



International Scientific Conference **ARID LANDS** Environmental and Social Sustainability within the V International Farabi Readings

11-12 April 2018
Almaty
Kazakhstan





SCHOOL OF GEOGRAPHY
AND THE ENVIRONMENT



«АРИДТІ АЙМАҚТАР: ТАБИҒАТ ПЕН ҚОҒАМНЫҢ ТҰРАҚТЫЛЫҒЫ»
ХАЛЫҚАРАЛЫҚ ҒЫЛЫМИ КОНФЕРЕНЦИЯСЫ
Алматы, Қазақстан, 2018 жыл, 11-12 сәуір

МЕЖДУНАРОДНАЯ НАУЧНАЯ КОНФЕРЕНЦИЯ
«АРИДНЫЕ ТЕРРИТОРИИ: УСТОЙЧИВОСТЬ ПРИРОДЫ И ОБЩЕСТВА»
Алматы, Казахстан, 11-12 апреля 2018 года

INTERNATIONAL SCIENTIFIC CONFERENCE
«ARID LANDS: ENVIRONMENTAL AND SOCIAL SUSTAINABILITY»
11-12 April 2018, Almaty, Kazakhstan

ORGANIZING COMMITTEE

- | | |
|--------------------------------------|---|
| Galym Mutanov | - Rector, Al-Farabi KazNU |
| Mukhambetkali
Burkitbayev | - First Vice-Rector, Al-Farabi KazNU |
| Aizhan Smailova | - Director, International Cooperation Department |
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| Olga Zubova | - Senior lecturer, UNESCO Chair for Sustainable Development |

PROGRAMME
OF THE INTERNATIONAL SCIENTIFIC CONFERENCE
"Arid Lands: Environmental and Social Sustainability"

11-12 April, Almaty

11 April

09.30-10.00	Registration	Scientific Library of Al-Farabi KazNU, Floor 4
10.00-10.35	Opening Ceremony	Scientific Library of Al-Farabi KazNU, Floor 4, Conference Hall 409
10.35-11.15	Plenary Session	Scientific Library of Al-Farabi KazNU, Floor 4, Conference Hall 409
11.15-11.30	Coffee break, posters	Scientific Library of Al-Farabi KazNU, Floor 4
11.30-12.50	Plenary Session	Scientific Library of Al-Farabi KazNU, Floor 4, Conference Hall 409
12.50-13.00	Group photo	Scientific Library of Al-Farabi KazNU, Floor 4
13.00-14.00	Lunch (<i>by invitation</i>)	Students' Palace
14.00-15.30	Panel Sessions	Scientific Library of Al-Farabi KazNU, Floor 4, Conference Halls 409, 408, 401
15.30-15.45	Coffee break, posters	Scientific Library of Al-Farabi KazNU, Floor 4
15.45-16.30	Panel Sessions	Scientific Library of Al-Farabi KazNU, Floor 4, Conference Halls 409, 408, 401
16.30-17.00	Resolution	Scientific Library of Al-Farabi KazNU, Floor 4, Conference Hall 409

12 April

9.00-15.00	Tour to Camel Farm
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Time limit for presentations
Report at the Plenary Session – 20 minutes
Report at the Panel Sessions – 15 minutes
Discussion – 3 minutes

PLENARY SESSION

11 April 2018

Scientific Library of Al-Farabi KazNU, Conference Hall 409

OPENING CEREMONY

Moderator: **Mukhambetkali Burkitbayev**, First Vice-Rector, Al-Farabi KazNU.

WELCOMING REMARKS:

1. ***Mukhambetkali Burkitbayev***, welcoming remarks on behalf of the rector of Al-Farabi KazNU;
2. ***Vlastimil Samek***, Head, the UN Department of Public Information;
3. ***Kristine Tovmasyan***, Head, Natural Sciences Sector, UNESCO Cluster Office for Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan in Almaty;
4. ***Ruslan Bultrikov***, Head, Representative Office of the Ministry of Foreign Affairs of Kazakhstan in Almaty;
5. ***Rowan Kennedy***, Deputy Director, the British Council.

PLENARY REPORTS

Troy Sternberg

Professor, the University of Oxford
(the UK)

Desert Research: a Global Perspective

Masato Shinoda

Professor, the University of Nagoya
(Japan)

Integrating Dryland Disaster Science for
Eurasia

Victoria Ilina

Member, Kazakhstan: Man and
Biosphere National Committee
(Kazakhstan)

The Green Silk Road “One Belt One
Road”: Opportunities and Prospects

Viktor Kouloumpis

Researcher, the University of
Exeter
(the UK)

How much could Renewable Energy
Technologies Contribute to Electricity
Generation Environmental Impact
Reduction in Kazakhstan?

