

Water Working Group

NATO Advanced Research Workshop: Sustainable Cities
and Military Installations

Hella, Iceland 2012

Contributors:

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Working Group Purpose

Identify and address the needs for improving water resources within and across all aspects (water resources, energy, & infrastructure) for sustainable cities and military installations

Sustainability Rubrics

- Integrated Resources Management
- Integrated Water Quality Assessment
- Energy-Water-Food Nexus
- Systems Ecology & Ecological-based design
- Scenario-Based Planning & Alternative Futures Analysis
- Sustainable Land Use
- Sustainable Development (e.g. Earth Charter Initiative)
- Intelligent Cities
- 2nd Law Approaches (fluvial geomorphology & ecosystem)
- Sustainable Communities' (e.g. NATO 'Zero' Initiative)
- US Army 'Triple Net Zero' concept
- et al

Analytical Tools

- Systems Integration & Analysis
- Multiple Criteria Decision Analysis
- Risk Analysis
- Cost-Benefit Analysis
- Network Optimization
- Numerical Modeling & Simulation
- et al

“Cylinders of Excellence”

- Academic Disciplines

 - Water (surface water, groundwater, waste water, etc.)

 - Energy (hydropower, geothermal, etc)

 - Infrastructure (water interdependency with 19 DHS infrastructures)

- Socio-Economic Sectors & Career Corridors

- Government Agency Jurisdictions & Regulatory Programs

- Funding Streams

- International & Trans-Boundary Restrictions

- et al

Cross-Cutting Themes

- A. Data/information/knowledge
- B. Process: developing capacity and action
- C. Needs + challenges + requirements + standards (Needs + capacity => action)
- D. Metrics and criteria
- E. Communication + engagement strategy: inclusion, collaboration, feedback/improvement
- F. Pilots/demos: tangible, community based, relevant, scalable
- G. Spatial and temporal scales: right-sized, linking buildings, communities, regions, short and long term benefits, etc.
- H. Media: peer reviewed journals, social media, leader briefings, webinars, 2-page executive summary, photo & video.
- I. Technology transfer; leveraging R&D, conferences, collaborative solutions; permits, etc.

NATO Book Material

| Paper | Lead(s) | Due Date |
|---|---|----------|
| 1. Group paper: cross-cutting themes, triple net zero (energy, water, materials), scale issue, framework, second law issue, international perspectives | Gillespie-Marthaler, Goldsmith, Srdjevic | 9/12 |
| 2. Summary of individual papers | Lambert | 9/12 |
| 3. Case study white paper | Lambert, | 9/12 |
| 4. VE/VM business practice | Goldsmith | 7/12 |
| 5. Community engagement: roles, tools, process, etc. | MacDonell | 9/12 |
| 6. Middle East water conservation strategy | Ramadan | 9/12 |
| 7. Visualization tools and processes. | Fleming and Gammelgaard | 9/12 |
| 8. Water availability and desertification | Lewis | 9/12 |
| 9. Multi-criteria evaluation of groundwater ponds as suppliers to urban water distribution systems | Srdjevic | 9/12 |
| 10. Elmvale case of landfill & groundwater controversy | Goodsite | 9/12 |
| 11. Arctic pollution | Goodsite | |

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| 12. Water risk perception, communication, & management (recent water-related disaster case studies) | Marcomini | |

WG Outputs

| Output | Lead | Due date |
|---|------------------------|----------|
| NATO Book | J. Lambert | 10/12 |
| Stockholm World Water Forum | M. Goodsite | 9/12 |
| SRA Abstracts/Virtual Panel on Hella Workshop | J. Lambert | 6/12 |
| Sustainable Watershed Management Conference: send three page joint paper | Srdjevic | 6/12 |
| Curriculum (grassroots, city managers, military leaders, students) | Goodsite | TBD |
| Video | Workshop Organizers | TBD |

2nd Law Haiku

World resource
challenge:
Efficiently connected
Integrastructure

Homo artiflex

human best brought worst

Cole Porter megafauna

water cycle hope