Micro hydropower plants in the Ukrainian Carpathians

Background

The Ukrainian state has made the decision to support renewable energy, and in particular to stimulate the production of electricity by hydropower plants with a capacity under 10 MW. In recent years, the government and the parliament (Verkhovna Rada) have adopted a number of laws providing for the mandatory purchase of alternative energy at a “green” (feed-in) tariff. The feed-in tariff has been a rather effective incentive for businesses, since the price per unit guaranteed by the state to the owners of small, mini, and micro hydropower plants (MHP) is several times higher than the price of electricity supplied to consumers in Ukraine. This situation, as well as the lack of clear environmental criteria for determining the location of MHPs, has created a threat to the unique ecosystem of the Ukrainian Carpathians.

The consequences of MHP construction on the headwaters of mountain rivers, and wide-scale plans for the construction of an additional 500 small hydro energy facilities in the Carpathians (the Zakarpattya, Ivano-Frankivsk, Chernivtsi and Lviv regions), have prompted a strong public reaction.

Environmentalists and public activists have launched a campaign aimed at protecting nature in the Carpathians. They aim to prove that the environmental damage caused by MHPs outweighs their economic benefits in most cases. The local population and representatives of the tourism industry support them, since the uncontrolled development of small hydropower production plants poses a threat to recreational potential. The social and economic significance of the latter is significantly higher than that of MHPs.

The protests have achieved some success, making it possible to postpone the construction of some MHPs. However, MHP developers continue to pursue the high profits made possible by the feed-in tariffs and lobby for the allocation of sites for MHPs in the most picturesque parts of the Carpathians. These activities raise clear environmental, social, economic and legal questions.
Conflicts of interest
The situation has triggered the following conflicts:

- Small hydropower contributes less than 1 percent of the electricity produced in Ukraine, which does not justify the harm caused to the environment. At the same time, the implementation of MHP projects involves violations of many laws in Ukraine and of several international conventions, as well as contradicting the principles of renewable, environmentally friendly energy.

- Environmentalists and public activists are protesting against the uncontrolled and environmentally hazardous construction of hydropower plants in the Carpathian region. The protests have been prompted by failure to account for environmental concerns when designing and constructing MHPs. The majority of submitted projects for small hydropower plants in the Carpathians involve the construction of diversion-type hydropower plants on headwaters. In these hydropower plants, river water is channelled through a pipe and transported over a certain distance (up to several kilometres), and then supplied to the turbine for electricity generation. The water is then returned to the river. These hydropower plants are considered to cause less environmental damage than hydropower plants with dams, as dams obstruct the current. However, the diversion of (often all) water from the river causes a range of environmental problems, including the destruction of stable ecosystems in the headwaters of small rivers, which has a negative impact on the large rivers to which they are tributaries; the disappearance of some species of fauna, including those listed in the Red Book; an increased risk of landslides and erosion; a decrease in groundwater levels; as well as negative impacts on landscapes.

- The increased construction of MHPs in the Carpathians has a significant negative social and economic impact. It is well known that tourism and recreation are among the main sources of income for the local population. A network of diversion-type MHPs or MHPs with dams will negatively affect the attractiveness of the region for tourists, while certain types of tourism (e.g. rafting) may disappear completely.

- The local population will not be given preferential tariffs for electricity, thus only the owner of the MHP will benefit from the feed-in tariff. Outcomes for the local population include losing part of their own incomes due to a reduction in the number of tourists and the increased danger of flooding from the mountain reservoirs above their homes.

- Plan hydropower use on rivers taking into consideration plans for social and economic development, and in such a way as to prevent damaging the area’s recreational potential.

- Ensure public participation in decision making on the construction of MHPs and carrying out independent project assessments.

- Ensure that small hydropower in mountain regions also serves a social purpose — namely, that the electricity generated by these facilities is provided to the local population at a discounted price rather than sold to the grid in accordance with the feed-in tariff that brings super-profits exclusively to the power plant owners.

Positions of the different stakeholders

**Businesses**
Developers and investors are lobbying for the construction of MHPs and insisting on their significance and environmental safety. They are trying to reach an agreement with communities and are waging information wars with environmentalists.
Local authorities
Local, district and village councils earlier issued permits for MHPs. Later, following pressure from communities and public activists, they started imposing moratoriums on construction.

Local population
The local population does not always have sufficient information and yet attempts to protect its interests. Communities are interested in preserving the natural condition of the rivers as a component of the development of the most promising tourist industry in the region, as well as preserving traditional management practices.

Environmentalists and CSOs
Environmentalists and public activists insist that MHP projects must be lawful, implemented with the appropriate permits, and preceded by actual, rather than formal, public hearings. Projects must not cause harm to the environment. They demand that the construction of MHPs be prohibited on particularly valuable stretches of a river.

Tourists and tourism organisations
Representatives of the tourist industry consider that MHPs in the Ukrainian Carpathians in their current form not only threaten sustainable and active tourism, but can also make some forms of tourism impossible (kayaking, canoeing and rafting).

Possible solutions
- Introduce a moratorium on the construction of MHPs, or on the approval of MHP projects, until regulations are set in accordance with current Ukrainian, European and international legislation.
- Review the criteria for the provision of a feed-in tariff for small hydropower facilities, bearing in mind that they do not fully comply with the principles of environmentally clean energy.
- Adopt clear environmental criteria for determining sites for MHP construction — that is, excluding sites in the nature reserve fund, the habitats of rare species etc. Determining particularly valuable river areas in accordance with these criteria and with the legislation regulating conservation status, and prohibiting MHP construction in these areas. Determining valuable river areas where the construction of the least harmful MHPs is permitted — for instance run-of-the-river MHPs without dams.
- Prioritise the exploitation of existing hydro-technical facilities and constructing the majority of MHPs in the middle and lower stretches of rivers where, in most cases, landscapes have already been affected by anthropogenic activities in the past and ecosystems have already been disrupted.