

Small Hydro Thematic Network: Increasing public acceptance of small hydropower schemes



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Introduction

This paper aims at explaining how cross border and co-ordinated actions, in which different players have the opportunity to act and react, contribute very positively to increase public awareness and acceptance of small hydro power schemes.

When this general idea is applied to the hydropower sector, the need for this kind of actions becomes more tangible. Environmental concerns on the hydropower impact are getting common and popular to the extreme of endangering the further development of hydropower. These concerns together with the idea that the hydropower technology is already mature and everything has been done in this area draw a very dark future for hydropower. The result is that both national and international legislation affecting directly or indirectly the existence of hydropower is being more frequent¹.

The small hydropower sector² (SHP) has the chance to change this situation. The Thematic Network on Small Hydropower project gives the sector a unique opportunity to increase the awareness of the small hydropower technology at the same time improving its public image through the creation of a network. This network creates an information exchange platform that will operate to overcome barriers and promote a better exploitation of the resources.

1. The Thematic Network project

1.1. Background

In March 2003, the European Commission, Directorate General for Transport and Energy (DG-TREN), signed a contract agreeing to a project called “Thematic Network on Small Hydropower” consisting in a “Thematic Network” to be carried out in the framework of the specific programme for Research and Technological Development and Demonstration (RD&D) on “Energy, Environment and Sustainable Development –Part B: Energy program”

This project gives more than ever the chance to the small hydropower sector to increase its public acceptance through a number of actions aiming at overcoming barriers and to promote a better exploitation of the small hydropower resource as regards costs, integration into energy systems, technological issues, environmental impacts, image and fulfilment of renewable energy targets.

ESHA, the European Small Hydropower Association, co-ordinates this project in which nine other partners are involved: ADEME, Studio Frossio, ÖVFK, SERO, EPFL-LCH, MHyLab, SCPTH, ISET, IT Power and the Lithuanian Hydropower Association.

The project runs for three years and it will deliver some interesting documents and publications. It is the core of the network to promote information exchange between the stakeholders and therefore it is open to associations and public in general willing to participate.

1.2. Scientific and technical objectives of the project

¹ For example Directive 200/60/EC known as “The Water Framework Directive”.

² Hydropower up to 10 MW

The Thematic Network on SHP aims to address a number of obstacles to the use of small hydropower in order to enable a better exploitation of this indigenous resource. The network will promote discussion and information exchange between the major stakeholders of SHP focused on achieving the following targets:

- Reduction of costs of both new as well as refurbishment of existing SHP plants
- Reduction of costs of “environmental” equipment (fish ladders, water ways etc.)
- Creation of a dialogue between SHP developers and environmentalists
- Ensuring that the EU White Paper target for an additional installed capacity in the field of SHP of 4500 MW by 2010 is reached and exceeded, by allowing exchange of information between researchers, the SHP industry (manufacturers, developers, turbine operators and others), utilities, governmental bodies and the public to overcome barriers to SHP use and increase public acceptability.
- Seeking public acceptability for SHP projects, as part of sustainable development, through addressing public concerns about the local environmental impacts associated with SHP plants
- Overcoming real and perceived problems to integration of SHP plants into energy systems, including to connection to the grid.

1.3. Activities

The activities will be organised around the following key themes:

- **Marketing for SHP:**
 - Political aspects related to SHP (renewal of licences, “forbidden” rivers, legislation affecting SHP (both on EU and national level), pricing structure in different countries)
 - International collaboration (exchange of experience, market analysis and evaluation of needs, stimulation of creation of bodies facilitating the development of SHP in markets outside the European Union, especially in Candidate Countries to the European Union)
 - Data collection on SHP
- **Environmental integration of SHP:** plants (integrated design, social acceptance, bioengineering, reserved flow, environmental effects of water abstractions from rivers, assessment of environmental impact, multipurpose use of water resources)
- **Engineering aspects:**
 - Civil engineering works (weirs and water storage, water intakes, fish migration, erection costs, waterways)
 - Mechanical equipment (technological developments of turbines, adequacy of technology for new SHP as well as refurbishment of existing SHP plants)
 - i. Mechanical equipment up to 1 MW
 - ii. Mechanical equipment between 1 MW and 10 MW
 - Electrical equipment (generators, operation modes, control and monitoring, etc.)