Jeffrey Lee

Professor, Editor-in-Chief, Aeolian
Research Scientific Journal, Texas
Technical University
(USA)

Publishing in Environmental Journals: An
Editor’s Perspective

Joana Roque de Pinho

Researcher, Centre for International
Studies
(Portugal)

Exploring a Changing Climate with East
African Pastoralists and West African Rice
Farmers: A Collaborative Visual Approach

SESSION I

Environmental Issues in Arid Lands of Central Eurasia

Venue: Conference Hall 409, Floor 4

Time: 14.00-16.30

Moderator: **Troy Sternberg**, Professor, the Faculty of Geography and Ecology, the University of Oxford.

Reports:

1. **Viktor Kouloumpis** – the University of Exeter.
‘Potential improvement of water sustainability via coal mine and electronic waste co-processing’.
2. **Mehmet Aksit** – the University of Twente.
‘The Importance of Software Technology in Environmental and Social Sustainability: Recent Developments and Open Issues’.
3. **Joana Roque de Pinho** – Center for International Studies (CEI).
Demonstration of the video film concerning the plenary report *‘Exploring a Changing Climate with East African Pastoralists and West African Rice Farmers: A Collaborative Visual Approach’.*
4. **Stephen S. Young**. – Salem State University (USA).
‘Recent and future climate change in West Asia: Sustainability concerns in an era of increasing aridity’.
5. **Karshiga Koshkimbayev** – Al-Farabi KazNU.
‘The status of research on blood-sucking dipterous insects (Diptera: Culicidae, Simuliidae, Ceratopogonidae, Phlebotomidae, Tabanidae) in Kazakhstan and current research directions’.
6. **Lyudmila Pavlichenko** – Al-Farabi KazNU.
‘The dynamic of boron pollution in the Ile River and the Aktobe basin as a reflection of the front pollution movement from sources of groundwater pollution’.
(Co-author **Aina Rysmagambetova**)
7. **Lyudmila Pavlichenko** – Al-Farabi KazNU.
‘Implementation method of differentiation of the principle «pollutant pays» in Mangystau region’.
(Co-author **Aikerim Yespolaeva**)
8. **Nadir Mamilov** – Al-Farabi KazNU.
‘Problems of conservation of natural diversity of fishes coming from land and water use in arid area of the South Kazakhstan’.

(Co-authors: Anvar Mamilov, B. Sultanbaev, F. Khabibullin, F. Amirbekova, E. Kozhabaeva)

9. **Kalkash Abubakirova** – Al-Farabi KazNU.

‘Central Asian Region: Environmental Pollution with Production and Consumption Wastes’.

(Co-authors: Ainur Tanybaeva, Olga Zubova)

10. **Kuanysh Kusembayeva** – Al-Farabi KazNU.

‘The study of pollution of the Caspian Sea through the construction of a wave climate by satellite data’.

Posters:

11. **M. Alinov** – Al-Farabi KazNU.

‘Typical geospatial manifestations of environmental degradation and climate change’.

12. **B. Mynbayeva, G. Bekahmet** – Abai KazNPU, Al-Farabi KazNU.

‘Geoecological aspects of the recreational nature management of the Ile-Alatau National Park’.

13. **S. Romanova** – Al-Farabi KazNU.

‘Theory and practice of self-purification processes of natural waters (on the example of the arid lands of Kazakhstan)’.

14. **E. Nartay** – Al-Farabi KazNU.

‘Nonlinear Analysis of Cosmic Radiation Effects on Earth's Global Climate’.

15. **T. Darbayeva, B. Alzhanova, S. Bohorova, A. Sarsenova** – M.Utemisov West Kazakhstan State University.

‘Comprehensive analysis of the flora biodiversity of Podural'skiy Plateau calcific landscapes’.

16. **A. Akilbekova** – Al-Farabi KazNU.

‘Stability analysis of buildings and structures from earthquakes in Almaty’.

17. **G. Satbayeva, B. Tleuberlina** – Narxoz University.

‘Basis of assessment of specially protected natural territories’.

18. **V. Kim** – Al-Farabi KazNU.

‘Analysis of emissions of harmful substances from the boiler plant’.

19. **S. Semenihina** – Aktobe Regional State University named after K. Zhubanov.

‘Strategy of sustainable development culture within the university’.

20. **A. Murzalimova, S. Kilic, Y. Yarovaya, Z. Mamutov** – Al-Farabi Kazakh National University; Ardahan University, Turkey.

