United Nations Educational, Scientific and Cultural Organization

Man and the biosphere Programme

Blieskastel, Germany, 5 September 2012

Position paper of the German MAB National Committee on the use of wind power and biomass energy in biosphere reserves

1. The challenge of the transformation of Germany's energy system (Energiewende) - using the opportunities of biosphere reserves as model regions

Through a German initiative, the International Coordinating Council (ICC), the highest decision-making body of the UNESCO programme "Man and the Biosphere", adopted the "Dresden Declaration" on biodiversity and climate change during its 23rd meeting in the capital of Saxony[1]. In this document the representatives of the World Network of Biosphere Reserves have expressed themselves in favour of implementing the goals of climate protection and adaptation to climate change and the conservation and sustainable use of biological diversity in the UNESCO-recognized areas. The biosphere reserves therefore want to live up to their self-established claim to be "Model Regions for Sustainable Development".

For years, the 16 German biosphere reserves, which cover at total of 3.7 percent of the country's area, have played an important role in climate action and climate change adaptation. As such, they are conducting model projects worldwide in the areas of sustainable land use, environmentally sound and resource-efficient management practices, securing ecosystem services as well as demonstrating energy efficiency and use of renewable energies. They therefore also fulfil the requirements of UNESCO resulting from the Seville Strategy and the Madrid Action Plan.

[1] Wording of the Dresden Declaration at the following link: http://www.unesco.de/5838.html

In the view of the MAB National Committee the transformation of Germany's energy system, adopted by the Federal Government in 2011, opened up good opportunities for the future development of German biosphere reserves. An efficient, decentralised energy supply can, for instance, contribute significantly to sustainable value creation in rural areas. At the same time, the energy transformation poses new challenges to these areas, as the development of renewable energies is associated with significantly larger spatial requirements.

It is therefore necessary to control the land use so that the biosphere reserves continue to fully meet the international obligations they have undertaken with recognition by UNESCO. A change in the use of free areas through the introduction of energy production facilities (wind energy, for instance) or monoculture energy crop cultivation can lead to significant impacts on ecosystems and therefore to a loss of the quality of biosphere reserves.

In this position paper, the MAB National Committee aims to demonstrate to national and federal state legislating bodies, to administrations and associations as well as to all further stakeholders how biosphere reserves can benefit from the opportunities of the energy transformation, in compliance with the international guidelines of UNESCO and the national criteria for biosphere reserves. Therefore, it contains recommendations for the sustainable use of wind energy and biomass, as well as suggestions for the creation of appropriate framework conditions in the areas. The legitimate interests of the population in the biosphere reserves are also taken into account, in order to allow them to participate in the opportunities of the energy transition.

2. Sustainable use of wind energy

Spatial and land use planning is essential to control the use of wind energy. Currently, suitable areas for wind power plants are designated through regional planning, partly also in biosphere reserves. This requires a high quality of planning and assessment

processes at all levels involved. Conflicts can result from overbuilding, noise and light emissions and soil sealing (including access roads), avoidance behaviour and mortality of bird and bat species, impairments of landscape appearance, as well as disruption or fragmentation of habitats in forests and open landscapes.

The MAB National Committee therefore puts forward the following opinion:

- The core areas and buffer zones of biosphere reserves are to be, in compliance with their development goals, kept completely free from wind energy installations. The “Criteria for Designation and Evaluation of UNESCO Biosphere Reserves in Germany”, based on the Statutory Framework of the UNESCO MAB Programme, determine that the development objectives of core zones are to assure natural processes, i.e. a natural development largely unaffected by people. In the buffer zone, the protection of biodiversity through extensive use and maintenance of the landscape is central. Through appropriate use, rare and endangered plant and animal species and their habitats are to be maintained. The buffer zone is to support the functionality of the core zone through appropriate use. This is not compatible with the construction of wind turbines.
  For local authorities / owners in the buffer zone there is a possibility to participate in the economic benefits of the energy transition, for example in the context of investments in neighbouring plants or wind farms that lie outside of these zones.

