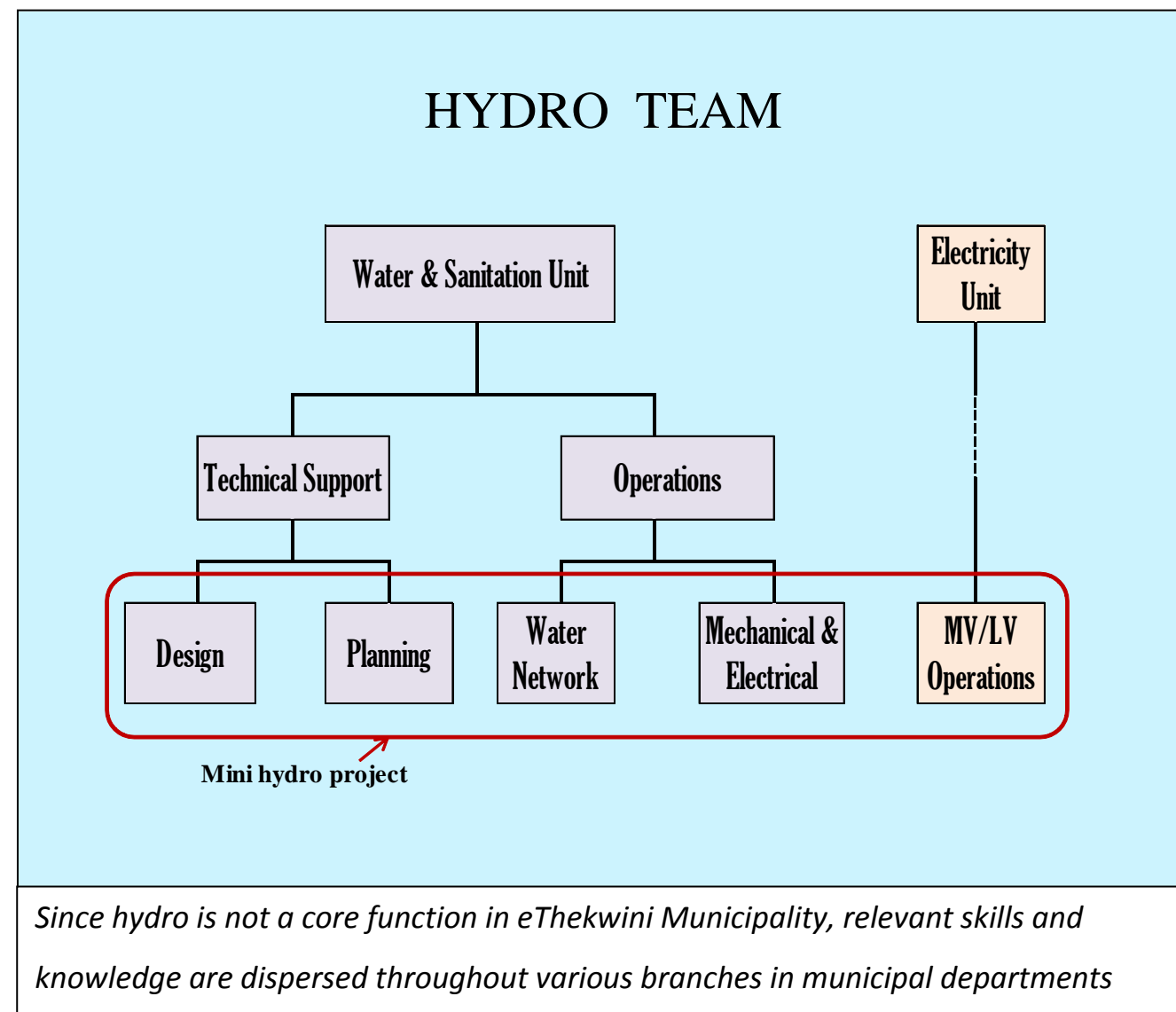


eThekwini Municipality: micro-hydro

What	eThekwini micro-hydro project
Where	Durban, KwaZulu-Natal
Who	eThekwini Municipality
Why	The Eastern Cape and KwaZulu-Natal hold significant hydropower capacity and the best potential for the development of small hydropower (less than 10MW)
When	Scoping and feasibility study completed (2012/13)

Durban has steep topography, providing the opportunity to harness the energy contained in the bulk water supply and distribution system, by integrating turbines into the drinking water infrastructure between the reservoir and the water treatment plant.



Example:

This 45-kilowatt turbine, installed in a water treatment plant in Hawaii, serves a dual purpose: it generates electricity while also reducing water pressure in pipes leading from higher elevations to a storage tank.



Water entering a reservoir still has excess energy that is normally dissipated by means of pressure control/reducing valves (PRVs) to avoid damage to pipe inlets. A parallel dissipating system, a water turbine, can be installed.

The flow and head (height through which the water must descend before going through the turbine) of water conveyed through the turbine is utilised to generate hydro-electric power. This can be done anywhere in the water distribution system where there is excess energy that needs to be dissipated.

eThekwini Municipality undertook a scoping exercise to locate suitable PRVs and break pressure tank locations for turbines, after which an invitation to tender was sent out for the feasibility, design and installation of electricity-generating turbines.

Initial indications are an expected payback of 14-15 years, with a 5.7% return over 20 years.