‘Radioactive contamination $^{239,240}\text{Pu}$ of the soil cover of the former Semipalatinsk testing site (on the example of winter hut Zhanan)’.

21. **K. Temirbayeva, O. Zubova** – Al-Farabi Kazakh National University.

*‘Specific features of distribution of genus *Nitraria* L. in arid lands’.*

22. **N. Mazhrenova, G. Minzhanova** – Al-Farabi Kazakh National University.

'Use of electron beam technologies in water treatment from pollutants'.

SESSION II

Sustainable Development in Arid Lands of Central Eurasia

Venue: Conference Hall 408, Floor 4

Time: 14.00-16.30

Moderator: **Vitaliy Salnikov** – Dean, Faculty of Geography and Environmental Sciences, Al-Farabi KazNU.

Reports:

1. **Marc Foggin** – Mountain Societies Research Institute, the University of Central Asia (Kyrgyzstan).
'Recent history of conservation and land management systems on the Tibetan Plateau, with «lessons learned» about community partnerships for achieving Sustainability'.
2. **Vitaliy Salnikov** – Al-Farabi KazNU.
'Regularities of occurrence of atmospheric aridity on the basis of a complex analysis of the general circulation of the atmosphere'.
(Co-authors: **G. Turulina, E. Talanov, Svetlana Polyakova, Tamara Tazhibayeva**)
3. **Maral Abdibattayeva** – Al-Farabi KazNU.
'Technogenic desertification of the Earth due to pollution by petroleum and petroleum products'.
(Co-authors: **Askhat Umbetbekov, Aida Satarbayeva, G. Asanova**)
4. **Anar Kolushpayeva** – Almaty Management University.
'The development of agro-tourism - as a generator of income in rural areas'.
5. **Tamara Tazhibayeva** – Al-Farabi KazNU.
'An introgressive forms on the basis of wild relatives for improving of wheat adaptability in arid lands'.
(Co-author **A. Abugaliyeva**)
6. **Ravilya Alybayeva** – Al-Farabi KazNU.
'Investigation of wheat genotypes for identification of metal-resistant, climate-resistant forms that are promising for cultivation on contaminated soils'.
(Co-author **Valeria Kruzhayeva**)
7. **Nazarbay Yerkin** – Al-Farabi KazNU.
'Transboundary Water Resources in Central Asia'.
(Co-author **I. Kulihev**)

Posters:

8. **G. Aizel, A. Izhitskiy, A. Kurbaniyazov, Z. Atabayev** – Institute of Water Problem RAS, Institute of Oceanology named after P.P. Shirshov, (Russia); A. Yasawi International Kazakh-Turkish (Kazakhstan).
‘Forecasting of the state of the small Aral sea on the basis of data of open sources’.
9. **G. Aigarinova** – Al-Farabi KazNU.
‘The legal status of Arid Lands’.
10. **O. Zubova, N. Voronova, G. Mukanova, K. Temirbayeva, G. Azhiyeva** – Al-Farabi KazNU.
‘Development of technology for ash and slag wastes utilization at thermal power plants for the production of dry plaster mixtures’.
11. **S. Saidullayev** – Narxoz University.
‘Current development of information infrastructure in tourism’.
12. **G. Nurgaliyeva** – Al-Farabi KazNU.
‘Environmental audit as a tool for the development of arid lands’.
13. **Z. Balkybek, Z. Toregozhina** – Al-Farabi KazNU.
‘Evaluation of environmental risks associated with atmospheric pollution’.
14. **U. Prasul** – Karazin Kharkiv National University.
‘Ecological tourism and arid nature protection territories: points of contact’.
15. **R. Sagiyeva, D. Rahmatullayeva** – Al-Farabi KazNU.
‘Institutional framework of the development of the green economy’.

SESSION III

Silk Road in the Past and Present

Venue: Conference Hall 401, Floor 4

Time: 14.00-16.30

Moderator: Dauren Dyussebayev – Director, International Research Center ‘One Belt One Road’.

Reports:

1. **Roman Jashenko** - Al-Farabi KazNU; Kazakhstan National Committee for the UNESCO Program «Man and Biosphere» (MAB).

'Biosphere-oriented urbanization and UNESCO program "Man and the Biosphere"'.

