



## **Fog Water Systems in South Africa: An Update.**

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This paper reports on fog water harvesting in South Africa. Ten semi-operational fog water catchment systems were erected at rural schools in South Africa between 1999 and 2007. These systems copied the basic design features of the systems at El Tofo, Chili, modified for South African conditions. Major problems were experienced due to poor maintenance and vandalism. Another serious problem was the abrasion of the 40% shade cloth netting against the supporting cables. Gale force winds also led to the complete failure and collapse of the systems. It thus became obvious that the simple flat screen structure is not suitable for South African conditions.

Co-operation with Mesh Concepts cc and Cloud Water Concepts cc resulted in the development of a new design for fog/cloud water collection. This design comprises three 40 m<sup>2</sup> panels joined together to form the sides of an equilateral triangle. Four such triangles are linked together to form a 9 panel system. The six 6 m poles supporting the 9 panels are 11 m apart and all structure and net support cables are anchored, in line, with the sides of the panels. The system is 5.5 m high and the 9 panel system exposes 360m<sup>2</sup> to the cloud/fog. The system is stable and wind forces are transferred to the anchors via nylon pulleys housed in brackets bolted to the poles. The mesh material is a poly yarn co-knitted with stainless steel that provides strength and stability to the mesh. An added advantage is that several 9 panel systems can be linked and expanded to cover the available space.

There are currently three such systems in place - at Brook's Nek (1650 m MSL) in the mountains of the Eastern Cape (684 m<sup>2</sup>) and at Lamberts Bay and Doring Bay (both 360 m<sup>2</sup>) on the West Coast. An experimental 3-panel system has been established on the Zondachsberg (1142m MSL), 35 km north of Plettenberg Bay. Preliminary data from this site indicate that orographic cloud forms against the mountain side soon after the wind turns to the south. Average yields of 3 lm<sup>-2</sup>day<sup>-1</sup> were obtained during the worst drought in the last 135 years.