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## Executive Summary

The Regional Workshop for Coordination of Research on Hydropower Development in the Lower Mekong Basin (LMB) took place in Vientiane, Lao PDR on 14-15 September 2010 with the participants from the 4 countries in the LMB, namely Cambodia, Lao PDR, Thailand and Vietnam and other countries in Europe, Australia and Africa.

Hydropower is the most important energy source in the Mekong region. The sector is characterized by strong private sector involvement and relatively weak regulatory frameworks. Although it is seen as a clean energy source, hydropower still has negative impacts on the environment, social and health issues, and generating new knowledge on the links promotes sustainable energy solutions.

Key inputs to the workshop were reviews of research, knowledge transfer and capacity building in various academic disciplines related to hydropower development in Cambodia, Laos, Thailand and Vietnam. A review of private sector involvement in hydropower development and research and links to this stakeholder group was also included. To improve knowledge of planning tools such as multi-criteria decision analysis (MCDA) an Internet questionnaire and interviews on hydropower development in the Lower Mekong Region were carried out analyzing state-of-the-art in water resources education in the 4 Mekong countries.

Key findings in national research for hydropower development and private sector involvement are:

**Cambodia** is facing a lack of local capacity in identifying needs, project planning and operations, not only related to hydropower, but also to fields as fisheries and the environment. There is a gap between political will, the need for energy and local technical and management capacities to achieve sustainable hydropower development. A few universities have programs on water resources, but sustainable hydropower development is a new topic and research capacity is limited. Training and research on water resources and sustainable hydropower depend to a large extent on assistance and resources from the outside. Private sector involvement has just been initiated and results are yet to be seen.

**Laos** is the country in the Lower Mekong Basin (LMB) with the largest potential for hydropower development on mainstream and tributaries. Lao National University promotes and performs research in natural and social sciences, but there is a general lack of understanding of the water/hydropower/development link, the effects of climate change on water, water foot prints and similar tools as well as the links between hydropower development and the environment.

**Thailand** has comprehensive education and research programs on all topics related to hydropower development. Thai universities concentrate on sustainable development and stakeholder participation, and specific local issues and problems in natural resources and water management. This is based on IWRM and development of river basin development plans. There is limited potential for new hydropower plants and the majority of the existing plants are run by private companies. Knowledge gaps are related to impact assessments broadly and to knowledge management systems such as databases and GIS.

**Vietnam** has 30 universities with programs related to water resources. 5 focus primarily on hydropower. Key research gaps are related to management of the environment, pollution control and natural resources, and on knowledge aspects as well as administrative and public relations aspects. Using cost-benefit analysis, environmental impact assessments and similar analytic tools for studying how economic



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developments affect the environmental system is limited. Knowledge and skills in policy-making and on social impacts are also limited.

**Cross-cutting** issues between the four countries are the need to look more into the interaction between human and nature with regard to physical, environmental and socio-economic impacts of hydropower as well as climate change and adaptation. There is limited linkage between research institutions and the private sector and weak public information and stakeholder involvement

**Private Sector involvement** is vital as private developers are key actors for hydropower and for economic and social development, but standards and regulation models vary among countries and projects. There is a general lack of integration among different stakeholder groups, namely state, private sector, research and other stakeholders and more focus should be put on this issue.

**The questionnaire on MCDA and similar tools** were presented and the overall conclusions were that planning practices and stakeholder involvement are considered inadequate by the respondents, not only due to lack of methods but also to their inappropriate use. The respondents stated that more education is needed to improve planning practices in the hydropower development projects. MCDA could be a useful tool in the planning and evaluation of hydropower development projects. It could be applied to the comparison of long-term strategies and scenarios, evaluation of the sustainability of different projects, comparison of alternative project options, evaluation of different mitigation and compensation measures and definition of the scope and requirements of EIA. MCDA can provide support when the principles of IWRM are implemented.

The workshop findings and recommendations include:

- Research and capacity building needs are widespread, most significant in Laos and Cambodia, but all countries need to improve research on hydropower and impacts on environment, fisheries, agriculture and social and economic development. Among those, recommended research topics from the workshop were:
  - i) risk and impact assessments of hydropower for the sustainable development;
  - ii) impact of climate change on regional hydropower development, and regional mitigation and adaptation measures;
  - iii) benefit sharing from hydropower and trade-offs between different management options;
  - iv) integrated and life-cycle assessments on economic and environmental sustainability of energy solutions;
  - v) new hydropower technologies and alternative clean energy options;
  - vi) case studies of conditions, solutions and impacts across countries related to hydropower and development.
- The relationship between research and development was discussed at the workshop. Solid findings from international surveys demonstrate that investments in research and water management contribute to poverty reduction. This gives reason for countries and the Mekong River Commission (MRC) to upgrade these activities, but also to pay more attention to communication of results and research uptake.
- Linkages and communication among the water sector actors were found to be weak, especially with the private sector. Participants recommended that the private sector should be involved in the whole project cycle from design to implementation and evaluation. There is a need for more network linking and information sharing also with local communities.
- Recommendations on mechanisms for inclusion of stakeholders in research including private sector are that researchers and practitioners need a better understanding of the other. Enhancing



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the application of research results to the policy and practical levels was found by all participants to be a left-out issue. Among recommendations to improve this aspect were to:

- i) identify target groups among developers, researchers, policy makers and others and engage them early in the process even during research design;
- ii) improve mutual understanding and dialogue and provide facilities and institutional structures to connect researchers and users, like workshops targeted to decision makers and private sector;
- iii) develop communication strategies and create applicable and clear messages;
- iv) research findings must be translated into local languages and there is a need for champions, key persons to translate and promote the use of research.

In conclusion of the workshop Splash representatives presented stated their willingness to take these findings further and seek to develop **and apply for funds for two activities**

- A joint research call funded by Splash partners on promotion of sustainable hydropower solutions for the Lower Mekong Basin
- Coordination of research on impacts of hydropower on livelihoods (agriculture, fisheries etc) in the Mekong to generate an overview of the knowledge level and needs on both national and international research.