make a co-management initiative rather successful, needful modifications are essential in the approach to address different situations arising from different social responses of the custodian community

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SPECIAL WORKSHOP

Identifying areas and sectors of special concern in Central Asia, and mechanisms to address them

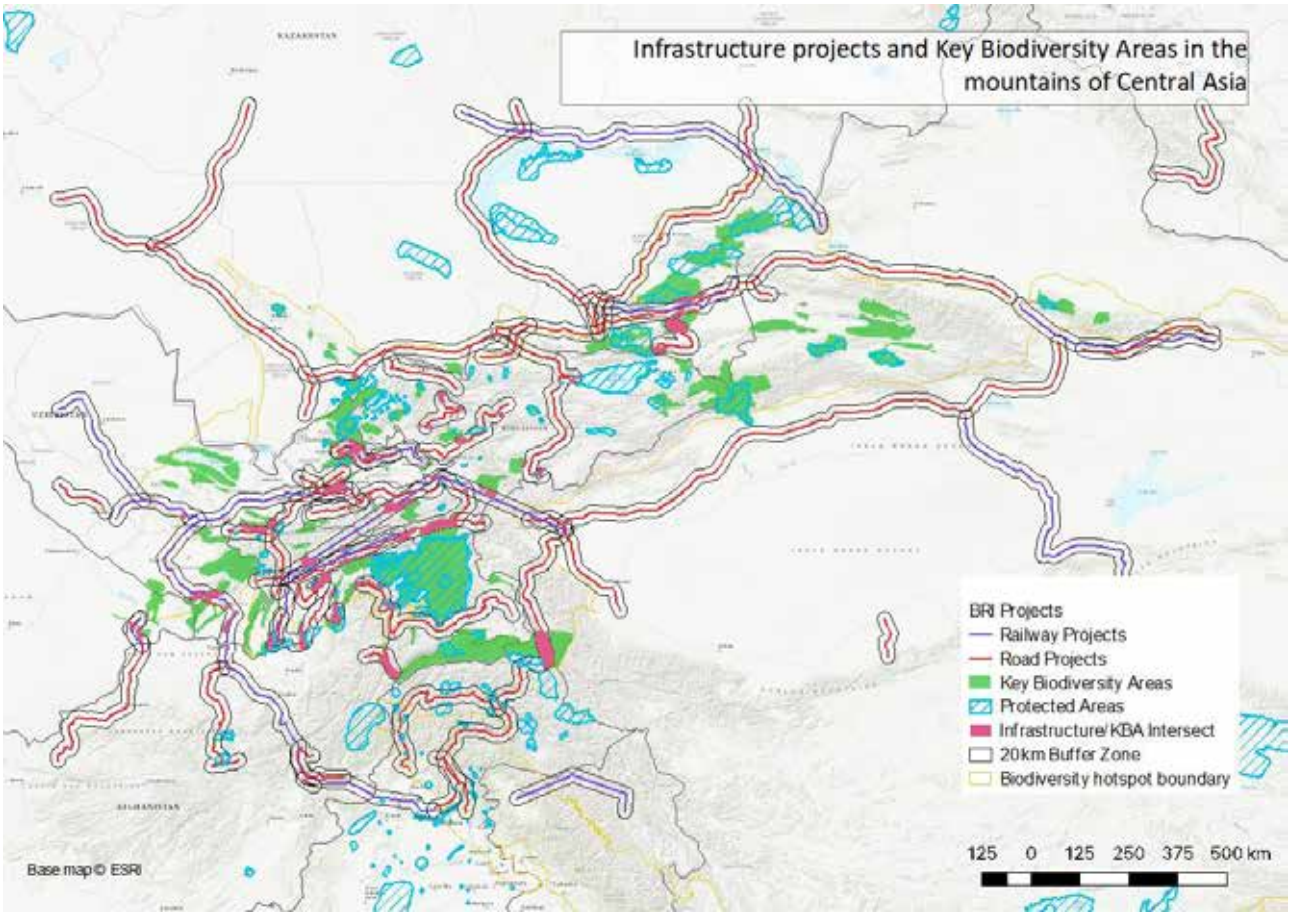
Chairs: Dr. Alice Hughes & Mr. Matthew Emslie-Smith

A participatory workshop was held as part of the conference, in which key issues related to the themes of the conference were discussed – centered around the three following key questions (see below). Representatives from each sub-group subsequently presented main outcomes back to the larger group.

1. What are the existing mechanisms and potential opportunities to better align BRI projects with national SDGs?

2. How can BRI enhance human and natural capital in its partner countries, especially in rural areas away from urban/ economic centres?

3. How do we identify priorities for mitigating environmental damage from BRI projects?



1. What are the existing mechanisms and potential opportunities to better align BRI projects with national SDGs?

- Mandate for national governmental SIAs & EIAs related to BRI projects
- Encourage accountability and transparency for international investments within partner countries
- Encourage research on environmental and social risks and opportunities, building research dialogue and partnerships with Chinese research institutions
- Ensure key stakeholders create value added projects that leverage BRI assets in regions

2. How can BRI enhance human and natural capital in its partner countries, especially in rural areas away from urban/ economic centres?

