WaterEnergy Nexus

The links between water and energy are not often taken into account in development of technologies, policy-making and management increasing economic and environmental risk.

The WaterEnergy Nexus Project aims to develop a decision-support software for assessing water impacts associated with new and emerging energy technologies.

Integration of the water-energy connection and quantification through development of an available decision -support software utility will bring an international focus to the relationship between water and energy power generation options.

The main objectives

1. To evaluate the water-energy **interface for energy technologies** (coal-fired, nuclear, natural gas, biomass, hydroelectric).

2. To evaluate **environmental impacts associated with energy technologies** (water quality and quantity).

3. To develop **decision-support predictive modeling software** to assess water interaction pathways for different energy generation

Benefits for Western Canada and the world

Clean energy technologies and water management technologies were identified as strategic development pathways for Canada with market potentials. Saskatchewan and Alberta are microcosms for investigating the water-energy interface due to the potential to export primary energy (oil & gas, oil sands, uranium), electricity, know-how and technology.

Results based on one case study of the South Saskatchewan River will have important policy implications, **locally and globally**. Methods developed for this first attempt will be applied to other world regions. One case study will focus on the Mekong Subregion of S.E. Asia.

The project involves the development of innovative software that will identify strategic areas of investment for energy technologies in **Western Canada** that could be exported globally in a clean energy, water-constrained future. Western Economic Diversification Canada (WD) has contributed funding in recognition of these significant economic and commercialization opportunities.

University of Saskatchewan

UNEP

GEMS Water

Contributing to UNEP GEMS/Water Programme

This project is consistent with the United Nations Environment Program (UNEP), which enables nations to develop the means of appropriately evaluating their water resources and develop strategies and technologies to address the challenges for sustainable water and energy supplies. It also fits the criteria for the GEMS/ Water Programme by bringing practical solutions to issues of water quality and quantity.

The WaterEnergy Nexus Project will produce decision-support software that will be made available and linked to GEMS/Water Programme for the energy industry to assess water liabilities associated with different energy technologies and more importantly a diversified portfolio of different energy options.

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Additional partners welcome.