

# WORKSHOP REPORT

Konrad-Adenauer-Stiftung e.V.

SOUTH AFRICA

LENNAH CLIO DE NOBREGA

October 2014

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## Protecting Our Precious Water

USING 'CIVIL SCIENCE' AS A MEANS TO CREATE A WATER-WISE SOCIETY

**The Konrad-Adenauer-Stiftung supported a two day water-awareness workshop hosted by the Center for Environmental Rights (CER) in cooperation with multidisciplinary environmental consulting company GroundTruth that took place from 20 till 21 October 2014 in the North West Province. The workshop included a diverse group of participants – from representatives of civil society organizations to water and environmental law experts. The first day was spent in the field testing different water samples in the areas of Sannieshof and Biesiesvlei, both communities near Potchefstroom, where the poor water quality caused the deaths of three infants in June 2014. On the second day participants had the opportunity to share their expertise and experiences and discuss the legal as well as the practical aspects of citizen monitoring of water quality.**

Early Monday morning all participants were picked up from their accommodation in Potchefstroom and began the two hour journey to Sannieshof. There the participants were formally greeted by Melissa Fourie, Director of CER, and briefly introduced themselves. The introductions were followed by a short yet informative presentation by Dr Mark Graham (GroundTruth) on water distribution and purification in South Africa. GroundTruth is a multidisciplinary water management consulting company based in KwaZulu Natal. Dr Graham also spoke about how GroundTruth is encouraging community members to be actively involved in the testing and monitoring of water quality of rivers and streams in their areas. GroundTruth proposes using the mini-SASS (Stream Assessment Scoring System)

water quality measurement system, which is based on two different ways of measuring the water quality. The one method quantitatively measures the suspended solids in mg/l in the water with use of GroundTruth's developed "Clarity Tube"<sup>1</sup> and hence is able to establish if the water quality is in line with the standard set by government regulations. The other method that is applied to check how "healthy" the water of the stream or river is focuses on the water's biodiversity and its own strength to refine and purify itself. Therefore, samples of aquatic creatures are being taken out of the water and examined according to their miniSASS evaluation. On a scale of 1-17 the examiner will get a result of how resilient the aquatic creatures are by establishing their ability to clean the water from bacteria and other types of sewage. Once testing has been done, the information is recorded on the mini-SASS-website (<http://sass.orasecom.org/en/>) to which anyone has access.

The purpose of community involvement is to create a reliable and scientifically supported information network across South Africa that creates a type of check and balance on local, regional and national government when it comes to water quality. It provides communities with consistent information regarding the quality of the water that they use and hence enables them to hold government officials accountable. Dr

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<sup>1</sup>For more information on the Clarity tube see, 2013, <http://www.groundtruth.co.za/equipment/clarity-tube.html>.

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Graham expressed his hopes to expand this project into at least 50 per cent of all schools in South Africa. Due to the sometimes remote locations of the schools, this would not only increase awareness and education about water conservation and protection amongst learners, but would also ensure the consistent and extensive testing of rivers and other water sources throughout the country. Additionally the costs for sending out field operators to find water sources, test them and report back would be drastically reduced. The fact that the collected data is published online also curtails the miscommunication and/or misrepresentation of information about water sources. Dr Graham shared the story of a lady without any formal education, who lives in an informal settlement next to a water refinery plant, and who tests the water quality with the water kit on a daily basis. Dr Graham used this story to illustrate that 'civil or citizen science' can be done by anyone regardless of their social background.

### A Day Spent as a Civil Scientist

After Dr Graham's presentation, the participants were given gumboots and gloves and were loaded back onto the bus to head to the first testing site just outside Sannieshof. The bus pulled over next to a dirty, smelly looking body of water, not much larger than a puddle. The bridge through which the water allegedly flows has clearly been used as a public toilet, and the body of water as somewhat of a dumping ground. At first sight the water looked obviously inhabitable, even for the toughest of creatures. However, jumping to that conclusion proved to be naïve. GroundTruth kitted the participants with nets, so that they could catch and thereafter examine and identify some water creatures. Everyone got stuck-in collecting samples from all around the banks. Some participants tested the suspended solids, while others set up the testing site. The group found, among other organisms, mayflies, a crab (which caused quite a stir), a water scorpion, fish, dragonflies and snails. Dr Graham and his team explained how the different types of animals and bugs one finds in water can tell a great deal about the water quality. Some bugs are hypersensi-

tive and need a large amount of oxygen in the water to survive, while others are tougher and need less. The different species also refine the water in their own ways or live off the bacteria and nutrients deposited by pollutants such as sewerage. All these factors create a story from which one is able to deduce certain information about the quality of the water.

After the water testing near Sannieshof, the group drove to a second location near Biesiesvlei. The group was warned that this river was notoriously known for being polluted with raw sewerage. It should be noted that residents in the area get their water from this river, and that in the case of water shortages a water tanker fetches the emergency water from the location where the testing took place. This time the group did not hesitate to get fully involved in the water testing. Once the group was set up, another round of rigorous testing took place. Here a new array of creatures was found on the banks of the river. It is noteworthy that these creatures were the hardier type; resistant to a higher level of pollution. This is probably thanks to the flow of the river, which ensures the movement of pollution away from one location. Another notable factor was that wetland vegetation was more prominent at this location than at the previous testing site in Sannieshof, even though this part is acclaimed to be more polluted. However, the presence of a Bloodworm confirmed the lower quality of the water since these kinds of worms are only present if there is raw effluent in the water. The testing session ended with an intriguing mini-lesson on the different creatures that were found during the field trip. The results were later updated on the mini-SASS website.

### Concluding Remarks

The field day was a success. The entire group was fascinated by the testing process and had fun engaging with a new method of learning. Awareness was raised about water standards, regulation and practical monitoring options. The participants learnt how water quality can be tested in layman's terms and especially how to understand the re-

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sults and the importance of them. A genuine interest was shown to expand this initiative.

South Africa is becoming increasingly known for the growing 'water-outages' throughout the country and especially the water shortages in underprivileged areas. The KAS/CER workshop empowered members of civil society organizations to monitor the water quality in their communities and hold government officials accountable. It further strengthened the legal aspect of water regulation in South Africa since regulations and laws are only of benefit when there are citizens that can enforce them. Access to clean water is a basic right entrenched in the South African constitution and should be on the top of government's list of priorities. Additionally to that, there is a limit to the amount of clean drinking water available and it is in our best interests to promote the education about the protection of this precious resource.



**Konrad  
Adenauer  
Stiftung**

**Impressum**

Konrad Adenauer Stiftung e.V.  
Department for European and  
International Cooperation

Country Project South Africa  
60 Hume Road  
Dunkeld 2196/Johannesburg

P.O. Box 55012  
Northlands 2116/Johannesburg  
Republic of South Africa

Phone  
+27 11 214 2900

Fax  
+27 11 214 2913

Email  
[info@kas.org.za](mailto:info@kas.org.za)