



“The great concepts of oneness and of majestic order seem always to be born in the desert.”
John Steinbeck



SCHOOL OF GEOGRAPHY
AND THE ENVIRONMENT



The Oxford Desert Conference is grateful to the **Landscape Dynamics Research Cluster** in the School for Geography and the Environment for providing conference funds and the Wenner Gren Foundation for its generous support of scholars from across Asia to attend the conference.

The
Wenner-Gren
Foundation
For Anthropological Research, Inc.

Dear Researcher,





Welcome to the 3rd Interdisciplinary Oxford Desert Conference!

The first Desert Conference at the School in 2010 emerged from a meeting of researchers at St. Cross College. We realized that scholars who work on desert-related issues are widely dispersed and often placed academically on one side of the social and physical science divide. The first conference was an effort to overcome challenges to collaboration and find ways to strengthen links between researchers in the physical and social sciences.

The edited volume, *Changing Deserts: Integrating People and their Environment*, emerged from this effort and was launched at the 2nd Desert Conference in 2012. It demonstrates the importance of interdisciplinary collaboration in advancing scholarship on desert-related phenomenon.

In 2015, we maintain the spirit of crossing boundaries and strengthening the growing network of desert researchers. It is a pleasure to host you at the School for Geography and provide a forum to discuss dryland issues and experiences for the advancement of desert research.

In this booklet, you will find:

-  Programme at a glance
-  Abstracts of all presentations
-  Participant bios
-  A map of conference-related spots in Oxford

Thank you for your participation. If you have any questions, just find one of the organizers and we will help you as best as we can. We hope you find the conference enjoyable and have a good visit in Oxford.

Best Wishes,

Troy Sternberg

SCHEDULE

16 April 2015

9:00	Registration and Tea	[H O Becket Room]
10:00	Welcome by Sarah Whatmore, Head of School	[Halford Mackinder Lecture Theatre]
10:15	Keynote speech by John Gummer, Lord Deben 'Aridity starts in Suffolk' Chairman, UK Committee on Climate Change	[Halford Mackinder Lecture Theatre]
11:00	Tea break	[MSc Common Room]
11:30	Reflections on Desert Themes <i>Chair: Troy Sternberg</i> Speakers: Caroline Dyer David Sneath Masato Shinoda	[J Gottmann Room]
12:30	Lunch	[A J Herbertson Room]
13:15	Talks <i>Chair: Ariell Ahearn</i> Sahel Drought: historical and future scenarios Cyril Caminade Catepillar fungus bloom in pastoral Tibet and what comes after Emilia Roza Sulek Human impact on morphology and dynamics of sand dunes Maciej Dlugowski Urbanization in Dryland East Asia Peilei Fan The desert aesthetics of Gertrude Bell and T.E. Lawrence Emma Notfors Unsaturated zones as archives of past climates: a review of progress in providing a novel approach for dryland continental regions Abi Stone	[J Gottmann Room]
14:30	Tea break	[MSc Common Room]
15:00	Talks <i>Chair: Haian Dukhan</i> The Chinese Karez – underground water networks in Turpan, Northwest China Camille Jetzer Application of remote sensing to estimate carrying capacity of Mongolian grasslands in winter Akira Hirano Tourism, well-being, and ecosystem services in desert areas Anna Dlugowska Groundwater in drylands: key to human resilience to climate change for at least 2 million years?	[J Gottmann Room]

- 15:45 **New Technologies in Desert Research** [J Gottmann Room]
 Jerome Mayaud Drones in Research: Fad or Fixture?
 Ariell Ahearn Interactive Documentaries
 Philippe Paillou Identifying Water from Space
- 16:15 **Funding & International Collaboration** with Sharron Pleydell-Pearce [J Gottmann Room]
- 16:45 **Break**
- 17:00 **Global Perspectives on Deserts** [J Gottmann Room]
Chair: Troy Sternberg
 Panel Speakers: Akira Hirano
 Vigya Sharma
 Salah Mazrui
 Tsega Gebreyesus
- 17:45 **Conference Reception** [A J Herbertson Room]
- 19:15 **Formal Dinner at St. Cross College**



17 April 2015

8:30 **Morning Refreshments**

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| <p>9:00 Desert Environments [J Gottman Room]</p> <p><i>Chair: Masato Shinoda</i></p> <p>New insights into the radiative effect of dust on the desert atmosphere
 Jamie Banks</p> <p>Iranian Speleothemi: investigating abrupt changes in the semi-arid climate of western Asia and its relevance to ancient humans
 Stacy Carolin</p> <p>Integrated Geophysical Survey of the Maritime Landscape of Magdala, Israel
 Rodrigo Ortiz-Vazquez</p> | <p>Pastoralism & the State in Inner Asia [H O Becket Room]</p> <p><i>Chair: Emilia Roza Sulek</i></p> <p>Temporality and Nationalism in Mongolian desert economy
 Joseph Bristley</p> <p>Counting sheep but excepting camels: conservation, sociality, and the state in China's Gobi Desert
 Thomas White</p> <p>Nomadic Rhetorics
 Allison Hahn</p> |
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	Predicting the wavelength of patterned vegetation in drylands Jonathan A. Sherratt	Mining, Pastoralism, and Climate Change: new risks and opportunities for Mongolia's Desert Landscape Vigya Sharma
	The central Sahara: dustiest place in the world, and more dusty still? Christopher Allen	Spatial patterning of Mongolia's deer stones Leah Holguin
10:15	Tea break	[MSc Common Room]
10:45	Dryland Ecosystems & Water [J <i>Chair: Akira Hirano</i> Gottmann Room] Dryland Ecosystem Restoration at Project Wadi Attir Stefan Leu and Michael Ben-Eli Agricultural utilization and management of water resources among rural communities in arid and semi-arid areas of the North-West province, South Africa Simeon A. Materechera Fan's End: A multi-proxy approach to investigating late-Holocene human/environmental dynamics in the 'oases' of Central Asia Steven Markofsky An interdisciplinary approach to groundwater management in marginal desert environments Caroline King-Okumu	Human-Dryland Interactions [H O Becket Room] <i>Chair: Leah Holguin</i> Sidreh's Bedouin Women's Desert Gardens Marsha Zibulese-Crawford Chingiz Aitmatov as a founder of the geopolitical Issyk-Kul Forum Rahima Abduvalieva Natural Disasters, Climate Change and Forced Displacement: Regional Dynamics of Mobility in West Africa Dalila Gharbaoui The adverse effects of desertification on traditional medicine Martha N. Njama
11:30	Localities and Livelihoods in Asian Drylands (Wenner Gren Foundation Scholars) <i>Chair: Allison Hahn</i> <i>Discussant: Julian Dierkes</i> Family and tribal loyalties in the Jordanian Badia Wassef Al Sekhaneh Transhumance and change among the Rungs of Uttarakhand Himalayas Nisthasri Awasthi Facing change in Syria: The Bedouin community and the rise of the modern state Haian Dukhan Transformation of traditional organization in the transitional period of rural Mongolia Batbuyan Batjav The politics of ontology in pastoralism Bumochir Dulam Politics of environmental conservation and identity Byambabaatar Ichinkhorloo	[J Gottman Room]

Al-hima: a way of being

Hala Kilani

Conservation in the Jabal Akdhar Mountains, Oman

Salah Mazrui

Implications of Afghan conflict for trans-boundary Kuchi nomads' mobility and livelihood

Inam Ramin

Oran: a traditional pastoral system strengthens socio-cultural, climatic, and livelihoods resilience in drylands of Rajasthan, India.

Aman Singh

12:45 **Lunch** [A J Herbertson Room]
Posters

13:45 **Talks** [J Gottmann Room]

Chair: Batbuyan Batjav

Factors influencing risk of sexual violence for Eritrean women asylum seekers while on route to Israel

Tsega Gebreyesus

The historical aspects of the Uzboy reconstruction idea

Anton Ikhsanov

Cataloguing Runoff/floodwater farm sites in Sinai, Egypt

Joshua D. Levine

Implications of Afghan conflict for Trans-boundary Kuchi nomads' mobility and livelihood

Javed Khan

Evolving a multi-hazard focused approach for arid Eurasia

Masato Shinoda

14:45 **Tea break** [MSc Common Room]

15:15 **International Development Perspectives on Drylands**

Chair: Julian Dierkes

Panel Speakers: Richard Byron-Cox
 Benz Kotzen
 Sarah Milliken
 Troy Sternberg

16:00 **Reflections and Future Directions in the Field** [J Gottmann Room]

Dawn Chatty

Closing Remarks

Pub - Turf Tavern

Dinner

ABSTRACTS IN ORDER OF PRESENTATION

16 APRIL 2015

Caroline Dyer
University of Leeds

Learning and Herding: mobile pastoralists and Education For All

In the twenty five years of global effort on Education For All (EFA), mobile pastoralists have consistently experienced discrimination in access to education services and, in the process, acquired a label of being ‘hard to reach’. This paper argues that – as that label suggests - education service providers have paid disproportionate attention to service supply, and too little attention to the forms and types of learning on which pastoralist livelihoods depend. While increasingly diverse forms of formalised education provision have emerged during the EFA era, whether these tend towards being stop-gap measures orientated towards achieving targets, or meaningful initiatives that disrupt dominant hegemonies of provision and thinking about pastoralists’ education inclusion, is open to debate. After reviewing a range of illustrative initiatives from western India, Kenya and Ethiopia, the paper asks whether the emerging policy focus on Learning for All offers a potentially important opportunity to inscribe the educational significance of situated learning and challenge discourses of education as schooling. It suggests that interdisciplinary perspectives focusing on the relationships between herding and learning have excellent potential to stimulate a much needed invigoration, in the education sector, of discourses of education inclusion.

Cyril Caminade
University of Liverpool

The severe drought that occurred from the 1970s to the mid-1990s over the Sahel had dramatic socio-economic consequences. Forecasting rainfall on seasonal to centennial time scales became a priority to inform adaptation to climate impacts on food, health and security management. This is highly relevant to the vulnerable population living in this region. General Circulation Models are the most common tools which are employed in climate science to produce seasonal forecasts and long term future climate scenarios. In this study, I will present an overview of past and projected future rainfall changes over the Sahel based on observations and climate model simulations. This is carried out by comparing historical observations with recent results obtained within the fourth and fifth assessment reports of the Intergovernmental Panel on Climate Change (IPCC); and by using an extensive literature review of droughts in West Africa based on recent international research projects outputs. The impact of changing sea surface temperature patterns, anthropogenic emissions and land use change on Sahelian rainfall variability will be discussed and put into long term historical context before providing final recommendations for the future.

Emilia Roza Sulek
Humboldt University Berlin

Caterpillar fungus boom in pastoral Tibet and what comes after

The author will discuss a phenomenon of trade with caterpillar fungus (Lat. *Ophiocordyceps sinensis*) observed in pastoral areas of Tibet in the first decade of the 2000s.

The boom in trade with caterpillar fungus, which is a medicinal resource and luxury product popular on Chinese market, made pastoral areas of the Tibetan plateau suppliers of this expensive commodity. From a relatively marginal resource (from the perspective of the pastoralists), the fungus became the main cash supplier for their households who no more (or to less extent than before) had to rely on livestock production.

What are the consequences of this boom? What changes did it foster and continues to do in pastoral lives and economies?

The talk is based on research conducted in Golok region of north-eastern Tibet (today Qinghai Province, China) in 2007-2010 and new material gathered in 2014.

Maciej Dłuzewski
University of Warsaw

Human impact on morphology and dynamics of sand dune

The results of detailed field measurement made on different types of dunes in the Sahara Desert show, that the wind regime and especially the frequency of wind direction changes, is the most important factor for dune morphodynamics. The wind regime together with the dune type and size are the key factors determining changes of dune shape, dune grow and dune migration. The analysis of more than 50-year-long series of wind data from different meteorological stations located in the Sahara Desert shows significant variability. This can explain huge inconsistency of the morphodynamics of the same dune. This changeability is observed not only within different wind regime season but also in the same season in different years. Our results show, that the acceleration of dune migration do not depend only on changes in sediment supply, which is often explained as a result of inappropriate human activity, but is often the result of periodic increases in wind energy or/and less frequent changes in wind direction. The most important is to analyze correlation between dunes sediment budget, wind regime and sediment supply. The presented model shows, that the total sediment budget in all dune types depends mostly on periods when wind speed is close to the critical threshold shear velocity. In such periods the erosion occurs at the dune top due to flow acceleration on the stoss slope, but the sediment supply at the dune base is weak or non-existent. As the dune migration is important for human life in desert areas, the detailed studies on dune morphodynamics and factors which influence them are still of a great importance.

Peilei Fan
Michigan State University

Urbanization in Dryland East Asia

Peilei Fan, Jiaguo Qi , Joseph Messina, Jiquan Chen Corresponding author: fanpeilei@msu.edu (website: <http://www.msu.edu/~fanpeilei>) Michigan State University, USA

This paper synthesizes the urbanization and environmental change in Dryland East Asia, defined as a region including includes Mongolia (MG) and four provinces in northwestern China: Inner Mongolia, Gansu, Ningxia, and Xingjiang, from the 1990s to 2010. It compares the urbanization patterns and processes as well as the change of environmental conditions of several large urban areas in the region, including Ürümqi, Lanzhou, Yinchuan, Hohhot, and Ulaanbaatar, in Northwest China and Mongolia, respectively. We further discussed possible drivers in causing the specific patterns of urbanization and environmental changes in Dryland East Asian cities. Methodologically, we derived the urban built-up land of different periods by relying on satellite images and analyzed other data, including economic statistics, population, and environment and pollution indicators, collected from a variety of data sources. We found that the impact of urban sprawl on the environment in Dryland East Asia is directly reflected by the loss of surrounding grazing and agriculture lands and the deterioration of water and air quality. In addition to economic industrialization drivers, we highlighted institutional factors at multiple scales, and social factors that have affected and can affect the urban development of cities in arid region of East Asia.

Emma Notfors
University of Cambridge

The Desert Aesthetics of Gertrude Bell and T.E. Lawrence

The rural spaces of what are now Syria, Jordan and Iraq, then perhaps more commonly known as the Arabian Desert, featured in the British cultural imagination of the early Twentieth Century as a region empty of modern development, yet one that was haunted by the vestiges of past civilisations and peopled by the heavily romanticised Bedouin. Gertrude Bell and Thomas Edward Lawrence – better known as 'Lawrence of Arabia' – both travelled through the area in the years before and during the First World War and the conception of the Arabian Desert mediated by them in their books can provide us with insight into the continued development of the British idea of the region at that time.

In Bell's books *The Desert and the Sown* and *Amurath to Amurath* and in Lawrence's *The Seven Pillars of Wisdom*, both authors' journeys are mediated through a combination of textual narrative and pictorial illustration. Though this was in many ways consistent with contemporary conventions, each author both drew from and reacted against these conventions in their books. Through a close reading of this aspect, this talk will explore how these texts can contribute to a greater understanding of the early twentieth century British conception of the Arabian Desert.