- **In the transition zones - unless legally prohibited from using wind energy - the use of wind power is possible, but only in compliance with the highest standards.** The primary objective of the transition zone is to promote sustainable use for protection, maintenance and development of the cultivated landscape, as well as the landscape's typical natural and cultural appearance. Management strategies are to be established which meet the demands of people and nature alike. These include, for instance, sustainable production and marketing of products from biosphere reserves, as well as environmentally sound recreational

use. In the design of the transition zone, typical forms of settlement and land use should be taken into consideration and the variety of possible uses should be highlighted.

Wind energy plants in the transition zones must therefore meet high standards. In the opinion of the MAB National Committee, the following aspects are to be considered:

- Local or regional operators or smaller citizen-run wind parks (civically-organized operator models) will be given preference in order to increase regional value creation.
- The municipality / region has its own energy concept and implements energy efficiency measures (especially for energy saving) as well as energy production based on sustainability criteria.
- Projects to develop renewable energy sources are performed with high planning and assessment quality. Transparency will be guaranteed through a close and early involvement of local citizens as well as the reserve administration and Board of Trustees / Advisory Board. The projects are supported by a majority of the local population.
- A comprehensible weighing-up with the protection objectives / purposes of the biosphere reserve and its medium and long term development perspective has been carried out in close coordination with the biosphere reserve administration. The European protected areas (Natura 2000 sites) and national species and habitat protection (especially birds and bats) have been taken fully into account in the planning process.
- Likewise, an evaluation concerning competing land use interests (e.g. nature conservation, residential, leisure and recreation, tourism, crafts and agriculture) has been carried out with intensive involvement of the citizens and the government.
- The designation of suitable areas has been used primarily to concentrate energy plants (concentration principle) in as few areas as possible so as to

ensure the necessary diversity of economic uses in the transition zone. The appearance from a distance (protected landscape appearance) has been taken into account as far as possible.

- The designation of suitable areas in the wider region is balanced and does not concentrate on areas in the biosphere reserve.
- In accordance with the model function of biosphere reserves, the aim here is to build innovative systems (also combined with the use of other renewable energy sources), based on the local (internal) needs of the municipality and local businesses for a decentralized supply in rural areas.
- The effects of increasing renewable energy production are included in the ecological, economic and socio-cultural monitoring as well as in research activities of the biosphere reserve.

3. Sustainable use of biomass

The challenges of biomass production from annual crops for energy purposes lie in the establishment of a sustainable agricultural production and in the avoidance of long-term monocultures, especially with respect to maize and other energy crops. These intensive cultivations lead not only to a significant depletion of the landscape and animal and plant life, but also to adverse effects on the soil. In addition, the increasing, climate-straining tilling of grassland should be avoided, the contamination of water and soil (groundwater) through fertilization and plant protection chemicals reduced, and the environmental impacts of biomass transport minimized.

It is usually not possible to control biomass cultivation via spatial planning because it is an agricultural use which is privileged and does not require authorization. The measures that are necessary to reduce the strain on nature and the landscape must be addressed primarily to the farmers, who should ensure that production is in line with the goals of sustainable development of the biosphere reserve. Federal and State Governments

must create the necessary framework conditions for this.

To ensure the sustainable use of biomass (biogas production) in biosphere reserves, the MAB National Committee therefore recommends the implementation of cultivation standards with the following objectives:

- Compliance with an at least three-part, site-adapted crop rotation (main crop share set at a max. of 50%),
- Reduction of nitrogen discharge through fertilisation efficiency,
- No acquiring of arable land through the tilling of grassland, particularly on peat and bog, in floodplains and erosion-prone locations,
- Promotion of flower-rich permanent crops and paludiculture in fens,
- Retaining and replanting of blooming strips (with wild herbs), road side spaces, small agricultural structures and hedges for the networking of biotopes to the extent of at least 7% of the farm's utilised agricultural area,
- Cultivation of energy crops in buffer zones should be kept to a minimum and conform to biological farming standards. An appropriate financing (conversion and retention premiums for organic farming and contract-based nature conservation) has to be ensured.

The use of pruning residues from the region for energy production is preferred. In terms of energy efficiency, the full use of the heat from biogas plants has to be ensured.

