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CEEweb Academy on Climate Change and Biodiversity

22-23 July 2010, Sighetu Marmatiei, Romania

notes

22 July, Thursday

Introduction and expectations round:

Participants shared their expectations from this meeting.

- training
- exchange of information, ideas
- discussion on biodiversity, energy and landscape utilization issues
- collecting ideas for pilot projects / ideas for projects on water management and biodiversity conservation / new ideas for national and international environmental policies
- learn more about the CEEweb policy / how to communicate the biodiversity – climate change interrelation effectively / about tools for mitigating CC / about sustainable forest management and its relation to CC
- learn more about the implementation of biodiversity related conventions in protected areas
- see Maramures
- networking with other NGOs

Part I. Ecosystem-based approach in mitigation of climate change
Presentation by **Iván Gyulai**, Ecological Institute for Sustainable Development, Hungary

Find the presentation slides at http://ceeweb.org/members/capacity/academy_V_CC/index.htm

Main bullet points of the presentation:

- The linkage between climate change and biodiversity
  - clarifying terms of 'climate' and 'biodiversity', and the basic interrelation between them
  - an overview of the climate system and its elements, including ecosystems
  - human activities affecting the climate system
  - an overview of ecosystem services
- the failure of biomass and agrofuels as mitigation tools
  - global environmental problems arising from mass biomass burning: disturbed biogeochemical cycles, enhanced land conversion, severe social consequences and an overall enhanced GHG emissions
  - an alternative suggestion for biomass utilization is composting: local, small scale, enhancing the water retention capacity and carbon storage of the soil
  - the capacity of biomass production is insufficient for replacing fossil fuels: the only way is decreasing our energy use
- the failure of current mitigation policies: it mainly targets one single pressure (GHG emissions), while leaving the drivers untouched
  - analyzing the problem in the framework of drivers – pressures – state – impacts – responses (DPSIR model)
  - current economic system as a driver behind environmental problems
  - the problem with eco-efficiency: aims to reduce outputs without limiting the inputs, resulting in growing demand for resources and eventually growing pressure on the environment
- suggestion for an alternative approach
  - future scenarios: business as usual, eco-efficiency, sustainable resource use

- suggestion for an effective mitigation policy: target all 3 types of environmental pressures (pollution, overuse of natural resources and overuse of space) as well as the underlying driving forces behind climate change and biodiversity loss
- limit the inputs (total energy and material consumption)
- change values of the society, reconsider development and quality of life
- the concept of a national non-renewable resource budget: an integrating set of tools to manage environmental, social and economic crises; including the institution of Revolving Fund and quota money
- switch to sustainabe land use and increasing non-use areas: the Traffic Light Concept

Some interesting question raised in the discussion following the presentation:
- To what extent can we consider the burning of biomass, especially of forest wood sustainable?
  - Differences between natural fire and artificial burning (incomplete combustion, removal of ash etc.)
- How much carbon can a mature forest sequester? And a mature grassland?

23 July, Friday

Part II. Biodiversity and climate change: policy integration and funding mechanisms.
Roundtable discussion
Invited experts: **Péter Kaderják**, Corvinus University, Hungary
Iván Gyulai, Ecological Institute for Sustainable Development

1. Climate change mitigation in view of the energy sector. Presentation by Péter Kaderják

   - In their understanding, mitigation = carbon emission reduction based on technology (there is no significant discussion on ecosystem-based approaches)
   - EU's long-term climate policy, including the 2050 target will be adopted early next year, influenced also by ongoing international negotiations
   - Current targets:
     - 20% reduction until 2020 (compared to 2005 levels)
     - RES target: 20% share of renewable until 2020
     - 80% reduction until 2050 (compared to 2005 levels)
       To achieve 80% emission cut, full decarbonisation is needed in the sectors of power, road transport and buildings, which would put the burden on the electricity sector. The need for basic and comprehensive structural changes is obvious if we consider that Poland, for example, currently generates 95% of its electricity from local coal.
   - Incentives to achieve the above targets:
     - taxation
     - improvement in energy efficiency
     - massive investments in technology, in order to switch to low-carbon electricity and energy generation, incl. nuclear energy
     - end-of-pipe technologies, such as carbon capture and storage
     - Emission Trading System: one of the major tools in the EU, however contradictory: although there is already an existing market for C emissions (with a price of cca. 15 Euros / tonne CO2), without special subsidies for renewables, investing in natural gas would still be more profitable than RES. The aim of ETS is to shift the market to low-carbon technologies, but with the current prices this process is very low. A considerably higher price (about 40 Euros / tonne CO2) would be necessary to speed up the process. Even then, the contradiction of ETS could not be avoided, since it is inherited in the nature of market: if there is more RES share, the price of carbon will decrease, which will favour carbon-intensive technologies.
   - Possible pathways to reach the 80% target:
     - 40% RES – 30% nuclear – 30% CCS
     - 60% RES – 20% nuclear – 20% CCS
     - 80% RES – 10% nuclear – 10% CCS
     - 100% RES –0% nuclear –0% CCS
     - According to the judgement of energy expert, the 80 – 10 – 10 pathway is achievable with present technologies, however needs a lot of investments at the beginning. These investments would increase electricity prices at the beginning; however after establishing the new structure, operating the system later on would be relatively cheap.
   - Further necessary measures:

