

COMMISSION REPORT 2013-2014

C12.26 Commission on Land Use and Land Cover Change

1. Membership

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Members: 260 (54 countries/regions), as of 1st December 2014

Australia	3	Austria	4	Bangladesh	2	Belgium	1
Brazil	1	Brunei	1	Canada	7	Chile	1
China	25	Colombia	1	Czech Republic	14	Denmark	1
Ecuador	1	France	3	Finland	3	Germany	6
Ghana	2	Hong Kong	2	India	23	Indonesia	3
Iran	2	Ireland	2	Italy	4	Jamaica	1
Japan	43	Korea	6	Laos	1	Mexico	2
Malaysia	2	Mongolia	3	Nepal	1	Netherlands	2
New Zealand	3	Nigeria	3	Pakistan	2	Palestine	1
Philippines	1	Poland	2	Portugal	12	Romania	3
Russia	7	Singapore	1	Slovenia	2	Slovak Republic	2
South Africa	5	Spain	3	Sri Lanka	3	Sweden	2
Switzerland	2	Taiwan	2	Ukraine	2	U.K.	10
U.S.A.	17	Bulgaria	1	Croatia	1		

Unfortunately, these numbers are sort of incorrect and show rather all members in commission's history, because it is based on the table created a lot of years ago and new members were regularly added. But some members of commission are not active anymore; some of them have changed e-mail addresses and all contacts, so it's not possible to contact them. Our suggestion is to rebuild this members list by new registration of interested members during next IGC and after congress via web form. This problem was already mentioned on the last commission report 2012-2013 and one of the commission's plans for 2015 should be revision of this members list. Contemporary commission's mailing list has **157 active e-mail addresses**; so number 157 is more correct.

2. MEETINGS

2013:

In the latter part of 2013 there was no commission's meeting. Both main meetings in 2013 were in June 2013 (IGU LUCC regional meeting in Prague, Czechia) and in August 2013 (Regional Conference in Kyoto, Japan). They are both mentioned in detail in commission report 2012-2013.

2014:

There were two main IGU LUCC commission meetings in 2014 – in Bucharest, Romania (June 23-26) and in Kraków, Poland (August 18-22).

**THE INTERNATIONAL GEOGRAPHICAL UNION,
LAND USE-COVER CHANGE COMMISSION REGIONAL MEETING
LAND USE-LAND COVER CHANGES AND LAND DEGRADATION (LUCC&LD) SYMPOSIUM**

JUNE 23-26, 2014, BUCHAREST, ROMANIA

The 2014 IGU LUCR Regional Meeting “*LAND USE-LAND COVER CHANGES AND LAND DEGRADATION (LUCC&LD)*” was held in Bucharest, Romania on June 23-26. The event was organized by the Romanian Academy’s Institute of Geography, the Romanian Space Agency – ROSA, and the University of Agronomic Science and Veterinary Medicine Bucharest. The Symposium focused on land use and land degradation related to soil erosion, landslides, desertification and climate change. The topics also included land-use transformations connected with economic, social and political changes.

The Symposium gathered nearly 40 researchers from the European countries (the Czech Republic, Bulgaria, Romania, Austria, Italy, and Russia) and Australia and the following institutions: *Al. I. Cuza* University of Iași, Department of Geography, Romania; *Charles* University, Faculty of Science, Czech Republic; Danube Delta National Institute for Research & Development, Romania; Esri Romania, Bucharest; Help Service Remote Sensing, Czech Republic; National Agricultural Research and Development Institute, Romania; the Romanian’s Academy Institute of Geography, Romania; International Institute for Applied Systems Analysis (IIASA), Austria; Moscow State University, Faculty of Geography, Russia; National Institute of Geophysics, Geodesy and Geography, Bulgaria; Remote Sensing Application Center - ReSAC and Agency for Sustainable Development and Eurointegration – ASDE, Bulgaria; Romanian Space Agency – ROSA, Romania; Transilvania University of Brașov; University of Agronomic Science and Veterinary Medicine Bucharest, Romania; University of Bucharest, Faculty of Geography, Romania; University of New England, Australia.

