

Annotated Bibliography

# TRAINING IN COMMUNITY BASED RESEARCH (CBR): WATER GOVERNANCE

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*SSHRC funded project on Community Based Research and Water Governance*

[www.watergovernance.ca](http://www.watergovernance.ca) for details

## INTRODUCTION

This annotated bibliography summarizes the literature on key topic areas relating to teaching and training materials from around the world in Community Based Research (CBR) with a focus on water governance. This resource is the outcome of research conducted under the UNESCO Chair in Community-based Research SSHRC funded project 'NextGen' between 2013-2015 (see [www.watergovernance.ca](http://www.watergovernance.ca) for details).

The Centre for Community-Based Research in Canada defines CBR as research that begins in the community, involves the community, and is used by the community. CBR often strives for social change that embraces equal collaboration and addresses power relations between individuals, institutions and organizations. In this way, working collaboratively and with strong community involvement helps to redress common power imbalances related to knowledge creation. Water governance is a complex issue and is linked, biophysically and socio-politically, to many other topics. Although both the topics of interest for this bibliography are broad (CBR and water), resources specifically related to training in community-based research on water governance are limited. As such, this annotated bibliography provides a number of resources helpful for the intersection of CBR and water governance, though there are very few that deal precisely with this intersection.

This annotated bibliography includes literature from different countries and regions on the subject of CBR and water governance, with a particular focus on training. The selected literature is categorized within five closely linked typologies, including:

1. Training in Community Based Research in Water Governance;
2. Citizen Science and Water Governance;
3. Participatory Water Governance;

4. Training in Formal Education Programs using Participatory and Community Based Research; and
5. Training in Participatory Research Models for Civil Society and Practitioners.

Many of the projects and case studies included in this annotated bibliography do not neatly fit into one single type, but rather overlap across several categories.

The literature included in this bibliography was compiled based on a systematic search of CBR training for water governance within academic (peer reviewed) databases and grey (unpublished) literature databases, as well as several key online journal databases. A set of search terms was designed in order to include all three of the selection criteria (training materials for community based research in water governance). After searching for the terms in the databases, relevant literature was ranked based on their relevance to the topic. Additional searches were conducted through personal contacts, interviews, email correspondences, and snowball sampling. A full description of the search terms, and methods, is provided in the appendix to this bibliography.

The purpose of this bibliography is to provide researchers and others interested in this topic with an overview and summary of selected studies and projects. It is not meant to be a definitive or exhaustive review of the literature on the subject, particularly given that the review focused on English language literatures. Nonetheless, our aim is for this document to provide a relevant and helpful starting point for researchers and others interested in learning more about CBR training on water governance.

For more information about the UNESCO Chair in CBR NextGen project, please visit: <http://unescochair-cbrsr.org>, or visit the University of Victoria open source repository for training materials in Community-based Research: <https://dspace.library.uvic.ca/handle/1828/5949>

Suggested additions to this resource are also welcome. Please email: [crystal@uvic.ca](mailto:crystal@uvic.ca)

## TRAINING IN COMMUNITY BASED RESEARCH IN WATER GOVERNANCE

Community-based Research (CBR) is an approach that emphasizes doing research with communities on a topic that is relevant to both researchers and the community. CBR seeks to democratize knowledge creation by validating multiple sources of knowledge and promoting the use of multiple methods of discovery and dissemination. The goal of CBR is social action (broadly defined) for the purpose of achieving (directly or indirectly) social change and social justice (Strand et al., 2003). Researchers and community participants equally share control of the research trajectory, and any outputs or findings of the research are useful to the community, as well as to the researchers (Center for Community Based Research, 2015). We therefore searched for materials involving the training of researchers to engage in CBR specifically, within the field of water governance.

**Figueiredo, P., & Perkins, P. E. (2013). Women and water management in times of climate change: participatory and inclusive processes. *Journal of Cleaner Production*, 60(0), 188-194. doi: <http://dx.doi.org/10.1016/j.jclepro.2012.02.025>**

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This paper focuses on community engagement, and particularly the inclusion of women, in water management, particularly as a needed response to climate change. This paper discusses South-North initiatives and models for community-based environmental and climate change education which are using the democratic opening provided by watershed-based governance structures to broaden grassroots participation in political processes. The paper focuses on two international projects: the ‘Sister Watersheds project,’ with Brazilian and Canadian partners (2002-2008); and a ‘Climate change and urban water governance in Africa project’ with partners in Canada, Kenya, Mozambique, and South Africa (2010-2012). The authors emphasize a “bottom-up” approach in water management, including an inclusive and participatory process beginning at the community level, familiarity with community members, prioritizing local subsistence and basic needs, and so forth. Diverse types of training were included in the projects, such as community mapping, photo-voice, water dialogues, learning journeys, storytelling parades, collective storytelling workshops, community-based water monitoring, water conflict mediation training, watershed learning circles, etc. With local skills and knowledge, the communities were able to identify their vulnerabilities to climate change, and to develop adaptation strategies that are tailored to their needs.

