CHAPTER 7

Community river restoration

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The Centre for Civil Society (CCS) at the University of KwaZulu-Natal is an academic unit with a great many community connections. It runs several environmental justice research projects related to climate change, and supports community scholars in South Durban and North Durban. The CCS works with protest groups, unions, and social movements in critiquing carbon trading at local, national, and international levels. Another CCS project also is working in partnership with the University of Witwatersrand's Centre for Social and Legal Studies (CALS) units to support opposition to the prepaid water meters which are currently being introduced in many parts of South Africa. CCS partner organizations have direct experience in communities which are developing adaptation strategies.

Besides my academic studies at CCS, I also work at WET Africa—Waterways Environmental Transformation—an NGO, which has worked on watershed improvements in South Africa since 1998. Its projects mainly focus on restoring rivers which have been devastated by industrial pollution and wastewater from treatment plants, which release e. coli-laden effluents (Lin and Biyela, 2005:258). To address this, WET Africa rehabilitates rivers, ensuring that there is natural vegetation to restore the health of the riverbed. The

quality of water is tested using the South African Scoring System (SASS), a rapid river health monitoring protocol, and the Indicators of Hydrological Alteration – IHA (Dickens and Graham, 2002:1, Taylor, Schulze and Jewitt, 2002:1). The SASS is used as a routine bio-monitoring tool for in-stream flow, as a principal bio-monitoring tool for the national river health programme, and as a tool for environmental management, assessing the ecological state of aquatic ecosystems, objectives for rivers, emerging problems, changes in the ecosystem due to development, and compliance monitoring (Graham, Dickens and Taylor, 2004:27, Dickens and Graham, 2002:2). The flow requirements of rivers in South Africa, and the ecological reserve within a river system as determined/required by the National River Health Programme and the Water Act of 1998, are also assessed using the SASS.

WET Africa also addresses climate change legislation, in light of the protections in the South African constitution (Sections 24 and 27), which state that every South African has a right to a healthy environment and to food security, both of which are threatened by climate change. The South African Water Act of 1998 highlights issues related to climate change adaptation such as ecological reserves, water flow, and the consequences of not observing the spirit of the constitution and water act. The National Climate Change Response Strategy for South Africa (2004) puts forth strategies for addressing climate change in South Africa.

For instance, eThekwini (Durban) Municipality has crafted the Headline Climate Change Adaptation Strategy and Municipal Adaptation Plans for the Health, Water and Disaster Management sectors. In addition, it initiated community adaptation projects in the Ntshanga, Buffelsdraai and Ntuzuma areas; facilitated the establishment of the Durban Climate Change Partnership; and developed its "Energy Efficiency Guideline," "Sustainable

Waste Management Guideline," and "Guideline for Designing Green Roof Habitats." All of these initiatives depend on the involvement of vibrant organs of civil society to monitor these plans and guidelines. However, there are only a small number of Civil Society Organizations engaging government on water resource management, governance and climate change adaptation. The municipality's focus remains on water supply and, to some extent, climate change mitigation (Dickens and Graham, 2002:1, Roberts, 2008:529, eThekwini Municipality, 2009, eThekwini Municipality, 2006, eThekwini Municipality, 2010 a, b, c).

WET Africa provides knowledge, resources and skills on waterway and river restoration and waste separation and recycling at source. It attempts to bring water management structures, such as catchment agencies, up-to-date with adaptation priorities. This involves critiquing Catchment Management Forums where participants participate voluntarily but have no real power to determine what happens. As part of the national water resources strategy and observing the National Water Act of 1998, South African River and Catchment Systems are managed in a voluntary capacity by Catchment Management Forums. Originally there were supposed to be 19 statutory Catchment Management Agencies established to govern and manage water resources in South Africa. The number of CMAs is now reduced to 9, and only 2 CMAs are now operating in South Africa. In KwaZulu-Natal where Durban is situated, only one CMA is going to be established. Local authorities such as the eThekwini Water and Sanitation Department are anticipated to play an important role in such structures.

WET Africa also does research on water conservation strategies, rain water harvesting, the reuse of grey water, reforestation, the impacts of floods and waste, flood

control, crop rotation as a climate change adaptation strategy, and disaster preparedness in the face of flooding and drought (Fairbanks and Benn, 2000:240, Whitfield and Taylor, 2009:838). We have contributed research on urine diversion (UD) toilets, which save 12 litres of water from each toilet flush, although there are a lot of equity and social questions that still need to be resolved (see Nojiyeza and Galvin, forthcoming).

The watersheds where WET Africa works in North and South Durban include those of the Umhlangane River, Piesang River, Umlazi River, Umsunduze River, and Umgeni River (see Figure 7.1). WET Africa organizes river maintenance teams to remove garbage, plant native vegetation, and monitor and improve water quality, all in alliance with local farmers who rely on the rivers to grow their crops. The mission of WET Africa is to restore rivers from source to sea; to protect and enhance human well-being in the face of climate change and vulnerability; and also to establish various river restoration initiatives in each of the watersheds where we work.

