

***Slobodan P. SIMONOVIĆ  
Consulting , Ltd.***

Serving water resources engineering needs of Canada and the World since 1997.

Drawing upon our broad experience in all aspects of water resources, including evaluation, engineering, and capacity building, *Slobodan P. SIMONOVIĆ Consulting, Ltd.* constructs teams of water experts to work side-by-side with clients on large, complex projects in developing innovative solutions to meet specific client needs.

Company's primary strength is in the application of systems approach to, and development of the decision support tools for, management of complex water and environmental systems. Most of our work is related to the integration of risk, reliability, uncertainty, simulation and optimization in hydrology and water resources management. Second field of activities of *Slobodan P. SIMONOVIĆ Consulting, Ltd.* is water resources decision support. We have undertaken applied research projects that integrate the mathematical modelling, data-base management, geographic information systems and intelligent interface development into decision support tools for water resources decision makers.

**Our mission:**

Water for support of life.

**Our commitments:**

Respect; Integrity; Balance; Open communications.

**Our expertise:**

*Subject Matter* - Systems modeling; Risk and reliability; Water resources and environmental systems analysis; Computer-based decision support systems development; Water resources education and training.

*Topical Area* - Reservoirs; Flood control; Hydropower energy; Operational hydrology.

**Partners:**

Slobodan P. Simonovic,  
Batchelor of Civil Engineering – Water Resources Engineering, University of Belgrade  
Master of Interdisciplinary Studies – Water Resources Systems, University of Belgrade  
PhD in Engineering – Water Resources Systems, University of California

Tanja Malisic-Simonovic,  
Batchelor of Architecture, University of Belgrade  
Master of Community Planning, University of California

## Consulting experience

### *Water resources management*

1.

**Client** INGEMA Consulting Engineers, Rabat, MOROCCO  
**Project** Etude de gestion du complex El Akab  
- modeling long term operation of the system under uncertainty  
- short term system optimization study  
**Time** May 1991 – May 1993

2.

**Client** National Water Research Center, El Qanatir, EGYPT  
SNC-Lavalin, Inc., Montreal, CANADA  
**Project** River Nile Protection and Development Project – Phase II  
- development of the Nile Water Strategic Research Unit  
- system dynamic simulation modeling of Egypt's water resources  
**Time** November 1994 – June 1996

3.

**Client** UNESCO, Division of Water Sciences, Paris, FRANCE  
**Project** Systems Analysis Techniques in Support of Water Conflict Resolution  
- state-of-the-art review of the system analysis for water conflict resolution  
- identification of representative case studies  
- development of the report  
- development of the decision support system prototype for water conflict resolution  
**Time** July 2002 – October 2002

4.

**Client** UNESCO, Division of Water Sciences, Paris, FRANCE  
**Project** Decision Support System for Water Conflict Resolution  
- development of the methodology for water conflict resolution  
- decision support system development  
- development of training material for the use of the decision support system  
**Time** October 2002 – December 2002

5.

**Client** UNESCO, Division of Water Sciences, Paris, FRANCE  
**Project** Our Future Outlook on Global Water Resources and Water Related Risk Management  
- preparation of report  
**Time** June 2005 – December 2005

**6.**

**Client  
Project**

UNESCO, Division of Water Sciences, Paris, FRANCE  
Integrated Water Resources Management in Basins, Sub-basins and  
Aquifers

- preparation of the state-of-the art document
- provision of strategic directions recommendations
- preparation of the practice guidelines for IWRM implementation in  
basins, sub-basins and aquifers

**Time**

May 2007 – December 2007

**7.**

**Client  
Project**

Canadian Council of Professional Engineers, Ottawa, CANADA  
Water Resources – Infrastructure Impacts, Vulnerabilities and Design  
Considerations for Future Climate Change

- preparation of engineering literature review
- preparation of a report
- preparation of a bibliography of references

**Time**

October 2007 – January 2008

## *Water resources system analysis*

**1.**

**Client** E. Todini & Partners, Bologna, ITALY  
ENEL-CRIS-Servizio Idrologico, Mester, ITALY  
ISMES Spa – Monitoraggio Geoambientale, Bergamo, ITALY

**Project** Arne Model Calibration Dispute Expert Advisor

- development of calibration methodology
- development, testing and use of an expert system for calibration of the model