The symposium was organized into a plenary session and three paper sessions. The two plenary session papers were presented by Prof. Ivan Bičík (Chair of IGU Commission on Land Use and Cover Changes) and by Prof. Dan Bălțeanu (member of the steering committee of IGU Commission on Land Use and Cover Changes).

The participants discussed problems of land use-land cover changes in Czechia, as well as along the Romanian Danube Valley, in the Oltenia Plain, in the Buzău County, in the Subcarpathian Watershed of the Argeșel River, in Regional Australia, and in the steppe region of Russia; agrolandscape methodology of LUCR study; assessment of the agricultural spatial-temporal patterns in the Romanian Flood Plain; land degradation in a salt mining area, the Curvature of the Central Moldavian Plateau, the Curvature of the Subcarpathian region; the dynamics of built-up areas in Bucharest Metropolitan Area.



Photo. 1. Plenary Session, Institute of Geography, Romanian Academy



Photo. 2. Institute of Geography, Romanian Academy

After the Conference, a field trip was organized on June 23-26. The field trip represented a transect through the Romanian Plain, the Hilly Region of the Subcarpathians and the Carpathian Mountains. In the post-communist period these regions have registered transformations such as land use-land fragmentation, land abandonment, land degradation and deforestation. The field trip followed land-use changes in the Bucharest Metropolitan Area, Agricultural land use in the Bărăgan Plain, Land use and soil erosion in the outer Subcarpathian area, Land use and cover changes in the Curvature Carpathians and Subcarpathians, Land use in the mountain area and mudflows, impacts on infrastructure, Land use and land degradation in the Buzău mountain area, Land use and deforestation/aforestation in the Braşov Depression.

Field trip, June, 23-26



Photo. 3. *Moara Domnească* Didactic Farm, University of Agronomic Science and Veterinary Medicine Bucharest



Photo. 4. Land degradation in the Bend Subcarpathians

Dan Balteanu

IGU REGIONAL CONFERENCE IN KRAKÓW, POLAND, 2014

IGU Regional Conference was held in Kraków in August 18-22, 2014. Preparing of programme had started of course long time before the start of conference – each IGU commission should decide about its content. The key was decision which participants should be speakers in each land-use/cover changes commission's sessions, what will be recommended in poster section and which papers are not suitable to commission's activities. In the very first round it was necessary to take decision on about 50 papers; our commission also had to decide (according to wishes of organizers) on several papers, which were "lost" or incorrectly submitted in other IGU commissions.

Land use/land cover topics under the heading of LUCC commission were finally presented in five thematic sessions:

1. Land Use Changes in Metropolitan Areas
2. Historical/Dynamic Changes of Land Use
3. Landscape (re)Construction
4. Land Use of Towns and Villages
5. Natural Changes by Human Activity I, II, III

According to their abstracts finally ca 55 papers were divided into these sessions. Another 23 applications we recommended to present as posters. Unfortunately we also had to refuse 7 applications. Because of high number of planned papers some sessions were divided into several separate parts. Therefore commission meetings organized in the new and beautiful Campus of Jagiellonian University (in Central Europe the second oldest after Charles University) were realized in 7 separate sessions.

Moreover land-use theme was presented in another thematic sessions focused on local and regional development, natural hazards, sustainable development of rural regions etc. We can summarize that land-use matters analyzed by different methods and technics is one of the very supporting tendency of contemporary geographical research.

The quality of papers was comparatively very good. There were presented papers from about 20 countries, focused mainly on small regions; topics focused on large territories were presented rarely. Main part of papers deals with description and land-use development rather than searching of driving forces. About one third of papers took advantage of opportunities to link with other research from physical and social geography or from history to make a synthesis about researched regions with impact in theoretical and application level.

The host university provided not only good weather, field trips, but also great culinary experience for all participants in beautiful Jagiellonian University and magical city of Kraków.