**Galvin, M., et al. (2014). Guidelines for Community Based Adaptation Workshops in South Africa. Planning for adaptation: Applying scientific climate change projections to local social realities, Umphilo waManzi. Retrieved December 2015, from South African Water Research Commission:**  
**[http://wrc.org.za/Pages/DisplayItem.aspx?ItemID=11508&FromURL=%2FPages%2FKH\\_ResearchReport.aspx%3Fdt%3D1%26ms%3D4%3B%26d%3DPlanning+for+adaptation%3A+Applying+scientific+climate+change+projections+to+local+social+realities%26start%3D1](http://wrc.org.za/Pages/DisplayItem.aspx?ItemID=11508&FromURL=%2FPages%2FKH_ResearchReport.aspx%3Fdt%3D1%26ms%3D4%3B%26d%3DPlanning+for+adaptation%3A+Applying+scientific+climate+change+projections+to+local+social+realities%26start%3D1)**

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The guidelines in this document were developed as part of the ‘Applying scientific climate change projections to local social realities’ project. The goal of this project was to create a communication channel between technical researchers and poor communities in South Africa in regards to climate change adaptation and its relationship to water. Specific learning outcomes included in the guidelines are strategies to incorporate science into workshops, through techniques such as climate modeling, exercises to find out what people know about climate change, participatory mapping, visualization, and transect walks. Together workshop participants and facilitators gained insights on the communities’ understandings, attitudes and preparedness towards the impacts of climate change. This served as a basis to identify adaptation strategies that communities can utilize to reduce the impact of climate change on their water supply, livelihoods and food security.

**Moriarty, P. B., Charles; Abd-Alhadi, Firas T; Laban, Peter; Fahmy, Hazem. (2007). The EMPOWERS Approach to Water Governance: Guidelines, Methods, and Tools. Retrieved December 2015, from:**  
**<http://water.cedare.int/files15%5CFile2840.pdf>**

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The book examines “The EMPOWERS Approach to Water Governance” as a practical framework of activities for those who utilize and manage water, which leads towards improved local water governance, and to the development and implementation of integrated water development plans. This comprehensive training manual advocates a process of collaboration through dialogue, to bring about a change in the way that water sector professionals and water users work with each other. The EMPOWERS philosophy is based on two pillars: stakeholder dialogue and concerted action (SDCA); and management cycle. SDCA is the combination of discussion and action by stakeholders working collaboratively. The management cycle is a six-step process (including: visioning, assessing, strategizing, planning, implementing, and reflecting) designed to support the SDCA. The EMPOWERS approach argues that good water governance requires a process of experimentation, adaptation, and learning, and thus the six-step management cycle aids in the facilitation of that.

**Perkins, P. E., & Tavares Leary, A. L. (2012). Climate Justice Partnership Linking Universities and Community Organizations in Toronto, Durban, Maputo and Nairobi. In W. Leal (Ed.), Sustainable Development at Universities: New Horizons. Frankfurt: Peter Lang Scientific Publishers.**

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This chapter describes the three-year “Climate change and urban water governance in Africa” project as mentioned above (see Figueiredo). The project focused on increasing the participation of marginalized groups, especially women, in urban water governance. This paper focuses on the potential of university-based research and training projects to reinforce community-based climate change adaptation and political responses to climate change at the grassroots level. The authors conclude that universities and local communities can fruitfully engage on many levels to build strong sustainable development and climate change adaptation partnerships with great potential, and that university researchers and teachers must build the skills and train students to expand different forms of outreach and collaboration.

**Perkins, P. E. (2014). International partnerships of women for sustainable watershed governance in times of climate change. In S. H. Buechler, Anne-Marie S. (Ed.), *A Political Ecology of Women, Water and Global Environmental Change*: Routledge.**

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This paper uses a Feminist Political Ecology approach to frame watershed-based community engagement, particularly the inclusion of women in water management, as a crucial response to climate change. Again, the two projects mentioned above are discussed brought about by the author, including the Sister Watersheds project, and the “Climate Change Adaptation in Africa” project (see Figueiredo). These projects were designed to increase the knowledge interest and engagement of the impoverished urban residents, and the goal was to educate these communities in water governance, to ultimately lead to greater empowerment in democratic processes. The author highlights the goal of women making use of their gendered environmental knowledge, and working to advance their rights and responsibilities through networked grassroots political activism, as a key focus for feminist political ecology.

**Scurrah, N. (2013). 'Countering hegemony' and 'institutional integration': Two approaches to using Tai Baan (villagers') research for local knowledge advocacy. In R. D. L. L. K. Manorum (Ed.), *Governing the Mekong: Engaging in the politics of knowledge*: SIRD, USER & M-POWER.**

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This chapter examines the application of Tai Baan research, an innovative form of grassroots research which gives local communities greater control and ownership over the production of environmental knowledge and decision-making processes. The author comparatively examines the application of Tai Baan research in two distinct contexts in northeast Thailand. The first one investigates the emergence of Tai Baan in a highly politicised context of conflict and local opposition. The second one involves the adoption

of Tai Baan research within a sustainable wetlands management project in a very different arena of knowledge politics. Although aiming at empowering the communities in decision-making processes, challenges for implementing Tai Baan research arose during the projects, including difficulty in gaining acceptance from government and the villagers, and limited influence on policies planning of water resources management at the national level. Lessons drawn from the two cases include building and strengthening networks of local resource users, maintaining momentum beyond the research encounter, and increasing dialogue between different kinds of knowledge. The author also emphasizes the need to look at the particularity of each context when assessing how Tai Baan research can be used to facilitate greater participation and empowerment of local resource users.

