

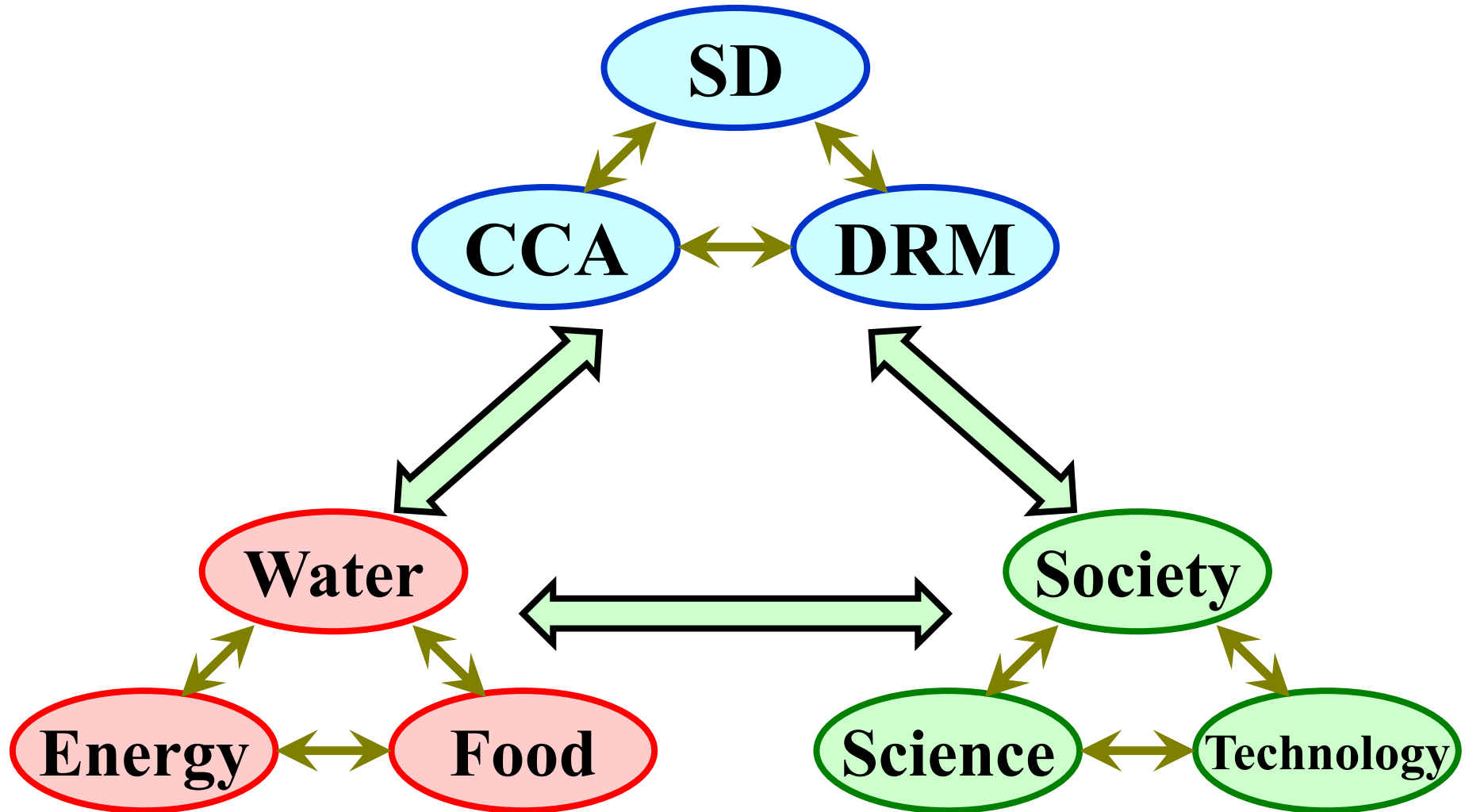


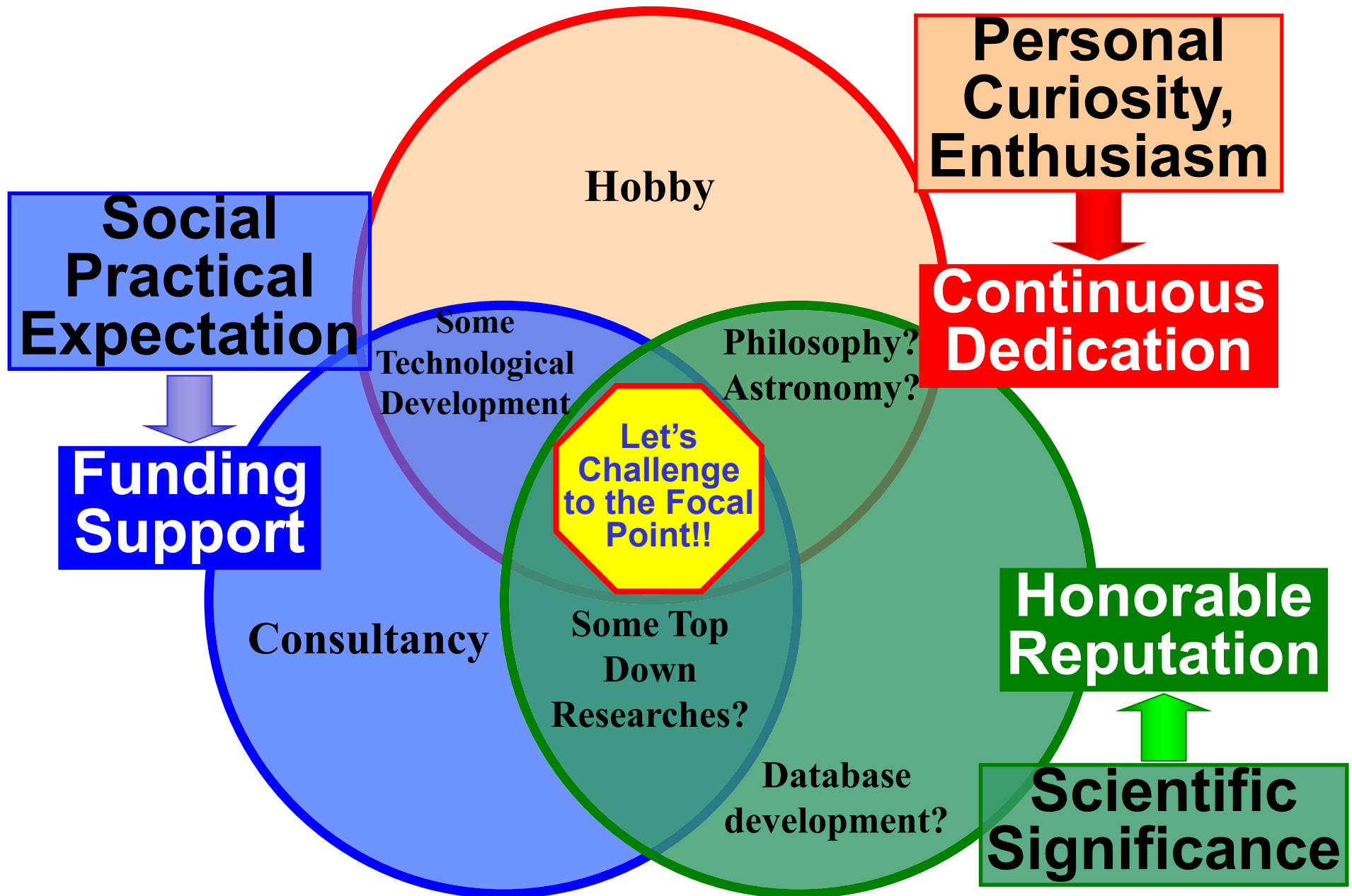
# **JST-NSERC Workshop on Sustainable Water Use**

- ◆ **Workshop is not a symposium nor a conference.**
  - ❄ **We have to develop friendship and mutual understandings.**
  - ❄ **For international collaboration under joint funding.**
    - **Seeds, tools, targets, and opportunities.**
- ◆ **Integration and synergy of wisdom from various discipline always trigger innovation.**
  - ❄ **In academic field, and in societies.**