**Time** July 1993 – September 1993

**2.**

**Client** ISMES Spa, Bergamo, ITALY

**Project** Delimitation of Hydrographic Basins in Plain Areas

- development of the multi criteria methodology for delimitation of river basins
- implementation of the Compromise Programming multi criteria technique for the delimitation of the pilot Piave river basin

**Time** July 1993 – August 1993

**3.**

**Client** W-E-R Agra Ltd., Calgary, CANADA  
Hubei Water Authority, Wuhan, CHINA

**Project** A Study of the Sihu Drainage Systems Optimal Operation – Phase I

- optimization modeling of flood and water logging control
- simulation of system effectiveness

**Time** July 1994 – May 1995

**4.**

**Client** W-E-R Agra Ltd., Calgary, CANADA  
Dongting Lake Water Authority, Changxia, CHINA

**Project** Development of a Work Plan for the Dongting Lake Polder Drainage System Optimization Modeling

- assessment of the appropriate optimization tools
- data collection
- work plan development

**Time** July 1994

**5.**  
**Client** W-E-R Agra Ltd., Calgary, CANADA  
Hubei Water Authority, Wuhan, CHINA  
**Project** Optimal Operation of the Sihui Drainage System – Phase II  
- development and testing of nonlinear optimization tools for the optimal operation of the system  
- selection of the technique, development of the code and assessment of the test results  
**Time** August 1995 – February 1996

**6.**  
**Client** Golder Associates, Calgary, CANADA  
Hubei Water Authority, Wuhan, CHINA  
**Project** Yangtze Basin Water Resources Project: Sihui Optimization Sub Project – Phase IV  
- development of the decision support (DSS) methodology  
- integration of the optimization and simulation tools into a DSS  
- development of the user interface  
- assessment of the software development tools  
**Time** November 1998 – December 1998

**7.**  
**Client** KGS Group, Water Resources Services, Winnipeg, CANADA  
**Project** Development of Operation Planning Model for Seine River Hydro System  
- development of the optimization model  
- assessment of optimization tools available  
- optimization analyses  
**Time** April 2000 – July 2000

**8.**  
**Client** Halcrow China, Hongkong, CHINA  
**Project** Draft Methodology: Prioritization Study for Hubei Environmental Projects  
- review of the methodology  
- recommendation for the follow up study  
**Time** November 2001

**9.**  
**Client** Golder Associates, Calgary, CANADA  
Hubei Water Authority, Wuhan, CHINA  
**Project** Planning Study for Further Infra-structural Development to Improve Water Management in the Sihui Area  
- international experience in integrated lake management  
- multi criteria analysis under uncertainty – Fuzzy Compromise Programming  
- multi criteria ranking of development options for the Sihui Basin  
**Time** January 2002 - June 2002

**10.**

**Client  
Project**

Water Stewardship Manitoba, Winnipeg, CANADA  
Peer Review of Manitoba Hydro SPLASH Model

- review of the model description
- analysis of the model application
- participation in the review meeting

**Time**

April – May 2005

## *Management of floods*

**1.**

**Client** KGS Group, Winnipeg, CANADA  
**Project** Flood Control Adequacy Review Study – Red River Basin, Manitoba  
- study review  
- recommendations for future work  
**Time** January 1996

**2.**

**Client** International Joint Commission, Canadian Section, Ottawa, CANADA  
**Project** Assessment of Social Impacts of Flooding for use in Flood Management in the Red River Basin  
- conducting the survey 'The Psychosocial Impacts of the 1997 Red River Flood'  
- report preparation  
- recommendations to the International Red River Basin Task Force  
**Time** July 1997 – December 1997

**3.**

**Client** International Joint Commission, Canadian Section, Ottawa, CANADA  
**Project** International Red River Basin Task Force  
- expert advice on the plan of study and guidance to Task Force activities  
- Task Force meetings  
- Review of the information, reports, contract proposals, hydraulic and hydrologic model results  
**Time** January 1998 – March 1998  
July 1999 – December 2000

**4.**

**Client** International Joint Commission, Canadian Section, Ottawa, CANADA  
**Project** Functional Requirements, Design Plans and Implementation Strategy for the Red River Basin Decision Support System (RRBDSS)  
- conceptual development of the Red River Basin decision support system  
- assessment of software and hardware requirements  
- report preparation  
- prototype development and demonstration  
**Time** November 1998

**5.**  
**Client** International Joint Commission, Canadian Section, Ottawa, CANADA  
**Project** International Red River Basin Task Force – Database Sub-group Leadership