**Srinivasan, L. (1990). Tools for Community Participation: A Manual for Training Trainers in Participatory Techniques. Washington, DC. Retrieved 12 2015, from IRC: <http://www.ircwash.org/resources/tools-community-participation-manual-training-trainers-participatory-techniques>**

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Promotion of the Role of Women in Water and Environmental Sanitation Services (PROWESS) began in 1983 as an interregional project, and was designed to improve the inclusion of women within the Water Supply and Sanitation Sector (WSS). This manual includes a variety of training materials in participatory development for WSS, such as how to develop the concept with a shared vision, daily evaluation techniques, as well as 39 participatory training activities, and how to select them. PROWESS is focused around SARAR methodology, which includes five characteristics: self-esteem, associative strengths, resourcefulness, action planning and responsibility. The authors argue that including locals, especially women, in development projects will create more sustainable projects as those individuals will engage in management, site selection, pump maintenance, fund-raising, etc.

**Tremblay, C. (2015, 3 16). Participatory Video project's 'Water is Life' in Teshie, Ghana and 'It's Your Chance: Ithuba Lakhu' in Khayelitsha, South Africa. Retrieved October 3, 2015, from Tremblay, Crystal: <https://www.youtube.com/user/crystaltremblay> and [www.watergovernance.ca](http://www.watergovernance.ca)**

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The Participatory Video productions 'Water is Life', co-produced with the Integrated Social Development Centre (ISODEC) in Accra, Ghana, and 'It's your Chance - Ithuba Lakhu', co-produced with Iliso Care Society and Environmental Monitoring Group (EMG) in Site C, Khayleitsha, Cape Town were undertaken in collaboration with the Program on Water Governance at the Institute for Resources, Environment and Sustainability at the University of British Columbia (UBC), Canada between 2014-15. Both community-based research projects included technical training with community partners that provided skills in video production and post-production, arts-based action research methods, and community engagement. The overall goal was to use community-filmmaking as a tool to document narratives and raise awareness on issues related to water and sanitation in underserved areas in Teshie, Ghana and Khayelitsha, Cape Town.

Through this process, the participants developed capacity in co-creating research and gained a deeper understanding of the complexity of water governance and sanitation issues in their community including issues related to water and sanitation quality, access and affordability, and broader concerns related to environmental health and citizenship.

## CITIZEN SCIENCE AND WATER GOVERNANCE

Citizen Science includes the involvement of community residents (or citizens broadly defined), most of whom are not trained as scientists, to collect, categorize, transcribe, or analyze scientific data (Bonney et al., 2014). Given that water is a field that relies on extensive monitoring, data collection, and other aspects of science and technology, some projects and initiatives have begun to include local communities in citizen science initiatives. The goal is often to empower local communities, but also to enrich scientific information and databases, as individuals who live in an area often know more about the local context where the research is taking place, and perhaps are better able to deploy monitoring technologies and collect needed information.

**Bonney, R., Shirk, J. L., Phillips, T. B., Wiggins, A., Ballard, H. L., Miller-Rushing, A. J., & Parrish, J. K. (2014). Next Steps for Citizen Science. *Science*, 343(6178), 1436-1437. doi: 10.1126/science.1251554**

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The article argues that despite certain limitations of information emerging from citizen science projects, these projects obtain or manage scientific information at scales or resolutions unattainable by individual researchers or research teams. The authors examine scientific, social and environmental impacts of these projects, and present suggestions to help these kinds of projects maximize their positive impacts and reach their full potential, such as increased collaboration, opportunity identification, etc.

**Buytaert, W. (2016). Citizen Science for Water Resources Management: Toward Polycentric Monitoring and Governance?. DOI: 10.1061/(ASCE)WR.1943-5452.0000641**

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This article focuses on a polycentric approach to monitoring of hydrological systems and the assessment of water resources. It argues that citizen science provides a framework for data collection in such systems and that it provides opportunities for knowledge generation, institutional capacity building and policy support. Several challenges to the integration of hydrological monitoring in a model of polycentric river basin management and governance are identified. These include lower data quality due to lack of standards and technical capacity; resistance from hydrometeorological departments; requirement of higher level of coordination to avoid unnecessary duplication and waste of resources, etc. However, the author argues that with the increasing availability of technology, and the increasing emergence of citizen science initiatives themselves, there is unique opportunities to analyze and understand the potential impact and relevance of polycentric monitoring for hydrological science and water resources planning and management.

**Ceiba Foundation for Tropical Conservation. (2014). Proyecto de Monitoreo de La Calidad de Agua. Training Presentation.**

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This training presentation was created by Ceiba Foundation for Tropical Conservation that was founded in 1997, with the purpose of conservation ecology, and preservation of tropical habitats in forests and coasts of Ecuador. They do this through citizen science, public education, and community-based actions. Ceiba facilitates various ecological and

conservation programs, including a citizen science water-monitoring program, as well as an undergraduate course “Water for Life” offered through the University of Wisconsin. Ceiba engages communities directly in understanding and managing their own water sources. In this way, the hope is that training and participation will provide a deeper understanding of what affects water quality and how negative impacts can be avoided. This training presentation is part of water quality monitoring training program. The presentation provides an explanation of the importance of water monitoring, what is already known about the effects of environmental degradation on water (such as erosion and fecal or fertilizer contamination), illnesses transmitted through water, what should be monitored, and what should be recorded.