- More distributed / local energy generation is needed
- Increased need for transmission / network development
- Much more research on the impact on local ecosystems is needed

- Concerns:
  - Scenarios are based on current levels of energy consumption. However, providing 80% of this demand from RES would involve large scale land conversions due to biomass production. Nevertheless, most scenarios do not count with the major effect on natural carbon source and sink systems due to land conversion.
  - As Central and Eastern Europe is considered by the EU to be a relatively abandoned source of biomass, pressure on CEE areas from even Western Europe is very likely.
  - Fossil fuel developers represent a considerable counter-interest trying to stop this policy development.

2. Further ideas emerged during the discussion:

- Challenges
  - More focus is necessary on *land conversion* – be aware that it involves destruction of nature in large areas, which can be more disastrous than climate change itself, and, furthermore, due to emissions from the destroyed vegetation and soil might even result in net carbon loss.
  - Environmental Impact Assessment is already compulsory, but it is reactive: EIA is made only when an investment plan is already on its way, and has not much space for alternative solutions.
  - Currently available technical potential is a serious limitation for accessing the theoretical potential in renewable sources. Theoretically, the order of available energy is: 1. solar, 2. wind, 3. geothermal, 4. biomass. However, the potentials using available technology are in just the opposite order. Therefore, we should focus much more on new technologies trying to access the huge unused potential in especially solar energy, than insisting on an energy source the efficiency of which cannot be increased significantly, without involving serious concerns of land conversion and biodiversity destruction.
  - According to estimates, the world's energy use in growing by 2,4% annually. Even in the EU it is growing by 0,9% every year, in spite of the ongoing efforts for enhancing energy efficiency. It is doubtful if such a demand can be fulfilled with RES. With current technologies, potential energy generated by non-depletable RES is limited by the availability of raw materials. If we wanted to satisfy all our current energy need with solar energy, for example, half of the Sahara would have to be covered by solar panels. This is impossible due to the limited availability of silicon.

- CEEweb's possible role
  - Promote *biodiversity check* for all new investments on RES
  - Make *feasibility studies* already before the investments come to the door. In these studies, we should assess the potentials and demands for energy generation in particular areas. We should map these potentials and make recommendations for decision makers and producers on the following: what energy source in which location and under what criteria can be safely utilized, without being harmful for biodiversity. This should be linked to an overall land use strategy (e.g. traffic light system), as well as other policies (Natura 2000, CAP) safeguarding a certain proportion of land for natural processes.
    - There is already such a study prepared by Podmaniczky et al. for Hungary. It compares the agro-potentials to the ecological needs of the country in a map of 1:12 000, taking into account the following factors: 1. agricultural potential, 2. environmental potential (protected areas, water bases, nitrate sensitivity, soil erosion data etc.) and 3. forest potential (feasibility for reforestation, expected ecosystem services provided by the forest, social demand for forest use). The study divides the country into 1 hectare quadrates and gives scores for the three above categories. According to the scores, the authors developed a system of recommendations, putting every quadrate into one of the 3 land use categories: intensive use, extensive use and protection. Then they compared this system to the current situation and developed

recommendations for conversion of intensively used areas with high ecological potential and/or sensitivity. In these recommendations the authors ensured that the necessary food demands of the country are met. They also made recommendations for sustainable biomass production.