- work plan development with the US co-leader
- liaison between the Task Force and the sub-group
- direct research to identify data and information required
- development and implementation of a DSS for the Red River Basin

**Time** May 1998 – June 1999

**6.**  
**Client** Science Applications International Corporation, San Diego, USA  
**Project** The Global Disaster Information Network (GDIN): Red River Basin Disaster Information Network (RRBDIN)

- development of the disaster information network
- assessment of data needs
- assessment of software support
- promotion of the decision support system concept

**Time** May 1999 – April 2000

**7.**  
**Client** Emergency Preparedness Canada, Ottawa, CANADA  
**Project** A Prototype Computer-based Behavioral Model for Emergency Planning

- development of the system dynamics simulation model for flood evacuation
- model calibration using data from the Red River Basin, Manitoba
- sensitivity analyses of model performance
- model documentation and report preparation

**Time** November 2000 – January 2001

**8.**  
**Client** Emergency Preparedness Canada, Ottawa, CANADA  
**Project** Evaluation of the Effectiveness of Emergency Management Procedures: Red River Basin Case Study

- use of the system dynamics simulation model for evaluation of emergency management procedures in the Red River Basin, Manitoba, Canada
- report preparation
- workshop organization

**Time** January 2001 - March 2001

- 9.**  
**Client** CTI Engineering Co., Ltd., Tokyo, JAPAN  
**Project** Review of the Existing Real-time Flood Control Systems
- literature review
  - identification of existing systems
  - analyses of the effectiveness of existing systems
  - report preparation
- Time** January 2001 – March 2001
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- 10.**  
**Client** World Meteorological Organization (WMO), Geneva, SWITZERLAND  
**Project** Case Study on Flood Management in the Red River Basin, Canada
- preparation of the case study
  - analyses of experience
  - preparation of the text for the final report and WMO case study web site
- Time** December 2003 – May 2004
- 
- 11.**  
**Client** UNESCO, Division of Water Sciences, Paris, FRANCE  
**Project** International Flood Initiative
- development of the International Flood Initiative concept
  - work plan
  - schedule of activities
  - draft report preparation
- Time** July 2004
- 
- 12.**  
**Client** Golder Associates, Calgary, CANADA  
**Project** Decision Support System Application for Water Management and Flood Control
- literature search
  - development of the state-of-the-art report
  - selection of six case studies
  - development of the report describing the details of selected case studies
- Time** January 2005 - now
- 
- 13.**  
**Client** IFNet, Tokyo, Japan  
**Project** Action Report Towards Flood Disaster Reduction
- development of the state-of-the-art review
  - review of the Red River decision support concept
  - development of the report
- Time** December 2005

## *Global change*

### 1.

**Client** European Commission, Research Directorate General, Brussel, BELGIUM

**Project** Evaluation of Proposals Under Call FPG-2002-Global 1: Global Change and Ecosystems

- participation at the meetings of the evaluation team
- development of the evaluation methodology
- ranking of the proposals
- presentation of the final results

**Time** May 2003

### 2.

**Client** Golder Associates, Calgary, CANADA

Yellow River Conservancy Commission, CHINA

**Project** New Trends in Integrated Watershed Management

- development of the state-of-the-art review
- presentation of the trends
- discussion of potential application in the Yellow River Basin

**Time** August 2004

### 3.

**Client** Research Institute for Humanity and Nature (RIHN), Kyoto, JAPAN

**Project** Impact of Climate Changes on Agricultural Production System in the Arid Areas

- development of the methodology for assessment of climate change impacts on the management of water resources in arid region
- preparation of the report
- implementation of the methodology to assessment of climate change impacts in the pilot basin, Seyhan River, Turkey
- preparation of the report
- training

**Time** June 2004 – 2007

### 4.

**Client** Upper Thames River Conservation Authority, London, CANADA

**Project** Seasonal Flood Changes Under Climate Change in the Upper Thames River Watershed

- investigation of applicability of aerial reduction factors under climate change conditions
- development of basin wide seasonal design event conditions under climate change
- review of adequacy of current regulatory flood return period of 250 years

- analyses of impact of current flood protection infrastructure under the climate change
  - investigation of adaptation strategies through watershed management
  - preparation of recommendations and reports
- August 2008 - 2009

**Time**

## Water resources education and training experience

1.

**Client** University of Natural Resources and Applied Life Sciences, Vienna, AUSTRIA  
**Course** Expert Systems for Water Resources Engineers  
- short course for researchers and graduate students  
- 25 participants  
**Time** May 1989

2.