The MAB National Committee considers the following federal and state legislative initiatives as necessary for biosphere reserves:

- Amendment of the fertiliser ordinance with the goal of limiting fertiliser application to an environmentally acceptable level,
- Prohibition of grassland tilling in the aforementioned locations through corresponding nature conservation legislation of the Federal States,
- Securing further high conservation value grasslands through biotope protection

provisions laid down in the nature conservation acts of the Federal States,

- Rapid development of a sustainability ordinance by the Federal Government for all types of biomass use. In § 64 b, no. 1 a of the EEG (Renewable Energy Sources Act), the Federal Government is authorised to regulate that "the entitlement to tariff payment for electricity generated from solid, liquid or gaseous biomass shall only exist where the biomass used to generate the electricity fulfils the following requirements:

a) specific ecological and other requirements with regard to sustainable cultivation and the land utilised for such cultivation, particularly relating to the protection of natural habitats, highly biodiverse grassland within the meaning of Directive 2009/28/EC, and land with high carbon stock;
b) specific ecological and social requirements with regard to sustainable production;
c) a certain minimum potential for reducing greenhouse gases that must be achieved when generating the electricity."[2]

With the introduction of appropriate regulations for gaseous and solid biomass (already available for liquid) the remuneration under the EEG would be linked to the sustainable production of energy crops. Not all agriculture, but only that used for energy production would be redefined.

Voluntary agreements between biosphere reserve administrations and farmers for the sustainable design of energy crop cultivation are already being successfully tested in some areas and should be expanded.
For example, in the biosphere reserve Niedersächsische Elbtalaue, in cooperation with the local bio energy region Wendland Elbetal, there are various forums and round tables that contribute to the development and coordination of regional cultivation standards. Similarly, there is initial experience with the awarding of certificates (NABU –Lower Saxony branch. " Ten-point-paper on biogas: Principles for nature-friendly production,

[2] www.bmu.de, EEG in the version of 1.1.2012

biogas agreement between NABU's Lower Saxony branch and Lindhorst group ", Hanover / Winsen March 2011).

The MAB National Committee also advocates the introduction of a **certification system for the sustainable production of biomass**. On an interim basis such a certificate could be recognized as proof of sustainability and as requirement for the eligibility for compensation under the EEG (see above: standards for a sustainability ordinance according to § 64 b no. 1 a EEG).

Financial Incentives

In the reform of the Common Agricultural Policy (CAP), the funding for the period of 2014-2020 is currently being organised. The MAB National Committee calls on the Federal and State Governments to support the "greening" approach proposed by the EU Commission and to further develop it. This means that direct payments (Pillar 1), which in principle may be paid to "energy farmers", are subject to compliance with environmental standards. The MAB National Committee considers a substantial increase of the ecological standards under the first pillar as essential. At least 7% of the farmed agricultural area should be ecological focus areas. A balanced three-part crop rotation (main crop share not greater than 50%) is to be maintained.
Equally important is the attractive and efficient refinement of the second pillar for the financing of environmental investment measures, contract-based nature conservation and groundwater protection, and consultation. The financing of organic agriculture (conversion and retention premium) is to be assured. Beyond regulatory instruments, this should provide incentives to encourage sustainable energy crop cultivation and promote species and habitat protection.

4. Current examples of the sustainable use of renewable energy in biosphere reserves:

In a number of biosphere reserves, initiatives have already been taken to develop sustainable energy concepts and implement them together with businesses and the local population. Examples are:

- Development of recommendations for builders and regional and urban development planning of energy-saving construction concepts
- Use of energy efficient technologies and renewable energy in public buildings
- Efficient and environmentally responsible use of biogas (e.g. complete utilisation of waste heat from biogas plants, combination with block-type thermal power stations, biomass without maize crops or from alternative crops in the region, advice to farmers)
- Integration of wind power plants in municipal energy supply concepts
- Initiation and implementation of research and development projects for sustainable municipal energy supply concepts (bio energy settlements, expansion of smart grids), including by the BMUB
- Public tenders for the initiation of bioenergy settlements
- Measures for thermal insulation of houses using appropriate funding programs

These initiatives are to be expanded and financially supported.