

Water Supply in the North

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Water supply in the North



Current situation in Greenland

			Water access		Sanitation access	
			Improved	Unimproved/surface water	Improved/shared	Unimproved
Greenland	Survey	Total	92%	8%	75%	25%
		Urban	99% ^b	1%	95%	5%
		Rural	75%	25%	35%	65%
Kingdom of DK	JMP	Urban	100%	0%	100%	0%
		Rural	100%	0%	100%	0%
		Total	100%	0%	100%	0%
Alaska	Survey	Kotzebue	90%	10%	95%	5%
		Shishmaref	30%	70%	30%	70%
		North Slope Borough	99%	1%	99% ^b	1%
		Northwest Arctic Borough	89%	11%	89%	11%
		Total (US Census)	96%	4%	– Not available –	
		Urban (AK DEC ^c)	99%	1%	99%	1%
		Rural (AK DEC ^c)	84%	16%	84%	16%
USA	JMP	US Urban	99%	1%	100%	0%
		US Rural	98%	2%	100%	0%
		US Total	99%	1%	100%	0%

Current situation

Greenland

- ▲ Nukisiorfiit – a governmental owned company is responsible for water- and energy supply in all of Greenland.
- ▲ Price of water has been tried differentiated for a period amongst settlements based on actual production costs, but 1st of January went back to one-price system (=19DKK for 1000 litres).
- ▲ In the few larger towns having lower production costs than this the fish and seafood processing industry pays the lower cost-based price (Nuuk, Sisimiut, Aasiaat, Ilulissat).
- ▲ All water quality data available online.





Typical water supply system in town

- ▲ Only very few homes in larger towns (> 500 people) do not have piped water, and it is being phased out.
- ▲ Water production is based on surface water.
- ▲ Electric heating/bleeding.
- ▲ Development into underground piping – less maintenance costs, pays off in the long run.
- ▲ (In particular) older people in towns prefer to pick up drinking water in small creeks due to the taste. Not aware of contamination risk.
- ▲ Monitoring challenged by irregular transport of samples to lab.
- ▲ Boiling advice happens but not in well functioning places.
- ▲ High cost for fish and seafood industry upon contamination.

Water supply in Greenland

- ▲ Only very few people in settlements (<500 people) do have piped water.
- ▲ Only very few people have water tanks. Those that do often fill the tank by a hose directly to the tap-house – though not according to regulations.
- ▲ Water is picked up in containers public wash-houses for free.
- ▲ Some places have plenty high quality surface water.
- ▲ Others (8 settlements) insufficient and rely on reverse osmosis of seawater and melting of sea ice during periods.
- ▲ Monitoring HIGHLY challenged by infrastructure.