1.4. Expected results

- Platform for information exchange. The network will promote discussion and information exchange between the major stakeholders and key actors of the sector. Therefore, three key actors discussion groups have been formed.

Discussion group on marketing for SHP: The activities of this group aim at (i) presenting a real picture of the sector both from the theoretical (political aspects and legislation) and practical (industry) point of view,

(ii) promoting a fluent exchange of available and most updated information on SHP, (iii) identifying current barriers and future challenges for the sector and (iv) improving the image of SHP through communication and marketing activities. These activities will concern mainly EU-15 but EU-25 and EU-27 will be also covered. The discussion group on marketing issues includes ESHA (chair), ADEME, IT Power and Lithuanian Hydropower Association.

Discussion group on environmental aspects: The activities of this group aim at (i) getting a complete and detailed picture of the current situation regarding environment and SHP, (ii) exchanging experiences on internet based platform and (iii) creating international coordinated strategies. The discussion group on environmental aspects includes ÖVFK (chair) and Studio Frosio.

Discussion group on engineering aspects: The activities of this group aim at (i) presenting a real picture of the current situation of the R&D in this field, (ii) promoting a common industry view on R&D needs, in order to avoid redundancies and ensure an efficient use of the EC and national funding, (iii) identifying current technical barriers and future challenges for the sector and proposing a RD&D strategy to the EC and (iv) creating an information platform on past and present RD&D projects funded by the EC in order to guarantee the best use of their results. One of the main challenges to the acceleration of the small hydro development is to develop methods and equipment, which simultaneously satisfy the three criteria of simplicity, efficiency and reliability so as to increase energy production and profitability, through better use of available resources, and the decrease of construction, operation and maintenance costs. In order to perform an efficient work the group will be divided in the following sub-groups:

- Civil works: SERO, EPFL-LCH
- Mechanical engineering: MHyLab, SCPATH (Chairs of engineering group)
- Electrical engineering: ISET

- Development of strategies and publications. The partners of the thematic network will work together in producing the following documentation that will be available for the public:

- Strategy document on EU RD&D activities and needs (to be updated yearly)
- Layman's guide on how to develop a small hydro site in German, French and Swedish
- Checklist for SHP developers in French, German and Italian.
- Report on SHP situation in Candidate Countries
- Brochure on environmental aspects of SHP in English, Italian and German
- Overview of SHP installed capacities in the EU

- e-networking. The Electronic networking (e-networking) is promoted using e-mail and the internet to build on the key actor group networking, by providing a communication tool for the members of the key actor groups, and by opening up the debate to the public to provide a broader forum for debate. The e-network runs on its own website and contains the following sections:

- Member-only pages with access restricted to Members of the network to provide easy access to working documents and a site for information exchange outside meetings and between the key actor groups. A part of this site is dedicated to web-based discussion structured according to the key actor groups and key discussion themes.
- Electronic discussion groups on the public access area of the website, open to all, set up according to the structure of the network and to cover the key discussion themes. They provide public access to the final outputs from the network- strategy documents, official reports from the key actor groups to encourage a wider public debate, mapping of centres of excellence.
- Pages for dissemination of EU RD&D information to a wide audience, including links to the web site.
- "Frequent asked questions" service where any question on SHP can be placed. This one-stop-shop allows people to ask any kind of question related to SHP. The questions will be then be forwarded to the respective partner of the network who has expertise in the specific area.

The e-networking is the best tool for main stakeholders to get to know each other. It also enables easy and fast participation on line, including on line discussions and virtual meetings, serving as central place for exchanging and disseminating information. The best advantage: it is freely openly to the public in general.

1. 5. How to participate

The Thematic Network is open to everyone who would like to make a contribution, get and exchange information or get in contact with other stakeholders of the sector. Through the *Network Website* all people are connected. To access the Network Website a password and username are required which you can get from ESHA. Connection and use of the Website are free of charge. At the ESHA Website, www.esha.be, a description of how to enter the Network is available.

