

Potable Water Recovery from Humid Air – AI Center

There are many parts of the world where potable water is scarce and the air temperature and the humidity are both high. In many cases these areas do not have well developed infrastructures and thus potable water produced by multi-effect evaporation or reverse osmosis desalination must be brought over long distances from the production site to the consumer. This is frequently not a viable option and is especially true for military operations.

It has been suggested that small potable water supply systems could be put in place that would recover water from the atmosphere by condensation from the ambient air. The chilling system would use ammonia absorption or some such similar system that required little or no mechanical energy and might take advantage of solar thermal power or alternatively waste heat from an internal combustion engine to supply the thermal energy to run the chilling system.

Your task is to develop a stand alone system based on recovery of water from humid air that would produce potable water at the rate consistent with supplying a platoon of soldiers in a an area of the world where naturally occurring sources of potable water are scarce.

Deliverables include a design basis memorandum, an execution schedule, an instrumented PFD, a layout drawing of all of the equipment and a cost estimate for the construction of a prototype device.

This project is best done by two people working as a team. The project must be started early this September and will be finished no later than April 15 of the following year.