Apart from thematic sessions IGU LUCC steering committee had organized a business meeting to review its activity and to discuss its plans for 2015 and 2016. Discussion of 10 participants (thereof 5 contemporary or former committee members) realized into several recommendations:

1. As an IGU LUCC commission vice-chair was named prof. Jan Feranec (Institute of Geography of Slovak Academy of Sciences, Bratislava, Slovakia) with the aim of deeper

- connection of LUCC commission with IGU commissions focused on Earth observation and regional development.
2. Another commission's meeting will be during Regional Geographic Conference in Moscow 2015. Also it is discussed possibility to organize the second seminar during autumn 2015 (Sofia – Bulgaria?)
 3. There was also discussion about possible common project focused on LUCC and supported by international funds ICSU.
 4. Atlas LUCC Volume IX was prepared in Prague again and its distribution started in September 2014, partly in Kraków.
 5. Preparation of further Atlas of World Land Use. Volume X, XI will be published by IGU/LUCC commission in Japan (Asahikawa) and in Czechia (Prague) under supervision of prof. Hymiyama and prof. Bičík.
 6. Continuation of collaboration with SCERIN activity (= NASA and ESA seminar and training of young scientists from Central and East Europe; 2012 – Sofia, 2013 – Prague, 2014? 2015?).
 7. Preparation of IGU Newsletter 2013/2014.
 8. Actualization and filling of website IGU/LUCC <http://www.luccprague.cz/>
igu.landuse@gmail.com - address for corresponding.
 9. Creation of networks with other group of scientists engaged on LUCC state and changes (ESEH, PECSRL, IALE etc.).
 10. Organizing and support of macro-regional and national meetings oriented on LUCC activity.

Ivan Bičík

2015 – forthcoming meetings:

**INTERNATIONAL GEOGRAPHICAL UNION REGIONAL CONFERENCE
MOSCOW, AUGUST 17–21, 2015**

The IGU LUCC Commission C12.26 submitted the proposal of a session during the Regional Conference of IGU, Moscow, Russia, 17-21.08.2015 under title **“Problems and consequences of land use/land cover changes”**.

The Organizers of IGU/LUCC sessions are: prof. Ivan Bičík, Charles University in Prague, Head of the IGU/LUCC Commission, and Dr.Elena V. Milanova, Moscow State University, Faculty of Geography.

The Welcome topics of presentations are:

- Evaluation of the LUCC data, accuracy assessment
- GIS as a tool for the LUCC evaluation
- Participation on the next Atlas of LUCC development from different parts of the world
- Progress in remote sensing technics and methodology
- Driving forces in the LUCC changes in different periods of societal development
- Care for agricultural and arable land for the future
- Agricultural abandonment and increase of unproductive land – problem of developed countries
- Unproductive lands – their structure and development
- New wilderness – why, where, when

Elena Milanova

3. Networking

CALL:

Chair of the IGU LUCC Commission Prof. Ivan Bıcık applies to all geographers provide information about activities in the framework of land use/cover change (LU/CC) identification, analysis and assessment by responding to these items:

Title of the now solved project: ... /national – international

Role of geographers in concerned project (2-3 sentences):

Results and their presentation (2-3 sentences):

Your answers will be used for summarization of LU/LC change activities of geographers in the context of IGU LU/CC and for the proposal of new activities of the IGU LUCC Commission. The **deadline** for your answers is **31st January 2015**. Please send them to Ivan Bıcık (bıcık@natur.cuni.cz) and Jan Feranec (feranec@savba.sk).

Thank you for your cooperation.

Collaboration with other IGU Commissions and Task Forces

Not realized.

Collaboration with other international and inter- and multi-disciplinary groups

Not realized.

Cooperative efforts with ISSC and with ICSU programs

Atlas presentation and assessment of land use/cover changes and prediction across the world

In the latter part of 2014 we prepared a project under supervision of prof. Feranec with support request of ISSC for publishing another two volumes of atlases „Land Use/Cover Changes in Selected Regions in the World“ in 2015 and 2016. We kindly ask all researchers who want to publish results of their land-use / cover changes research to cooperation on these atlases. Please contact prof. Ivan Bıcık (bıcık@natur.cuni.cz) and prof. Jan Feranec (feranec@savba.sk).

4. Publications

Newsletters, books etc.

- Newsletter No. 16 (2014)

In the latter part of 2013 and in the year 2014 there were published two next volumes of atlas „Land Use / Cover Changes in Selected Regions in the world“. Both there published under direct supervision of IGU LUCC commission.

