The challenge

The relationships between energy production and consumption systems, ecosystems and livelihoods are complex. On one hand, ecosystems provide services such as water flows and biomass production which support energy production systems (Millennium Ecosystem Assessment, 2005). On the other hand, energy production and consumption affect ecosystems both directly and indirectly through various impact pathways. These relationships are further affected by larger scale processes such as climate change – both through the changes that climate change will bring about in human behavior (e.g. switching from fossil fuels to alternative fuels such as ethanol and biodiesel) and through the effects that climate change will have on ecosystems, and thus the availability and costs of different potential sources of energy (McNeely, 2003).

To be sustainable, energy options must be ecosystem sensitive while providing for sustainable livelihoods. Shaping such a future is a challenge confronting rural societies worldwide in particular, where these relationships are particularly evident and susceptible to changes: 70 percent of the world's poorest people reside in rural areas and communities are largely dependent upon locally available supplies of energy, most often fuel-wood. About 2 billion people worldwide depend on traditional biomass for their energy needs. Women and children are often responsible for the gathering of such energy, thereby affecting their time for other activities as well as their health, through inefficient burning processes (UNDP, 2005).

South-Eastern Europe has an unevenly distributed share of conventional energy sources, and many rural communities do not have access to modern energy sources. Furthermore, the inter-relationships between energy, ecosystems and livelihoods in rural communities are clearly pronounced. Deforestation and climate change are affecting the forests. Yet rural populations depend on forests for energy and livelihoods.

The solution

In South-Eastern Europe, many rural communities are dependent to a large degree on locally available energy supplies for heating and cooking. Forests remain the primary source of this energy. This results in increasing pressures on the forest base. It is possible to provide sustainable energy supplies and livelihoods for
remote communities through sustainable ecosystem management as the guiding principle. Renewable energy choices, such as wood gasification and efficient burning, as well as decentralized forms of wind turbines and photovoltaic cells, can reduce negative impacts on the environment and health of a community while enabling development.

Furthermore, international biofuel policies and practices that are being promoted around the world may undermine food security, result in ecosystem degradation (e.g. through deforestation, invasive species introductions, use of genetically-modified feedstock and agrochemical pollution), and prevent rural farmers from benefiting from bio-fuel markets. Yet well-planned biofuel production can contribute to a more sustainable energy future while providing opportunities for income diversification, landscape management, conservation farming practices and rural livelihoods development (IUCN, 2007).

For truly sustainable energy futures, knowledge of ecosystem management tools and approaches should be applied in the context of sustainable development and energy choices. This can be achieved through cross-learning and engagement between resource managers in rural communities, biodiversity conservation experts and energy decision makers.

The current situation and strategies in SEE

The growing importance of energy in SEE correlates with the increase in economic development and welfare of the population in the transition countries. As a consequence of changing political systems, the re-orientation towards a market economy and lack of funds for coping with old and insufficient infrastructure, the energy sector in SEE is responsible for major levels of pollution. For example, the burning of lignite in households and small and medium enterprises without sufficient or even any filter devices leads to health problems for the inhabitants of major cities such as Belgrade, especially during winter months. Hydropower plants often work at suboptimal efficiency and cause environmental pollution due to old water collectors and leaking and degraded water pipes in remote areas, as is seen in protected areas in Romania (Caras-Severin County).

The importation of oil and gas can lead to contamination at reservoirs, filling points and on the way to end-consumer households. Oil spillage can occur during the filling up of household tanks. Gas pipelines are considered dangerous and repairs have to be done at many connectors.

Fuel-wood plays an important energy role and when unsustainably harvested threatens natural resources and forests, especially in remote areas where alternative energy resources are not available. Illegal logging can be observed in several countries, especially in remote areas where, despite existing nature protection legislation and by-laws, the executive power of management authorities is not yet established or applied properly. Such areas can be found in all transition countries of SEE, in addition to other underlying factors, which force rural populations to rely on fuel-wood for their daily cooking and heating.

Based on these circumstances, all SEE-countries are orienting themselves towards the sustainable sources and use of energy, mainly focusing on renewable energies (Table 1, UNDP 2007). Countries have either developed an energy strategy already (Albania, Croatia) or they are currently working on one (Bosnia and Herzegovina, Montenegro).