**Liu, H.-Y., Kobernus, M., Broday, D., & Bartonova, A. (2014). A conceptual approach to a citizens’ observatory – supporting community-based environmental governance. *Environmental Health*, 13, 107.**  
<http://doi.org/10.1186/1476-069X-13-107>

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This article focuses on Citizens’ Observatory (CO) as an increasingly essential tool that provides an approach for better observing, understanding, protecting and enhancing our environment. The authors argue that citizens observing and understanding environment related problems, as well as reporting and commenting on them within a dedicated platform, is the key to a successful CO implementation. A conceptual framework for a CO programme that promotes community-based environmental governance is proposed in the article, which provides: (i) A collaborative participation process; (ii) Two data layers: a hard layer and a soft layer; (iii) Two-directional approach: top-down and bottom-up; and (iv) A two-way interactive communication model. Challenges in implementing the CO approach are discussed, including ensuring effective citizens’ participation, dealing with data privacy, accounting for ethical and security requirements, and taking into account data standards, quality and reliability.

**Minkman, E. (2015). Citizen Science in Water Quality Monitoring: Developing Guidelines for Dutch Water Authorities for Contributory Mobile Crowd Sensing (Doctoral dissertation, TU Delft, Delft University of Technology).**

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This thesis identifies general characteristics of citizen science projects and investigates how water authorities in the Netherlands could apply citizen science. Guidelines are developed for setting up a citizen science project based on the Seven-Layer of Collaboration Model for practitioners in water authorities. The model consists of Goals, Products, Activities, Collaboration Patterns, Techniques, Tools and Scripts. The guidelines start with a description of citizen science and its potential for water authorities. An important acknowledgement is that citizen science is a means and could not be a goal itself: it should always serve a higher end. The next four steps include decision points and considerations necessary to make an informed decision. These are determining strategic partners, deciding on the level of governance and citizen involvement, choosing techniques and tools, and developing protocols. The guidelines close off with practical advice on how to sustain citizen participation for a longer period.

**Roy, M. (2010). Documenting First Nations perspectives on water: Engaging Fort William First Nation in source water protection using photovoice. (MR71914 M.E.S.), Lakehead University (Canada), Ann Arbor. Retrieved 12 2015, from: <http://www.collectionscanada.gc.ca/obj/thesescanada/vol2/002/MR71914.PDF>**

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This article investigates a project in which 13 members of the Fort William First Nation participated in a photovoice project to document perspectives on source water protection. Through the use of photovoice this research examines community perspectives about water and peoples' connection to it. Community capacity has further been enhanced through the benefit of workshops and fieldtrips examining the watershed. This method provides the opportunity for communities to examine source water protection from a science-based perspective, and share their knowledge, experiences and understanding of source water protection from a Traditional Ecological Knowledge perspective.

## **PARTICIPATORY WATER GOVERNANCE**

As water is recognized as a basic human necessity, there has been increasing focus and understanding in the importance of engaging communities in the water field. This is particularly true for governance, as decision making and management of water resources is increasingly understood as a domain that should involve not only scientific ‘experts’ and policy makers, but also the communities who are involved, and who may be most affected by decisions related to the resource.

**Finewood, M. and R. Holifield (2015). "Critical approaches to urban water governance: from critique to justice, democracy, and transdisciplinary collaboration." *WIREs Water* 2015, 2: 85-96. doi: 10.1002/wat2.1066**

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In this article, the authors argue that the most important direction for urban water governance is “to translate the insights generated by critique into the positive project to construct more just and democratic systems and practices of governance.” In order to do this, critical scholarship on urban water governance should take up at least two important challenges. The first is to build on the growing engagement between literature on water governance and broader efforts to theorize justice, rights, and democracy. The second is to find ways that new critical thinking on the nature of water can foster relationships with other scientists, policymakers, and practitioners.

**Galvin, M. (2011). Participating in urban myths about women's rural water struggles. *Agenda*, 25(2), 87-100. doi: 10.1080/10130950.2011.576001**

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This article draws together and reflects on primary research conducted by the author over the past decade, regarding the barriers to ‘real’ participation of community members in the delivery of rural water and sanitation services in South Africa. It argues that change in rural areas, that would most affect rural women’s realities, is not simply a technical matter as often portrayed. While municipal capacity and finance are indeed a concern to rural municipalities, there is an underlying urban bias in delivery programmes which tend to close opportunities for participation of community members.

**Harris, L. M., & Morinville, C. (2013). Improving Participatory Water Governance in Accra, Ghana: Centre for International Governance Innovation. Accessible online: [https://www.cigionline.org/sites/default/files/ai\\_pb\\_7.pdf](https://www.cigionline.org/sites/default/files/ai_pb_7.pdf)**

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This policy brief assesses participatory water governance in several informal settlements in Accra, Ghana, with a focus on Local water boards (LWBs). In addition to responsibilities related to water distribution and payment collection, LWBs could be described as citizens’ associations to promote community engagement. The document evaluates the opportunities and limits of Accra’s LWBs, and then provides recommendations to enhance the functions of LWBs and participatory water governance, such as improving the function of the boards, strengthening participatory mechanisms, experience sharing, etc.