- Communicate the current economic crises as something positive, because it stabilizes energy use and growth. Promote putting quality of life as a central target of our policies, which, on contrary to growth, includes also consideration of long-term sustainability and social justice. Promote efficiency and quality without growth.
- Promote reducing energy consumption / demand. Recommend instruments for demand management and efficiency improvement, such as removal of harmful subsidies, quota, tax.

Part III. Brainstorming

Task: collect win-win solutions for combating climate change and conserving biodiversity

The ideas were written on a big sheet of paper by participants, then discussed and grouped

1. Let nature speak
   - Strengthen ecosystems by making them more natural
   - Restore floodplains: give space to nature
   - Give space to natural processes by applying non-intervention management
   - Use traditional knowledge
   - Do not forget that economy is embedded in the ecological system

2. Land use
   - Apply sustainable schemes in agriculture: organic farming, permaculture, low-tillage, covered soil surface, mixed distribution of animals and plants
   - Diversify landscape
   - Maximise field size
   - Close material cycles
   - Enhance water retention in soils
   - Use traditional knowledge
   - Develop alternative production systems in line with regional climate
   - Restore and conserve bogs

3. Communication, education
   - Consult with local and national authorities and with business
   - Contact ministries at the right time, e.g. following an extreme weather event
   - Keep NGO networks alive, ready for quick action
   - Develop good education system
   - Use lessons learned from international projects for reaching sceptic people

4. Relocalization
   - Support self-sustaining communities
   - De-centralize
   - Involve local communities (example: Austria)
   - Diversify production systems
   - Introduce local currency
   - Enable direct marketing + box systems

5. Integrated floodplain management
   - Make floodplain restoration a general approach in adaptation to climate change
   - Give back to the rivers the space which belongs to them
   - Involve local authorities
   - Enhance water retention capacity
   - Introduce organic farming
   - Design sustainable navigation (adapt ships to the river and not the other way)
   - Designate protected areas

Part IV. Ecosystem-based approach in adaptation to climate change

1. Ecological impacts of climate change: the need for resilient landscapes

Presentation by **Bálint Czúcz**, Hungarian Academy of Sciences, Institute of Ecology and Botany)
Find the presentation slides at http://ceeweb.org/members/capacity/academy_V_CC/index.htm

Main bullet points of the presentation:

- Nature is a barometer, responding to many changes in the physical environment
- Projected warming compared to temperature trends of the last 500 thousand years, highlighting the significant differences in atmospheric CO2 concentration
- Physiological and phenological impacts of climate change
- Impacts of climate change on species distribution: winners and losers
- The crucial role of migration and natural barriers for species' survival: differences between the European and North-American biodiversity
- Potential for migration through a number of natural and artificial barriers: SEE is particularly endangered
- Biodiversity is a key factor in integrity and stability of ecosystems
- Services provided by healthy ecosystems
- The deep interrelation between climate change and biodiversity loss, and the need for integrated solutions
- What can be done? *landscape diversity and connectivity* as keywords
- Ways to increase landscape diversity and connectivity: reduce additional stresses, protect or establish connected ecological networks in all scales
- Thinking at system-level: socio-economic system is embedded in the global ecological system and dependent on the latter's depletable source and sink functions
- The magnitude of energy flow on human economy is comparable to that of global natural ecosystems
- Therefore, *landscape resilience* means not only resilience to *climate change and biodiversity loss*, but just as well resilience to *resource/energy scarcity and global economic crisis*
- *Relocalization* as a possible solution for both

2. Forestry measures for adaptation and their effects on biodiversity
Presentation by **László Gálhidy**, WWF Hungary
Find the presentation slides at http://ceeweb.org/members/capacity/academy_V_CC/index.htm

Main bullet points of the presentation:

- Brief introduction to some forest management methods: clearcut and shelterwood; and the resulting forest structures
- Trends in land cover from primaeval time to present: naturally dynamic forests » semi-open cultural forests » managed forests and modern agriculture
- Problems with clearcut management: low resilience to stresses, among others, to climate change
- Natural forest dynamics: importance of diverse structure (genetic and species diversity of trees, mosaic-structure with large trees, openings, young groups, deadwood etc.) and gap dynamics
- Sustainable forest management: selection system, as an integrated solution
- Effects of climate change on forests and forestry: shrinking area of species, migration barriers
- The example of beech (*Fagus sylvatica*) cover in Hungary
- Two basic solutions in forestry: (1) 'technocratic way' (replacement of species) versus (2) 'adaptive management'
- Due to irreversibly changes in the species composition, structure and dynamics of forests, the first one should be clearly distinguished and restricted to plantations
- Adaptive management does not exclude changes in species composition, but this change happens gradually during a natural process
- In protected areas, adaptive management should be the only acceptable method
- Forests in special environments need special consideration (e.g. riparian forests, dry forests)
- The ration between forested areas with non-use, sustainable use and intensive use should be changed in the future to a growing proportion of non-use and sustainable use