- Participatory consultative approaches to project implementation which allow local communities to engage in dialogue
- Human capital- connectivity, reinvestment into public services, especially education
- Natural capital- Compensation for ecosystem services

3. How do we identify priorities for mitigating environmental damage from BRI projects?

- Identify key knowledge gaps
- Use existing data to identify key areas of sensitivity
- Generate system flow and dependency analysis frameworks for each stage of project implementation
- Overlay different layers of impacts and requirements

Annexes

1. Workshop Participants

	Name	Affiliation	Country of work	Email
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30	Ashiq Khan	IUCN Pakistan	Pakistan	ashiqahmad@gmail.com
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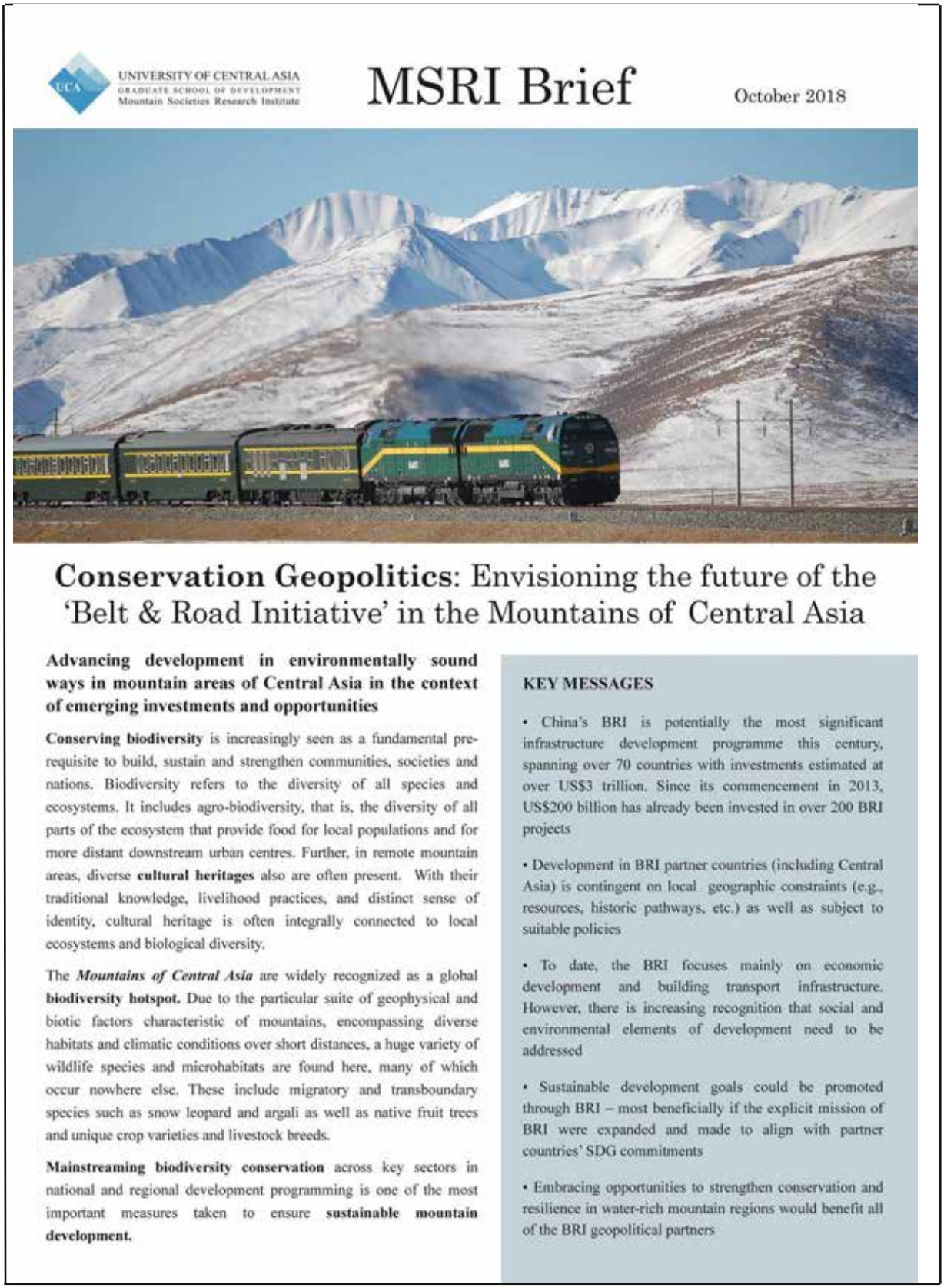
2. Selected References

Foggin, J.M., Emslie-Smith, M., Hughes, A., Lechner, A.M., Sternberg, T. and Dossani, R., 2018. Conservation Geopolitics: Envisioning the future of the 'Belt&Road Initiative' in the Mountains of Central Asia. Mountain Societies Research Institute, University of Central Asia, Bishkek, Kyrgyz Republic.