**Jinapala, K. B., Jeffrey D; Sakthivadivel, R. (1996). Multi-Level Participatory Planning for Water Resources Development in Sri Lanka. Gatekeeper Series, iied, 62.**

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This paper argues that water resource planning should be undertaken by multi-community groups, due to the linkage of water resources systems within a water basin. In order to serve the interests of all the communities, the authors present a multi-level approach to engage with local communities in participatory water resources planning. The authors examine this multi-level participatory approach in Sri Lanka to plan small tank (reservoir) rehabilitation activities, through a series of village-level meetings, multi-village meetings, and cascade-level meetings. This approach gave local farmers the opportunity to exchange information about local conditions in different parts of the watershed. The participants used the enlarged information base to prepare water resources development plans for the whole watershed. The paper concludes that despite institutional obstacles and resistance to the approach, multi-level participatory planning is an effective means of carrying out natural resources development planning when supra-community levels are involved. Implementing this approach requires development of new management systems and procedures, as well as changes in government policies and attitudes.

**Lammerink, M. P. (1998). Community managed rural water supply: experiences from participatory action research in Kenya, Cameroon, Nepal, Pakistan, Guatemala and Colombia. *Community Development Journal*, 33(4).**

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This article is based on a 4-year Participatory Action Research (PAR) program, in which research teams from 6 NGO water supply agencies in Cameroon, Kenya, Nepal, Pakistan, Colombia and Guatemala were involved. In order to enhance the capacity of rural communities to manage their own water supply systems, selected community research teams were trained at a 2-day workshop through discussions, report preparation, drawings and photographs, village walk, etc. This enhanced the communities' capacities to develop their own strategies for water management. The author highlights that PAR is a dynamic and creative process that enhances the problem-solving capacity of both community and supporting organizations. As the communities become far more involved in decision-making, supporting agencies are more experienced in facilitating and empowering them.

**Lu, F., Ocampo-Raeder, C., & Crow, B. (2014). Equitable water governance: Future directions in the understanding and analysis of water inequities in the global south. *Water International*, 39(2), 129-142. doi:10.1080/02508060.2014.896540**

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This article documents background and results from a two-day workshop "Multi-Scalar and Cross-Disciplinary Approaches towards Equitable Water Governance" that brought together a diverse, interdisciplinary team of social scientists and scholar-activists with

expertise in studies of water management, governance and access. Significant results and findings from this workshop included:

- To identify common patterns and processes in issues related to water equity that cut across geographical boundaries, while recognizing the importance of specific contexts in shaping socio-ecological dynamics;
- To explore the associated institutional underpinnings of water inequity patterns, as a way to understand water governance and social organization;
- To develop a cross-disciplinary framework for the multi-scalar study of equitable water governance and provision, with primary attention to temporal scale and social-political-spatial scale;
- To generate analytics and research priorities that foster greater consistency and comparability in operationalizing key outcomes in research on water governance issues.

The workshop also developed a cross-disciplinary framework for the multi-scalar study of equitable water governance and provision.

**Mackenzie, J., Tan, P., Hoverman, S., & Baldwin, C. (2012). The value and limitations of participatory action research methodology. *Journal of Hydrology*, 474, 11-21. doi:10.1016/j.jhydrol.2012.09.008**

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This article describes the Participatory Action Research (PAR) methodology used to trial and evaluate a suite of planning tools to improve the engagement process for statutory water planning in Australia. The authors argue that the strength of this method is its consistency with a social learning and adaptive management approach. The authors identify five key success factors as enabling successful outcomes for this project:

- A high degree of access to the project setting;
- Clear demarcation of roles and responsibilities between researchers and participants;
- Considerable effort spent building and maintaining informal networks and relationships;
- Sensitivity to the relationship between ‘insiders’ (the participants or owners of the issue i.e. government and community) and ‘outsiders’ (the research project team);
- Continual review of project planning and willingness to adapt timeframes and processes to suit the situation.

**Morinville, C. and L. Harris (2014). "Participation, politics, and panaceas: exploring the possibilities and limits of participatory urban water governance in Accra, Ghana." *Ecology and Society* 19(3): 36.**

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This article discusses the parallels between the adaptive governance, co-management, and participatory resource governance literatures and analyzes efforts to encourage such participation in urban water governance through Local Water Boards (LWBs) in Accra, Ghana. The authors explore what participatory spaces have been opened or foreclosed as well as the possibilities for adaptive urban water governance in Accra. Although LWBs

are promising mechanisms to promote greater participation in urban water governance in Accra, significant limitations remain in terms of equity, accountability, efficiency, etc. This article concludes that such mechanisms should be subjected to close scrutiny and thoughtful evaluation rather than treated as a panacea.

**Nash, F. (2012). "Participation and Passive Revolution: The Reproduction of Neoliberal Water Governance Mechanisms in Durban, South Africa." *Antipode*.**

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This article demonstrates that the concept of passive revolution can be utilised to help unearth some of the contradictions of participatory development within neoliberal governance systems in the global South. The author argues that a critical engagement with passive revolution can be invoked to help illuminate the complexities of state-civil society relations and to reflect upon how existing interpretations of these relations foreclose the development of radical social change. The author concludes that current understandings of state-civil society relations should be reconsidered so that we might overcome the impasse of passive revolution and move towards a more progressive form of politics.

**OECD. (2015). *Stakeholder Engagement for Inclusive Water Governance*. Paris: OECD Publishing. Retrieved 12 2015, from OECD: <http://www.oecd.org/environment/stakeholder-engagement-for-inclusive-water-governance-9789264231122-en.htm>**

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This report points out that in the context of water challenges, better engaging stakeholders both within and outside the water sector can better facilitate decision-making and implementation. The report is based on a year-long multi-stakeholder policy dialogue with an extensive survey and a compendium of 69 case studies from around the world. The report argues that there are many economic, environmental and social benefits to be gained from effectively engaging stakeholders in water policies and projects. In this way, it seeks to inspire policy makers to reform and modernize their water governance frameworks towards greater inclusiveness. The report proposes six principles for creating the necessary conditions for outcome-oriented, fit-for-target, anticipatory and adaptive stakeholder engagement, including inclusiveness and equity, clarity of goals, transparency and accountability, capacity and information, efficiency and effectiveness, institutionalisation, structuring and integration, and adaptiveness. Each principle is illustrated by a preliminary checklist, a set of indicators and selected tools and practices.