Abi Stone
University of Manchester

Unsaturated zones as archives of past climates: a review of progress in providing a novel proxy for dryland continental regions

Abi Stone (1) (2)
Mike Edmunds (2)

- (1) *Quaternary Environments and Geoarchaeology Research Group, Department of Geography, School of Environment, Education and Development, University of Manchester*
- (2) *School of Geography, OUCE, Oxford University, Oxford, United Kingdom*

The potential of using the unsaturated (or vadose) zone (USZ) as a palaeoenvironmental archive remains underplayed. The primary proxy is chloride, which inherits a signature relating to changing precipitation input and/or the intensity of evapotranspiration processes near the surface. There are additional complementary chemical tracers, whilst isotopic signatures can provide supporting evidence for the antiquity of past rainfall inputs within long profiles. USZ hydrostratigraphies have particular potential in dryland regions, owing to the small fluxes of water towards groundwater. This paper reviews the current state of progress in the use of this archive by outlining the nature of the USZ and the basis of the tracer technique. We consider examples by broad geographic region to highlight the fact that this approach can be used across three key timescales: (i) decadal to multi-decadal resolution records covering hundreds of years, providing information about recent climate fluctuations and land-use change; (ii) decadal resolution records spanning multiple-decades through to millennia, recording wetter and drier events and (iii) lower resolution records indicating broad climatic shifts over the last glacial to interglacial cycle. We also consider carefully the ongoing assumptions and challenges with these techniques before discussing the future potential alongside related proxies for palaeohydrology.

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Camille Jetzer
University of Oxford

The Chinese Karez – underground water networks in Turpan, Northwest China

Turpan is a city in far western China situated between the vast Taklamakan desert and the Tianshan 'Flaming mountains'. Turpan's climate is arid with less than 15 mm of rainfall per annum. Nevertheless, Turpan was a major city on the Silk Road, at the crossroads between Asia and the Middle East, and nowadays the city relies on the produce from the fertile soil in the Turpan basin. The basin has survived and prospered because of careful and ingenious water management. For centuries the citizens of Turpan have channeled water through a Karez system - kilometres of underground tunnels transporting groundwater from the highlands to the lower oasis. However, this ancient technique is now falling into disuse as water is abstracted through electric pumps, which have caused the groundwater level to sink and salinization and desertification to increase; thus endangering the sustainability of the basin.

Aikra Hirano
Japan International Research Center for Agricultural Sciences (JIRCAS)

Application of remote sensing to estimate carrying capacity of Mongolian grasslands in winter

In Mongolia, which is situated in cold semi-arid Asia, nomadic herding has always been practiced and plays a key role in the nation's economy accounting for about 1/3 of the total labor force. The feed for freely grazing livestock is virtually dependent on natural vegetation. Accordingly, prompt and accurate assessment of pasture resources—more specifically, carrying capacity—is a prerequisite for formulating and implementing various planning and managing activities. However, vast land, relatively coarse monitoring network, and highly variable pasture availability and conditions both in space and time make it difficult to prepare an exhaustive pasture information of practical use. Since 2006, Japan International Research Center for Agricultural Sciences in collaboration with Mongolian University of Life Sciences (formerly, Mongolian State University of Agriculture) has been conducting a research to establish the procedures for determining herbaceous standing crop availability in summer using imagery acquired from satellite platforms. Our goal is to process the information into map form representing carrying capacity in winter. The advantage of incorporating remote sensing data is their ability to make ground sampling points more dense over large areas while maintaining objectivity. We've worked closely together with the relevant Mongolian federal agencies and are trying to supplement the existing efforts to expedite the information delivery for better decision-making.

Anna Dluzewska
Maria Curie Skłodowska University

Tourism, wellbeing and ecosystem services in desert areas.

Tourists wellbeing deals with different factors, most important of those would be type of culture (both of tourist and receiving society), type of tourism activity, location, distance and the last but not the least - ecosystem services. The obtained results are in accordance with theoretical framework of COST action (Tourism Wellbeing and Ecosystem Services). They are based on case studies in selected desert areas, differentiated in regard to ecosystem services. The services provided by desert areas are of specific types. First of all, desert areas have lower tourism capacity because they are more fragile than any other tourist destination. If the services in the desert areas are not controlled properly, the destination can even serve as an example of the processes of "self-destruction by tourism". The dysfunctions will occur for ecosystem, local society and tourists preventing them to visit the area in the future. The wellbeing of one type of tourist will make impossible the wellbeing of others.

Mark O. Cuthbert
University of Birmingham

Groundwater in drylands: key to human resilience to climate change for at least 2 million years?

Groundwater is a natural store of freshwater, largely protected from evaporation, and is thus critical to modern human survival in drylands by acting as a 'buffer' during long dry periods. Following ancient technology developed for accessing & controlling dryland groundwater 'by hand', human dryland groundwater use in the modern period has proliferated due to increased availability of energy and technology for accessing and lifting water. In the deeper past however, groundwater would only have been available through natural points of discharge such as springs and seepages creating desert/dryland oases or supporting baseflow to streams or lakes. Despite there being a growing body of geological evidence showing an association between springs, stone tools and hominin fossils since at least 1.8 Ma (e.g. in East Africa), groundwater is rarely invoked as an important factor in the story of human evolution and dispersal. This paper will describe some archetypal dryland groundwater flow systems which are likely to have been important in the context of human evolution and dispersal. The controls on, and significance of, time-lags and attenuation of stresses from climate changes (e.g. recharge, sea level change) within such groundwater systems will be explored to address the question of the limits of groundwater in supporting dryland resilience in the past, but also with important implications for the present day.

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Philippe Paillou
University of Bordeaux

Mapping potential shallow groundwater in the Gobi Desert using remote sensing: Lake Ulaan Nuur

Ph. Paillou, T. Sternberg

Access to water resources in desert environments is an endemic challenge in developing countries. Shallow water is an essential resource for rural communities and has become significant source for urban centres, agriculture and mining. In the past conventional methodologies were used in the search for water; today advanced remote sensing from space offer new techniques to identify and define potential untapped groundwater in drylands. This research investigates a potential major water resource in the Gobi Desert, Mongolia. Using remote sensing from space we integrated topography, radar images and optical images into GIS tools to investigate and identify potential shallow water correlated to large palaeolakes. This work integrates the palaeoclimatic history of southern Mongolia with present water circumstances in the region. Findings indicated Lake Ulaan Nuur as a promising site for hydro-geological testing and water resource prospecting as measurement suggests a past lake area of >19,000 km² in the Mongolian Gobi.

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Desert Environments

Jamie Banks
Imperial College London

New insights into the radiative effect of dust on the desert atmosphere

J. R. Banks (1), H. E. Brindley (1), J. H. Marsham (2), M. Hobby (2)

(1) Space and Atmospheric Physics Group, Blackett Laboratory, Imperial College London, London, UK.

(2) School of Earth and Environment, University of Leeds, Leeds, UK.

Many studies have indicated the significance of atmospheric dust to the radiation budget in the atmosphere above the Sahara. Here we combine satellite observations from the SEVIRI and GERB instruments on Meteosat-9 with ground based observations from the Bordj Badji Mokhtar (BBM) supersite in southern Algeria during the Fennec campaign in June 2011. From this combination we can estimate the direct, cloud-free radiative impact of Saharan dust at the top-of-the-atmosphere (TOA), on the desert surface, and on the atmosphere during sunlit hours. We find that the short-wave (SW) heating and cooling effects of dust tend to dominate the instantaneous direct radiative effect at the TOA and surface, although there is more equivalence between the SW and the long-wave (LW) effects in the monthly mean effects at TOA. The relative contributions of the SW and the LW fluxes vary through the day, with maximum atmospheric dust heating in both bands towards local noon, and a greater tendency for SW cooling at TOA shortly after dawn and before dusk.

Stacy Carolin
University of Oxford

Iranian speleothems: Investigating abrupt change in the semi-arid climate of Western Asia and its relevance to ancient human history

Stacy Carolin^{1*}, Richard Walker¹, Gideon Henderson¹, Peter Rowe², Julian Andrews², Vasile Ersek³, R. Alastair Sloan¹, Morteza Talebian⁴, Morteza Fattahi⁵, Javad Nezamdoost⁶

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⁴ Geological Survey of Iran

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⁶ Iranian Cavers and Speleologists Association

Accurate climate projections assist in the management of water resources in populous and semi-arid Western Asia. Currently, there is little paleoclimate proxy data to extend climate records beyond the limits of the instrumental period. Paleoclimate reconstructions are useful in constraining magnitude and duration of rainfall changes over 100,000s of years, and can provide insight into the mechanisms responsible for regional rainfall perturbations. Additionally, a paleo-rainfall record offers a climatic timeline valuable toward investigating possible connections between climate perturbations and the development and collapse of ancient civilizations. Cave speleothems have proven to be remarkable climate recorders in semi-arid regions (eg. Bar-Matthews et al., 1998). Precipitated calcite captures the isotopic signature of the overlying rainwater, forming layer upon layer of coded climate information. The radioactive decay of uranium within the individual calcite layers is used to determine an absolute age model for the climate record with relative age errors < 1%. Here we present our investigation into past rainfall variability in various regions of Iran. We target the Holocene, and use oxygen isotope time series to examine past rainfall variability with a decadal-scale sampling resolution. To help interpret the stalagmite oxygen isotope record, we present a synopsis of

intermittent recorded rainfall isotope measurements over the past two decades in different regions in Iran linked to meteorological data and known air mass trajectories to investigate how and why rainwater isotopes vary on spatial and temporal scales at these sites.

Rodrigo Ortiz-Vazquez
University of Southampton

Integrated Geophysical Survey of the Maritime Landscape of Magdala, Israel.

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This paper presents the results of an integrated geophysical survey to assess the port city of Magdala , located on the coast of the Sea of Galilee. Geophysical methods are now commonly deployed in a range of circumstance and different archaeological sites. However, too rarely are the results from different methods combined to better understand landscape and site formation processes. As a part of this project multiple datasets were integrated and interpreted prior to excavation. This paper reviews the results of this interpretation in light of the details revealed by archaeological excavation. It will be argued that the resolution and detail now achievable through geophysical survey means that when integrated with targeted excavation it is possible to extend our interpretative capacities with a high degree of confidence. This is of particularly significant when attempting to understand large-scale infrastructure, such as port developments.

Jonathan A. Sherratt
Heriot-Watt University

Predicting the wavelength of patterned vegetation in drylands

Vegetation patterns are a common feature of semi-arid regions. They arise because rain falling on bare patches tends to run off onto vegetated areas, where the infiltration rate is higher. This preserves and augments differences in vegetation level.

Because of the geographical remoteness and physical harshness of study sites, and the long time scales involved in pattern evolution, mathematical modelling has emerged as an important research tool. I will discuss the use of models to predict pattern wavelengths, i.e. the distance between the start of one vegetated patch and the next. This is the most accessible statistic for vegetation patterns, and I will show how it can be used to infer mechanistic details of the pattern-forming process, using mathematical models. I will focus on the particular case of gentle slopes, in which the typical patterns are stripes running parallel to the contours. I will summarise the available empirical data on the variation in the wavelength of these striped patterns with environmental variables, and I will show how mathematical models can use this as the basis for novel inferences about vegetation patterning.

Christopher Allen

The central Sahara: dustiest place in the world, and more dusty still?

In summer, satellite retrieval consistently shows that the central Sahara is the dustiest place in the world. However, until the Fennec Project, ground observations were only available at its fringes, leaving a measurement void of some 1 million square kilometres. Using Fennec ground based observations, the atmospheric mechanisms causing dust emission and transport in the central Sahara are documented. The most important dust mechanism is the cold pool outflow (or 'haboob'), a dust storm caused by strong downdrafts from deep moist convection associated with the West African Monsoon. A particularly interesting implication of the research presented here is that the central Sahara is likely much more dusty than previously thought. This is because almost all of the techniques currently used to study dust in the region are systematically biased to result in underestimates of dust burden. Cold pools are the most important dust mechanism but, since they rarely occur during the daytime or in cloud-free conditions they are often missed by sun photometers. Many will be missed by satellites that cannot retrieve below cloud and satellites that pass over the Sahara in daylight hours (e.g. the A-train). A commonly used satellite dust detection algorithm often misses dust under moist (i.e. cold pool) conditions. Cold pools cannot be simulated by numerical models without explicit convection, which requires very high spatial resolution. Finally, the numerical models assessed here significantly underpredict the frequency of wind speeds over the dust emission threshold. The Sahara is probably much dustier than current estimates suggest.

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Pastoralism & the State in Inner Asia

Joseph Bristley
University College London

Temporality and nationalism in a Mongolian desert economy

Based on ethnographic fieldwork conducted during autumn 2013 this paper explores perceptions of a proposed industrial complex centred on Sainshand City, capital of Mongolia's East Gobi province. Planned as the country's largest industrial project, Sainshand Industrial Park will be linked by a new railway line to a number of cities and mining projects in southern Mongolia. Due in part to environmental difficulties ensuring an adequate water supply in this desert region this scheme has yet to commence, however, and I explore how expectations concerning the city's future are oriented towards the actualisation of a highly specific plan which nevertheless lacks materiality in the present. This proposed actualisation of what is not already in existence is mirrored in another area of Sainshand's life: the on-going reconstruction of Khamarin monastery. Destroyed in 1937 during Mongolia's anti-religious purges, Khamarin Khiid is being rebuilt on its former site. Both projects are expressive of a specifically future-oriented temporality, and do so in a markedly nationalist context: the Sainshand Industrial Park is meant to transform the country's economy, and the monastery is particularly associated with Danzan Ravjaa, a Buddhist saint notable for expressing a sense of Mongol national identity in his writings.

Thomas White
University of Cambridge

Counting sheep but excepting camels: conservation, sociality, and the state in China's Gobi Desert

Drawing on 18 months of anthropological fieldwork in Alashan, Inner Mongolia, this paper examines the shifting, entwined fortunes of the domesticated Bactrian camel and ethnic Mongolian herders in China's Gobi Desert. In recent years, strict stocking limits have been introduced across Inner Mongolia, in an attempt to combat the degradation of the rangeland. The number of camels in Alashan declined steeply after the stocking limits were first introduced in the early 2000s. This has become a cause of concern to the local government, which now seeks to market Alashan as 'The Hometown of Camels' (Ch. luotuo zhi xiang), and has thus devised policies aimed at camel conservation. Unlike goats and sheep, camels are now exempt from

the stocking limits, thanks to lobbying of the central government by local cadres. ‘Camel culture’, including camel racing and camel-related crafts, is now actively promoted by the local state. This paper examines the implications of conservation efforts directed at a domesticated animal. I show how the herding of particular animals is bound up with particular social relations among herders, as well as a particular attitude to land; conservation efforts directed at camels thus have the effect of reinforcing certain kind of sociality and sense of place.