# Hydrologists are integrators!!







# Contacts for Topics

- ◆ **Eutrophication of large lakes: Dr. Yachi**
- ◆ **Mercury issues: Dr. Asami**
- ◆ **PPCP: Dr. Furumai**
- ◆ **Climate Change: Dr. Kanae**
- ◆ **Cyanobacteria in Drinking Water: Dr. Asami**
- ◆ **Environmental Effects Monitoring: Dr. Furumai**
- ◆ **Sci & Eng. For Physical Habitat: Dr. Tsujimoto**
- ◆ **RES'EAU-WaterNET: Dr. Asami, Dr. Embutsu**
- ◆ **Canadian Aquatic invasive Species: Dr. Hayashi**



# Opportunities?

- 💧 **Alleviate CSO (Combined Sewage Outflow) in urban areas**
- 💧 **Aquatic toxicology: quality + temperature, sediments, ...**
- 💧 **Comparative study how to secure safe drinking water supplies**
  - ❄️ Risk management strategy, high-tech counter measures, ...
- 💧 **Multiple anthropogenic stressors on aquatic eco-systems/water**
  - ❄️ LULC Changes, social and climate changes, ...
- 💧 **Impacts of multiple stressors on:**
  - ❄️ Sustainable water supply, water (+food & energy) security, ...
  - ❄️ Restoration and conservation of river environment, ...
  - ❄️ Wild fish, recreational fishing
- 💧 **Communicating water environment/“healthy river” with public**
  - ❄️ Refurbish or remove dams – environmental flows/controlled flooding, ...
- 💧 **Transferring technology and wisdom on water to developing world.**



# International Collaborations

- ◆ **Exchange ideas, views, scholars...**
- ◆ **Sharing common targets, motivations, tools, datasets, observational sites, numerical models, knowledge, ...**
- ◆ **For example,**
  - ❄ **Joint case study in Canadian/Japanese lakes/watersheds?**
  - ❄ **Comparative study on watershed managements?**
  - ❄ **Joint summer school on water security?**
- ◆ **Needs social scientists (?) ← Belmont Forum**



# Discussions (1)

- ◆ **Joint efforts by ecologists and engineers**
- ◆ **Solution oriented approach**
  - ❄ **Scale issues: temporal, spatial**
- ◆ **Specific versus general approaches**
  - ❄ **Best practices in watershed management**
- ◆ **Threshold study of silt and sediment on fish**
  - ❄ **Turbidity, pH, temperature, oxygen, shading, feeding, ...**
- ◆ **Dams/reservoirs**
  - ❄ **Flow management, removal, ...**
- ◆ **Water source protection/conservation. Regulation issues.**



## Discussions (2)

- ◆ **Water quality at the outlet from waste water plant should be monitored and criteria should be examined/revised.**
- ◆ **Urban water management**
- ◆ **Practical use of developed technology.**
  - ❄ **Solution technologies can be developed for sharp issues**
- ◆ **Comparative study**
  - ❄ **Lake Biwa and Canadian Lake cases. ← gigantic engineering**
  - ❄ **Governance issues and/or management systems as well.**
  - ❄ **Understanding the water use/management in paddy fields.**
  - ❄ **Different states have different ways of management in Canada.**





## Discussions (3)

- **Impacts of Geo-engineering (as mitigation of climate change) on water.**
  - ❄ **Impacts of producing oil sand & biofuel crops on water.**
- **Communication design among stakeholders.**
- **Ecology side and engineering side 2.5 hour on the 2<sup>nd</sup> day to develop possible collaborations.**
  - ❄ **Identify the “Big Picture” (good questions and ideas) first, then think about the comparative advantages.**



## Discussions (4)

- ◆ Need to identify a few to several topics with higher priorities in the “sustainable water use” research.
- ◆ Requires integration and synergy among possible future projects under the joint call.
- ◆ Other tools/issues
  - ❄ Stable isotopes
  - ❄ Point source v.s. non point source
  - ❄ Empirical numerical models ⇔ physically based models
    - Enable to develop more universally applicable prediction tool.