**Sultana, F. (2009). "Community and participation in water resources management: gendering and naturing development debates from Bangladesh." *Transactions of the Institute for British Geographers* 34: 346–363.**

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This article examines the mobilisation and outcomes of participation and community in water provision and arsenic mitigation. It argues that scholars studying community and participation need to pay greater attention not only to gender and spatial power relations, but also to the importance of geographical locations and the agency of nature in the ways

water management and development interventions fail and succeed. The article argues for expanded and inclusive notions of participation and community that heed both social and natural heterogeneity and uncertainty, with the hope that this will allow for more dynamic, adaptive and reflexive governance of development processes.

## TRAINING IN FORMAL EDUCATION PROGRAMS

Training in participatory research models increasingly occurs at institutions of higher learning, including universities. As such, students might engage in coursework, or MA or PhD training programs in ways that involve projects that are also intended to benefit the community, and to engage stakeholders in this process. This type of education includes community service learning as part of formal educational training programs, and can include varying degrees of local engagement.

**Angeles, L. (2015). Philippine Summer Studio 2014 Collaborative Local Climate Change Action Plan (LCCAP) Development in Angat River Basin Municipalities, Bulacan. Retrieved October 2015, from Urbanizing Watersheds Collaborative Governance of the Angat River Basin in the Philippines: <https://urbanizingwatersheds.wordpress.com/research-goals-objectives-and-significance/philippine-summer-studio-2014/>**

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The Angat Watershed and River Basin project focuses on watershed governance through the case of the rapidly urbanizing Angat Watershed and River Basin (AWRB), located in Bulacan, Philippines. It is hosted by The University of British Columbia involving various other Canadian and Filipino institutions. The project aims to build knowledge and understanding of the relationship between rescaled watershed governance and its institutional, social, economic, and environmental outcomes. Community service learning is a component of a field course, whereby students worked with NGOs and government officials while conducting research in order to create a positive impact.

**Delgadillo, O. (2014). Métodos de investigación. In V. Claudín & N. C. Post Uiterweer (Eds.), Paraguas Project: Justicia Hidrica. Retrieved 12 2015, from <http://www.redandina-paraguas.net/wp-content/uploads/2012/09/Habilidades-M%C3%A9todos-de-investigaci%C3%B3n-PARAGUAS1.pdf>**

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This document evolved from the Paraguas Project, which was designed to create a permanent network exchange and cooperation between Andean universities, as well as to develop applied research in coordination with water stakeholders (public and private sector, NGOs and water users), and finally to establish a graduate program in Integrated Water Resource Management (IWRM). This document serves as a guide for graduate students undertaking action research as part of Paraguas Integrated Water Resource Management program. It is designed to teach graduate students methods of data collection in participatory action research.

**Hamann, H. B., & Drossman, H. (2006). Integrating Watershed Management with Learning: The Role of Information Transfer in Linking Educators and Students with Community Watershed Partners. *Comparative Technology Transfer and Society*, 4(3), 305-337.**

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This article reviews the literature on watershed partnerships that link educational institutions that have pedagogic and civic engagement goals with community groups, nongovernmental organizations, and government agencies that have goals to monitor and improve watershed health. The authors examine the partnerships of four types of models, including monitoring networks, experiential project-based programs, service learning programs, and university research institutes. Based on their experience by Colorado College students partnered with the Fountain Creek Watershed Group and local agencies in Colorado Springs, they examine how technical information and resources are transferred between educators, students, stakeholders, and managers. The authors emphasize the watershed-based approach to watershed resources management that provides an educational opportunity. They believe that this approach promotes interdisciplinary learning and civic responsibility, and allows for contribution by faculty and students to local, state, and national information needs.

**Murray, K. S., Napieralski, J., Luera, G., Thomas-Brown, K., & Reynolds-Keefer, L. (2012). Broadening Diversity in the Geosciences Through Teacher-Student Workshops That Emphasize Community-Based Research Projects. *Journal of Geoscience Education*, 60(2), 179.**

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This article documents a program aiming to increase the participation of underrepresented groups in the geosciences at the Geosciences Institute for Research and Education at the University of Michigan-Dearborn. The program emphasizes involving middle school and at-risk high school students from the Detroit area public schools, along with their teachers in geoscience research projects, through a series of spring and summer workshops. A variety of activities were included in the workshops, such as watershed tour, guest speakers, inquiry-based modules, group research projects, poster design, etc. Throughout the workshops, both the teachers and their students were exposed to a greater understanding of geology and particularly how the geosciences could be used as a tool to solve community-based environmental problems.

**Post Uiterweer, N. C. (2014). Propuesta de investigación acción. In V. Claudín & N. C. Post Uiterweer (Eds.): Justicia Hídrica. Retrieved 1 2016, from <http://dstats.net/download/http://www.redandina-paraguas.net/wp-content/uploads/2012/09/Habilidades-Propuesta-de-investigaci%C3%B3n-acci%C3%B3n-PARAGUAS1.pdf>**

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This is another document from the Paraguay Project as mentioned above, and it is specifically written to help graduate students write research proposals that include participatory action research.