- HIMIYAMA, Y., BICIK, I. (eds.)(2013): Land Use / Cover Changes in Selected Regions in the world: Volume VIII. IGU/LUCC, Faculty of Science, Charles University in Prague and Hokkaido University of Education, Asahikawa
- BICIK, I., HIMIYAMA, Y., FERANEC, J., KUPKOVA, L. (eds.)(2014): Land Use / Cover Changes in Selected Regions in the world: Volume IX. IGU/LUCC, Faculty of Science, Charles University in Prague and Hokkaido University of Education, Asahikawa

For the first time we bring you also summary of all chapters in all volumes of „Land Use / Cover Changes in Selected Regions in the world“:

Land Use/Cover Changes in Selected Regions in the World

Volume I.

November 2001

Editors:

Yukio Himiyama	Hokkaido University of Education, Asahikawa, Japan
Ivan Bičík	Charles University in Prague, Czech Republic
Elena V. Milanova	Moscow State University, Russia
Alexander Mather	University of Aberdeen, U.K.

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Volume II.

December 2002

Editors:

Yukio Himiyama	Hokkaido University of Education, Japan
Alexander Mather	University of Aberdeen, U.K.
Ivan Bičík	Charles University, Czech Republic
Elena V. Milanova	Moscow State University, Russia

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Volume III.

April 2005

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Elena V. Milanova	Moscow State University, Russia

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Volume IV.

April 2005

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Elena V. Milanova	Moscow State University, Russia

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February 2010

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July 2012

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Hokkaido University of Education, Asahikawa, Japan
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October 2012

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December 2013

Editors:

Yukio Himiyama
Ivan Bičík

Hokkaido University of Education, Japan
Charles University, Czech Republic

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July 2014

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VI. Case study areas Pruské, Bohunice, Vršatské Podhradie and Křivoklát: Land cover changes 1949-2009 Dušan Šebo, Jozef Nováček	57-62
VII. Recent transformation of the Slovak cultural landscape Bronislav Olah, Igor Gallay, Zuzana Gallayová, Martin Boltžiar	63-74
VIII. Land use development in Slovakia from the 17th to the 20th century: Case study area of Bojnice Marián Žabenský, Michala Dubská	75-82
IX. Assessment of land use changes in landscape conservation areas based on LUCC database Markéta Šantrůčková, Lucia Bendíková	83-94
X. The process of transition from industrial to post-industrial society identified in land use and land cover data: Case of the Czech Republic Jaromír Kolejka, Martin Klimánek	95-104
XI. Lake Most – how can a royal town be turned into a lake: Georelief analysis 1938-2012 Jan Pacina, Kamil Novák	105-112

Period's publications

The Commission has been extremely active, and successful, in publication. The above list only shows those that have been published by direct involvement of the Commission. The number of publications by each member far exceeds it. As a sample of period's publications we present the

latest studies of Institute of Geography, Slovak Academy of Sciences, focused on land-use:

Identification and assessment of landscape changes in Central Europe

Results are published by: Feranec, J., Soukup, T., Taff, N. G., Stych, P., Bicik, I.: *Overview of changes in land use and land cover in Central Europe* (the text and seven general maps: Spatial distribution of urbanisation; intensification of agriculture; extensification of agriculture; afforestation; deforestation; water bodies construction; other changes in Central Europe for the periods 1990-2000 and 2000-2006); the chapter prepared for the book: Gutman, G. (Editor): *Land cover and land use change in Eastern Europe 1990-2010: Impacts of the breakup of the Soviet Union*. The book would be published by Springer.

Semantic similarity between land cover classes

Results are published by: Feranec, J., Solin, L., Kopecka, M., Otahel, J., Kupkova, L., Stych, P., Bicik, I., Kolar, J., Cerba, O., Soukup, T., Brodsky, L. (2014). Analysis and expert assessment of the semantic similarity between land cover classes. *Progress in Physical Geography*, 38 (3), 301-327.

Spatial determinants of abandoned arable lands and grasslands in Slovakia

Results are published by: Pazur, R., Lieskovsky J., Feranec, J., Otahel, J. (2014). Spatial determinants of abandonment of large-scale arable lands and managed grasslands in Slovakia during the periods of post-socialist transition and European Union accession. *Applied geography*, 54, 118-128.

