

Sustainable Energy For All

Conclusions of the Workshop:

“The contribution of hydropower to a sustainable energy future”

16 May 2012, Vienna

Universal access to sustainable energy for all, together with a substantial increase of the share of renewable energy and the improvement of energy efficiency are the core elements of the “Sustainable Energy For All” initiative, which has been launched by the UN General Secretary Ban Ki-Moon. The availability of basic energy services is also essential for reaching the Millennium Development Goals.

According to international studies, the primary energy consumption per capita and year up to about 100 GJ is strongly correlated with indicators such as life expectancy at birth, literacy, the Human Development Index etc. Among the basic energy services, electricity supply is of highest importance. To reach universal access, the environmentally, socially and economically sustainable use of the global hydropower potential will play an important role due to some advantages it is able to provide.

Hydropower implies clean and affordable energy and can contribute significantly to the electrification of areas without access to electricity!

Hydropower is the main renewable electricity source at global level and contributes to sustainable development. Hydropower is able to supply clean and affordable energy in its most valuable form, electricity. It is an advanced and flexible source of renewable energy and can contribute significantly to the electrification of areas without access to electricity. Hydropower can also be produced in small plants, which are able to supply communities not yet connected to national grids. Hydropower helps to reduce air pollution, which is especially a problem in the traditional use of firewood in open fires for cooking and hot water preparation.

Hydropower means security in various dimensions and can contribute to a balanced, interlinked management of the nexus between water, energy and food security!

Through well-regulated reservoirs and dams, and as part of a flexible, well-planned water resources infrastructure, hydropower installations can act as protection against floods and droughts and improve water resources allocation across competing demands. Furthermore, hydropower can boost local and regional development and support national energy security by the utilization of an indigenous, renewable resource.

A new approach to water, food and energy based on a better understanding and more systematic recognition of their inter-linkages in decision-making and planning has the potential to improve the production and sustainable management of these scarce resources. Water and energy are increasingly interdependent, as water is one of the major inputs to energy production, technology and industrial processes and energy is needed to produce and distribute water and manage wastewater. When combined with drinking-water-supply or fresh-water-storage, hydro power can support the livelihood of the population.

Hydropower’s flexibility optimizes the performance of peak power demands and of other electricity generation technologies and is an essential part in a mixed renewable energy system!

Hydropower is still the most powerful and efficient technology for energy storage, including small storage through higher dams for compensation of daily electricity load peaks. Hydropower plants with small or pure storage function are essential for power balancing and the integration of volatile solar and wind based renewable energy production into the grid. They also contribute to the compensation of seasonal fluctuations in the generation of run of river power plants.

Hydropower rehabilitation and optimisation – a “hidden treasure” which needs to be tapped!

There is a considerable potential for rehabilitation, life extension, upgrading and optimization of existing hydropower facilities. Tapping this potential would contribute to improve the energy efficiency of hydropower, guarantee the safety of ageing plants and produce substantial economic gains. Rehabilitation and upgrading of existing plants can be made taking advantage of modern technologies and comprehensive planning, while minimizing environmental and social impacts.

Hydropower needs to go hand in hand and not against nature!

Water has a critical role in all environmental, social and economic systems. In the context of sustainable development the contribution of water to policies towards a green economy can lead to poverty eradication, sustainable growth and job creation while preserving ecosystems and tackling climate change. Sustainable hydropower can contribute to an effective management of valuable and increasingly scarce water resources.

Sustainable hydropower supports the fight against climate change given its low greenhouse gas emissions compared to power plants burning fossil fuels. However, the environmental impacts of hydropower plants have to be well understood, carefully planned and minimised. Appropriate tools and measures, such as preplanning mechanism, environmental flows, fish migration aids etc., can help to identify and minimise negative environmental impacts. In addition, hydropower sustainability criteria catalogues and guidelines provide a basis for strategic planning and for the transparent assessment of environmentally sound hydro power projects.

Hydropower requires community involvement and public acceptance!

Hydropower plants can have positive and negative impacts on the socio-economic development of regions. The implementation of hydropower projects needs a balance of the interests of all concerned stakeholders to harvest the maximum of potential gains and to avoid as many as possible of the collateral disadvantages. Understanding and addressing the needs of the local communities through, for example, minimum compensation standards, improvement of community facilities, training and income generation programmes etc. are key elements for hydropower to achieve social and environmental sustainability. A transparent communication is essential to improve public acceptance of hydropower projects.

Hydropower development calls for innovative financing schemes!

Innovative financing options for sustainable hydropower and improved framework conditions that promote the involvement of public and private investors and the development of public-private partnerships are necessary. These financing schemes need to provide for risk mitigation mechanisms covering a variety of technical, commercial and country-related risks. Specifically, innovative financing schemes that mobilize public and private investments for small hydropower projects directly benefitting low-income, vulnerable communities are needed.

Hydropower development needs to be supported through international cooperation!

International cooperation is required at a number of levels to promote the development of sustainable hydropower and foster its contribution to the emergence of a “green economy”. International cooperation activities can support in the development of appropriate framework conditions, capacity building and the implementation of sustainable projects. Especially the cooperation through know-how and technology exchange is important. Regional institutions can play a key role in supporting and coordinating national actions to improve the framework conditions for hydropower, while ensuring an improved sustainability performance on the ground.