(Co-authors: E. Maltseva, Victoria Ilina)

2. **Rahima Abduvalieva** - Aitmatov Academy.
'Promotion of the Kazakh Culture in Europe'.
3. **Nabizhan Muhametkhanuly** – Al-Farabi KazNU.
'Taraz city in the past and present on the Great Silk Road'.
4. **Dmitriy Men** – Al-Farabi KazNU.
'The Great Silk Road is an outstanding achievement of humans'.
5. **Madiyar Yeleuov** – Al-Farabi KazNU.
'The Great Silk Road and caravan roads of South Kazakhstan'.
6. **Sheripzhan Nadyrov** – Al-Farabi KazNU.
'New economic belt of the Silk Road: opportunities and risks'.
7. **Fatima Kukeyeva** – Al-Farabi KazNU.
'"Belt-Road" initiative for Kazakhstan: opportunities and risks'.
8. **Aslan Zhaksylykov** – Al-Farabi KazNU.
'The symbolism of the number nine in the traditional Kazakh metaculture'.

Posters:

1. **G. Shiderina** – Al-Farabi KazNU.
'The role of the Great Silk Road in the development of the tourism industry'.
2. **Duman Zhekenov** – Al-Farabi KazNU.
'One Belt, One Road: What is entail for Central Asia?'.

SESSION III

Silk Road in the Past and Present

SYMBOLS OF THE NUMBER 9 IN THE KAZAKH ARCHAIC META-CULTURE

Zhaksylykov A.Zh.,

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This article is devoted to some aspects of the traditional meta-culture of Kazakhs, in particular the symbolism of numbers, especially number 9, which plays an important structural and semantic role in the ritual, cultic life of the ethnos, reflecting archaic cosmogony and sacral concepts, forgotten ancient Turkic astrology. The symbolism of number 9 has both exoteric and esoteric aspects, this circumstance is revealed when anthropological research of folklore of Kazakhs, especially philosophy and poetics of fairy tales.

Animism is the basic field of spiritual meanings and primary concepts, which allows for the idea of the polymorphism of the inner cosmos of man, which is extremely common in the mythological culture of the relic peoples of different continents. The universal model of the multilayered architectonics of the world in shamanism can be correlated with the polymorphism of ideas about the inner world of man, it is not difficult to see that these two models are in the relations of the macrocosm and the microcosm. The general picture of the mythological, metaphorical picture of the cosmos, in whose structure the microcosm of man is inscribed, looks quite a complex multilayered model, which is also dynamic and algorithmized in the main symbolic manifestations and figurative manifestations. This model of the world with hierarchically interconnected plans of being by the principle of Top-Bottom, External-Inner, imbued with the principle of spiritual unity, semantically determines the transpersonal communications of the human soul according to the levels of metaphysical reality. This universal model of the cosmos, isomorphic to the principle of polymorphism typologically inherent in shamanism of different peoples and tribes, reconstructed from folklore, differs from the analogous metaphysical model of monotheistic religions (Christianity, Islam, Judaism) by one important circumstance: in monotheistic religions, the idea of the human soul as an undifferentiated spiritual unit. In the fairy tale "Shoyin-kulakh" Mergen manages to defeat the giant, successively, one by one, killing eight chicks, the souls of the enemy. However, at a critical moment, when he paused, the ninth chick again multiplied to eight. Destroying this chick, Mergen finally overcomes the enemy. Let us recall Koshchei the Immortal in Russian folklore with his many souls nested in each other. Thus, in the animistic view, Everything consists of everything, therefore, in the universal relations Everything interacts with everything.

With a sufficient degree of conventionality, we can also accept the following reading, that in a figurative system of fairy tales, a cave, pit, grave, well, crack in the earth, lake, swamp, sea, ocean are the symbols of the vestibule to the lower worlds. On the contrary, the giant tree, the mountain, the high place, the city on the clouds, the city on the hill is the gateway to the higher world. Intermediate ritual forms in the transmigrations of the hero are the initiation, the mysteries of death and resurrection, the search for the lost soul, the search for a non-human ally, the superhuman ideal wife, etc. In our opinion, the hero's transmigration on the metaphysical axis of the worlds is clearly manifested in the following fairy tales: "Er-Tostik", "Karatay", "Go there - bring it here", "Kebis, magic ring and twigs", "Beauty Mirjan and the ruler of the underwater kingdom", "Kara-Mergen".

Conclusion: Of course, we can not reduce the dynamics of the whole variety of fairy-tale actions to the meta-and-transphysical migrations of the hero, for example, in a large number of tales about animals, social and domestic tales, there are local, one-episode plots that gravitate toward entertaining and parable. However, with respect to the subjects of fairy tales, the conclusion about the universal-typological meaning of the plot with the paradigm of spiritual displacements and the symbolism of such symbolic numbers as 9 is quite legitimate.

Keywords: symbolism, fractal, magic, attribute, hypostasis, algorithm, numerology.