

Watropy – the paradigm shift

	In a drought or with climate change the soil dries out. The ground must be wetted before there is any run off, this takes about 50mm of rain. Conventional dams work fine in cold wet climates but are inefficient at water harvesting in hot dry climates.
	After a long dry period this dam was drying up
	Even after 50 mm of rain there was no flow into the dam. All the water was absorbed by the soil
	After the next 50 mm the dam started to fill
	Our catchments are only a small percentage of our total land area and we only catch a small proportion of the rain that falls in them. We only catch 1 in 2,000 of the litres of rain that fall.

Paradigm shift	We need a new way of thinking about water, a paradigm shift
	Energy has two dimensions, quantity and usefulness measured by 'entropy'. We need a new concept 'watropy' to measure the usefulness of water.
Watropy measures the useful life of water	Watropy leads to a new way of thinking about how we harvest and manage water, but how do we get the new paradigm accepted? Paradigm shifts start with dissatisfaction with the old paradigm i.e. our dams are

	not providing us with enough water
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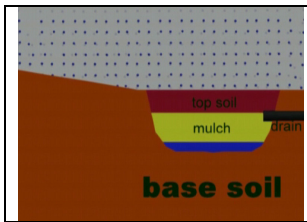
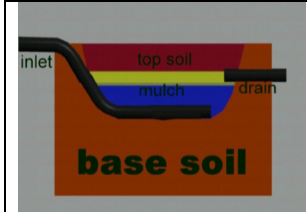
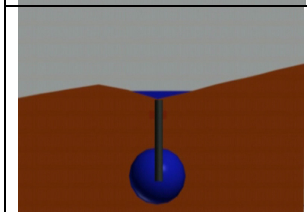
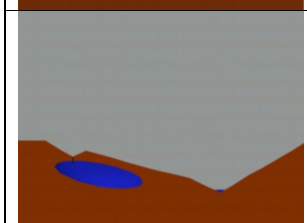
Wicking bed – one example of watropy

	Rain that falls onto a hard surface is immediately available. This included roofs, roads and pavements etc and can be very crude and inexpensive but the water must be stored locally.
	Water harvesting area can be simply set up by making a sloping bank with flow grooves
	Cover with plastic sheet to direct water
	Finish with stones
	Water tanks are an effective way of storing household water, but are too big and expensive to store the water required for irrigation.
	Instead water should be stored in the ground. There is more water stored in the soil than in all our dams combined
	Wicking beds are one way of storing water in the soil, essentially a plastics liner forms an underground water reservoir, with water wicking upwards to irrigate the plants

Grey water

	Wicking beds cascade with water flowing from one bed to the next making them suitable for grey water.
	Worms in the early bed will help purify the water for later beds. Wicking beds are more suited to shallow rooted plants

Watropy schemes

	Wicking bed with rain amplification
	Wicking bed pipe fed from tank
	Percolation holes are more suited to deep rooted plants, water at the bottom of the hole is under pressure and so inflates a large volume of saturated soil.
	Water in a lower catchment dam is pumped to an upper 'leaky' dam which saturates the soil.