**Client** Manitoba Hydro, Winnipeg, CANADA  
**Course** Issues in Reservoir Management and Optimization  
- short course for practicing engineers  
- 28 participants  
**Time** March 1992

3.

**Client** Manitoba Hydro, Winnipeg, CANADA  
**Course** Systems Analysis for Planning Hydro-Power Production  
- short course for practicing engineers  
- 28 participants  
**Time** April 1992

4.

**Client** Ministere de Travaux Publics de la Formation, Administrartion de L'hydraulique, Rabat, MOROCCO  
**Course** Water Resources Multi-criteria Analysis  
- short course for government officials  
- 14 participants  
**Time** April 1993

5.

**Client** ISMES Spa, Bergamo, ITALY  
**Course** Water Resources Multi-criteria Analysis  
- short course for practicing engineers  
- development of joint case study application for delineation of river basins  
- 7 participants  
**Time** July 1993

**6.**  
**Client** University of Bologna, Bologna, ITALY  
E. Todini & Partners, Bologna, Italy  
**Course** Expert Systems for Water Resources Management and Flood Risk Control  
- short course for practicing engineers and government officials  
- 25 participants  
**Time** July 1993

**7.**  
**Client** University of São Paulo, São Paulo, BRAZIL  
**Course** Expert Systems for Water Resources Engineering  
- short course for practicing engineers and researchers  
- 18 participants  
**Time** May 1994

**8.**  
**Client** National Water Research Center, El Qanatir, EGYPT  
SNC-Lavalin, Inc., Montreal, CANADA  
**Course** Systems Approach to Sustainable Water Management  
- short course for government officials  
- 20 participants  
**Time** November 1994

**9.**  
**Client** National Water Research Center, El Qanatir, EGYPT  
SNC-Lavalin, Inc., Montreal, CANADA  
**Course** A Systems Approach to Creative Water Resources Engineering:  
Advanced Systems and Risk Analysis  
- short course for government officials  
- 18 participants  
**Time** June 1995

**10.**  
**Client** National Water Research Center, El Qanatir, EGYPT  
SNC-Lavalin, Inc., Montreal, CANADA  
**Course** A Creative Approach to Dissemination of Water Resources Information  
- short course for government officials  
- introduction to Internet and HTML programming  
- 15 participants  
**Time** February 1996

- 11.**  
**Client** Asian Institute of Technology, Bangkok, THAILAND  
Danish Development Agency, DANIDA, Copenhagen, DENMARK  
**Course** Water Resources Management  
- graduate course  
- 22 students  
**Time** May – August 1996
- 12.**  
**Client** National Water Research Center, El Qanatir, EGYPT  
SNC-Lavalin, Inc., Montreal, CANADA  
**Course** Expert Systems in Water Resources  
- short course for government officials  
- 18 participants  
**Time** April 1997
- 13.**  
**Client** Fundação Centro Tecnológico de Hidráulica, São Paulo, BRAZIL  
**Course** A Systems Approach to Creative Water Resources Engineering  
- short course for practicing engineers and researchers  
- 12 participants  
**Time** April 1998
- 14.**  
**Client** CATHALAC, Panama City, PANAMA  
**Course** Achieving Sustainability in Water Resources Systems  
- short course for government officials and practicing engineers  
- 20 participants  
**Time** April 1999
- 15.**  
**Client** University of Tokyo, Tokyo, JAPAN  
**Course** System Dynamics: An Introduction  
- short course for graduate students and researchers  
- 8 participants  
**Time** January 2005
- 16.**  
**Client** UNESCO, Division of Water Sciences, Paris, FRANCE  
**Book** Water for Our Children: Systems Methods and Tools for Better  
Management of Water Resources  
- text book preparation  
**Time** May 2005 – December 2006

**17.**  
**Client** Institute for Catastrophic Loss Reduction, Toronto, Canada  
**Book** Systems Approach for Management of Disasters (working title)  
- text book preparation  
**Time** September 2006 – April 2008

**18.**  
**Client** Consorzio Ferrara Richerche  
**Lecture** Approvvigionamento e distribuzione idrica: Esperienza, Ricerca, Innovazione  
- keynote lecture  
**Time** June 2007

**19.**  
**Client** University of Belgrade, Belgrade, SERBIA  
**Course** System Dynamics: An Introduction  
- short course for graduate students and researchers  
- 20 participants  
**Time** June 2009

May 7, 2009