



NATO/CCMS Pilot Study Meeting at Lecce (Italy)

NATO/CCMS Pilot Study on
Use of Landscape Sciences for Environmental Assessment

“Linkages among Landscape Assessment, Quality of Life and Environmental Security”

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Lecce, Italy, 5-9 September 2004

Ecotekne University Center and Hotel Tiziano, Lecce

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NATO/CCMS Introduction

The Challenges of Modern Society- Historical background and Purpose

The NATO Committee on the Challenges of Modern Society (CCMS) was established in 1969 in order to give new "social dimension" and peaceful use to the defense Alliance. Its focus was to address practical problems already under study at the national level and, by combining the expertise and technology available in member countries, arrive fairly rapidly at valid conclusions and to make recommendations for action to benefit all.

One of the most important advantages of CCMS is the fact that it represents a unique forum for discussion of environmental problems and the exchange of information, on both civilian and military environmental matters.

CCMS carries its research activities out on a decentralized basis through its pilot studies. Subjects for pilot studies cover a large spectrum dealing with many aspects of environmental protection and the quality of life, including defense-related environmental problems. Since the start of CCMS activities more than 65 pilot studies have been completed (see <http://www.nato.int/ccms/>).

Each pilot country is responsible for developing, conducting, and disseminating the results of a pilot study. Co-pilot countries and other participating countries share the workload according to their interest. The participation of the 19 NATO members and of the 27 Euro-Atlantic Partnership Council (EAPC) countries in the pilot studies is always on a voluntary basis. As a part of the activities of the pilot study, workshops, seminars or international conferences may be held. Reports on the progress of studies are submitted to the CCMS by pilot countries at regular intervals. On completion of a study a summary report is submitted to the CCMS members and then forwarded to the North Atlantic Council. A technical report is usually also published by the pilot group and made available on a worldwide basis to anyone expressing interest.

NATO countries:

Belgium, Canada, Czech Republic, Denmark, France, Germany, Greece, Hungary, Iceland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Spain, Turkey, United Kingdom, United States.

EAPC countries:

Albania, Armenia, Austria, Azerbaijan, Belarus, Bulgaria, Croatia, Estonia, Finland, Georgia, Ireland, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Romania, Russian Federation, Slovak Republic, Slovenia, Sweden, Switzerland, Tajikistan, the former Yugoslav Republic of Macedonia, Turkmenistan, Ukraine, Uzbekistan.

Further information on CCMS can be obtained from:

CCMS Secretariat

NATO - Scientific Affairs Division

B-1110 Brussels, Belgium

Tel: (32-2) 707.48.46 or 707.48.50

Fax: (32-2) 707.42.32

<http://www.nato.int/ccms/>

Pilot Study on the Use of Landscape Sciences for Environmental Assessment

The purpose and scope of the landscape sciences pilot study proposal is to establish a working group representative of member and partner Nations to exchange information about landscape science approaches useful for environmental assessment and to transfer landscape assessment technologies among the study group participants for use in environmental protection and preservation programs. Both land use and land cover characterization and the use of landscape indicators are demonstrated for environmental assessment. The exact geographic areas which are used for the demonstration, landscape characterization approach, and the selection of landscape indicators to be demonstrated have been determined by the Study Group. Multiple geographic areas in the continental United States and Europe have been selected for this demonstration study. The pilot study is exploring the possibility of quantifying and assessing environmental condition, processes of land degradation, and subsequent impacts on natural and human resources by combining the advanced technologies of remote sensing, geographic information systems, spatial statistics, and process models with landscape ecology theory.

It is expected that this Pilot Study will be accomplished within four to five years. The anticipated final product will be a published book that includes each of the separate landscape assessments for the selected geographic areas of the NATO member and partner nations. Additionally, landscape characterization, landscape indicators, assessment software tools, and databases will be included.

Messrs. William Kepner, and Felix Müller have agreed to serve as Pilot Co-directors.