More detailed mapping of urban areas using high-resolution remote sensing data

Results are published by: Vatsseva, R., Kopecka, M., Feranec, J., Rosina, K. (2014). Classification of urban areas by geographic object-based analysis of very high resolution remote sensing data. *South-Eastern European Journal of Earth Observation and Geomatics*, 3(2S), 671-675 (e-journal).

Detail information about these studies will be presented in IGU LUCC Newsletter 17 (to be published in January 2015).

Commission's website:

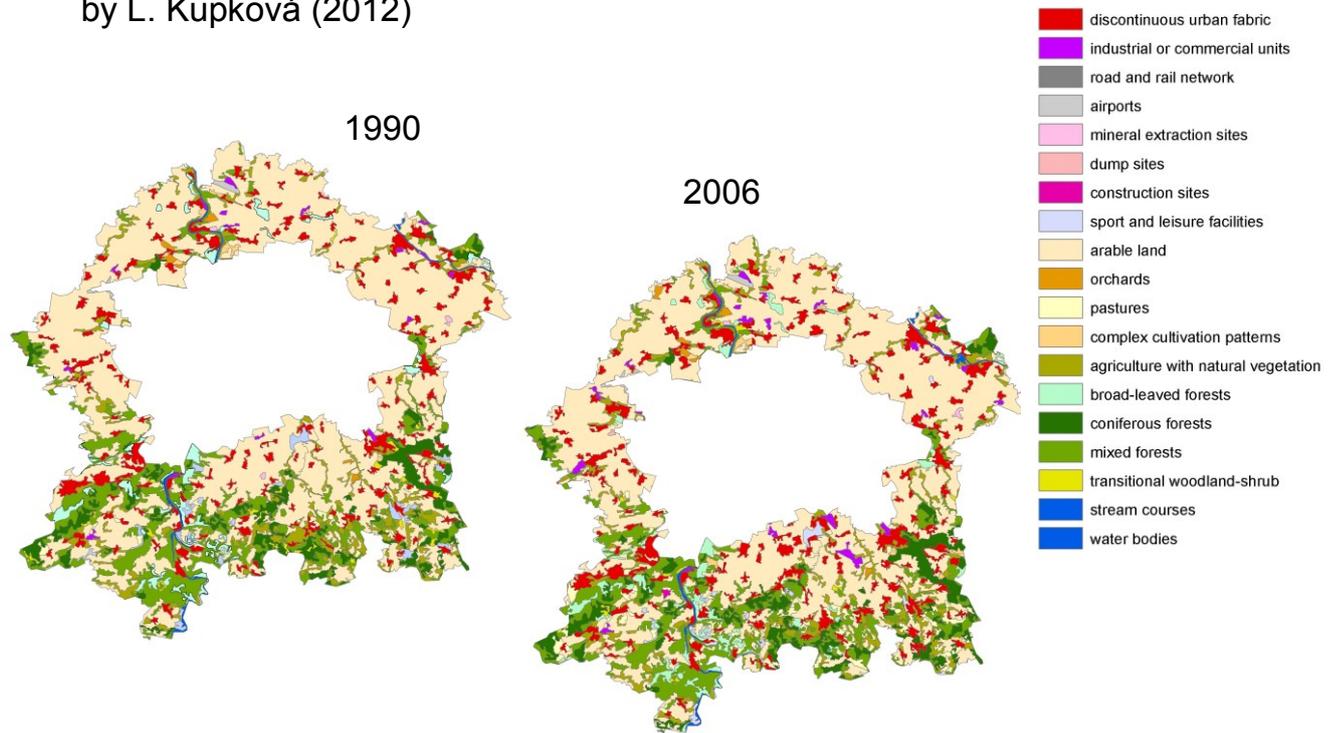
www.luccprague.cz

5. Archival Contributions

IGU LUCC commission report 2012-13
Newsletter 16 (2014)



Results – CLC level: Surrounding of Prague by L. Kupková (2012)



As a sample of land-use research results we present one of the map from paper Kupková, L., Bičík, I.: Land use changes around Prague, presented during International Geographical Congress in Cologne 2012.