2. Reaching the public

One of the main constraints Small Hydropower has to face is the social barrier due to little information the public opinion has about this technology. More frequent beliefs on the negative impact of the SHP in the river and its habitat are endangering the promotion, development and expansion of this kind of technology. Moreover, these attitudes are reaching the political sphere imposing as result more regulatory barriers to this sector.

ESHA believes that these ideas are due to a misinformed general public who makes no difference between the small and large hydropower schemes. Small hydropower schemes are mainly “run of the river”. This type of hydropower generation utilizes the flow of water within the natural range of the river. Therefore little or no reservoir impoundment takes place. Little dams create little pounds, which are very favourable for ecosystems, fish and water storage. Slow speed turbines induce no mortality for fish, which can pass through the turbine. Construction of upstream fish passages facilities makes upstream migration possible. These are only some examples of how SHP is adapting its technology to the environment through continuous research and improvements. Unfortunately, results and application of these improvements as well as information on the SHP technology ARE NOT disseminated to the public. As a consequence, we are unfairly accused of some environmental impacts out of our responsibility.

The SHP sector is very concerned about this negative public opinion and would like to react. The TNSHP brings the opportunity to tell the rights and wrongs about the SHP through communication and marketing activities:

- It creates a centre that collects and disseminates information on all aspects of small-scale hydropower development.
- It offers basic data needed for project evaluation (maps, surveys, hydrology, geology). A frequently updated and easily accessible inventory with potential small-scale hydropower sites is currently still inexistent. Potential project developers therefore often have to take a lengthy way through many institutions to identify hydropower investment opportunities. At the same time, attractive sites may remain undeveloped, because they are not known.
- It contributes to increase public awareness on the implications of global warming in that every country and the rapid depletion of the country's fossil fuel resources, as well as the importance of the development of renewable energy resources.

Partners of the thematic network are working in (i) Preparing information papers on SHP to be disseminated on a broad basis (meetings, workshops, conferences, media, press..), (ii) Contacting and exchanging views with other river's users, (iii) Publicity and promotion using available communication methods and (iv) Lobbying activities at local, national and European level in order to make institutions and decision-makers aware of the possibilities for small-scale hydropower development

The Small Hydropower (SHP) technology is facing all type of barriers EVEN THOUGH it is:

- A renewable source. The fuel for hydropower is water, which is not consumed in the electricity generation process.
- A sustainable source. What separates hydropower from other sources of electric energy is that it leaves substantial positive legacies to future generations such as the structures of a hydropower plant. Small hydropower development meets the needs of the present without compromising the ability of the future generations to meet their own needs.

- An efficient source. Hydro can satisfy the increase of energy demand with no depletion of the resource and with little impact on the environment.
- A secure source. Hydro is available within the borders of one country and is not subject to disruption by international political events. This guarantees its security of supply.
- A clean source. Hydro technology does not involve a process of combustion. Therefore, concerns over global climate change and health ramifications of pollutants are ended when using this free emission resource.

Small hydropower has a huge, as yet largely untapped, economic and technical potential, which will allow it to make a significant contribution to future energy needs.

Unfortunately, we cannot ensure the further uptake and exploitation of SHP within the European Union and beyond if we do not reach the general public and inform them about the rights and wrongs of our sector. The Thematic Network gives the opportunity to take an international co-ordinated action in this respect involving and interconnecting every player related to small hydropower across different countries of Europe and beyond enabling the chain effect to work up to unthinkable extents.

Therefore, the active and numerous participation in the Thematic Network is a key factor which result probes how cross border and co-ordinated actions, in which different players have the opportunity to act and react, contribute very positively in increasing public awareness and acceptance.

Thank you

ESHA is a non-profit organisation representing the interests of all actors involved in the sector of small hydropower at European level. Based in Brussels, it plays an active role at European political decision level through the dissemination of information, organisation and promotion of seminars and conference and lobbying activities.

ESHA organises the International Conference on Small Hydropower "Hydroenergia 2004" in Falkenberg, Sweden from 17th to 19th June 2004. Since 1989, ESHA's biennial conference Hydroenergia has been bringing together specialists in the field of small hydropower from all over the world. Hydroenergia 2004 will take place in the business and conference "Elite Hotel Strandbaden" in Falkenberg next to the Kattegatts see. Falkenberg, between Gothenburg and Malmö, is a location aiming 100% RES deployment.

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