

# Auto-consumption of energy by micro-hydropower turbine in Umhlanga's drinking water networks

## PROJECT TITLE :

**Auto-consumption of energy by micro-hydropower turbine in Umhlanga's drinking water networks**

## COUNTRY :

South Africa

## AN INCUBATION PROJECT SUPPORTED BY:

**ALTERELEC**

<http://www.alterelec.re/>



**MINISTÈRE  
DE L'ÉCONOMIE,  
DES FINANCES  
ET DE LA RELANCE**

*Liberté  
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<https://www.tresor.economie.gouv.fr/services-aux-entreprises/le-fasep>

## GEOGRAPHICAL LOCATION:

City of Durban

## SCALE OF INTERVENTION :

Micro Hydropower -> from 20kW to 500 kW

## CONTEXT AND ISSUES OF THE TERRITORY :

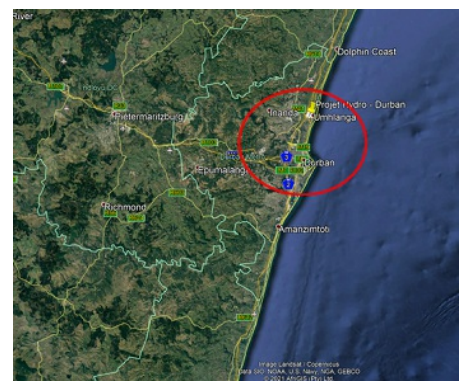
The city of Durban, a member of the C40, aims to become the most liveable city in Africa by 2030.

Energy efficiency strategies (Climate Change Strategy) have been put in place.

Their objectives focus on the development of the energy sector and the increased use of renewable energy sources and efficient practices.

Projects have already been launched, including energy optimisation projects to reduce the consumption of energy-intensive areas such as lighting and heating.

Other key sectors are also being studied.



## GOAL(S) OF THE PROJECT:

In this context, ALTERELEC, an independent producer of renewable energies based in Reunion Island, is proposing an innovative and compact micro-hydropower turbine project designed to equip raw or drinking water pipe networks, and is capable of converting the available water pressure into electrical energy. The municipality will have a technology that allows it to produce electrical energy to empower its equipment and infrastructures consumption.

his project therefore offers an interesting, renewable and reliable energy and electricity production solution. An inventory of the potential for hydropower production in this form has been realized, and more than 47 sites have been identified, within the territory of the eThekweni municipality. These resources are currently unexploited and meet the objectives of their action plan to cover 25% of the local government and public sector electricity supply with renewable energy and thus participate in improving the energy efficiency of the City of Durban's Water and Sanitation Department.

GOAL(S) :

- Produce 200 MWh/year of hydropower electricity at the Umhlanga Reservoir site
- Promote the development of unexploited hydropower potential in South Africa
- Provide a stable, reliable and locally available source of renewable electricity

## SDG TARGETED BY THE PROJECT :



## PROJECT ISSUES :

- To promote the development of untapped hydroelectric potential in South Africa
- To provide a stable, reliable and locally available source of renewable electricity

## SECTORS CONCERNED :

Water, Renewable energy, Total auto-consumption

## EXPECTED RESULTS:

- 200 MWh/year of hydroelectric power at the Umhlanga reservoirs is generated
- The hydropower potential of the Durban water and sanitation department is exploited.
- A plug-n-ready hydropower plant concept for the entire water system is developed

## STAKEHOLDERS OF THE PROJECT :

### Actors involved :

Club Export  
Club ER  
Business France

### Project Opérateur(s) :

ALTERELEC

### Technical partner(s):

PAM

Piment Laboratory  
Engineering School of Reunion ESIROI – University of Reunion

**Financial partner(s):**

Directorate General of Treasury / Ministry of the Economy, Finance and Recovery

**ESTIMATED COST OF THE PROJECT:**

500 000 € / including development of the hydropower concept

**SHORT-TERM ACTIONS (3 YEARS):**

- Monitoring of operation and maintenance for a period of 2 years;
- Presentation of the reference for export;
- Prospection of possible 47 sites of the water and sanitation department of the municipality of Durban;
- Stimulating the hydropower market on Reunion Island with the project owner/manager.

**LONG TERM ACTIONS (10 YEARS):**

- Site prospecting;
- Development study;
- Achievements.