3. Mainstreaming climate adaptation into regional water & land use planning
Presentation by **Saskia Werners**, Wageningen University and Research Centre, the Netherlands
Find the presentation slides at http://ceeweb.org/members/capacity/academy_V_CC/index.htm

Main bullet points of the presentation:

- Main messages:
  - The importance of pilot projects that test and debate diverse sets of new ideas through collaboration between recognised actors from civil society, policy and science
  - Challenge: achieve flexible support of a diverse set of potentially better-adapted new activities, rather than compensate for climate impacts on existing activities
  - use landscape management for adaptation
- Results of studies in 3 pilot regions. Objective of the studies was to examine constraints and opportunities for adaptation to climate change in land use and water management. 6 aspects of adaptation was studied:
  - Environmental: ecosystems degraded. Traditional land use systems had active role in coping with climate.
  - Technical: existing technical solutions run into limits. Pilots for new technologies. Available assessment models less appropriate
  - Financial: new financial instruments emerge. To be addressed: unequal cost / benefits distribution
  - Institutional: responsibilities unclear. New coalitions emerge. Institutions not ready to implement adaptation.
  - Social: informal social networks and knowledge often ignored.
  - Cognitive/info.: people struggle to connect regional trends to global climate change. Debates crucial. Access to new techno.
- diversification as a strategy to adapt to risks in river basins
- the need for recognition and knowledge about ecosystem services, to support planners and policy makers in their decisions

4. Integrated landscape development for better adaptation: vision development for Tisza River Basin

Presentation by **Zsuzsanna Flachner**, MTA TAKI / RISSAC, president of CEEweb
Find the presentation slides at http://ceeweb.org/members/capacity/academy_V_CC/index.htm

Main bullet points of the presentation:

- Conceptual approaches for paradigms: the relations between environment, society and economy
- Some important references: Millennium Ecosystem Assessment, Planetary Boundaries
- The concept of scenario development: fitting biodiversity, ecosystem services and their valuation in the model
- Conceptual model of water resource management
- Concept and theoretical base of floodplain revitalization
- The iceberg of environmental problems; with structural, institutional and cultural drivers (i.e. values) at the bottom
- Introducing the Tisza river basin: its ecological state, main threats, overview of historic land use change
- The SCENES project
  - modelling the Tisza basin for flood risk and retention potential assessment
  - Identifying external (structural and institutional) drivers for environmental and social problems in the Tisza region, as well as regional structural traps
  - GIS supported territorial, participatory planning of sustainable land use of the Tisza basin: involving a variety of stakeholders, developing strategy, influencing local decision making
  - scenario building in land use and biodiversity, water management, agriculture, trading and transportation, settlements and rural-city polarization, social structures: identifying the present situation, future threats, its sustainable alternative and elements of the problem
  - Key messages: identify drivers and structural traps, address drives in a different structure
  - concrete case: alternatives for water retention area in Bereg

5. Opportunities of wetland restoration to reduce greenhouse gas emissions: some results from the Prut river activities

Presentation by **Dumitru Drumea**, Ministry of Ecology and Natural Resources of Moldova
Find the presentation slides at http://ceeweb.org/members/capacity/academy_V_CC/index.htm

Main bullet points of the presentation:

- The presentation gave an overview of river basins in the Republic of Moldova and their actual situation, as well as the driving forces and conflicting interests behind the growing demand for water resources. The concept of *Integrated Water Resource Management (IWRM)* was introduced, highlighting important key factors such as multi-stakeholder involvement and multiple beneficial solutions.
- River Camenca was presented as a good example. Camenca is a tributary of the River Prut, and its lover part partially forms protected area "Padurea Domneasca". The river was streamlined in the seventies, resulting in substantial changes in the surrounding wetlands: decrease in their water level (by 2,5-3 m) as well as in their primary production (by 20-30%) and degradation of natural habitats.
- Restoration started in 2000, with the following aims: nature conservation (establishing a new biosphere reserve), water purification (nutrient control) and adaptation to climate change (introducing integrated floodplain management). Within 3-5 years approximately 50% of the floodplain, 60 hectares of wetland was restored.
- Integrated River Management Plan was prepared for the period of 2010-2015, largely supported by local authorities, NGOs and public institutions. The following activities were started: fundraising for implementing the Plan, capacity building and training for local authorities and institutions, harmonization of local development plans and strategies (infrastructure, economic development, social, etc) with the provisions of the Plan, development of educational program, and designation of the area for Biosphere Reserve.