[INSERT Figure 7.1 (map of Durban watersheds) about here]

We do this by providing examples of local adaptation methods and initiatives, which are implemented/managed/made possible by the involvement and participation of community members, rather than being large-scale top-down mitigation strategies implemented by the government. Climate change discussions often happen between governments and policy makers at high-profile international events such as the United Nations Conference Of the Parties, while local communities are excluded, though they bear the brunt of climate change. In contrast, a way of getting the community involved and mobilized around these issues is to organize communities to take ownership of their water. This can include taking action to reduce solid waste and effluents from industry and reduce

poor sanitation. WET Africa organizes river clean-ups with community members. The way we work is to mobilize a team of about 100 people from the community who are willing to get involved in removing the solid waste and restoring the health of local rivers. Before rehabilitation projects begin, environmental impact assessments are conducted and the water quality is tested. The residents are given masks, waterproof boots, waders, life jackets and gloves to protect them from potential hazardous waste; they are taught how to be careful around the water, and given training on water safety. Then we set to removing the waste so that vegetation can grow. There is also a social enterprise aspect to this work: the waste that is removed is bought by recycling and plastics firms and/or given to the communities, to help create jobs and support local economic development (Dickens and Graham, 2002:3). WET Africa also educates communities on flooding, drought, and other climate change impacts (Dickens and Graham, 2002:2). We have managed to restore several rivers in South Africa and are starting to mobilize throughout KwaZulu Natal.

WET Africa received funding originally from the Clinton Foundation, and now communities also raise funds through the sale and recycling of waste. River Health committees are established by people who live within a catchment area. They become river monitors and come to WET Africa for support on clean-up projects (what equipment they need, how to organize and provide training, etc.) Environmental education is a critical component, since the aim is to ensure that once a river is cleaned up, the garbage does not return. This happens through community-led education workshops.

The Isiphingo river in South Durban was chosen/named by the minister of water affairs in September 2010 as an example of best practices in the country, thanks to the work that WET Africa has been doing to rehabilitate that watershed. This is part of an

"adopt a river" campaign spearheaded by the South African Department of Water and Environmental Affairs. River clean-up activities can improve public policy, since community members are participating, mobilizing, learning about climate change and their environmental and political rights, pushing for improved waste and water quality policies and enforcement, and engaging with local and provincial actors including government officials, NGOs and other community groups (Lin, Biyela, Puckree and Bezuidenhout, 2004:17).

The Department of Water Affairs (DWA) of South Africa conducts audits on the performance of wastewater treatment plants run by all water authorities and service providers in the country. The criteria DWA uses in assessing water authorities and service providers include process control, maintenance, management skill, monitoring programme efficiency, credibility of waste water sample analysis, regular submission of waste water quality results, waste water quality compliance, waste water failures response management, and waste water treatment works capacity (DWA, 2009:16). Water authorities and service providers that meet the criteria and achieve an overall score of above 90% are awarded a "green drop" certificate for that particular plant (DWA, 2009:6, De Villiers, 2004:196).

One of our goals is to ensure that communities understand how they can hold their municipalities accountable for water quality and wastewater treatment plant monitoring. In Durban, for example, out of 27 wastewater treatment plants, only 11 were "green drop" certified in 2009: the Amanzimtoti, Isipingo/ Umlazi, Umkhomazi, Cragieburn, Southern, Phoenix, Central, Umdloti, Umhlanga, Verulam and Umhlantuzana wastewater treatment systems. In 2011, the number of waste water treatment facilities that were "green drop"

certified was reduced to 9 when the Isipingo and Verulam plants lost their previous status (DWA, 2009:43, DWA, 2011:21).

In terms of monitoring the quality of drinking water, the Department of Water Affairs established the drinking water quality regulation programme in 2005. Its objective is to ensure the improvement of tap water quality by monitoring compliance by water authorities and providers, who are evaluated on the following: water safety plans, asset management and drinking water quality performance publication, microbiological and chemical compliance. A water authority and provider is awarded a score for water safety plan, process control and maintenance competency, efficiency of drinking water quality monitoring programme, credibility of drinking water sample analysis, regular submission of drinking water quality results to DWA, drinking water compliance with the South African National Standard (SANS 241), drinking water quality failure response management, responsible publication of drinking water quality management performance and efficacy of basic drinking water quality asset management. In both 2010 and 2011 eThekwini Municipality managed to meet the criteria and was awarded a "blue drop" certificate. The role of non-state actors is crucial in holding government accountable through participation in Catchment Management Forums like the Lower uMngeni CMF, Inanda and Naggle Dam CMFs and the proposed Umvoti- Umzimkhulu Catchment Management Agency that is anticipated to take over the governance of water resources within this catchment area (DWA, 2010:10, DWA, 2011, De Villiers, 2004:196).

WET Africa works with a team at each municipal level, and has maps that show the state of quality in each and every river in the country, to determine which rivers are the most vulnerable and require attention most urgently. The watershed approach allows us to

focus on tributaries because they feed into the larger rivers, which affect the mangroves at the river's mouth. We also report waste and dumping to the authorities, since waste is sometimes dumped in truckloads by industry, and local communities which are in a position to know about these violations need to be vigilant and have good communication channels with government agents. This also done whilst calling for wetlands in most of the tributaries, floodplains and sustainability of the ecosystem to be restored (Grenfell, Ellery and Grenfell, 2008:2029). In the case of North and South Durban, communities are dealing mainly with industrial pollution, waste reduction plants that are failing, and personal/household waste, all of which require improvements in intervention strategies.

My own academic research priorities have been informed and influenced by my work with WET Africa. The organization appreciates involvement by students and researchers who can help with organizing, policy, community education and documentation activities. WET Africa has great potential for continuing to organize community responses to climate change in South Africa.

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