

DRAFT: Declaration on the Necessity of a More Sustainable Snow Production, April 2010, Vienna, Austria

Based on an initial draft by members contributing to the first TTL event on artificial snow on April 24th, 2009 and some further elaborations during 2009, a revised version of the declaration was provided for general discussion on April 30th, 2010. The present participants from Germany, Great Britain, Italy, Russia, Slovenia, Sweden and Austria agreed on the following text below. Further comments are appreciated and will be accepted until July 2nd, 2010.

Background

Manmade (= technical, artificial) snow making became crucial, especially to mountain regions that live on winter tourism. In particular, during the last two decades it is widely employed there to compensate for lacking natural snow. Most prominent example in Europe is the Alps, but manmade snow is nowadays used wherever skiing is undertaken and snow cover periods are shrinking.

Following points were included in consideration:

- Climate change adaptation and support for local residents;
- Intelligent energy use and renewable energy systems;
- Wise water and other resource use;
- Snow saving strategies;
- Higher quality snow production;
- New ways of snow production.

As environment conditions are getting warmer, the conditions for artificial snow production are getting less favorable or the snow produced may melt relatively soon. Technology developed in direction to higher capacities. Given limitations are climatic "windows" that allows artificial snow production within certain well defined borders. However, many places are at risks that conditions for artificial snow production substantially decrease and thereby the profitability of winter tourism industry will shrink. The EU White Paper on Climate Change Adaptation of April 2009 provides a sound basis to pursue this aim.

(<http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/09/145&format=HTML&aged=0&language=EN&guiLanguage=en>)

It is recognized that few if any trials were undertaken to use RES technologies with regard to snow making. Wind, solar, biomass, photovoltaic and geothermal energy are potential drivers for snow making in remote regions. Energy efficiency with snow production with regard to units of produced snow has to increase. According to European policies the total share of renewable energy has to increase to 20% as compared to 8.5% today. The extension of snow making with current technologies is seen widely limited from this context.

Water and the lack of water is a limiting factor for snow production. The European water framework directive WFD prohibits a deterioration of chemical and ecological status of water

bodies. Often landscape modifications for the construction of water reservoirs are required. Water resource strategies have to be assessed by individual resorts as the particular situations widely vary. Synergies to intelligent energy use and renewable energy systems have to be promoted.

From a resource point of view it can be more beneficial to conserve snow instead to produce it. Current efforts f. e. in Sweden and Switzerland investigate into possibilities of snow conservation and glacier protection. Snow that does not get lost during the warm season provides a good base for further snow accumulation. In 2010 the largest project with regard to manmade snow accumulation started in Norbotten, Northern Sweden. Snow farming in Switzerland is nowadays a well established field of research.

A further point of consideration is snow quality. Artificial snow is not so "nice" like natural snow as a relative small spectrum of snow crystals can be found in current artificial snow. Some countries, e.g. the U.S. consider cloud seeding as an appropriate mean in many situations where water is important. This method is currently forbidden in Europe despite the literature proposes that this method is more resource concerned than current ways of artificial snow production. In addition this would allow the production of higher quality snow as crystal forms like dendrites -usually only found in new light snow – are lacking in current artificial snow. We generally know too little about it but should nevertheless investigate into this method. Colleagues from US and Russia are available to share their experience with the snow dependent industries.

Another controversial point of possible manmade snow production is experiments with micro organism that can have an impact on the melting point of snow. Products like SNOWMAX using micro organism are known, but did not succeed to convince a broader public in Europe. Other products might be on the way, but cannot yet be judged from environment point of view. We encourage and support the following Principles and Policies for enhancing EU policy through the countries for protection of the environment and the human health. Mountains and their water resource systems play a key role in this context.

Principles

- Artificial snow has to be produced – at least to 20% percent, but better more – from renewable energy sources as proposed by the EU Directive 2008 (wind, photovoltaic, geothermic and others) with regard to renewable energy sources. This will in particular support European mitigation issues.
- It is not feasible to further adapt to climate with an increased greenhouse gas emission input. Any extension of artificial snow production has to complement by efficiency increases of the technologies employed. (http://ec.europa.eu/energy/intelligent/index_en.html)
- The legal framework for artificial snow production should be stable and equitable.
- Modern and innovative technologies for artificial snow producing should be used.
- Cooperation should comply with the best environmental and social practices, public disclosure and dialogue with various stakeholders at all levels.

The key principles formulated in this declaration are an important instrument for enhancing of environment and human security across the European continent.

Policies

- Larger strategies to support the winter tourist industries and snow dependent residents in an environmentally friendly way are needed.
- Promotion the aims of the EU Water Framework Directive 2000/60 and prohibit that the state of water resources is deteriorating in mountain areas.
- Manmade snow has to become part of national, regional and local climate adaptation strategies.
- Mutually beneficial partnerships between all interested parties/stakeholders for sustainable snow production should be encouraged by the governing instruments.
- Enter into legally contracted commitments between all interested parties and pursuit of all legal remedies.

In a view of the trends in the climate change, the environmental condition and the current practice in the artificial snow production sector, respectively, we conclude:

- Sound artificial snow production policies should stimulate an enhanced private sector role.
- A more sustainable snow production is needed. The major concerns of producers namely to prolong and extend the snow period, and the public to exclude risks for the environment have to be combined in a more resource concerned way.
- Special attention should be paid to water and energy resources protection.
- The research involving aspects like climate change, hydrology, the effects on nature/vegetation, erosion, human etc. subjects are needed.
- These ambitious aims have to be achieved by close cooperation between practitioners - local residents and tourists, and scientists covering very different fields of expertise are needed.
- Thereby information about challenges and risks has to be open to the public at a very early stage.

The Participants stressed the geographical importance of mountains and importance of maintaining a regular exchange of views, knowledge and experience on the issues outlined here. In this regard we support the realization of all projects that aim at investigating the balance between artificial snow production and wise usage of high mountains resources.