Table 1: Energy Strategies in SEE (UNDP, 2007)

<table>
<thead>
<tr>
<th>Country</th>
<th>Energy Strategy, year</th>
<th>Strategies for energy efficiency and renewables</th>
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</thead>
<tbody>
<tr>
<td>Bosnia and Herzegovina</td>
<td>Energy strategy 2002</td>
<td>Under preparation</td>
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</table>

In these strategies, renewable energy sources play a dominant role and enable the countries to address international requirements, concerning the EU Accession Process and the Environmental Acquis Communautaire. Also Initiated by the EC, the Stability Pact Programme and the participating countries and regions, an

Energy Community Treaty (ECT) was signed in 2005 by EU Member states and SEE countries (UNDP, 2007).

Open questions and pragmatic approach

Open questions – according to UNDP publications and our own estimations – concern the harmonization of the energy sector with other relevant sectors in SEE. The interaction of energy production and consumption with the environmental sector and natural resources requires careful planning by state authorities and monitoring by civil society.

Insufficient stakeholder involvement, public participation and the sharing of information (according to the Aarhus Convention) are reported in several countries. In such cases, IUCN, in addition to other organizations, has been called to intervene, though this is not the intended role of IUCN. The unregulated use of fuel-wood from protected areas is an example of the difficult conflict of interest local populations are facing (Figure 1: Fuel-wood collection in protected areas). Despite the acknowledgement of the importance of deadwood as a refuge for threatened species and biodiversity in protected areas, local people are cutting and using this for fuel wood purposes to meet their energy needs.

The lack of countrywide infrastructure for energy supply forces rural populations in particular to rely continuously on the fuel-wood resources. This leads to harvesting and collecting even in protected areas, where the landscape is mainly agricultural steppe such as in the Vojvodina in Serbia. Another area of strong pressure on natural resources are the remote mountainous areas in Montenegro and the northern part of Albania, but also in the Carpathians and Rhodope Mountains, where fuel-wood is the main energy source.

IUCN and partners aim to bring responsible authorities, relevant stakeholders and the public together to find common solutions. While this works in the case of IUCN’s state members and NGO members quite well, it is not always this way with all potential stakeholders, who face conflicts of interest and try to protect their concerns, relying on traditional management schemes.

The promotion of a transboundary cooperation, which is based on an integrated biodiversity conservation approach, provides an interesting entrance to the further promotion of renewable energies in South-Eastern Europe. Besides institution building, awareness raising and education, IUCN can facilitate in networking, teambuilding and also assist in technical environmental protection issues. Upon request of its constituency, IUCN shall further engage in the renewable energy sector in SEE, carefully avoiding overlapping or duplicating already ongoing initiatives, but rather focus on working complementarily.

Action by Green Network of Vojvodina (GNV)

IUCN member, the Green Network of Vojvodina (GNV) has taken a first action in Novi Sad. The pure agricultural landscape has only 2-6% forest coverage. The three main areas with dense forests are the National Park “Fruska Gora”, the protected area “Deliblatska Pescara” and some poor “Green Belts” along the rivers Danube, Sava, Tisa and Tamis.

Despite the low percentage of forest cover – or because of this –, the local population is forced to meet its energy demand using fuel-wood, which leads to the results described above. People in the villages also use all organic products as fodder or straw and even burn the remaining biomass after harvesting the reed areas in Vojvodina according to old traditions (Figure 2: Burning of reed beds). This threatens plant and animal species and is an unnecessary waste of energy at the same time.
However, good examples also exist. An education center is planned at the edge of the Ramsar site “Special nature reserve Stari Begej-Carska Bara”, launched by the Secretariat of Environment and sustainable development, Executive Council of AP Vojvodine, Serbia, which will also function as a pilot project on using solar energy and biomass. An organic farm, Stojanov near Novi Sad, is another good example where GNV in cooperating with EUROSOLAR, who will be donating a Solar tank system.

GNV is consulting on this project and will be able to provide project details and progress results, as soon as implementation commences. Besides this, GNV and IUCN are focusing on awareness raising and information provision to the local population as well as education about the use of renewable energies and their advantages in accordance with the governmental strategy and subsidies. More efficient legislation is demanded and advice is provided to those authorities at the same time.

In summary, IUCN and its member organization GNV are promoting the production of sustainable renewable energies in SEE countries, where the natural conditions allow harvesting of fuel-wood, generation of wind-, water- and solar-energy. The long term objective is the reduction of pollution and contamination of the land, water and air by decreasing exploitation of non-renewable resources such as oil, gas, coal and lignite – for the ultimate goal of biodiversity conservation and sustainable development in the countries of South-Eastern Europe.

References