**Spiegel, J., Garcia, M., Bonet, M., & Yassi, A. (2006). Learning Together: A Canada-Cuba Research Collaboration to Improve the Sustainable Management of Environmental Health Risks. *Canadian Journal of Public Health / Revue Canadienne de Sante Publique*, 97(1), 50-55. doi:10.2307/41994678**

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This article explores the international collaboration among the University of Manitoba, the University of British Columbia, and training centers in Cuba, on the development of a comprehensive curriculum (including masters and diploma programs). A number of community-based research projects were undertaken through this collaboration, including a project regarding the effectiveness of a community-based approach to safe drinking water in Santiago de Cuba. The collaboration led to adopting new strategies for challenges such as a dengue epidemic in 2002, and new research on the effectiveness of intersectoral management of risks of particular interest to both Cuban and Canadian policy-makers.

## **TRAINING IN PARTICIPATORY RESEARCH: METHODS FOR CIVIL SOCIETY AND PRACTITIONERS**

Training in participatory research models for civil society are often short courses or workshops designed to train practitioners how to conduct research that engages local communities. Though similar to Training in Formal Education Programs in that learners are given strategies for elements of participation in research, this type of training program is often more geared towards development practitioners, NGO workers, and civil society members, rather than graduate students. As such, these types of initiatives can be more accessible to communities than those offered at universities.

**Browne, N., Oenga, I. O., Chikombe, P. S., Ahmad, T., Razza, H., Castano, R. G., Skinner, K., Harris, K. (2003). Development of Information Focal Points (IFPs) on Community Water Supply in Rural Areas. *Water International*, 28(2), 224-236.**

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This article focuses on a training workshop organized by the IRC International Water and Sanitation Centre in The Hague, the Netherlands, with the aim of helping the partner organizations set up and maintain Information Focal Points (IFPs) on community management of rural water supplies. During the workshop, participants were required to draft Inception Reports on how they planned to implement IFPs within their own institutions. This document provides thumbnail sketches of the partner organizations involved in the sub-project. The authors conclude that the IFP is not only an innovative means of disseminating research findings, but may in the long term contribute towards developing sustainable information resources in the South for use by the water sector as a whole. Furthermore, the IFP sub-project also contributes towards cementing the professional ties among all organizations that have been involved in the project, through improved personal and information-based networking.

**WaterNet. (2015). Building capacity for water resources management in southern Africa. Retrieved 10 2015, from WaterNet: <http://www.waternetonline.org/>**

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The South African Organization WaterNet is a regional network of university departments and research and training institutes specializing in water. The network aims to build regional institutional and human capacity in Integrated Water Resources Management (IWRM) through training, education, research and outreach. Aside from education through master programs, WaterNet has also trained more than 737 water professionals (32% women) through 48 professional short courses, and held 14 regional symposia. One of their initiatives is to incorporate action-based research, such as water resource mapping, in working in local communities throughout the southern Africa region.

## OTHER

This typology was created in order to simplify and structure the resources that we found during the literature review search. Though broadly all of the resources can fit within one or several of these categories, they are an ideal representation and thus cannot be considered as perfect delineations. Many of the resources fit into several categories, or do not fit one exactly and as such it is important to keep in mind the typology is to facilitate understanding and not to constrain or typecast the resources.

**Aarhus Convention Newcastle Workshop. (2000). Public Participation in Making Local Environmental Decisions. London, UK: Crown. Retrieved 12 2015, from: <http://www.unece.org/fileadmin/DAM/env/pp/ecases/handbook.pdf>**

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This handbook has been produced following discussions at a workshop on public participation in making local environmental decisions, held in the United Kingdom, in December 1999. The handbook draws on case studies and the other material discussed at the workshop in order to identify what was considered to be 'good practice' for public participation. Techniques identified in the cases studies to encourage public participation include focus groups, public meetings, site visits, media involvement, exhibitions, brainstorming session, leaflets, etc.

**Bakker, K., & Morinville, C. (2013). The governance dimensions of water security: A review. Philosophical Transactions. Series A, Mathematical, Physical, and Engineering Sciences, 371(2002), 20130116.**

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This review examines recent debates regarding the governance dimensions of water security, including adaptive governance, polycentric governance, social learning and multi-level governance. The analysis emphasizes the political and institutional dimensions of water governance, and explores the relevance of social power – an overlooked yet important aspect of the water security debate. This review concludes that achieving water security requires coordinating actors within the context of overarching water-related standards and targets, and that reducing water insecurity requires an adaptive approach to water governance, viewed as a constantly evolving process in which subsidiarity and harmonization must be balanced.

**Bessette, G. (2006). People, Land & Water: Participatory Development Communication for Natural Resource Management. Retrieved 12 2015, from: <http://idl-bnc.idrc.ca/dspace/bitstream/10625/29208/40/IDL-29208.pdf>**

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This book presents conceptual and methodological issues related to the use of communication in order to facilitate participation among stakeholders in natural resource management (NRM) initiatives. The book emphasizes participatory development communication that moves from a focus on information and persuasion to facilitating

exchanges between different stakeholders to address a common problem. The book presents a collection of chapters that focus on participatory development communication and NRM particularly in Asia and Africa.