NATO CCMS Pilot Study
“Use of Landscape Sciences for Environmental Assessment”

Pilot Study Meeting at Lecce (Italy)

September 5th to 9th, 2004

**“Linkages among Landscape Assessment,
Quality of Life and Environmental Security”**

Targets of the meeting

The Workshop will focus on three basic concepts: *security*, *quality of life* and *landscape assessment*, and their linkages. Since the end of the Cold War, traditional security concepts based on national sovereignty and territorial security have increasingly been brought under review. Currently, a broader definition of security that would incorporate non-traditional threats and their causes, such as economic decline; social and political instability, ethnic rivalries and territorial disputes, international terrorism, money laundering and drug trafficking, as well as environmental stress at the landscape level, has been advocated in order to set up a better understanding of what we intend for quality of life. In particular, the relationship between security and environmental systems at various scales has been of increasing importance in recent years in both the scientific and policy communities. Research efforts aim to “redefine” or broaden the concept of security to include social, economic and environmental factors such as those active at the landscape level. In contrast to the narrow concept of security, the broader concept proceeds from a differentiation analysis in a hierarchical system including individual, national, regional and international levels. Such a hierarchical approach can help understand better the linkages between security and the different issues and levels of quality of life and landscape assessment. Most current research indicates that global environmental change and its subsequent socio-economic effects are likely to continue and intensify in the future. The intensity as well as the interdependence of these problems will have effects at local as well as on an international scale, and will begin to impact developing and industrialized countries more directly. Quality of life is heavily dependent on security issues and both have important interrelationships with landscape assessment. There is strong evidence, for instance, that desertification exacerbates poverty and negatively affects social order and stability. It can contribute significantly to water scarcity, famine, internal displacement of people, migration, and social breakdown and thus presents a recipe for political, social, and economic instability which can also lead to tension between neighboring countries and armed conflict. In sum, resource scarcity and environmental degradation create inequity in resource distribution that often contributes to insecurity and conflict. While ecosystems of the Mediterranean Region are vulnerable to numerous threats, including pollution from current or past anthropogenic activities, the overwhelming threat is from human population density and associated uncontrolled development, leading to depletion or degradation of natural resources (water, soil, biota). The predominant considerations in many parts

of the world for environmental management decisions and ecosystem protection include understanding and establishing land and resource use priorities, establishing time frames for management, using comparative evaluation and assessment analyses, and clarifying where decision authority resides (i.e., local, regional, national, international). These challenges call for mutual cooperation at the international level which provides for multi-disciplinary integration of both technical and policy-making individuals involved in the areas of landscape assessment, development of natural resources, foreign relations, and security.

The workshop will explore the possibility of quantifying and assessing linkages among security, quality of life and landscape assessment, by addressing monitoring in landscape environmental condition, processes of land and urban degradation, demographic processes, and subsequent impacts on natural and human resources which contribute to the quality of life, by combining the advanced technologies of remote sensing, geographic information systems, spatial statistics, and natural and demographic process models with landscape ecology assessment. It is a challenge for both scientists and decision-makers to include all these considerations and communicate effectively among multiple user groups. As a direct result of increasing discussion and research about the potential for large, regional-scale environmental changes and the general acknowledgment of the relationship between environmental change and human social, economic, and demographic issues, there is now more attention paid to the question of the relationship between environment and security. Thus, "how environmental degradation is related to quality of life and human security" become the central issue of the workshop.

The workshop is an innovative step of the CCMS Pilot Study because we will put our activities into a broader political context. Instead of concentrating only on the scientific discussion of landscape analytical methodologies, there will be the opportunity to discuss the interrelations between our focal objects - landscape sciences - and societal and political items, such as the quality of life and the potential contributions of our work to the theme of environmental security. This focus has been chosen to find an optimized applicability of our results and to find relevant pathways for the future development of the working group. External experts will be involved to give us a specific introduction into these topics. Besides a general discussion of these linkages, we will preferably cooperate in 4 productive working groups. Working group themes have been selected on the base of the decisions we made at the CCMS meeting in Debe (Poland), concerning focal points of future development. Thus, as result, future research concepts and guidelines should be elaborated in the working groups about "Minimum data sets for landscape assessment"; "Landscape consequences of demographic change", and "Satellite imagery and landscape assessment". We will try to produce joint texts, conceptual outlines and fundamental ideas for future research proposals for these three points. In a fourth workshop "Landscape Assessment Demonstrations and Comparisons" the methodological experience we have made in the last years, should be exchanged and compared, and the results of single national studies will be discussed; thus promoting, a stronger cooperation among working group members.