Allison Hahn
Baruch College, City University of New York

Nomadic Rhetorics

Radical changes, from global warming, to desertification, to urban sprawl are reframing and reshaping the spaces in which nomadic and semi-nomadic communities live. While development programs, government programs, and academic think tanks are devoted to studying these changes, those studies frequently occur within national or academic boundaries. Within development organizations, these boundaries frequently result in an un-nuanced interpretation of the term “nomad,” implying that communities can simply move to more desirable spaces, or that nomadic communities would prefer settlement over sustained access to pasturelands. Within academia, scholars have built upon Deleuze and Guattari’s metaphor of *nomadology*, which draws from lived experiences of historic nomadic communities to understand late-modern capitalism. While this metaphor may illuminate the process of becoming *minoritarian*, but tell us little about the communities upon which the metaphor of *nomadology* is founded.

In this presentation I will survey contemporary rhetorical milieu of desert dwelling nomadic and semi-nomadic communities. Drawing from my field research in East Africa and Central Asia, I aim to both better understand the position of nomadic communities in late modern capitalism and to contribute to debates on the future development and support of desert-dwelling nomadic communities.

Vigya Sharma
University of Queensland

Mining, pastoralism and climate change: new risks and opportunities for Mongolia’s desert landscape

Postdoctoral Fellow, Centre for Social Responsibility in Mining, University of Queensland, Australia

Water availability (quantity) and quality in an arid environment are vital to the survival of remote communities. The expansion of the resources industry in Mongolia, particularly in the South Gobi has placed a further strain on Mongolia’s arid landscape. On the one hand, booming resource development promises revenues essential for Mongolia’s strategic economic development. On the other hand, the presence of mining, itself a water-intensive industry, threatens disruptions across Mongolia’s traditional lifestyle rooted in nomadic pastoralism and a harmonious relationship with the environment.

In addition to the mining boom, Mongolia continues to experience growing vulnerability to anthropogenic climate change and natural climate variability. The last two decades have witnessed acute desertification across the country and a series of devastating drought and dzud events, resulting in severe loss and damage for herder households. Together, large-scale mining activities and an uncertain climatic (dis)order present Mongolia with complex socio-economic and bio-physical drivers of change. These changes do not only interact with, and influence one another but in doing so, challenge the existing social, cultural and institutional fabric of local communities in Mongolia.

The presentation will discuss this new risk landscape currently evolving in Mongolia and the opportunity it may provide to innovate solutions, including forging new partnerships to address challenges arising out of the complex mining-traditional livelihoods-climate change nexus.

Leah Holguin
Southampton University

Spatial patterning of Mongolia's deer stones

Deer stones in Outer Mongolia are one of the most visible archaeological monuments on an otherwise challenging landscape. The unexplained presence of these monuments has led researchers to propose several hypotheses concerning the nature of Mongolian Bronze Age political and religious societal complexes at multi scalar levels. These hypotheses are further supplemented through analysis of iconography found on the stones. However, no studies have attempted to examine the relationship between site placement and the environment. The case study presented in this paper seeks to explore the relationship between hydrology and site placement, and how this could indicate the larger role environment may have played in the lives of Bronze Age people through the use of spatial analysis and geographic information systems (GIS). While this is not meant to be environmentally deterministic nor is it intended to explain the decisions made by Bronze Age people, it seeks to explore trends in spatial patterning between site placement and hydrology. It also seeks to demonstrate the potential of spatial analysis and GIS applications in examining multi scalar questions relating to the temporal and spatial boundaries of the Mongolian archaeological landscape.

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Dryland Ecosystems and Water

Michael Ben- Eli and Stefan Leu

Project Wadi Attir, Jacob Blaustein Institutes for Desert Research

Dryland Ecosystem Restoration at Project Wadi Attir

Project Wadi Attir is a ground-breaking initiative of the Bedouin community in the Negev, for establishing a model sustainable agricultural operation. The project was initiated by the US-based Sustainability Laboratory and the Hura Municipal Council, the governing body of a local Bedouin township in the Negev. The project is designed to demonstrate implementation of holistic sustainability principles developed by the Lab.

The Israeli Negev Desert, as most Mediterranean drylands, is profoundly degraded. Principal investigator Stefan Leu and his team at the Ben-Gurion University of the Negev have been documenting degradation and successful rehabilitation approaches in recent research, aiming at maximizing environmental and economic benefits while restoring healthy dryland soils and perennial vegetation to act as carbon sinks. The results of this research have been implemented for rehabilitation of Project Wadi Attir's 50 hectares of heavily degraded farmland. The efforts in site development, erosion control, soil conservation and improvement, planting of native and agroforestry trees, together with conservation and protection of biodiversity hotspots have, within three years, revealed the high biodiversity and productivity potential of this arid/semi-arid landscape. Direct involvement and project implementation by the local Bedouin community is transforming this project into a showcase for sustainable development in degraded drylands providing a variety of environmental, economic and societal benefits. We will present an overview of the project, the underlying technologies and first results on a number of sustainability parameters determined on site. Evolution and expansion of the project ideas by means of scientific collaborations or consultations to wide spread implementation in similar settings is a major project goal, and can yield environmental and economic benefits at the global scale.

Simeon A. Materechera

North West University, South Africa

Agricultural utilization and management of water resources among rural communities in arid and semi-arid areas of the North-West province, South Africa

The investigated the water resources, their utilization and management among the indigenous Batswana communities living in five selected villages located within the arid and semi-arid districts of the North West province in South Africa. The communities in all the villages were heavily (95%) dependent on underground water resources (boreholes & reservoirs) to meet their basic water requirements. There were limited surface water resources and stream flow in one only river and wetlands were at a very low level for most of the time,

limiting their use to stock watering. The main utilization sectors for water included: agriculture-irrigation & stock watering (54%); domestic (38%), building and construction (6%) and other uses (2%). The water resources were communal and managed by chiefs through village committees. Except in the open wetlands and some reservoirs, the quality of the water was generally good. The water resources management strategies included: selection of efficient irrigation system (bucket), irrigation scheduling (allocation of time not water), selection of crop species with high water use efficient in the cropping systems, use of mulching, removal and containment of invasive alien vegetation in, especially wetlands, and prioritization of different demand sectors. Other strategies used included field conservation practices, water harvesting, supplemental irrigation and small reservoirs. It was concluded that the development of policy frameworks and programs of water conservation and demand management are needed. The introduction of integrated water resource management strategies and the gender dimensions of access to water resources are discussed.

Steven Markofsky
Institución Milà y Fontanals (IMF-CSIC)

Fan's End: A multi-proxy approach to investigating late-Holocene human/environmental dynamics in the 'oases' of Central Asia

Endorheic or inland deltas, commonly found across the deserts of Central Asia, represent unique and dynamic biomes that are still not fully understood. These regions of environmental and geomorphological transition as well as social liminality straddle the line between fertile, sustainable environments and adverse regions often incapable of sustaining significant human occupation. Because such regions are fragile and often unstable, they are excellent case studies to study dynamic processes that have characterised human/environmental relationships throughout the Holocene.

This paper considers one such region, the Murghab delta in Turkmenistan. Occupied since at least the late 3rd millennium BC, the region has been described by two competing models:

- a) an “oasis” in which desertic processes have been more or less stagnant throughout the late Holocene, and
- b.) a widely settled and heavily cultivated alluvial fan in which desertification was a relatively late process, intensifying only in the mid 2nd millennium BC.

The present research integrates remote sensing and geoarchaeology to suggest that the existing models may be simplistic and that landscape change has been characterised by pronounced local variability not well described by a regional approach. Analyses include Loss on Ignition, granulometry and geochemistry, which in conjunction with multispectral satellite imagery and UAV photography will help to elucidate differential aeolian encroachment and locally variable alluvial processes. This data can help to identify 'niches' that can clarify human/environmental dynamics in these unique zones.

Caroline King-Okumu

An interdisciplinary approach to groundwater management in marginal desert environments

Due to scarce rainfall, people who live in desert areas often depend on groundwater for survival. Desert development often involves accelerating the extraction of groundwater to increase water availability and use for food production. Interdisciplinary research can help to inform populations and development planners of the value of groundwater reserves in terms of natural capital and ecosystem service provision to improve decision-making.

Illustrative case studies highlighting challenges and progress in conceptualizing and assessing the extent, recharge and use rates, and value of groundwater reserves in groundwater dependent desert margins will focus on the Merti Aquifer, Northern Kenya, and Egypt's multilayer West Nile Delta aquifer system (fed by the Nile and Nubian Sandstone Aquifer Systems).

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Marsha Zibulese-Crawford
Temple University

Sidreh's Bedouin Women's Desert Gardens

Authors: Marsha Zibulese-Crawford, PhD, MSW, Associate Professor, College of Public Health, Temple University, USA; Heidi Paredes, Deputy Director Sidreh, Lakiya; Khadra Alsanah, General Director Sidreh, Lakiya; Alexandra Polsky, MPH Candidate, Dept. of Public Health, Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer-Sheva, Israel, and Reporting and Evaluations Coordinator, Sidreh, Lakiya.

To maximize benefits, indigenous families must be served using culturally sensitive approaches to economic development, the environment, and research. To better understand the impact of community and household gardens on the Bedouin population in the Negev region, we examined the desert garden experience that was implemented by a feminist-based Bedouin non-profit organization, Sidreh

The rationale for the study was based on recovering Bedouin local agricultural tradition and combining this valuable heritage with state-of-the-arts technology; and building on innovative approaches that are moving Bedouin women to the forefront of development. Our assumption was that local, women-led small-scale gardens would improve the health and economic situation of families in the Negev while contributing to community building and self-sustainability. To test the assumption, three (3) different garden plots were established to cultivate vegetables and fruits for family consumption; 60 direct beneficiaries were involved including women, children and men. In partnership with the women and their communities, each of the three gardens was utilized to test different permaculture, aquaculture and hydroponic methods, in accordance with availability of natural resources, and intended scale and purpose.

We applied qualitative data collection and analyses. This paper reports on the outcomes, challenges, and lessons learned from the targeted population. We characterize the key lessons as (a) Health -- access to fresh, ecologically cultivated, inexpensive produce on a daily basis; opportunity for physical activities; relief from stress; and an opportunity to connect with nature; (b) Economics -- lowered expenses for families relative to transport and water; (c) Community Building -- strengthened relations between families, the land and the environment, thus building social capital for the community; and (d) Empowerment and Self-Sustainability -- increased food security, self-sustainability, and resilience through reconnecting the women and their families to their cultural heritage, and reviving traditional rural ways of providing daily food.

Rahima Abduvalieva

Chingiz Aitmatov as a founder of the geopolitical Issyk-Kul Forum

Chingiz Aitmatov burst like a comet into Soviet literature in 1957 and after one short year he was already being talked about in many different countries! Through his story Jamila, readers the world over came to learn of the Kirghiz people's existence, their traditions and their distinctive way of life. International recognition of Chingiz Aitmatov went hand in hand with recognition of Kirghiz culture.

For writers in the West, Chingiz Aitmatov appeared like a sphinx -- there was no other word for it. How could a son of an "enemy of the people" forgive the social system which had killed his father and continue to create such magnificent works in those conditions? Yet he went on doing so -- going from strength to strength throughout the fifty years of his creative life.

The Issyk-Kul Forum, which he founded in 1986 and invited such prominent celebrities as Sir Peter Ustinov, Arthur Miller, Kemal Yashar (etc).to discuss the main problems of environment in Central Asia remains till today as a historical legacy of the Great Kirgiz for generations to come.

Dalila Gharbaoui

Natural Disasters, Climate Change and Forced Displacement: Regional Dynamics of Mobility in West Africa

West Africa region is particularly exposed to the effects of climate change, experiencing a significant increase in the number of natural disasters in the past decades. The intensity of desertification and droughts that increasingly affect populations is expected to rise due to the effects of climate change, as is human mobility. Furthermore, West Africa already has a particularly high rate of intra-regional mobility due to its relative political unity, porous borders and historical bonds. This paper seeks to investigate existing gaps and barriers in relation to cross-border displacement due to disasters. After an outline of the relevant actors, processes and frameworks, the paper provides an outline of natural hazards in the region and the current patterns of human mobility as well as the likely future impacts of climate change on these trends. Finally, the existing frameworks, principles and elements regarding the three phases of displacement are evaluated.

Martha N. Njama

Prometra Kenya (Promotion of Traditional Medicine)

The adverse effects of desertification on traditional medicine and the need to involve local communities in the desertification mitigation programs for great positive impacts in Africa.

Desertification is currently a global challenge, mostly felt in developing countries especially in Africa. All the usual forms of desertification are present in the arid regions of the African continent and are manifested as serious local or regional problem. One of the main causes of desertification is known to be human activity; overgrazing and woodcutting are responsible for most of the desertification of rangelands, cultivation practices inducing accelerated water and wind erosion, improper water management leading to salinization; activities that are triggered by population growth, impact of the market economy and poverty. Most African communities rely on traditional medicine for primary health care. The effects of desertification are evident in traditional medicine; diminishing medicinal plants, change of medicinal values and emerging plants among others. Effective mechanisms for ecosystem management based on scientific data and best practices developed in close collaboration between scientists and local communities are important, improvement of community understanding on the effects of desertification and degradation processes, on ecosystem services, human livelihoods on biodiversity, the soil and more specifically on traditional medicine. Encouragement on the environment protection, good practices of use of natural resources and restoration through tree planting. Involvement of communities in desertification programs as a way of encouragement to ownership. Solutions to desertification problems in Africa are known and can be implemented if resources are made available

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Nisthasri Awasthi

Jawaharlal Nehru University

The paper is an attempt at understanding the transhumance and the pattern of change among Rungs in Dharchula of Uttarakhand, India. The Rungs inhabit the semi-arid alpine region of the Himalayas and migrate to the lower altitude when snow commences in mid-October. This region is included under Askot Wildlife Sanctuary. Transhumance (seasonal migration) among the Rungs is on the threshold of disappearance. Trade with neighbouring Tibetans once used to be their primary occupation. The 1962 Indo-China war and the annexation of Tibet by China, subsequently led to the closure of border between the two countries and as a result trade was discontinued. The post-colonial Indian government is criticised for being apathetic towards this traditional practice of this community considering it as an unviable option of livelihood and a threat to environment. The present situation is that only the older generation of Rungs community continue with this practice on their regular routes and the younger generation do not want this to persist as it does not provide them with economic returns. Even the livelihoods associated with transhumance are disappearing. As a result there is an emergence of class formation among the Rungs; those who survived the economic blow by taking up other occupations and the others who still grapple with the daily existence in these hard times of shrinking employment opportunities. Sedenterization and the loss of their livestock (sheep and yak) is another concern for the community. Their changing livelihood strategies have been subjected to various political, economic, and ecological influences.