6. Presentations were followed by a discussion with the aim of creating positive scenario for the future. Ideas collected are summarized in the table below.

KEYWORDS:
Sustainable use of resources (biodiversity, space, energy)
healthy economy (aiming for well-being instead of growth)
social justice

PRESENT	FUTURE
Socio-economic structure	
Growth-based economy	Resource-limited economy
Consumerism	Responsible consumption
Growing resource use	Resource cap (fossil + RES)
Input-side regulation	Output-side regulation
Global market	Internal/localized market
High energy- and material-intensity	Low energy- and material-intensity
Rigid systems	Flexible systems
Structural trap	Ability to deal with uncertainty
Dependence on high-tech structures	Low-tech solutions
Urbanization	Intentional communities, transition towns
Exceed carrying capacity of Europe	Keep below carrying capacity
Fiscal system	
Current money	Quota-money
interest/credit/debt/profit» driver for growth	interest-free, no loss for society
Private (globalized) banks	revolving fund
Energy production	
Centralized energy systems	Decentralized energy production
Carbon capture and storage	Low-carbon tech, more human labour
Nuclear energy	Energy awareness (production/use/control)
EU network of transmission lines	Local energy generation
Large scale RES investments	Small scale RES investments
Imported resources (fossil, biomass)	Independence from external resources
Science	
CC predictions based on GHG concentration	CC predictions based on complexity of factors
Monitoring often lacking or not comparable	Large-scale, long-term monitoring
Policy	
Sectoral approach	Integrated approach
Partial solutions	Ecological footprint as target and index

No real follow-up and evaluation	Follow-up and evaluation of earlier policies
Ambiguous messages	Clear messages
No real implementation of bidi targets	High priority for sustainability/bidi issues
Decisions dependent on international trends	Show good example internationally
No real awareness of future threats	Precautionary principle
CC mitigation: structural trap (ETS, CCS)	Robust measures solving a range of problems
Too much focus on CC and too small on bidi	Holistic approach to all envi problems
Top-down approach	Participatory planning, public involvement
shift the burden to other continents	Global responsibility
New ideas + traditional knowledge separated	New ideas + traditional knowledge combined
Land use	
No integrated spatial planning	Sustainable use of space (traffic light concept)
Greenfield investments	Protection of remaining natural cover
Mass biomass burning	Composting
Land conversion	Restoration, space for natural processes
Habitat fragmentation	Connectivity of ecosystems
Homogenous landscapes	Landscape diversity
No real coherence of PA network	Larger ad coherent PA network
Intensive forestry / plantations	Sustainable forest mgm / non-intervention
Many additional stresses on ecosystems	Decrease additional stresses
Fragility when exposed to stresses	Local resilience
Further development of infrastructure	Rationalize human infrastructure
Water draining	Water retention
Flood prevention: engineered structures	Flood prevention: natural solutions
Values	
Wealth as central value	Wellbeing as central value
Technocratic overplanning	Understand that “we are part of nature”
Short-term thinking	Long-term thinking
“Let problems for decision makers”	Responsibility, ownership

Part V. Project planning: how to implement ideas emerged in the CEEweb Annual Meeting 2009

Ideas discussed:

- Based on work done in 2009, continue the assessment of CEE countries’ national climate change policies, focusing on how much they take into account biodiversity considerations
- Collect best practice examples of integrating biodiversity considerations into national climate change policies and prepare recommendations on possible national policy options
- Organize forums on climate change and biodiversity for national decision makers in five CEE countries in order to raise awareness on the biodiversity and climate change nexus
- Initiate a long-term project on landscape- and community-resilience, with the involvement of several local communities throughout the CEE region, implemented by member NGOs and coordinated by CEEweb

See results of the discussion on separate project fiches.

CEEweb for Biodiversity is a network of non-governmental organizations in the Central and Eastern European region. Our mission is the conservation of biodiversity through the promotion of sustainable development.