MEETING AGENDA

NATO CCMS Pilot Study “Use of Landscape Sciences for Environmental Assessment”

Pilot Study Meeting at Lecce (Italy),

September 5th to 9th, 2004

Focal Theme:

“Linkages among Landscape Assessment,
Quality of Life and Environmental Security”

Sunday, September, 5th, 2004 (Hotel Tiziano, Lecce)

Arrival at the Hotel Tiziano at Lecce

20:00 Get Together and Dinner

Monday, September 6th, 2004 (Hotel Tiziano, Lecce)

08:30 Registration

09:00 Greeting Addresses by Authorities
University of Lecce, Rector Magnificus – Prof. Oronzo Limone
President of the Apulian Region – On. Raffaele Fitto
President of the Province of Lecce – On. Giovanni Pellegrino

10:00-10:30 Introduction to the Workshop
W.Kepner, F. Müller, G. Zurlini

10:30 Progress Reports from the National Contributions:
10:30-10:40 Italy (Zurlini G./Zaccarelli N./Petrosillo I.)
10:40-10:50 Germany (Müller F./Sabbagh J)
10:50-11:00 United States (Kepner W.)

11:00 Coffee Break

11:30 Progress Reports from the National Contributions:
11:30-11:40 Bulgaria (Iankov S./Nedkov S./Nikolova M.)
11:40-11:50 Finland/Germany (Müller F./Burkhard B./Kumpula T.)
11:50-12:00 Latvia (Zagars J.)
12:00-12:10 Lithuania (Tiknius A.)
12:10-12:15 Romania (Muntean O.L./Dragut L.)
12:15-12:20 Romania (Lazarescu M.)
12:20-12:25 Russia (Kondratyev S.)
12:25-12:30 Ukraine (Kuznyetsov V.)

- 12:30-13:00 New national contributors
13:00 Lunch
- 14:30 Introducing the Theme
- Future Development of the Pilot Study
- Introduction – F. Müller
 - Discussion
- Landscape Assessment and Quality of Life
- Introduction – B. Jones
 - Key Note Lecture – M. Zurek - Millenium Assessment
 - Discussion
- 16:00 Coffee Break
16:30 Continuation
- Landscape Assessment and Environmental Security
Introduction – W. Kepner
16:45 Key Note Lecture a – Frank Swiaczny
17:30 Key Note Lecture b – Hans-Günter Brauch
18:00 Discussion
- 19:00 End of Session
- 20:30 Dinner

Tuesday, September 7th, 2004 (Hotel Tiziano and Ecotekne University Center at Lecce)

- 09:00-10:00 Introduction to Workshop 2:
Felix Müller (Facilitator) and Jamill Sabbagh (Rapporteur)
“Landscape Consequences of Demographic Change”
- 10:00-10:30 Introduction to Workshop 1:
Bruce Jones (Rapporteur)
“Minimum Data Sets for Landscape Assessment”
William Kepner (Facilitator) and Juris Zagars (Rapporteur)
“Satellite Imagery and Landscape Assessment”
Giovanni Zurlini and Nicola Zaccarelli (Facilitator) and Benjamin Burkhard (Rapporteur)
“Landscape Assessment Demonstrations and Comparisons”
- 10:30 Coffee Break
- 11:00-11:30 Continuation
- 11:30-12:00 *Indicators of performance of transitional water fruition strategies in the Mediterranean area*
Alberto Basset, Department of Biological and Environmental Sciences and Technologies, University of Lecce

12:00-13:00 Discussion and possible structure of the final report
13:00 Lunch

14:15 **Transfer to the Ecotekne University Center at Lecce**

**Workshop 1: “Minimum Data Sets for Landscape Assessment”
“Satellite Imagery and Landscape Assessment”
“Landscape Assessment Demonstrations and Comparisons”**

14:30-15:00 *Landcover assessment and calculation of phosphorus load on lakes*
Sergey Kondratyev - Institute of Limnology of the Russian Academy of Sciences

15:00-15:30 *New gold exploitation in Rosia Montana Romania*
Mihaela Lazarescu – National Research and Development Institute for Environmental Protection - Romania

15:30-16:00 *The use of Satellite Imagery data in Latvia and educational problems*
Juris Zagars - Ventspils University College - Latvia

16:00 Coffee Break

16:30 Excursion, Cultural Event and Dinner

Workshop 2: “Landscape Consequences of Demographic Change”

14:30-15:00 *Environmental security*
Volodymyr Kuznyetsov - Ukranian Scientific Research Institute of Ecological Problems

