

Interview for *Ecosystems* – Dr Susan Lisa Toch,
ANaturalResource.com
CEM Member in North America

Introduction

With over 25 years experience in *land use hydrology*, *water resources management* and *community health*., Dr Susan Lisa Toch specializes in *relating land use practices to water quality in community watersheds* and *drinking water supplies*. Her inter-disciplinary background in *Water Resources Science* and *Environmental Health* includes a Ph.D. and an M.P.H from University of California, Berkeley, an M.A. in *Geography/Environmental Planning* from the University of Waterloo, Ontario, Canada and in *Leadership Development and Human Services*.. She holds additional certifications in *Tropical Medicine and Infectious Disease* through Louisiana State University Medical School, and the University of Costa Rica, and in Emergency Medicine, having trained in Helicopter disaster relief with the Swiss Air Rescue (REGA), Switzerland. Susan Lisa Toch is also a trained forester, having worked in land use issues that include timber, wildlife, fire and water resources. She holds specific expertise in the identification and management of ecologically sensitive areas, focusing on the risks of introduction and transport of potential pathogens. These include potential impacts from agricultural and livestock use, as well as activities associated with mining and urban development. Her credentials in *Forestry* and *Natural Resource Management* and her applied work in water supply development and pollution control are of significant benefit in developing *effective watershed management strategies that incorporate inter-disciplinary and inter-agency collaboration*.

Dr Toch has worked on water resource projects from North, Central and South Americas, to Europe, Asia, and the Middle East around the world, developing and implementing watershed management strategies in both rural and urban areas. From her position as a *water resources specialist* with the *Rural Community Assistance Program*, she developed strategies in *water supply development and pollution control* with rural, low income communities, to the *risk assessment and watershed management plan* for the Tuolumne River Watershed, the drinking water supply for the City of San Francisco. Through this project, she developed a risk model that integrated geographic information with public health criteria, specifically regarding *Cryptosporidium*, *Giardia*, *Coliform* and *Turbidity*. This integrated endeavor resulted in the first filtration exemption in the State of California, granted by the USEPA to the San Francisco Water District, saving the City app. \$500 million in technological investments. Her international work includes *watershed risk assessments with the World Health Organization* for *Cholera* transmission in Central America, *community participation strategies* in the *Clean Seine Project*, France, development of the *Coral Reef Teachers guide* with the *World Wildlife Fund*, as well as a *cooperative resource management plan* on the Island of St. John, USVI during

the Hurricane Hugo disaster. Dr Toch has also advised and conducted *hydrologic assessments and management training in community and consumptive use watersheds* in rural British Columbia, and has considerable knowledge of water quality issues in the Interior of Canada, having coordinated extensively with *several Government Ministries* in project development specifically geared towards *assessing regional connections between land use, water quality and human health*. Combining spiritual arts and science, she has recently developed projects mapping hydrologic eco-systems using indigenous music, dance and storytelling.

Publications and references to her work range from *The New Yorker* to articles in the *Journal for the American Waterworks Association*. She has published numerous works related to watershed management and human welfare with topics on disaster prevention, integrating resources and community issues, an Enabling Environment and a role for watershed management in water quality control. Her work has expanded to the development of the international community-based consortium “Unified in Our Diversity”, the watershed sustainability publication on the connections between land use, water quality and human health: *Water to Drink: Sustaining Watersheds and the People Who Need Them*, and recently co-authoring the upcoming UN Publication *Voices for Water from Around the World* to coincide with international decade for Action 2005-2015.

To learn more about her ecosystem based applied work in land use hydrology, environmental planning, community health, technical assistance and education and training programs and publications, please contact:

Susan Lisa Toch, Ph.D., M.P.H., M.A
WWW.ANATURALRESOURCE.COM,
WATERTODRINK@ANATURALRESOURCE.COM

A NATURAL RESOURCE: Land Use Hydrology, Environmental Planning, Community Health, Technical Assistance, Education and Training PO Box 1261, Anacortes, WA. 98221, USA.

How did you become a member of CEM?