Climate and terrain makes hauling and trucking a challenge



Ittoqqortoormiit Watersupply
1980-81



Photos: Christian Hammeken



Ittoqqortoormiit Watersupply
2015



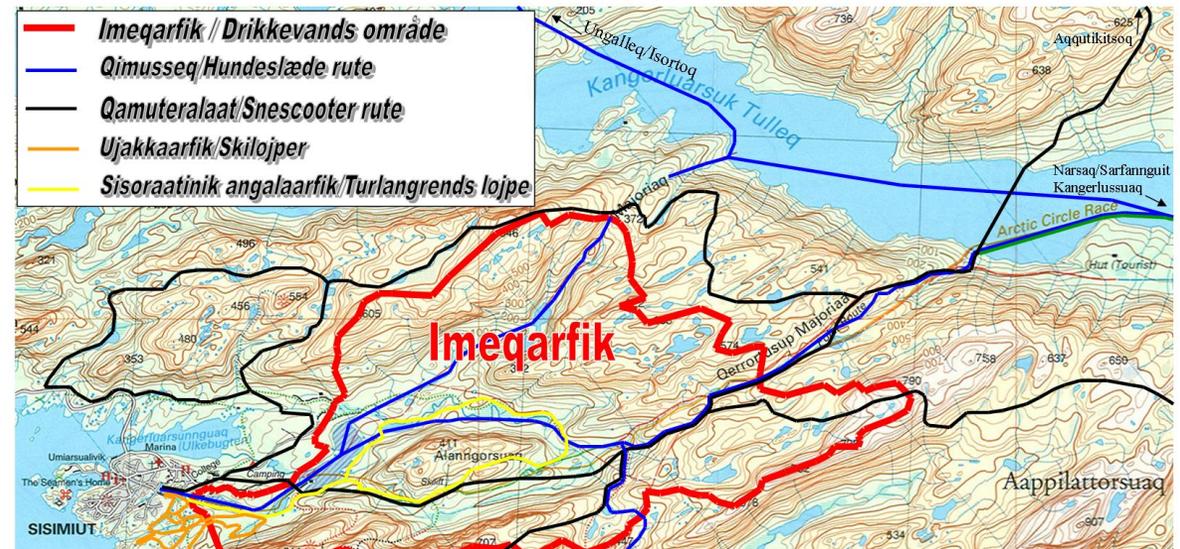
Kangaamiut, Greenland



Water quality challenge during snow melt

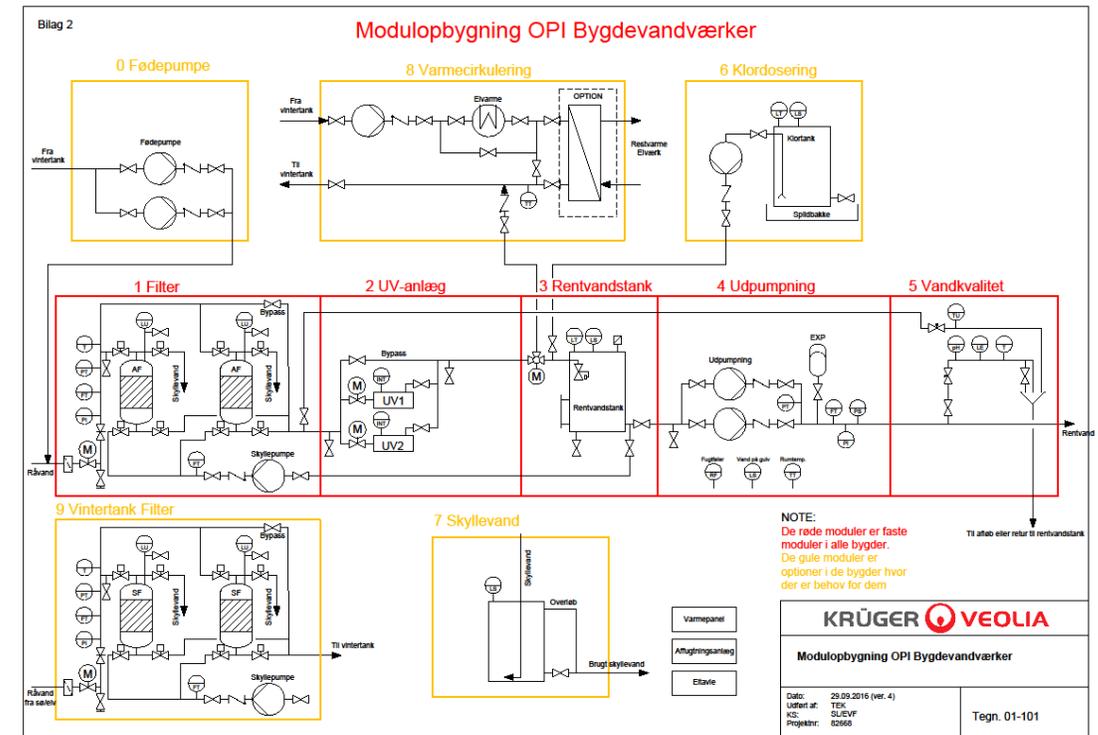


Drikkevands området i - SISIMIUT - imeqarfia



New modular based water treatment system being implemented in all settlements by 2025

- ▲ Pumping module (in).
- ▲ Dual media pH adjusting sand filter
- ▲ UV-module
- ▲ Monitoring module for continuous monitoring of pH, conductivity and turbidity.
- ▲ Storage tank.
- ▲ Pumping module (out)
- ▲ Operation module
- ▲ Chlorination module for emergency (chlorine solution is prepared in nearest town)
- ▲ RO module for places in need



Developed especially for Greenland in modules easy to ship and handle

DTU