Haian Dukhan

University St Andrews, Syria, International Relations - PhD candidate

Facing change in Syria: The Bedouin community and the rise of modern state 1958-1970

This paper deals with the political and socio-economic change in the Bedouin of Syria by focusing on the policies that the Nasserites and the Ba’thists adopted towards the tribes from 1958 until 1970. During this period, the government became more effective and its economic and military power increased. The Bedouin were subjected to various forms of interference by the government. Ideology was an important tool to justify state policies towards the tribes. Tribalism was considered by the party officials as one of the major ills of pre-Ba’thist Syria. Bedouin loyalties were linked to their kinship system rather than to the state. Bedouin have been looked upon by the Nasserites and the Ba’thists as vestiges of the Arab past and embarrassment in the contemporary world. Based on that ideology, harsh measures had been taken by the state to eradicate tribalism and nomadism. Much land that had been owned by tribal leaders was taken over by the state as a result of land reform measures. The state sought to assimilate the tribes by integrating them into the rest of the population, and attempted to break tribal power and extend state control in the Syrian Steppe by abolishing their traditional grazing system, suppressing their customary law and initiating settlement projects.

Bumochir Dulam

The Politics of Ontology in Pastoralism: Construction of “environmental pastoralism” versus accumulation of fortune among Mongol herders

Mongolian National University, University College London

This paper argues that scholars, policy makers, local and international NGO have produced a new construction of pastoralism in Mongolia and Inner Asia over the course of the last two decades. The construction is mostly made from a climate change and environmental protection perspective based on the search for explanations of rangeland degradation. These experts have identified mobile pastoralism as one of the main human factors. In this way, from the point of environmentalism, pastoralism is constructed as “bad pastoralism” because of its “negative influences” on rangelands. This paper argues that it is a reductionist and technical understanding of mobile pastoralism. It is technical because it has been taken as a technique and experience to herd livestock by occupying pasture. Instead, I argue that pastoralism is a lot to do with the complex reasoning, knowledge and belief of how nature and supernatural works. Therefore, the environmentalist construction of pastoralism is different from the local understanding in the region of Mongolia and Inner Asia, contradicts how herders actually perceive and interpret pasture degradation and their wellbeing in the natural environments. Here, we have two different understanding of pastoralism basing on contradicting socially constructed “realities”, one is environmentalist while the other is local. In other words, this is politics of ontology in the discourse of pastoralism.

Batbuyan Batjav

Institute of Geography, Mongolia, Social-Economic Geography

Transformation of traditional organization in the transitional period of rural Mongolia

Since the 1990’s Mongolia has experienced complex changes to its environmental, socio-economic, and political system. In a country where the grassland environment comprises over 80 per cent of the territory, mobile pastoralists make up 50% of the population and depend on native pasture, surface water, and wells for animal production. Due to climate changes there has been a decrease in pasture productivity, which has introduced many challenges for rural livelihoods and has put a strain on social institutions. Climate change has an ominous impact on pastoral livelihoods, land use patterns and pasture land sustainability. There is an increasing pattern of migration to ecologically favorable areas. Over the last decade, herders in Mongolia have organized themselves in different organizational forms to manage pastures, protect biodiversity and to improve their livelihoods. Over 2000 “herder groups” and “pasture user groups,” were established. These organizations are more or less formalized and many of them were initiated and supported by donor-supported projects. However, the observations and data we have suggest that within the current political administrative territorial structure and social ecological conditions, the informal organizations such as the rural khot ail is one of key institutions that retains the principles of common resource use and of pastoral

mobility, which are rooted in cultural tradition and based on ecological necessity. The recent study indicates how new climatic and social conditions transform traditional organization into a mechanism with new features and illustrates how the transition period has impacted social relationships and is in the process of creating a new basis for the future of pastoralism in Mongolia.

Byambabaatar Ichinkhorloo
Mongolian National University, Mongolia

Politics of Environmental Identity and Conservation

Since environmental protection became main focus of Mongolian government and donor communities working in Mongolia, many mixed emotions and attitudes toward local people, especially herders, have emerged since 1990s. Some entitled herders as ecologically noble but others accuse them of environmental deterioration, irresponsible action over use of natural resource and conservation. These created divide between romanticization of ecologically friendly herders and environmentally harmful opportunistic common herders. Most of these judgment and entitlement are made or applied by non-local institutions at first, and it further fueled other localized and national institutions and movements for resistance or support. However, there is a gap that is explaining how local herders perceive conservation and use of natural resource and their reaction to government and donor-driven conservation programs and projects. Based on ethnographic field work in two sums and discourse analysis of pasture degradation, biodiversity protection, I have studied herders' perception about conservation and cases on herders' reaction to environmentally "harmful" actions by local and non-local actors. By this paper, I argue that herders or local people live within two different but overlapping "environmental value systems" that are micro-level system based on their belongings to local "places" or collective identity and global environmental value system driven by multi and bilateral development agencies and governments. This makes difficult to frame and position herders as environmentally noble or not.

Hala Kilani
University College London, Lebanon, Anthropology

The hima is a traditional land tenure system practiced by sedentary pastoralists in the Arab world to sustain their livelihoods since more than 1,400 years. Al-hima literally means in Arabic protected area or protected place. Drawing on the actor-network theoretical framework, particularly the work of Bruno Latour and Marcel Mauss as well as fieldwork in six hima sites in southern Saudi Arabia, this paper will demonstrate that himas gained powerful agency and the processes involving embodied knowledge resulted in a particularly female gendered anthropomorphosis in line with the nature-woman allegory (MacCormack and Strathern: 1980). Himas transformed into a family member, a powerful actor in a kin-dominant society. It played part in social relations, in a network binding people and this landscape tightly by notions of place, identity, emotions, ethnicity and religion. Beyond mirroring the tribe and its social structure and objectifying identity, honour and pride, himas played an active part in forming social relations through discipline, laws, alliances, religion, punitive sanctions, and relations with other tribes.

Salah Mazrui
Independent Scholar, Oman, Anthropology

Knowledge among Mountain Pastoralists and Traditional Herbalists.

Given that Oman was transformed into a modern state in the early 1970s, it is somehow remarkable that by the 1980s the Sultanate embraced the complex ideas of conservation, a unique Western paradigm invented to 'protect' nature. Most conservation initiatives in Oman for the past three decades have been mostly ecologically and botanically determined, thus lacking the most important, sociocultural element. As a result, Oman's conservation initiatives lacked a human face. This paper will make the argument that conservation initiatives can only be successful if indigenous knowledge and ecological practices are critically examined, understood and applied. Two case studies from Oman's Jabal Akdhar mountain will be presented: 1) to understand indigenous perception of the natural world by examining traditional botanical knowledge which includes traditional plant use, management and medicinal plants. 2) to understand indigenous perspectives on

conservation and managing pastoral resources by examining how mountain pastoralists, also known as shawāwī, organised their herds for grazing in a land that is tribally demarcated. This paper endeavours to frame conservation debates in relation to indigenous knowledge of the ecosystem by showing the importance of having an alternative ‘human’ conservation paradigm.

Inam Ramin

FRESH Institute, Pakistan, Agricultural Sciences

Implications of Afghan conflict for Trans-boundary Kuchi nomads’ mobility and livelihood

Inam-ur-Rahim and Javed Khan

There are about 1.4 million fully nomadic Kuchi rearing more than 50% livestock of Afghanistan. A sizable portion of these nomads used to move with their herds from the central Afghanistan summer highlands to the Pakistani Indus valley plains wintering lowlands. The past 35 years of insurgency and political conflict in Afghanistan and along the Pak-Afghan border has negatively impacted this trans-boundary mobility and Kuchi’s livelihood. United Nation Assistance Mission has identified Kuchi’s as the largest vulnerable populations in Afghan conflict. The demography, mobility pattern, access to services and contribution to the food security and economy has never been documented so far.

This paper reflects for the first time on the demographic make-up of the trans-boundary Kuchi nomads and their livestock, including their migratory patterns and implications of the conflict for their livelihood.

Methodology included a transect walk across areas occupied by Kuchi during winter months followed by group discussions and semi-structured interviews with their two sub-systems in Naran and Zhob. Our study shows that toward the North some 350 Kuchi families have shifted their mobility during summer from the central Afghan highlands to the Himalayan uplands of Naran in Northern Pakistan, while many others have left the profession. Toward the south near Zhob, many Kuchi’s still cross into Pakistan with their livestock herds. The general trends are that their traditional mobility across the border is hindered and access to their summer highlands has been curtailed due to competing claims for rain-fed cultivation and grazing of the settled communities’ livestock. The study also reflects on the livestock dynamics, disease pattern in their livestock and access to veterinary health care, education and human health services and recommends measures to improve access of the Kuchi nomads to these services.

Aman Singh

KRAPAVIS Institute, India, Environmental Education

‘Oran’ a traditional pastoral system strengthens socio-cultural, climatic and livelihoods resilience in drylands of Rajasthan, India

Rajasthan has rich pastoralists’ heritage and its contribution to the society is immense. They not only rear but maintain excellent indigenous animal genetic resources that adapt very well to drought conditions. These include different breeds of cows, camels and sheep. Communities like *Gujjars*, *Raikas/Rebaris* are the pastoralists in Rajasthan. While the Gujjars are famous for rearing cows and buffaloes, the Raikas, Rebaris and Dewasis are known for raising camels. All these groups in varying degree are directly dependent on *Orans* (local community forests) for grazing. Thus historically, *Orans* have played a significant role in promoting the livestock based economy of the state. *Orans* are repositories of rich bio-genetic diversity and also preserve the endemic species (some endangered or threatened), medicinal plants, etc. Also, serve as socio-religious medicine – if any outbreak happens in their stock, then they gather in one place and promise to the deity that if you take away this disease that’s happening we will come to you and do a feasting. The Oran’s Sadhu’s practices also have a preventative dimension; where in order to ensure that livestock is protected from sickness and other evil forces. Since Rajasthan is a region where there are no perennial rivers, water supply depend on weather conditions. So many natural sources of water like the *kunds* (water tanks) and *jharnars* (springs) are associated with the *Orans*. Vegetation species in *Orans* perform key functions in the ecosystem thereby helpful in reducing the climate change. The knowledge, information and experience of pastoralists are used to protect the *Orans*, their trees and wildlife.

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Shinji Otani

The public health risks related dzud by assessing livestock loss and foodstuff consumption

Shinji OTANI¹, Kazunari ONISHI¹, Youichi KUROZAWA¹, Masato SHINODA²

¹Faculty of Medicine, Tottori University, Japan.

²Graduate School of Environmental Studies, Nagoya University, Japan.

Objective: Mongolia experienced one of the most severe natural winter disasters (dzud) in 2009–2010. It is difficult to accurately predict the risk of the effects of dzud on human lives and public health. This study aimed to evaluate the Mongolian public health risks of dzud by assessing livestock loss and foodstuff consumption.

Methods: We analyzed data from all 21 provinces and Ulaanbaatar in Mongolia and compared the changes in infant mortality (2009–2010) and the decline in the numbers of livestock (2009–2010). We also evaluated the association among the trends in the declining rate in the numbers of livestock, foodstuff consumption, and the infant mortality rate in throughout Mongolia (2000–2012).

Results: The change in the infant mortality rate was positively correlated with the rate of decreasing numbers of livestock in 2010. In the trend from 2000 to 2012, the infant mortality rate was significantly correlated with a declining rate in the numbers of livestock and a decrease in milk products consumption.

Conclusion: Loss of livestock and shortage of milk products during dzud may affect public health as typified by infant mortality in Mongolia.

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Tsega Gebreysus
John Hopkins University

Factors influencing risk of sexual violence for Eritrean women asylum seekers while en-route to Israel

Eritrean women asylum seekers face a considerable risk of sexual violence as they migrate irregularly from Eritrea to Israel. Thirteen in-depth interviews and 8 focus group discussions were conducted with men and women of reproductive age from the Eritrean community in Israel in order to investigate the factors that influence risk of sexual victimization. All men and women participants had migrated irregularly between 2007 and 2012 and had either personally experienced, witnessed, or heard of sexual violence during the journey. Perpetrators included traffickers and bandits as well as fellow migrants. Lack of legal status and its corresponding institutional support created the circumstances of risk in which women found themselves. Irregular movement created a dependency on human smugglers and made women asylum seekers vulnerable to trafficking. The need to move clandestinely both created and perpetuated the normalization of sexual violence throughout the journey.

Anton Ikhsanov
St. Petersburg State University

The historical aspects of the Uzboy reconstruction idea: from Hoja Nepes' project to «Altyn Asyr» lake.

The Uzboy river is an ancient crease of Amu Darya river. These geological structure is a true phenomenon. Soils and climate of the region in the past were the most acceptable in this desert area. Its historical development causes discussions; as well as modern state contributes to cooperation of scientists in the framework of interdisciplinary approach. Thereupon, it's important to pay attention to the discussion of the problem of its drying up period between geologist A.S. Kes, archeologist S.P. Tolstov and orientalist V.V. Bartold.

After the Uzboy drying up, politicians and scientists proposed projects of the Uzboy reviving. Since XVIII

century a big quantity of them were introduced. The last one of these projects, the so-called lake Altyn Asyr is now in realization stage. The main aim of these projects is development of agricultural activity in the desert areas of the Kara Kum and especially in the Kara Shore trough.

Ultimately, almost of previous projects were denied due to ecological reasons. Consequently the economical efficiency of the nowadays project of the Turkmen lake is closely relies on rational realization of these large-scale project.

Joshua D. Levine

Blaustein Institute for Desert Research, Ben-Gurion University of the Negev

Cataloguing Runoff/Floodwater Farm Sites in Sinai, Egypt

For over five millennia, different Middle Eastern peoples have exploited runoff and floodwater to make agriculture possible in areas of low precipitation. Thousands of runoff/floodwater farms exist in the parched Sinai Peninsula of Egypt, and yet no known comprehensive survey exists of these paradoxically located farms. A geographic catalogue is presented of Sinai runoff/floodwater farms, using Geographic Information Systems software to create a database of thousands of sites. The northern limit of sites matches with the well studied runoff/floodwater farming area of Israel's Negev desert. However, farmed Sinai locations exist much farther south and in much drier areas than had been found in Israel. Cataloguing runoff/floodwater farm sites in Sinai fills a gap in historical knowledge over an often fought-over region, and may lead to improvements in modern arid-zone farming. This catalogue is intended as a starting point for further analysis and research in a broad array of disciplines, including agriculture, hydrology, archaeology, and geography.

Javed Khan

Relief International

Implications of Afghan conflict for Trans-boundary Kuchi nomads' mobility and livelihood

There are about 1.4 million fully nomadic Kuchi rearing more than 50% livestock of Afghanistan. A sizable portion of these nomads used to move with their herds from the central Afghanistan summer highlands to the Pakistani Indus valley plains wintering lowlands. The past 35 years of political conflict in Afghanistan has negatively impacted this trans-boundary mobility and Kuchi's livelihood. This paper reflects for the first time on the demographic make-up of the trans-boundary Kuchinomads and their livestock, including their migratory patterns and implications of the conflict for their livelihood. Methodology included a transect walk across areas occupied by Kuchi during winter, group discussions and semi-structured interviews in Naran and Zhob. Our study shows that toward the North some 350 Kuchi families have shifted their mobility during summer from the central Afghan highlands to the Himalayan uplands of Naran in Northern Pakistan, while many others have left the profession. Toward the south near Zhob, many Kuchi's still cross into Pakistan with their livestock herds. The traditional mobility across the border is hindered and access to summer highlands curtailed due to competing claims of the settled communities. The study reflects on the livestock dynamics, livestock disease pattern and access to services and recommends measures to improve access to services.

