Powering water supply in South Africa: small hydro opportunities on existing infrastructure

Background
The city council of eThekwini (Durban) has already brought two mini hydro schemes on its existing infrastructure to the tender stage, but the municipality is unable to fund the development of other mini-hydro opportunities.

eThekwini would like to identify other opportunities in the water supply and treatment system, and develop them to a point where they can understand the relative viability of the options and then work toward developing them to feasibility, either alone or with investment partners.

This would also create a framework and process that could be shared with other municipal councils, including rural areas of northern Kwa Zulu Natal, which are supported by eThekwini, and where water and power are limited. Standard approaches and designs could also promote wider implementation, reduce greenhouse gas emissions, and provide an example for roll-out to other regional water managers.

Project purpose
To identify tangible and profitable opportunities for installing mini hydro (e.g. 100kW to 1MW) on the existing water supply infrastructure in Durban, as a model for other cities in South Africa.
Main activities and outputs

- Assess mini-hydro potential on existing water infrastructure assets taking into consideration load centres, power generation potential, sustainability issues, network issues, technical and construction issues, and cost-benefit analyses
- Identify priority sites where containerised mini-hydro technology can best be deployed
- Provide training package for eThekwini staff and its partners on small hydro power development including risks and commercial aspects
- Create a roadmap process that could be used by other municipalities

Expected impacts

- Better exploitation of hydro resources in existing infrastructure
- Investment attraction to support eThekwini in projects with total generation capacity of approximately 2MW
- Establishment of clear process for implementing new mini hydro installations on existing water supply infrastructure
- Better exploitation of the hydro resources, including uptake of projects that may not be obvious
- Contribution to national RE targets
- Improved implementation capacity in city and partner organisation(s)
- Model established for replication in other regional water systems

Project Information

- Location: South Africa
- Duration: 2013–2014
- Sector: Renewable energy
- Thematic focus: Business
- Total project budget: € 246,500
- REEEP grant: € 148,000
- REEEP donor: Norway and Switzerland
- Co-funding: € 98,500 from Entura Hydro Tasmania, eThekwini Water and Sanitation
- Implementing partner: Entura Hydro Tasmania