15:00-15:30 *Demographic changes in Russia and the their impact on the national and european security*
Victor Rudskiy - Smolensk University of Humanities - Russia

15:30-16:00 Discussion

16:00 Coffee Break

16:30 Excursion, Cultural Event and Dinner

Wednesday, September 8th, 2004 (Ecotekne University Center at Lecce)

09:00 Workshop Reports

**Workshop 1: “Minimum Data Sets for Landscape Assessment”
“Satellite Imagery and Landscape Assessment”
“Landscape Assessment Demonstrations and Comparisons”**

09:30-10:00 *Remote sensing of the reindeer pastures*

Timo Kumpula - Department of Geography - University of Oulu – Finland

- 10:00-10:30 *The impact of land use in catchments on the ecological state of coastal zones*
Wilhelm Windhorst - Ecology Centre, Kiel University – Germany
- 10:30-11:00 *Minimum data sets for landscape indicators using the GIS (A case study: Copsa Mica area Romania)*
Octavian-Liviu Muntean - Faculty of Geography – University “BABES-BOLYAI” CLUJ-NAPOCA – Romania
- 11:00 Coffee Break
- 11:30-12:00 *Multi-scale detection of Change as related to environmental assessment*
Giovanni Zurlini, Department of Biological and Environmental Sciences and Technologies, University of Lecce
- 12:30-13:00 *Developing an express method for landscape assessment on the base of bioindicators*
Stoyan Iankov, Stoyan Nedkov, Mariyana Nikolova - Bulgarian Academy of Sciences
- 13:00 Lunch
- 15:00-15:30 *Applying G.I.S. and R.S. for central Caucasus forested region*
Gia Sopadze – Georgia
- 15:30-16:00 Discussion
- 16:00 Coffee break
- 16:30 Continuation of Workshop Reports and discussion
- 18:30 Guided visit of the old town and dinner

Workshop 2: “Landscape Consequences of Demographic Change”

- 09:30-10:00 *Consequences of Demographic Change in Germany and State Rheinland-Pfalz*
Jamill Sabbagh - RegioComun-Institute for strategic Regional Management – Germany
- 10:00-10:30 *Landscape Consequences of Demographic Change in the Transylvanian Plain (Romania)*
Lucian Dragut - Faculty of Geography – University “BABES-BOLYAI” CLUJ-NAPOCA - Romania
- 10:30-11:00 Discussion
- 11:00 Coffee Break

- 11:30-12:00 *Land and Urban Degradation in the East Mediterranean: A Case Study from Turkish Mediterranean Region*
Engin Nurlu - Faculty of Agriculture, Department of Landscape Architecture - Ege University – Turkey
- 12:00-12:30 *Seasonal Demographic Processes of Tourism – Based Socio-Ecological Systems*
Irene Petrosillo, Department of Biological and Environmental Sciences and Technologies, University of Lecce
- 12:30-13:00 Discussion
- 13:00 Lunch
- 15:00-15:30 *Expected spatial consequences of demographic change*
Algimantas Tiknius – Klaipeda University - Lithuania
- 15:30-16:00 *International trends in Demographic Development.*
Salvatore Distaso, Department of Demographic Sciences – University of Bari - Key Note Lecture
- 16:00 Coffee break
- 16:30-17:00 *Demographical changes and their influence on the landscapes in the area of Yantra basin*
Stoyan Nedkov, Mariyana Nikolova, Stoyan Iankov - Bulgarian Academy of Sciences
- 17:00 Workshop Reports and Discussion
- 18:30 Guided visit of the old town and dinner

Thursday, September 9th, 2004 (Hotel Tiziano, Lecce)

- 09:00-10:30 Final Report from: “*Minimum Data Sets for Landscape Assessment*”
“*Satellite Imagery and Landscape Assessment*”
“*Landscape Assessment Demonstrations and Comparisons*”
B. Jones and W. Kepner
- 10:30 Coffee Break
- 11:00-11:30 Final Reports from: “*Landscape Consequences of Demographic Change*”
“*Eco-Pop: proposal*”
Ralf Seppelt - Centre for Environmental Research, Dept. f. Applied Landscape Ecology – Germany
- 11:30-13:00 Discussion of the Future Tasks - End of the meeting
- 13:15 Lunch
- 14:30 Departure