**Cole, S. (2012). A political ecology of water equity and tourism: a case study from Bali. *Annals of Tourism Research*, 39(2), 1221-1241.**

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This article adopts a political ecology approach to understand how social power and ecology come together and result in inequitable and unsustainable water distribution on the island of Bali. The author examines the causes and consequences of water inequity in Bali including water supply factors, political and regulatory factors, social power and cultural factors, awareness factors, environmental development factors, and land-use factors. A rights-based approach coupled with a public education campaign are proposed by the author as policy initiatives to bring about a more appropriate sustainable and equitable system to manage Bali's water resources.

**Cole, S. (2013). Tourism and water: from stakeholders to rights holders, and what tourism businesses need to do. *Journal of Sustainable Tourism*, 22(1), 89-106. doi: 10.1080/09669582.2013.776062.**

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This paper expands on the author's previous work published on the topic of tourism and water inequity in Bali. While the previous paper took a political ecology approach to understanding how the issues arose, this paper examines why and how one of its recommendations – that of taking a rights-based approach – can be put into practice. Although the government is the primary legal duty bearer to provide communities with water, companies also have unique responsibilities. The author demonstrates that taking due diligence for human rights can be seen as a business opportunity, leading to reduced operating costs and increased reputational strength.

**Galvin, M. (2009). Straight Talk to Strengthen Delivery in the Water Services Sector The Water Dialogues-South Africa Synthesis Report. South Africa. Retrieved 12 2015, from The Water Dialogues-South Africa: <http://www.waterdialogues.org/south-africa/resources.htm>**

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This report documents an extensive research program, undertaken by The Water Dialogues-South Africa, on how various institutional approaches in South Africa affect the quality of service delivery. Through The Water Dialogues-South Africa, stakeholders across the ideological spectrum came together in a “confrontative dialogue” to explore the successes and challenges in the delivery of water and sanitation services by a range of providers. The report summarizes eight in-depth case studies that served as the basis for the dialogue. Actions are proposed at the end of the report which fall into four categories: effective public participation for decision making, enhanced accountability during the process, effective services, financing, and maintenance, and institutional changes.

**Greenwood, D. J., & Levin, M. (2007). Introduction to action research: social research for social change. Thousand Oaks, Calif: Sage Publications.**

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This book presents action research (AR) as a set of collaborative ways of conducting social research that simultaneously satisfies rigorous scientific requirements and promotes democratic social change. The book introduces the reader to the epistemological and the technical issues raised by AR, and maps out the diversity and complexity of the intellectual and political streams that feed into AR.

**HarmoniCOP. (2005). Learning Together to Manage Together: Improving Participation in Water Management. Osnabrück: University of Osnabrück, Institute of Environmental Systems Research. Retrieved 12 2015, from:**  
[http://www.ecologic.eu/sites/files/publication/2014/kranz\\_06\\_harmonico\\_phandbook\\_en.pdf](http://www.ecologic.eu/sites/files/publication/2014/kranz_06_harmonico_phandbook_en.pdf)

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This handbook examines public participation and social learning in river basin management. Under the context of implementing Water Framework Directive (WFD) in Europe, the book highlights active involvement as a “higher level of participation than consultation”, and emphasizes social learning as the best way to encourage active involvement. Methods and tools for fostering social learning included in the books are index cards, Geographic Information System (GIS), group modeling building, mapping, planning kit, role playing games, round table conference, reframing workshop, spatial mental maps, and website. The handbook provides the know-how to create framework for a successful participation process, including meeting organization, information management, monitoring and evaluation, etc.

**Harris, L., Goldin, J., & Sneddon, C. (2013). Contemporary water governance in the global south: scarcity, marketization and participation. London: Routledge.**

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This book focuses on three major concepts and approaches that have gained currency in policy and governance circles, both globally and regionally—scarcity and crisis, marketization and privatization, and participation. It provides a historical and contextual overview of each of these ideas as they have emerged in global and regional policy and governance circles and pairs these with in-depth case studies that examine manifestations and contestations of water governance internationally.

**University of Victoria: Centre for Aboriginal Health Research. (2011). Crisis on Tap: Seeking Solutions for Safe Water for Indigenous Peoples. In J. P. Reading, Danielle; Marsden, Namaste; Edgar, Robynne; Saravana-Bawan, Blanka; Baba, Lauren (Ed.). Victoria, Canada: University of Victoria. Research. Retrieved 12 2015, from: [http://www.uvic.ca/research/centres/cahr/knowledge/publications/water\\_book.pdf](http://www.uvic.ca/research/centres/cahr/knowledge/publications/water_book.pdf)**

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This book investigates the finding and major themes of a conference, held by the Centre for Aboriginal Health Research (CAHR) and its partners, on Small Water Systems Management for the Promotion of Indigenous Health. Two themes emerged from the conference addressing safe drinking water in Canada include collaboration across disciplinary boundaries and greater self-determination among First Nations. The mobile workshop series, “Indigenous Waterways” were included in the book in order to offer a guide for developing and advancing solutions to water based public health issues. Communities gained knowledge and information on community mapping, climate change impacts on water, and the significance of water in Indigenous culture. Further, they acted as a channel through which participants including First Nations community members and academic experts were able to engage in a knowledge exchange.

## **ADDITIONAL RESOURCE**

Sharp, K. (2015). Global Thematic Review on Training in Community Based Research (CBR): Water Governance .