SHINODA, Masato

Graduate School of Environmental Studies, Nagoya University

Evolving a multi-hazard focused approach for arid Eurasia

Drylands at middle-high latitudes (such as those in Eurasia) have a harsh environment, coupled with a cold, arid climate. The livelihoods of people inhabiting these areas have long been jeopardized by repeated natural hazards associated with this climate.

Disasters in dry Eurasia can be characterized as the '4Ds': drought, dzud, dust storms and desertification that occur interactively. However, previous attempts to elucidate disaster mechanisms and implement appropriate land management techniques have not been fully integrated, because these efforts have typically focused

only on individual disasters. Against this background, a new project, 'Integrating Dryland Disaster Science' has been implemented for FY 2013–2017 under the Grants-in-Aid for Scientific Research Program supported by the Japan Society for the Promotion of Science. This project adopts a novel approach by exploring interactions between hazards in the context of drought memory.

The project's dual aims are interrelating 4D disasters in dry inland areas of Eurasia in terms of their causal mechanisms (especially drought memory) and the timescales of their occurrence, and developing comprehensive proactive countermeasures and making policy recommendations designed to mitigate multi-disaster impacts. Preliminary results of the project will be presented at the conference.

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BYRON-COX, Richard
Secretariat of the United Nation Convention to Combat Desertification

The challenge of the desertification in the arid lands is multifaceted. It is connected to many issues including climate change and human behavior. It's in addressing positive change in the latter, that policy design and implementation will have immediate, yet lasting effects. However, policy design and more so implementation in these lands are constrained by many serious difficulties. The first challenge is to have the requirements/demands of science for redressing these problems properly reflected in policy, from designed to local implementation.

The fact is despite serious efforts at all levels to try and address these challenges, desertification persists. Indeed the United Nations Convention to combat Desertification (UNCCD) is an international instrument set up specifically, "to combat desertification and mitigate the effects of drought in countries experiencing serious drought and/or desertification,, through effective action at all levels, supported by international cooperation and partnership arrangements,...." Through this agreement many actions ranging from science to policy have been and are being taken. And, an international network has been established involving from government to community based organizations.

The UNCCD has been in force for almost two decades, yet desertification has not decreased significantly. It remains a major environmental and sustainable development challenge. The questions are many as to why this is the case. Fundamentally however, among those that need to be asked are: has the international policy setting/making been wrong? If so, how can it be made right? Should the role of science be greater in policy making at this level?

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PARTICIPANT PROFILES

Dr. Rahima Abduvalieva
Aitmatov Academy

One of the writer's 'comrades-in-arms', who from 1992 was working together with him in Germany to popularize his work in the German language. After Chingiz Aitmatov's death she moved to London and continued this work within an English environment. Dr. Abduvalieva gives lectures on the writer's work in universities of various countries. She is working on the theory and practice of translating the works of Aksakal into other languages. She is also the director of the Aitmatov Academy in Great Britain and chairs the jury which awards the annual International Chingiz Aitmatov Prize. Dr. Abduvalieva is a holder of the Franz Kafka Medal for literature for her translations of works by Chingiz Aitmatov into German.

Ariell Ahearn
DPhil (PhD) Candidate
University of Oxford, School for Geography and the Environment

Ariell is a DPhil candidate at the School for Geography and the Environment and a member of the Transformations Research Cluster. Her current research focuses on the rural economy and political administration in Mongolia. She is broadly interested in mobile pastoralism, the anthropology of the state, and the political economy of the household. Committed to a collaborative ethnographic approach, she spent 2013-2013 working with herders in rural Central-West Mongolia. She grew up in rural upstate NY working on family farms and got her first whiff of the desert in Baja, California on an undergraduate NOLS course. She is also interested in other FSU countries as well as Pakistan. She blogs on Mongolia-related issues: here: <https://ariellahearn.wordpress.com/>

Christopher Allen
DPhil (PhD) Candidate
University of Oxford, School for Geography and the Environment

Chris submitted his doctoral thesis last week and is still recovering from euphoria. The experience has emboldened him to go on a world tour, lecturing about dust storms to anyone who will listen, starting at the Oxford Deserts Conference. Chris did his undergrad in the Geography department at Oxford and was somehow persuaded to come back to do a DPhil on deserts instead of studying oceanography. His research interests include dust storms, African climate, ocean-atmosphere interactions and tropical cyclones.

Dr. Wassef Al Sekhaneh
Yarmouk University, Jordan

Wassef conducts research on family and tribal loyalties in the Jordanian Southern Badia identify the unique interdependence between Bedouin households, communities, tribes and the nation-state. He is an anthropologist and physicist at Yarmouk University in Jordan.

Nisthasri Awasthi
PhD Candidate
Jawaharlal Nehru University, India, Anthropology

Nisthasri is a research scholar at the Centre for the Study of Social Systems, School of Social Sciences, Jawaharlal Nehru University, New Delhi. My Ph.D. project is an ethnographic study of Rungs, a transhumant community of Himalayas. My research interest includes areas of development and conservation, migration and political ecology.

Dr. Jamie Banks
Imperial College London

Jamie's research interests are focused on satellite observations of North African and Arabian climate, using the SEVIRI and GERB instruments on board the European Meteosat satellites among others. Specifically this has involved quantifying the amount of atmospheric dust aerosol and its radiative effects on the environment. Currently he is extending this work to investigate the radiative effects of dust aerosol on the

atmosphere over the Sahara and Arabia, in collaboration with the King Abdullah University of Science and Technology (KAUST).

Jamie completed my DPhil (PhD) thesis in 2010 from the Atmospheric, Oceanic & Planetary Physics sub-department at the University of Oxford, focusing on modelling the entrainment and atmospheric transport of Saharan desert dust. After moving to Imperial College London he became involved in the Fennec field campaigns in 2011 and 2012 (<http://fennec.ouce.ox.ac.uk/>), a multi-institutional and multi-disciplinary project which took measurements of climate and dust storm activity in the western half of the central Sahara. His subsequent research work has made use of this substantial new dataset.

Dr. Batbuyan Batjav

Center for Nomadic Pastoralism Studies, Mongolia

Institute of Geography, Mongolian Academy of Sciences, Ulaanbaatar, Mongolia

Dr. Batbuyan Batjav is head of the Social and Economic section of the Mongolian Institute of Geography and director of the Mongolian NGO, Center for Nomadic Pastoralism Studies. His research focuses on pastoral development including herder cooperatives, pastoral land tenure, and natural hazard risk management. He has also worked extensively on issues related to regional development, and internal migration in Mongolia.

Dr. Michael Ben-Eli

The Sustainability Laboratory, Founder and Director

Michael Ben-Eli is founder of the Sustainability Laboratory, established in order to develop and demonstrate breakthrough approaches to sustainability practices, expanding prospects and producing positive, life affirming impacts on people and ecosystems in all parts of the world.

As an international management consultant, Michael pioneered applications of Systems Thinking and Cybernetics in management and organization. Over the years he worked on synthesizing strategy issues in many parts of the world and in diverse institutional settings, ranging from small high technology firms to multinational enterprises, manufacturing companies, financial institutions, health care and educational organizations, government agencies, NGOs, and international multilateral organizations.

In recent years, he has focused primarily on issues related to sustainability and sustainable development, and has been working to help inspire leaders in business, government, community, and youth accelerate a peaceful transition to a sustainable future.

Dr. Ben-Eli graduated from the Architectural Association in London and later received a Ph.D. from the Institute of Cybernetics at Brunel University, where he studied under Gordon Pask. He was a close associate of R. Buckminster Fuller, with whom he collaborated on projects involving research on advanced structural systems and exploration of issues related to the management of technology and world resources for the advantage of all.

www.sustainabilitylabs.org

Joseph Bristley

PhD Student

Department of Anthropology, University College London

Joseph Bristley is an ESRC-funded Ph.D. student in the Department of Anthropology, University College London. He has a B.A. in History, and M.Sc. in Social and Cultural anthropology, also from UCL.

Joseph has conducted long-term fieldwork (2013 – 2014) in a pastoral area of Mongolia. His research interests include: herding practices; exchange in pastoral life and the way this informs broader perceptions of exchange in a national setting, the durability of resources, and their transmission over time; wider Mongolian ideas of temporality and historicity; and perceptions of the landscape. His doctoral thesis, which draws these themes together, is entitled ‘Animal Economics: Exchange, Personhood, and Temporality in Mongolia’. Joseph is also interested in wider Inner / East Asian ethnography.

Dr. Richard Byron-Cox
Secretariat of the United Nation Convention to combat Desertification

Richard Byron-Cox is the United Nations Convention to Combat Desertification (UNCCD), Alignment of Action Programmes and Capacity Building Officer. Holding a PhD in international law, he has been with the UNCCD for 18 years. Trained in law, foreign policy, diplomacy and international relations, and commanding several languages, Dr. Byron-Cox designed and produced the UNCCD's first electronic bulletin on desertification and drought. He developed and coordinated many e-learning courses for the UNCCD; and masterminded the Capacity Building Marketplace at www.unccd.int/marketplace, which is exclusively concerned with capacity building on issues of desertification.

He has represented the UNCCD at all levels, undertaking different speaking engagements on policy issues of desertification. He conducts seminars/workshops around the world, and has lectured and/or conducted seminars at various universities including at Bonn and Oxford. He has authored many articles on various subjects including sustainable development, as well as the critically acclaimed historical novel "Were mama's Tears in Vain?"

Dr. Cyril Caminade
University of Liverpool
Institute of Infection and Global Health –
School of Environmental Sciences, University of Liverpool
Postdoctoral research associate

Cyril started a PhD in 2003 about climate change and climate variability in West Africa at CERFACS (Centre Européen de Recherche et de Formation Avancée en Calcul Scientifique) in Toulouse which was awarded in 2006. I acquired strong modelling and analytical skills and built an expertise in Tropical and African climate. In February 2008, he joined the department of Geography at the University of Liverpool. He has established a large number of collaborations in Liverpool and abroad, applying his skills to a wide range of animal and human infectious diseases such as malaria, bluetongue, liver fluke, Rift Valley fever, plague and Japanese Encephalitis. This has produced key publications in academic journals that were also mentioned in important governmental reports and in mainstream media at global scale.

Cyril has an expertise in Tropical and African climate and strong interests in climate impact studies, namely health and socio economic multidisciplinary ones. In Liverpool he has developed and strengthened several collaborations within the university, in order to model and map several key vector borne diseases over Europe and Africa. This includes various animal diseases of blue tongue and liver fluke in Europe, key human diseases including Rift Valley Fever and malaria in Africa and the modelling of invasive vector species such as the Asian tiger mosquito over Europe. Several methods have been developed to map the disease risk changes for the future, using climate scenario simulations.

Dr. Stacy Carolin
Department of Earth Sciences, University of Oxford

Stacy received her Bachelor's degree in Earth and Atmospheric Sciences from the Georgia Institute of Technology (Atlanta, Georgia, USA) in 2008. After 2 years working in the air quality control industry, she returned to the Georgia Institute of Technology to complete a Ph.D. in Earth and Atmospheric Sciences, specializing in paleoclimatology and geochemistry (received August 2014). During this period, she spent 2 years as a visiting Ph.D. student at the California Institute of Technology (Pasadena, California, USA), where she became skilled in measuring radiogenic uranium and thorium isotopes on an MCICP- MS. Her Ph.D. research focused on using stalagmites to resolve tropical western Pacific rainfall changes over glacial-interglacial cycles and probe the mechanisms responsible for these variations. The title of my thesis was "Geochemistry of karst deposits in Borneo detailing hydroclimate variations in the Warm Pool across the later Pleistocene." As a postdoc at the University of Oxford, she has shifted her research focus to desert paleoclimate variability.

Stacy's research interests include Quaternary paleoclimate, geochronology, karst hydrology and geochemistry, and the effect of climate change on ancient human settlements. Her current research focuses on resolving past wet periods in the now semi-arid regions of eastern Iran.

Dr. Dawn Chatty
Professor, Refugee Studies Centre; Department of International Development
University of Oxford

Professor Dawn Chatty is a social anthropologist whose ethnographic interests lie in the Middle East, particularly with nomadic pastoral tribes and refugee young people. Her research interests include a number of forced migration and development issues such as conservation-induced displacement, tribal resettlement, modern technology and social change, gender and development and the impact of prolonged conflict on refugee young people.

Dawn is both an academic anthropologist and a practitioner, having carefully developed her career in universities in the United States, Lebanon, Syria and Oman, as well as with a number of development agencies such as the UNDP, UNICEF, FAO and IFAD. After taking her undergraduate degree with honours at UCLA (University of California at Los Angeles), she took a Master's degree in Development Studies from the Institute of Social Studies, the Hague, Netherlands. She returned to UCLA to take her PhD in Social Anthropology under the late Professor Hilda Kuper.

Following the award of a Leverhulme Trust Major Research Fellowship, Dawn spent the period October 2005–September 2007 researching and writing a manuscript on Dispossession and Forced Migration in the Middle East. The volume was published by Cambridge University Press (May 2010) with the title *Dispossession and Displacement in the Modern Middle East*

Dr. Mark Cuthbert
School of Geography, University of Birmingham

Mark's current research is focussed on process fundamentals in subsurface hydrology as well as cross-disciplinary paleohydro(geo)logy research linked to the theme of 'Climate-Groundwater Interactions'. Specifically, he is working on better understanding groundwater recharge and discharge processes in drylands, through detailed catchment studies in semi-arid and arid NSW, Australia. Also using Australian fieldsites, he is researching how to improve interpretations of speleothem climate proxy archives in semi-arid areas, by understanding the hydrogeological controls on cave drip water temperature and chemistry. Most recently he has been exploring how groundwater has influenced our evolution as a species, since at least 2 million years ago, by studying the link between freshwater springs and climate variability in East African dryland environments in which the genus Homo is thought to have evolved.

After graduating from the University of Oxford with a degree in Earth Sciences in 1998, Mark specialised in Hydrogeology and Groundwater Resources through an MSc at University College London in 1999. Following 3 years working in environmental and engineering consultancy (Entec UK, now AMEC), he completed a NERC funded (LOCAR) PhD at the University of Birmingham (UoB) on the subject of groundwater recharge through superficial deposits. Mark then worked in the charitable sector doing peace and development work for 3 years before returning to UoB as a postdoc in 2008. Since then he has worked on a variety of projects involving groundwater-surface water interactions (SWITCH - EU FP6), and biogeochemical applications in nuclear decommissioning and waste disposal (BANDD - EPSRC/NERC) and presently holds a Marie Curie Research Fellowship (EU FP7) jointly between UoB and UNSW Australia's Connected Waters Initiative Research Centre.