I have long focused on an integrative, inter-disciplinary approach to eco-system management. This has involved developing collaborative resource management strategies, academic courses including environmental health, watershed ecology and resources management, serving on Drought Commissions and Solid Waste Technical Advisory Boards, and serving as an active member of the IUCN Commissions on Conservation Education and Training (CET), and Ecosystem Management (CEM), further networking within Mountains and Protected Areas. Invited to participate in such professional meetings as the World Parks Congress, Caracas, VZ, 1992, I first presented with IUCN on the eco-system basis for the crisis we call Drought in “Water or Wisdom?”. This had followed an applied approach to ecological management published in “Landscape Ecology, Muenster, Germany” that demonstrated a systems approach to community

participation strategies in the integration of culture, ecology, economic and ecological variables and “An Enabling Environment” (see attached), later used in the disaster prevention plan for the Virgin Islands in association with the US National Parks. I later served to facilitate understanding the connections between land use, water quality and human health at the World Parks Congress in Durban, South Africa, following my participation in the World Conservation Congress, Montreal, Canada, later coordinating water and health initiatives at the WCC in Bangkok, Thailand where I linked up with CEM to assist in addressing the underlying human and ecological disasters that ensued. I have recently returned from the World Water Congress, Mexico City, Mexico.

Why do you consider it important to be part of CEM ?

CEM has an integral IUCN role in applying an integrated systems approach to applied research, management and policy issues. Through demonstrating our own coordinated effort in working together across disciplines, political and geographic boundaries, we can provide examples for effective strategies in ecological and human well-being. Linking multi-cultural populations with our shared hydrologic ecological systems, “Water to Drink: Sustaining Watersheds and the People Who Need Them” is one example of a community-based, applied approach to eco-system education and management. It includes case studies from around the world that demonstrate how our influence on our environment ultimately affects its influence on us, placing the preservation and management of our watersheds within the context of our own health and well-being. I would welcome comments and coordination in applying this work where it can be helpful.

What role does the Ecosystem Approach play in your work?

1. Interesting would be here if you can elaborate on the relationship between the Ecosystem Approach and integrated water management

My own approach to integrated water management is to focus on the hydrologic basin as a whole from source to sink. This includes the connections between input (rain/snow), surface water (rivers, lakes, wetlands), and groundwater, expanding to the ocean currents and related saltwater environments within a watershed system. While we learn early on about these connections in ecology, to date, I do not know of any academic program that links hydrology and oceanography in the same advanced curriculum. My expanded education has thus purposely included research in recognized Marine Field Stations complimenting my hydrologic systems approach to better associate freshwater and coastal environments in effective water management. As well, while first educated as an ecologist, I later obtained advanced credentials as a public health

professional in order to better understand and apply ecological principles in human health, integrating human well-being within our ecological environment. This has included a WHO project linking landscape change with the influx of water-borne disease in Central America, connecting forested areas and lichen with respiratory and cardiac illness in the Paris Region, and coordinating inter-disciplinary methodologies in resource assessment for potable supplies. This eco-systems approach to water management and health has provided alternatives towards the prevention of human illness within diverse ecological environments.

2. To what extent are hydrologists and land use planners aware of the Ecosystem Approach?

I believe that with the common lingo used today, there are many who are familiar with the term and even the concept of “eco-system”. However, there is a great need for expanded education, technical assistance and outreach in applied assessment and management strategies. We must demonstrate the inter-disciplinary and cross-cultural nature for integrative work at multiple levels in landscape and social systems.

3. Why is it important in your view to use the Ecosystem Approach more in water management and environmental planning?

Understanding and applying the connections between ourselves and the resources upon which we rely to sustain us is integral to addressing so many of the underlying issues to our growing ecological dilemmas, and to better providing positive, substance based alternatives for effective solutions.

What could CEM do better?

There is a great need for a coordinated, pro-active effort to facilitate and initiate applied integrated eco-system work in the field. This should include project development, funding options, and demonstrated actions in eco-system research, management and outreach. CEM can further initiate, enhance and expand such opportunities in projects and technical assistance with a resource center for activities for our common interests.