UNIVERSITY OF CENTRAL ASIA
GRADUATE SCHOOL OF DEVELOPMENT
Mountain Societies Research Institute

MSRI Brief

October 2018

Conservation Geopolitics: Envisioning the future of the 'Belt & Road Initiative' in the Mountains of Central Asia

Advancing development in environmentally sound ways in mountain areas of Central Asia in the context of emerging investments and opportunities

Conserving biodiversity is increasingly seen as a fundamental pre-requisite to build, sustain and strengthen communities, societies and nations. Biodiversity refers to the diversity of all species and ecosystems. It includes agro-biodiversity, that is, the diversity of all parts of the ecosystem that provide food for local populations and for more distant downstream urban centres. Further, in remote mountain areas, diverse **cultural heritages** also are often present. With their traditional knowledge, livelihood practices, and distinct sense of identity, cultural heritage is often integrally connected to local ecosystems and biological diversity.

The ***Mountains of Central Asia*** are widely recognized as a global **biodiversity hotspot.** Due to the particular suite of geophysical and biotic factors characteristic of mountains, encompassing diverse habitats and climatic conditions over short distances, a huge variety of wildlife species and microhabitats are found here, many of which occur nowhere else. These include migratory and transboundary species such as snow leopard and argali as well as native fruit trees and unique crop varieties and livestock breeds.

Mainstreaming biodiversity conservation across key sectors in national and regional development programming is one of the most important measures taken to ensure **sustainable mountain development.**

KEY MESSAGES

- China's BRI is potentially the most significant infrastructure development programme this century, spanning over 70 countries with investments estimated at over US$3 trillion. Since its commencement in 2013, US$200 billion has already been invested in over 200 BRI projects
- Development in BRI partner countries (including Central Asia) is contingent on local geographic constraints (e.g., resources, historic pathways, etc.) as well as subject to suitable policies
- To date, the BRI focuses mainly on economic development and building transport infrastructure. However, there is increasing recognition that social and environmental elements of development need to be addressed
- Sustainable development goals could be promoted through BRI – most beneficially if the explicit mission of BRI were expanded and made to align with partner countries' SDG commitments
- Embracing opportunities to strengthen conservation and resilience in water-rich mountain regions would benefit all of the BRI geopolitical partners

Ascensão, F. & Corlett, R. (2018). Environmental challenges for the Belt and Road Initiative. Nature Sustainability 1:206–209.

Dörre, A. (2016). Changes in the Relationship Between Borders and Pastoral Mobility in Mountain Regions of Central Asia. Chapter 7. In Kreutzmann, H. & Watanabe, T. (Eds.), (2016) Mapping Transition in the Pamirs (pp. 95-112). Springer, Cham.

Dossani, R. (2016). Promoting the sustainable development of transport and economic corridors under the Belt and Road Initiative. Beijing, China: UNDP China.

European Commission. (2018). Larger Than Tigers: Inputs for a strategic approach to biodiversity conservation in Asia. Brussels, Belgium: European Commission. Available online: https://ec.europa.eu/europeaid/sites/devco/files/study-larger-than-tigers-synthesis-asia-2018_en_0.pdf

Foggin, J.M. (2016). Conservation Issues: Mountain Ecosystems. Reference Module (online) in Earth Systems and Environmental Sciences, ScienceDirect. Elsevier.

Foggin, J.M. (2018). Environmental Conservation in the Tibetan Plateau Region: Lessons for China's Belt & Road Initiative in the Mountains of Central Asia. Land 7, 52.

Garnett, S.T., et al. (2018). A spatial overview of the global importance of Indigenous lands for conservation. Nature Sustainability 1: 369–374.

Jones, K.R., et al. (2018). One third of global protected land is under intense human pressure. Science 360 (6390): 788791.

Laurance, W.F., and Arrea, I.B. (2017). Roads to riches or ruin? Science 358(6362): 442-444.

Lawton, G. (2018). Paved Planet: Large infrastructure programmes threaten biodiversity across the globe. New Scientist 239(3193): 3839.

Lechner, A.M. et al. (2018). Biodiversity conservation should be a core value of China's Belt and Road Initiative, Nature Ecology & Evolution 2: 408409.

Novikov, V. (ed.). (2018). Ecosystem Profile: Mountains of Central Asia Biodiversity Hotspot. Châtelaine, Switzerland: Zoï Environment Network.

Sidle, R.C., and Ziegler, A.D. (2012). The dilemma of mountain roads. Nature Geoscience 5: 437438.

Tracy, E., et al. (2017). China's new Eurasian ambitions: the environmental risks of the Silk Road Economic Belt. Eurasian Geography & Economics 58(1): 5688.

Wehrli, A. (2014). Why Mountains Matter for Sustainable Development. Mountain Research and Development 34(4):405409.

WWF. (2018). Greening the Belt and Road Initiative: WWF's recommendations for the Finance Sector – in conjunction with HSBC. Woking, UK: WWF.

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