Dr. Julian Dierkes
University of British Columbia

Julian Dierkes is a sociologist at the University of British Columbia's Institute of Asian Research. His past research has focused on the contemporary education system in Japan, but he is increasingly interested in Mongolia and its attempts to leverage mineral wealth for economic, political and social development. He blogs about contemporary Mongolia at mongoliafocus.com. Follow him @jdierke

Dr. Anna Dluzewska
Maria Curie Skłodowska University, Faculty of Earth Sciences and Spatial Management

Professor Anna Dluzewska has a MA degree on Sciences of Culture (University of Upper Silesia), PhD on Geography and Earth Sciences, and Habilitation degree on Tourism Geography (University of Warsaw). Her

main research topic is social impact of tourism, tourism functions and dysfunctions processes, tourism marketing and – recently – tourism and wellbeing issues.

She is the author of “Tourism functions and dysfunction” model verified in 12 countries, 6 of which presented in the book “Socio-cultural tourism dysfunctions in Muslim countries” being a basis for her professor degree (WUW 2010).

She was participating in many research projects (in between 2 Norway Grants and 1 Leonardo Partnership, as a coordinator). She was an expert for Tourism in the project “Sustainable Development of Mhamid Oasis (S Morocco) done by of Ministry of Foreign Affairs of the Republic of Poland and Polish Geomorphologist Society. She is a member of Managing Committee and vice chair of Working Group 4 “Toward research informed Policies” in COST project “Tourism Wellbeing and Ecosystem Services” IS1204 coordinated by University of Exeter Business School (27 participating countries).

She has a wide experience in research in areas of limited tourism absorption (including desert ones) in a frame of cooperation with adequate Tourism Authorities (i.e. Dubai Tourism and Commerce Marketing) or research projects with different Universities. The comparative research in S Morocco started in 2000.

Since 2011 she works at the Department of Earth Sciences and Spatial Management of the Maria Curie Skłodowska University in Lublin.

Dr. Maciej Dłuzewski

University of Warsaw, Faculty of Geography and Regional Studies

Maciej Dłuzewski grew up in a desert area in southern Tunisia. After the completion of the local high school he was moved to the University of Warsaw, Faculty of Geography and Regional Studies, Department of Geomorphology, where he works until today. His research interest remained in arid zones and especially in Northern Sahara. His master’s thesis was about factors influencing dune movement in Shott El Djerid region in Southern Tunisia. He coordinated several scientific projects about desertification in Northern Sahara (especially in well know Kharga Depression in Western Desert, El Faouar region in S Tunisia and Mhamid Oasis in the Coude Du Dra region, S Morocco). These projects constituted the foundation of his doctorate dissertation about human influence on dune development and causes of spreading of dune fields. He continued the work in desert areas with a use of new methods of dune measurement and analyses, and after several seasons of field studies in the North Sahara he was awarded the habilitation degree about morphology and morphodynamics of barchans. He also performed many comparative studies in other desert (Taklimakan, Gobi, Badain Jaran, Negev, Atacama, Kyzyl Kum, Kara Kum and Western Sahara). He uses his scientific knowledge to coordinate several aid programs in North Saharan countries lead by Polish Ministry of Foreign Affairs.

Haian Dukhan

PhD Candidate

University St Andrews, International Relations

<http://css.wp.st-andrews.ac.uk/scholars/466-2/>

Haian's research interests deal with tribal political systems and social and political exclusion of tribal people in Syria. His fieldwork experience has been largely done in Palmyra (a world heritage city in Syria). His current research deals mainly with the Syrian regime policy towards the Arab tribes from 1963 until now and how these policies reflected on the role of the tribes during the uprising.

Dr. Bumochir Dulam

Mongolian National University, Mongolia, Anthropology

Dr. Bumochir has a wide range of interests, with research experience spanning Central and Inner Asia. He recently left his post as the Head of the Department of Social and Cultural Anthropology at the National University of Mongolia in order to take up a research position at the University College London. He has affiliations with the University of Cambridge and University of Oxford.

Bumochir’s research interests include shamanism, pastoralism, Inner Asian religions and cultures, and politics. He regularly spends time with herders on the grassland and high mountain tops. When he is doing his academic work, one may see him hosting Mongolia’s most popular morning news programme.

Dr. Caroline Dyer
University of Leeds

Caroline Dyer is Reader in Education in Development at the School of Politics and International Studies, University of Leeds, and Chair of the British Association for International and Comparative Education. She has worked on aspects of education inclusion for mobile pastoralists for over fifteen years, beginning in the 1990s in Gujarat, India, when she migrated with pastoralists delivering adult literacy in a mobile programme. She has delivered keynotes at a wide range of policy/practitioner conferences and advised the governments of India, Kenya, Afghanistan and Ethiopia on policy strategies. Caroline has published widely on this topic: her most recent monograph *Learning and Livelihoods: Education For All and the marginalisation of mobile pastoralists* was published by Routledge in 2014.

Peilei Fan
Michigan State University

Dr. Peilei Fan is an associate professor of Urban and Regional Planning. She joined School of Planning, Design, and Construction at Michigan State University (MSU) in 2007. She also holds a joint research appointment at Center for Global Change and Earth Observations and is an adjunct faculty member of the Geography Department at MSU. She has a Ph.D. in Economic Development and a MS in Electrical Engineering and Computer Science, both from Massachusetts Institute of Technology (MIT). Before she joined MSU, Dr. Fan worked as a Japan Society of Promotion of Science (JSPS) Postdoctoral Fellow at the United Nations University in Tokyo. Dr. Fan has served as a consultant/economist for United Nations University – World Institute for Development Economics Research (UNU-WIDER) and Asia Development Bank (ADB) on innovation and economic development of emerging countries (China and India in particular) and urbanization in Asia.

Dr. Peilei Fan's research focuses on international development and planning, specifically urbanization, economic development, and environment changes of Asian countries and cities and she has published over 27 peer-reviewed journal articles in these areas. She serves as an associate editor for three international academic journals. She has worked on research projects funded by National Aeronautics and Space Administration (NASA) and National Science Foundation (NSF) about "Urbanization and sustainability under global change and transitional economies: Synthesis from Southeast, East, and North Asia (SENA)" (Lead PI, 2015-18), "China's Urbanization and its Sustainability under Future Climate Change" (Lead PI, 2009-13), and "Chinese Way of Innovation" (Co-PI, 2011-13). She is particularly interested in the urbanization process, the socio-economic driving forces and impacts of urbanization in Dryland East Asia.

Tsega Gebreyesus
Doctoral Candidate
School of Public Health, Johns Hopkins University

Tsega Gebreyesus is a fifth year doctoral candidate at the Johns Hopkins Bloomberg School of Public Health. She received a BA in Anthropology from Bryn Mawr College and an MPH in Global Epidemiology from Columbia University. She joined the Social and Behavioral Interventions Program in the Department of International Health at the Johns Hopkins University in 2010. As the subject of her doctoral dissertation, she designed and implemented a qualitative study exploring the sexual and reproductive health of Eritrean asylum-seeking women living in Israel. The combination of her background, training and experiences serves as a foundation for her interest in understanding the complex causes of forced migration. She is interested in understanding how changes in context influence the cumulative risk of sexual violence that women asylum seekers experience throughout the trajectory of their movement. She is also interested in exploring women asylum seekers' access to reproductive health care services in their host countries.

Dalila Gharbaoui
PhD Candidate
Center for Ethnic and Migration Studies (CEDEM), University of Liege

My research interests focus mainly on the migration and climate change nexus within the context of regional security. I am particularly interesting in migration as adaptation strategy to climate change within the framework of regional governance. The issue of land security, land use, land tenure and land planning within

the context of planned relocation and resettlement is my area of speciality. My areas of study are the following: Areas subjects to desertification and sea level rise in the gulf region, remote small island states in the Pacific.

Dalila Gharbaoui is currently PHD Candidate in Political and Social Sciences, jointly at the Center for Ethnic and Migration Studies (CEDEM), University of Liege (Belgium) and at the Macmillan Brown Center for Pacific Studies, University of Canterbury (New-Zealand), her PHD thesis focuses on Migration as an adaptation strategy to climate change with a particular focus on land security and planned relocation within the framework of regional governance. Formerly working on Comparative Regional Integration Studies at the United Nations University- Institute on Comparative Regional Integration Studies (UNU-CRIS) in Bruges in 2013-2014, involving research on changing global and multi-level governance dynamics, regional integration and inter-regionalism. At UNU-CRIS, Dalila also supported the GR:EEN research project – Global Re-ordering: Evolution through European Networks-, a European Union (EU)-funded project under the 7th Framework Programme (FP7) aiming at studying the present and future role of the EU in an emerging multipolar world. Dalila's interest for Regionalism and South-South Migration led her to work in 2011-2012 as Junior Researcher for the African, Caribbean, and Pacific (ACP) Observatory on Migration, a project funded by EU and implemented by the International Organization on Migration (IOM). In 2010-2011, Dalila also worked on Conflict Prevention in the Research Department of International Crisis Group in Brussels Office and in 2010, she served as Refugee Caseworker intern at Amnesty International Australia (AIA). Dalila Gharbaoui is undergraduated in Political Sciences and holds a Master's degree in Human Rights since 2010 from the University of Sydney in Australia, she realized a research project on Migration and Climate Change at the United Nations High Commissioner for Refugees (UNHCR) Regional Office in Canberra. Dalila also holds a Certificate in Human Rights Law from the University of Geneva, Switzerland and a Certificate in "Field research methods (qualitative and quantitative) in environmentally-induced migration" from the United Nations University-Institute for Environment and Human Security Studies (UNU-EHS) and the European Cooperation in Science and Technology (COST) programme in Bonn, Germany.

Dr. Allison Hahn
Baruch College, City University of New York

Allison Hailey Hahn is an Assistant Professor in the Department of Communication Studies at Baruch College, CUNY. She earned a B.A. in Africana Studies, Anthropology, and Political Science at the University of Pittsburgh. She was then a Fulbright Research Fellow at the National University of Mongolia, Department of Political Science. After returning to the United States, she earned a Masters of International Development (MID) in Development Planning and Environmental Sustainability and a Ph.D. in Communication from the University of Pittsburgh.

Prof. Hahn's research investigates the argumentation and protest strategies used in environmental controversies by pastoral-nomadic communities in Kenya, Tanzania, Mongolia and China. Before coming to Baruch, Prof. Hahn directed the University of Pittsburgh Mongolian Field Studies Program, which took students through China, Russia, and Mongolia. She also coached for the Mongolian National Debate Team, the William Pitt Debating Union, and the Soros Foundation Youth Forum.

At Baruch, Prof. Hahn is offering courses in International Communication, Organizations in International Development, and Research Methodology.

Dr. Akira Hirano
Japan International Research Center for Agricultural Sciences
Senior Researcher, Japan International Research Center for Agricultural Sciences

Akira's interests lie in the field of environmental mapping employing remote sensing technology to support various geospatial analyses in an interdisciplinary context. He is a strong believer in the potential of remote sensing imagery as a source for extracting information to better serve the fast-changing community and environment. Currently, he is particularly interested in studying human-nature interactions in the arid and semi-arid regions at regional scale.

Akira received his PhD degree in geography from the University of Georgia, USA in 2001 with the specialty in remote sensing and geographic information sciences (GISc). After returning to Japan, he joined the

University of Tsukuba where he conducted a topographic mapping research in the semi-arid northern Kenya in support for constructing a GIS database. He then joined Japan International Research Center for Agricultural Sciences (JIRCAS) where he currently serves as a senior researcher. Over the last 10 years at JIRCAS, he has been involved in various agricultural research activities covering land use mapping in Burkina Faso, plantation crop monitoring in Indonesia, long-term vegetation trend analysis and pasture resource mapping in northern China and Mongolia.

Leah Holguin
PhD Candidate
Southampton University

Leah is currently a PhD student at the Department of Archaeology at the University of Southampton. She has worked in Mongolia since 2005 on several archaeological projects including the excavation of the Khunnu cemetery, Gol Mod 2, and the archaeological survey of the Khanuy Valley, both in Arkhangai province. She worked at the Mongolian Palace of Culture as a researcher and studied archaeology at the National University of Mongolia. I received my Masters of Science from University College, London in Geographic Information Systems and Spatial Analysis in Archaeology, focusing on the spatial patterning of deer stones in Mongolia.

Her current PhD research focuses on disappearing landscapes from both archaeological and environmental perspectives in the Gobi Desert of Outer Mongolia during the Holocene. She is interested in how people during the Holocene reacted to uncertainty in environmental changes, especially those connected with paleo hydrology systems. She is also investigating how people managed resources and how they responded to stress in connection with environmental change. To evaluate these landscapes she employs several methodologies including global climate modelling, nested modelling, ground penetrating radar, and remotely sensed satellite imagery combined with geographic information systems.

Byambabaatar Ikhinkhorloo
PhD Candidate
Department of Anthropology and Archeology
Mongolian National University (NUM)

Byambabaatar received bachelor's degrees in Mongol study in University of Language and Civilization and in ecology at the University of the Humanities, MA in linguistics in NUM (2001), and post graduate diploma in environmental management in University of Southern Queensland. Alongside his academic work, Byambabaatar has worked for the past fifteen years as a research consultant in the international development sector in Mongolia and his professional work and writing has covered the areas of pastoral livestock production, artisanal mining, sustainable development, social and environmental impact assessment, and tourism, on behalf of major organizations including the Swiss Agency for Development and Cooperation (SDC), United Nations Development Program (UNDP), World Bank, USAID, Red Cross, Asian Development Bank, and the Government of Mongolia.

His research interest focuses on pastoralism, political ecology, Development intervention, and natural resource management specifically competition between local people and others, including large mining companies, over natural resources such as grazing area and other resources. His latest works include Mongolian National Report to the UNCSD 18-19 and he co-authored an article on "government meat reserve programme" and other one on "politics of pastoral development intervention" that is under review, and presented 4 papers at academic conferences. Currently he works as a researcher in the department's research project "Socio-cultural dimension of change and development in Mongolian pastoral economy."

Anton Ikhsanov
St. Petersburg State University

Anton is an M.A. student of FAAS, SPbSU. His main sphere of specialization is the history of Central Asia; my country of specialization is Turkmenistan. He is presently working on socio-cultural code in economic studies. Anton was a participant in 7 international conferences and seminars (in SPb, Ashgabat, Skolkovo and Skopje) on Central Asia and he has published more than 4 articles in Russian academic journals (Turkological digest, Vostok-Oriens). He is interested in participation in the Desert conference because of his interest in ecological factor in the sustainable development of such countries as Turkmenistan. The

contact and exchange of views with more intelligent and educated colleagues, especially in such kind of area, is very important for my future research.

Camille Jetzer

School for Environment and Geography, University of Oxford

Camille has a passion for China and water. In China, she is particularly interested in the border areas such as Yunnan, Tibet and Xinjiang where environmental issues are especially challenging and intricately linked to issues of ethnic minority identity and politics of “developing the West”. She is also interested in the interdisciplinary aspects of water management, for instance how the concept of “water culture” can be analysed in relation to environmental sustainability and political economy. She is currently interested in environmental law, examining how issues of property rights and international law often present a barrier to achieving sustainable and effective transboundary water management.

Camille completed her BA in Chinese Studies from the University of Oxford in 2014 and is currently finishing the MSc in Water Science Policy and Management in the School of Geography and the Environment at the University of Oxford. Over the past few years, Camille has focused her research on linking her knowledge of Chinese history and philosophy to the pressing issues of the environmental crisis in China. She won second place in the TORCH (Smith School – Research Centre for the Humanities) joint competition called ‘Mind the Environmental Gap’ (2013), in which she explored the issues of conservation and local beliefs placed in counterposition with economic development and large-scale hydropower construction in rural Yunnan. Camille’s dissertation (2014) also focused on Southwestern China, analyzing the importance of including the concept of ‘water culture’ within economic and scientific frameworks which determine the future of water courses and shape the understanding of our landscapes.

Dr. Javed Khan

Technical Director One Health Relief International

Javed Khan has been with Relief International since January 2007. He successfully led Relief International Pakistan post-earthquake programmes in 2007 and later on worked as Deputy and Acting Country Director of RI mission in Pakistan. He joined RI UK office in February 2010 as International Programmes Manager assisted with the administration, management, and oversight of RI-UK’s programmes worldwide and promoted as Technical Director in 2012. Javed is simultaneously leading Relief Pakistan, a local chapter of Relief International in Pakistan. He has pioneered Relief International Bio-security and Bio-engagement and one health programs and is leading these Programmes in Pakistan, Afghanistan, Yemen, Bangladesh, Nepal, Somalia and Libya. Javed has over 16 years of experience in agriculture, forestry, livestock management, institutional development and Wildlife conservation worked with various NGO's, environmental agencies, academia and government bodies in Pakistan, Bhutan and Nepal. He is fluent in Pushtu, Urdu and Hindi languages. Javed joined RI from the World Wide Fund for Nature (WWF), where he was responsible for managing large carnivores and Snow leopard conservation program. He has the distinction being part of scientific mission that put a first ever GPS collar on a snow leopard in 2006. Javed has a post graduate degree in veterinary sciences and Animal Husbandry and also studied rural development in the Netherlands. He is fellow of the US Montana based Property and Environment Research Council and member of the IUCN Cats specialist group.

Research Interests: Biorisk management, One Health, livestock management, wildlife conservation, agriculture, Nomads, pastoralism, value chain and local economic development, ecosystem management and ecotourism programs.

Hala Kilani

PhD Candidate

University College London

Hala Kilani is a PhD candidate in Anthropology at University College London, specialising in the Material and Visual Culture of Tribes of the Arabian Peninsula. Her research focuses on the relationship of these pastoral communities with their landscape, mainly areas they have protected through generations since more than 1,500 years. Mrs. Kilani has completed an MA in Material and Visual Culture at the same university in 2009, after completing two months field work with the tribes of South West Saudi Arabia near the Yemeni border. She was the first anthropologist/ researcher to conduct research in that region. She was attracted to this research through work with environmental organisations and local communities in Lebanon, Jordan and

Syria.

Her research interests include modernity and tradition, pastoralism, Anthropology of religion, Anthropology of the Environment and Political Anthropology.

Dr. Stefan Leu

Project Wadi Attir, Jacob Blaustein Institutes for Desert Research

Stefan Leu, Ph.D, managing director 'Leu-Sella Environmental Development' and scientist at the Desert Research Institutes of Ben Gurion University of the Negev. Married, living at Ben Gurion College, Sede Boker Israel, working in microalgal biotechnology, and as an advisor to Project Wadi Attir.

Twenty-five years' experience in environmental impact of desertification and dryland rehabilitation, sustainable development and integrated resource management, 12 publications and numerous lectures delivered on the subjects of dryland rehabilitation, sustainable development and carbon sequestration; founder of an experimental dry agroforestry woodland at Moshav Maslul, managed several research projects dealing with desertification, agroforestry and silvipasture in drylands; founding participant in the Wadi Attir initiative and in the Wadi Attir design team, managing the initial site study and advisor and planner of site development and tree planting work, currently involved in project management and reporting, environmental assessment and quantification, soil and biodiversity assessment and evaluation; sustainability assessments; preparation and editing of the project dissemination materials and web-site in English.

Research interests: Environmental biotechnology; Integrated productive systems; Sustainable dryland management and global warming; Dryland soil rehabilitation; Dryland biodiversity; Mitigation of and adaptation to global warming in drylands; Human-biosphere-atmosphere interactions; Identification and characterization of active medical plant substances; Cell and molecular biology;

Joshua D. Levine

Blaustein Institute for Desert Research, Ben-Gurion University of the Negev

Research interests: Human geography, physical geography, hydrology, climatology, Middle East, water resources, environmental policy.

Joshua D Levine graduated with a BA in Geography from the University of Washington, USA, and completed post-baccalaureate coursework in Atmospheric and Hydrologic Sciences at St Cloud State University, Minnesota, USA. He is a graduate student at Ben-Gurion University of the Negev, Israel.

Dr. Steven Markofsky

Institución Milà y Fontanals (IMF-CSIC)

Steven's research focuses on local interactions between humans/societies and their environments, particularly in arid alluvial margins such as the "oasis" regions of Central Asia. To address these issues, his work integrates remote sensing data (e.g. multispectral, high-resolution, synthetic aperture radar) with geoarchaeological approaches including granulometry, geochemistry and micromorphology in order to enhance our understanding of marginal zone socio-ecological dynamics at multiple spatial and temporal scales of analysis.

Currently Steven is a postdoctoral research fellow at the Institución Milà y Fontanals (IMF-CSIC) in Barcelona, Spain, and he received his PhD in archaeology from University College London, specializing in the Bronze Age sedentary societies of Central Asia. He has always been fascinated by the local aspects of human societies, and the ways in which people have related to each other and to their environments throughout history and prehistory. His involvement with historic and prehistoric projects both in the US and Europe (as well as in Central Asia and Mongolia), has helped him to explore these questions.

Dr. Simeon A. Materechera

North West University, South Africa

Simeon is a soil scientist with over 32 years of professional experience in Australia, Norway, Canada, Zimbabwe, Malawi and South Africa. At the MSc level, he majored in soil water management including

irrigation and hydrology while at the PhD level he majored in the dynamics of soil structure and soil management. I have conducted research and commissioned studies (consultancies) for various agencies including the SADC, EU, Rockefeller Foundation, FAO, USAID, NRF, HSRC, DBSA, The Presidency, Departments of Land Affairs, Agriculture, Science & Technology, and Water Affairs. He has been invited to be a member of the Advisory Committee on Science and Technology for Agricultural and Rural Development in the African, Caribbean and Pacific (ACP) countries. In October 2008, he was elected as a member of the Academy of Science of South Africa (ASSAf)'s committee on scholarly publishing in South Africa and co-authored a report on peer review of scholarly journals in the agricultural and related Basic Life sciences. Currently he is registered as a practicing professional Natural Scientist in the field of Soil Science by the South African Council for Natural Scientific Profession. I am currently the Director of the Centre for Indigenous Knowledge systems at North West University.

Research Interests: Small scale agriculture; Soil management; Agronomy; Agro forestry systems, Agricultural water management; Indigenous knowledge and Systems applications; Soil tillage; Urban agriculture; Land use and management; Soil nutrient cycling

Jerome Mayaud
DPhil (PhD) Candidate
University of Oxford
School for Geography and the Environment

Jerome is a NERC-funded doctoral student in the School of Geography and the Environment. He did his undergraduate degree at the University of Oxford and an MPhil in Polar Studies at the University of Cambridge. Jerome's earlier research focused on coastal limestone environments in southern France, and glacial dynamics in western Greenland. He is now interested in the interactions between vegetation and wind in semi-arid deserts, and how complex vegetation patterns affect the movement of sediment across desert surfaces. Part of this work involves exploring drone-based methods for landscape reconstruction.

Salah Mazrui
Earthwatch Institute, Oman

Salah al Mazrui read social anthropology at Cambridge University in the UK. His research interest is architectural anthropology especially vernacular architecture of Oman, Yemen and Hejaz in Western Saudi Arabia. His other research interest is ecological anthropology in particular the ecology of Oman, Yemen and the Arabian Gulf. Salah is currently the Project Leader of Earthwatch Institute's study of the high woodlands of Jabal Al Akhdhar and Jabal Shams in the Sultanate of Oman. The aim of the project is to identify and pilot a framework for the sustainable management and protection of high altitude Juniper Woodlands, working with the mountain tribal communities. The Project Team consisting of various scientists and experts, led by Salah, deliver research focussed on understanding the impact of human induced and natural pressures on the mountain woodlands, and identified practical solutions to mitigate these pressures. In addition, the Project delivers capacity development and learning activities to research assistants working with different government institutions.

Dr. Caitlin McElroy
Smith School for Social Enterprise
School for Geography and the Environment, University of Oxford

Dr Caitlin McElroy is a Research and Teaching Fellow at the Smith School. Her work centres around the extractive sector. Through a range of projects and partnerships she is addressing issues such as the improved sustainability and development of resource driven economies and the creation of tools such as corporation foundations and resilience plans to assist corporations in the management of their environmental and social risks and opportunities. This also includes a focus on strengthening community governance through the management of mining activities, regional natural resource management, and building alternative economic capacities. She is currently developing a programme on 'Sharing Resource Prosperity' with the support of an Oxford John Fell grant. The focus of the programme is to look at the trade-offs between environmental sustainability, human development, and economic transformation due to the convergence of demographic, economic and climatic pressures. Much of this research occurs in the desert environments of places such as Chile, Namibia, and Mongolia.

Dr Caitlin McElroy is a Research and Teaching Fellow at the Smith School. She holds a BA from the University of Pennsylvania in History and Environmental Studies, an MSc in Nature, Society and Environmental Policy from the University of Oxford, and a DPhil in Economic Geography from the University of Oxford. A Clarendon Scholarship supported the DPhil. In addition to her research she is also leading the Executive Education Programme at the Smith School, which translates academic research to meet the needs of the corporate, government and NGO sector on topics such as Environmental Management and Sustainable Finance.

Dr. Sarah Milliken
Department of Agriculture and Landscape
University of Greenwich

Dr Sarah Milliken is a Research Assistant in the Department of Architecture and Landscape at the University of Greenwich, and Project Manager of COST Action ES1104 'Arid Lands Restoration and Combat of Desertification: Setting up a Drylands and Desert Restoration Hub'. She originally trained as an archaeologist, and has taught at various universities in the UK, Ireland and Italy. A keen interest in environmental issues, and a desire to be able actively to address them, recently led her to undertake postgraduate qualifications in landscape architecture and urban sustainability. Her current research projects include the use of agent based modelling in developing sustainable land management practices, the design of a GIS-based decision support system for arid land restoration, and the economic valuation of the ecosystem services of urban green infrastructure.

Martha N. Njama
Prometra Kenya

Desertification has brought about many challenges within the local communities. Desertification has brought about changes in climate such that the communities are experiencing some sicknesses that were never there before. For our organization which is an organisation for promotion of traditional medicine, the challenges are even more because of the changes in soil and hence changes in the medicinal plants and the medicinal values. These challenges have called for research on the new plants and the changes in the medicinal values on the plants that existed before. Also to engage in the research on traditional medicines that can be used for the emerging sicknesses. One of the main causes of desertification is known to be human activity. Research on the alternative ways of doing things in order to mitigate desertification is also one of the research interest for our organisation, example; alternative energies to save tree cutting by the communities.

Emma Notfors
DPhil (PhD) Candidate
University of Cambridge

Emma's research focusses on literary depictions of the Arabian Desert during the early Twentieth Century. Despite the numerous literary explorations of the region, it is a space that remains under-theorised in both postcolonial and ecocritical scholarship. While recent scholarly contributions perform important deconstructions of orientalist discourse, the desert has been critically neglected as a socially-produced landscape and as a signifier within that discourse. Without an understanding of this environment, we are left with an inadequate analysis of orientalist discourse that neglects the importance of wilderness and pastoral landscapes in the British cultural understanding of the orient. Her research aims to remedy this by an exegesis of depictions of the Arabian Desert in the travel writing of Gertrude Bell and in T.E. Lawrence's *The Seven Pillars of Wisdom*, with focus on the interactions of literary description, pictorial illustration and cartography.

Emma is currently in the third year of a PhD at the Faculty of English at the University of Cambridge and she is based at King's College, where she also completed her MPhil. Her research interests include the representation of region and landscape forms in literature, cinema and visual culture; the influence of technology on modernist aesthetics and rural literary modernism.

Rodrigo Ortiz-Vazquez
University of Southampton

My particular interest in Maritime Archaeology has been constant ever since 2006 when took an Nautical Archaeology Society (NAS) and shortly after started a degree in Archaeology as well as my diving career in Mexico City.

During this same period, the Archaeological Survey Lab of Institute for Anthropological Research based at the National University of Mexico IIA-UNAM allowed me to join then. I have been fortunate enough to participate in several international projects in Mexico, Spain, Israel and the UK, some of them in collaboration with different universities from US, Italy, Chile, Argentina, Colombia and the previously mentioned country's. It was during the projects that applied geophysical provided me with an integrated scope of techniques in different archaeological sites and context, resulting in an undergrad dissertation that treated on activity areas based on chemical residues on floors at Magdala, Israel. This became the first archaeological thesis in Mexico with a Middle-Eastern topic.

In 2013 National Comity for Science and Technology (CONACYT) granted a scholarship in Mexico, enabling me to course the MA program at the University of Southampton. The Centre for Maritime Archaeology (CMA) is considered today as one of the leading maritime archaeology programmes in the UK and the world.

As my research interests have been focused on applied science investigation in archaeology, the MA dissertation was focused on site formation processes in the shipwreck HMS Invincible located in the east Solent, UK. This combination has permitted me to engage with the NOC (National Oceanographic Centre) a mayor technological and research centre. During this time Pascoe Archaeological Services (PAS) and MSDM Marine have allowed me to carry out commercial diving work in underwater survey in England, Wales and Scotland, being a very gratifying work experience.

Currently my PhD research project deals with maritime aspects of landscape of the main ports of Mexico. Considering that landscape in archaeology continues to play a pivotal role in seaports today, but little is understood on how this develops.

Dr. Shinji Otani
Tottori University

The main subject of my research is 'climate change and human health'. The field of specialization includes epidemiology, biology, nutriology, and disaster science. For comprehensive risk assessment of climate change related disaster, collaboration with faculty across disciplines is necessary. My study aimed to evaluate health risk of climate change and prevent health damage.

I am a medical doctor and I have been working as a surgical oncologist in Tottori University Hospital and several general hospitals. I received PhD in medicine from Faculty of Medicine, Tottori University, and I joined Japanese Antarctic Research Expedition as a doctor of wintering member in mid career. Currently, I am doing research on arid land and medicine at Arid Land Research Center, Tottori University in parallel to the work on Tottori University Hospital (associate professor).

Inam Ramin
FRESH Institute, Pakistan

Research interests: Extensive livestock production system in drylands; Pastoralism, integrated eco-system and rangeland management; Livestock health, animal nutrition, animal breeding and management; Livelihood security in drylands incl. socio-economic aspects; Climate change mitigation and adaptation in mountain systems

Since 2004 Senior Researcher (South), Centre for Development and Environment

- a. Improving livestock output of small-holder mountain farmers through valley specific nutrient supplements in Hindukush Mountain of Northern Pakistan; Partnership Areas for Mitigating Syndrome. NCCR North-South (2004-2005)
- b. Extensive production systems in Asia and Africa, Transversal Package Project, NCCR North-South (2006-2009)

- c. Landless pastoralists – A transhumant system under siege in the Hindukush-Himalayan Mountains: livelihood options for marginalized populations. SNSF and SDC funded under “Joint Research Project” stream (2009-2012)
- d. Climate change and smallholders: A regional outlook on conflicts, mitigation, and adaptation research project. NCCR North-South (SRP6) (2010-2013)
- e. Dynamic social-ecological conditions, resource scarcity and adaptation to climate change Actors, resources and livelihoods in Africa and Asia NCCR North South (2009-2013)

Dr. Angela Ravens-Roberts

Angela Raven Roberts career spans 30 years of work with NGOs, United Nations and academia in the Humanitarian sector. In 1998 she took a leave of absence from UNICEF to join Tufts University as Director of Academic Programmes for the then newly formed Feinstein International Famine Centre. At Tufts, she oversaw the design of one of the first Master’s of Arts in Humanitarian Assistance (MAHA) degree in the USA, developed specialist courses on gender, culture and humanitarian assistance and spearheaded several successful humanitarian initiatives with MIT, Harvard and other universities. She rejoined UNICEF in Geneva in 2004 as Regional Chief of Emergencies for Central and Eastern Europe and Commonwealth of Independent States. Between 2011 and 2012 she was Executive Director for the Humanitarian Accountability Partnership in Geneva.

Educated in the USA and United Kingdom, Dr Raven-Roberts holds a PhD in Anthropology from the University of Minnesota, a Master’s degree in Social Anthropology from Oxford University, and a Bachelor’s degree in African History and Social Anthropology from London University School of Oriental and African Studies.

She is currently a Visiting Research Fellow at the Institute of Gender Studies at Lady Margaret Hall Oxford working on capacity development specializing on the role of national civil services in disaster preparedness and reviewing current educational policies for pastoral communities in the Horn of Africa.

Dr. Karin Seyfert **Oxford Policy Management Group**

Karin Seyfert is working as a consultant with OPM’s survey team. She has managed a large education survey in Nigeria and is currently leading a topic specific re-analysis of MICS data in Mongolia, which includes an early childhood development element. Prior to joining OPM, Karin worked on the Global Initiative on Out of School Children for UNICEF in Yemen. While with UNICEF’s Sana’a office she led the design, implementation, data management and analysis of a Baseline household survey. Before becoming a consultant, Karin worked as an academic at the American University of Beirut. There she managed research projects on Iraqi and Palestinian refugees commissioned by UNHCR and UNRWA respectively. She also led an analysis of fresh foods producers, wholesalers and retailers in Lebanon and Qatar for Georgetown University in Doha.

Karin has published peer reviewed articles in *The Journal of Nutrition*, *The British Journal of Nutrition* and the *Refugee Survey Quarterly* as well as peer reviewed abstracts in the *Lancet*. She participated in the validation of an Arab Family Food Security Scale, an instrument used to assess household food insecurity, which is now included the Gallup World Poll. Karin holds a PhD in Economics from the University of London, an MSc from the Toulouse School of Economics and an MA in Arabic and Economics from the University of Edinburgh. Karin speaks German, French and Arabic.

Dr. Vigya Sharma **University of Queensland, Center for Social Responsibility in Mining**

Dr Vigya Sharma is a Postdoctoral fellow at the Centre for Social Responsibility in Mining (CSRMin), at the University of Queensland, Australia.

Her research focuses on the social-ecological interface of challenges confronting modern societies. Her broad research interests are in the areas of sustainability, responsible mining, livelihoods, and climate change adaptation. She has rich research experience from across diverse geographical contexts, including India, Sweden, Australia, China, Mongolia and Bangladesh.

Vigya holds a PhD in human geography from the University of Adelaide, Australia. Her doctoral thesis investigated into the meaning of sustainability and its underlying processes across developing (Kerala, India) and developed (Sweden) regions.

At CSRM, her work has focused on understanding how mining activities may interact with externally-influenced non-mining stressors, such as climate-induced natural disasters to create complex social and environmental challenges for host communities in these regions.

Aman Singh
KRAPAVIS Institute, India

Aman Singh is the Founder of Krishi Avam Paristhitiki Vikas Sansthan (KRAPAVIS), an institution which works towards the betterment of ecological, agricultural and livestock practices, to ensure sustainable livelihoods and sustainable resource use in the dry lands of Rajasthan (India), since 1992. Aman has overseen the regeneration of over 125 *Orans* (community forests and grazing lands), and has taken initial steps to influence policy changes and legislation in the state. Another important element of his work is conducting research and documentation on Orans, and has developed a database of about 900 Orans, so far. Aman has trained over 500 community volunteers, who work in the villages to disseminate information, conduct training, and provide assistance on ICCAs, ecological issues such as biodiversity conservation, causes and effects of global warming, water management, pastoralism as well as ecological agriculture, plant nurseries and plantation. Aman Singh has been awarded with many prestigious awards such as 'Dalmia Environment and Water Conservation Award', 'Ashoka fellowship', recognising his contribution towards conservation of Orans in India. He is also a LEAD Fellow. Aman has received several fellowships/sponsorships from international agencies include UNDP, UNOCHA/ WISP, Schumacher College U.K., ILC/IFAD, Ford Foundation, IUCN (International Union for Conservation of Nature)/ ICCA Consortium, University of California, and so. He has written extensively on community conserved areas, ecology and pastoralism, and his recently published book is "Ecological Traditions of India – Rajasthan". He has presented to international audiences in countries as diverse as England, Ethiopia, Nepal, Australia, Scotland, Tanzania, France, Indonesia, Kenya, Bulgaria, and USA, so on. He is member of RAG (Research Advisory Group) Forest Department (Government of Rajasthan), and Founding Member of networks (like Oran Forum, Indian Pastoralists Network-IPN, Rajasthan Pastoralists Network-RCVS, Millet Networks-MINOR/ MINI, etc), member of National Organizing Committee, Indian Biodiversity Congress. Aman holds an MSc degree, is a graduate of the University of California's Environmental Leadership Programme, and has studied Deep Ecology and Bioregionalism at the UK's Schumacher College.

Dr. Jonathan A. Sherratt
Department of Mathematics, Heriot-Watt University

Jonathan Sherratt is Professor of Mathematics at Heriot-Watt University in Edinburgh. His DPhil in mathematical biology (1991) was supervised by James Murray FRS. After a period of post-doc research at Oxford he was a Lecturer and Senior Lecturer at University of Warwick, before moving to Heriot-Watt. His research has involved the application of mathematics to a wide range of problems in biology and ecology, and over the last decade he has focussed on modelling vegetation patterns in drylands. Professor Sherratt is a Fellow of the Royal Society of Edinburgh, and his research has been recognised by awards including the Whittaker Prize (Edinburgh Mathematical Society, 2001), the Okubo Prize (Society for Mathematical Biology, 2003), the Adams' Prize (University of Cambridge, 2006) and the Whitehead Prize (London Mathematical Society, 2006).

Jonathan Sherratt's research concerns theoretical modelling of vegetation patterns in drylands. The overall objective of this work is to understand the ecological and environmental processes responsible for such patterns, in order to assess the extent to which the patterns can be used as an early warning signal of catastrophic regime change. A number of theoretical models have been proposed for vegetation patterns but for the most part they are studied via limited programs of computer simulation. Sherratt's work attempts to obtain a more detailed understanding of models, in order to fully exploit their predictive capabilities.

Dr. Masato Shinoda
Graduate School of Environmental Studies, Nagoya University

My research involves many observational aspects of climatology. The field of specialization includes ecological climatology, i.e., study on eco-climate system dynamics; drought sciences, dust emission

mechanism, and early warning system of dryland natural disasters. My study area covers world arid regions extending from Africa to central Asia and Mongolia.

I received D.Sc. in climatology (on African droughts) from the Department of Geography at the University of Tokyo. My research career until the present position covered a visiting scientist of the Department of Meteorology, University of Nairobi of Kenya, an assistant professor and subsequently an associate professor of the Department of Geography, Tokyo Metropolitan University, and a professor of the Arid Land Research Center, Tottori University.

I served as author or expert reviewer of the Second to Fourth Assessment Reports of the Intergovernmental Panel on Climate Change, which received the Nobel Peace Prize in 2007 and as a leader of dust study under the Global Center of Excellence for Dryland Science program by the Japan Society for the Promotion of Science.

Dr. Troy Sternberg

School for Geography and the Environment, University of Oxford

Troy's research centres on climate hazards in Asian drylands. This includes climate documentation, hazard analysis, assessment of social and environmental risk and system exposure to extreme events. Climate - hazard interaction in deserts is part of an intricate equation that includes government policy, land use decisions and cultural and historical patterns as much as precipitation, temperature and landscape dynamics. He likes the Gobi (Mongolia and China), Thar (India) and Arabian (Oman) deserts as well as Baja California and the badlands of Wyoming; water, climate, hazards, people and transboundary risk are favourite research themes. Troy is trying to find shallow groundwater for nomads in the Gobi using remotely-sensed palaeo-channels and palaeo-shorelines as potential indicators of water resources.

Dr. Abi Stone

**Department of Geography, School of Environment, Education and Development
University of Manchester**

I am a Quaternary Scientist, Geomorphologist and Hydrogeologist who focusses on the dynamics of Dryland Environments. My interests span timescales from recent decades back to 100s of thousands of years, and addresses two broad themes: (i) the sediment pore-moisture component of the hydrological cycle (quality and quantity) and (ii) Landscape dynamics in Drylands using geoproxies (such as sand dunes). The majority of my research to date has been in southern Africa, although I have interests in developing research in northern Africa and China.

Dr. Emilia Roza Sulek

Humboldt University Berlin

Emilia Roza Sulek is a social anthropologist, Mongolist and Tibetologist. She is a graduate of University of Warsaw, and has recently completed her PhD at Humboldt University in Berlin. Her doctoral research concerned the boom in caterpillar fungus trade and transformations of pastoral economy in north-eastern Tibet. She is the book reviews editor in *Nomadic Peoples*.

Dr. Vanessa Winchester

School for Geography and the Environment, University of Oxford

Dr. Winchester's research interests include the application of lichenometric and dendrochronological techniques to the dating and interpretation of environmental change. Her work has included studies of glacier retreat in southern Chile, mass wasting events in Peru and the northern Tien Shan Mountains, Kazakhstan, with changes in these regions linked to climate warming in progress since the mid-nineteenth century. Latterly, she has turned her attention to landscape dynamics in arid lands using tree rings as indicators of change, including work on gully erosion in Colorado, dune movements on the Baltic foreshore in Poland, a pilot study on water table changes around a new mine in the south Gobi, Mongolia and forest dynamics in S.E. Madagascar.

Dr Winchester, awarded a D.Phil. in 1990 (thesis title: "An evaluation of lichenometry: with field studies in Lappland, Britain, and the Western Alps"), has been affiliated to the School of Geography and the Environment as a Research Associate since 1997 and a Senior Research Associate since 2002.

She began research on glacier retreat around the North Patagonian Ice field in 1991 and continued working there until 2009 using both lichenometry and dendrogeomorphology to date rock surface exposure following glacier retreat.

Currently her interests have expanded to the analysis of landscape processes and rates of change in arid environments.

In 2002 she established the Oxford Laboratory of Dendrogeomorphology and in 2005 ran the "20th International Dendroecological Field week" in North Devon in collaboration with the Swiss Federal Institute for Forest, Snow, and Landscape Research, Birmensdorf, Zurich, the originators of this annual event.

Web page: <http://www.geog.ox.ac.uk/research/geomorphology/dendro/index.html>

Thomas White
DPhil (PhD) Candidate
University of Cambridge

My PhD research examines the changing nature of pastoralism in Alashan in the west of Inner Mongolia, in the context of state environmentalism and attempts to develop the region as part of the 'Open up the West' (Xibu Da Kaifa) plan. I am interested in particular in the relationship between animals, herders, and the state, and the Bactrian camel takes centre state in my research. This animal now enjoys exemption from the stocking limits which apply to other livestock, and is promoted by the local state in its attempts to market Alashan to tourists, and outside investors. At the same time, large portions of rangeland are being turned into 'industrial zones' as part of the state's development plans. My research seeks to contribute to interdisciplinary debates around human-animal relations; to political ecology and discussions of state environmentalism in China; and to the anthropology of space and place. !

Marsha Zibulese-Crawford
Temple University

Dr. Marsha Zibalese-Crawford, Associate Professor, Temple University, College of Health Professions and Social Work, Department of Geography and Urban Studies

Marsha Zibalese-Crawford, PhD, MSW, is an Associate Professor with a dual appointment in the College of Public Health and School of Social Work, and Department of Geography and Urban Studies Temple University. She combines a focus on the needs of families and youth with a rich array of experience developing organizational partnerships in the community, both public and private. Her CBPR community-based participatory research focus provides her the unique opportunity to apply and test theory in a practical setting in the US and globally (e.g. Israel). Most recent publications: *Urban Communities and Human Services, A Study on the Preparedness of Medical Social Workers in the Treatment of Adolescent Alcohol Abusers*, and *Non-profit/NGO capacity building and sustainability in a global context*.

Dr. Zibalese-Crawford is currently the principal investigator for the Bedouin Women's Voices Project in Nahab, Israel. She is also the principal investigator of the DBHiDS/OAS prevention evidence-based projects and co-investigator for the National Institute of Drug Abuse, Temple University translational research on interventions for adolescents in the Juvenile Justice System: TRIALS; and in the past five years was principal evaluator/researcher for the community-based City of Philadelphia Mural Arts Program, Restorative Justice program; the evaluator/ researcher for the Drug Free Communities grant funded by the Federal Office of National Drug Control Strategy and SAMHSA. In 2009, she completed a study that assessed the needs of girls and violence in Philadelphia. The study was designed to provide greater insight into the needs of girls at risk for—or involved in—violence in order to suggest family- and community-based programs and services for possible implementation.. Dr. Zibalese-Crawford was the lead researcher for the City of Philadelphia Report Card of the well-being of children and youth from 1999-2007.

A morning picture of the vast Gobi
S. Dashdoorov

Lumbering to their feed as if their full humps weighed them down
The herd of rich brown camels rose one after another.
Washed with light from the rising sun, their coats splashed red,
Transformed into a line of red-dune clouds they moved off heavily over
the ground.

Pale gleam in this pink-grey hollow of the vast ageless Gobi,
Like the waning moon which hung all night above the steppe, a white
yurt was left behind them.

Driving the living red clouds of the shimmering azure Gobi
A dear familiar figure moved away, her bright-coloured scarf
fluttering in the wind.

Translated by Krystyna Chabros
1989, Mongolian Studies
Published by the Mongolia Society

