Donald YATES
BAppSc BCommEng CertRenewEngy

COLUMBUS Group

FUTURE DROUGHT Submission

The COLUMBUS Group is a wide and diverse R&D entity, and the following initiatives, are proposals with what we believe to be a practical contribution to countering droughts.

1. GROWING CAROB TREES

Carob trees are known for their drought resilience and survivability in bush fires.
In 2017, we WON the Australian Mining PROSPECT AWARDS for ENVIRONMENTAL MANAGEMENT in the conversion of carob tree pods (a legume) into green methanol. Green methanol can be a direct substitute for diesel. It can also be used in the production of SAF (sustainable aviation jet fuel) and AvGas plus green ammonia, bioplastics and PLA, and even urea fertiliser.



From a ‘countering drought perspective’, carob trees can mature to be a tree some 10m high and so can support a large number of wildlife, even with the naturally sweet pods. The harvesting of the pods and seeds in the pods can produce fertilisers and fuels in support of farming, water pumping, electricity generation and transport services.

The carob tree pods can also be used to produce bioplastics, PLA and 3D printable fibres. These products can be used in the manufacture of fire fighting large and small hardware etc.

2. DRONES TO FIGHT FIRES



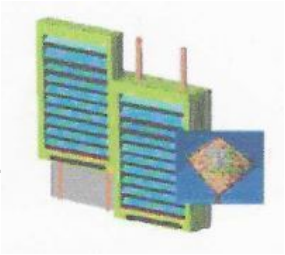
Droughts often cause bush fires to be worse. The arrangement shown is of some 10 drones so assembled so they can fly, walk, swim and stay still until needed. One way to reduce the impact of fires is to smother a ground fire or wrap around the trunk / branches of a tree and exclude air.

3. DRONES RESTORE LAND & VEGETATION with smart PYKRETE supply



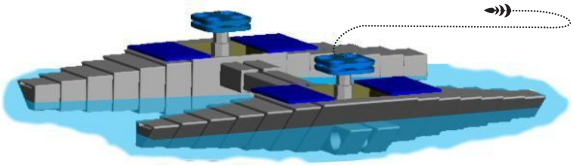
DRONES can also be configured to carry soil, seed and frozen pykrete to overcome the impacts of droughts. Pykrete can take a considerable time to melt so releasing water over a long time. (This can be weeks and then the sustaining water demand is supplied with more PYKRETE).

4. Robust Bi-metal strip solar energy collector



Able to take a bullet and keep working even after the sun sets, the low cost Bi-Metal strip solar energy collector can filter water, pump sequentially to a considerable height and also generate electricity for remote 6G monitoring

5. El Nino energy capture and climate change impacts.

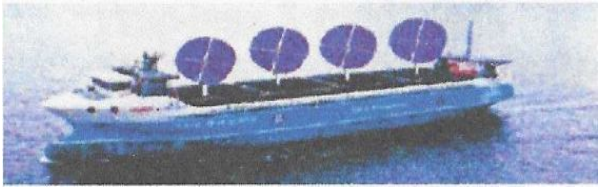




El Nino effects cause considerable heat build up in shallow water, bleaching coral etc. El Nino can also cause floods and droughts.

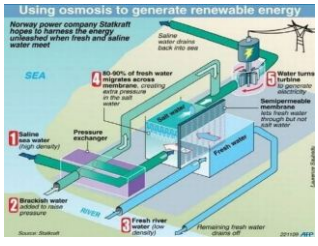
By using thermoelectric energy scavenging, the net result can be a cooling of near-surface water and the collection of energy. Such energy can be used to support multiple drones to undertake cloud seeding tasks, so where needed, causing rain to fall and cool the surrounding area, adding to water reserves and if needed countering localised flooding effects by having the rain fall location changed so impending floods can be avoided and the rain water is reserved for where it is more seriously needed to counter drought effects.

6. Harvesting the Roaring 40's for energy to recharge batteries, filter sea water (for fresh water storage), generate green hydrogen & ammonia



The Roaring 40's blow all year in the 40's latitudes. This energy resources source can be collected in fleets of autonomous shippings and delivered to those discharge ports needing such support. High speed container ports can also use containers of rain water for pumped hydro benefits.

7. With sources of fresh & salt water, then baseload, carbon free blue osmotic energy can be a reality.



There are various technologies to generate power and fresh water from blending fresh & salt water. As well as clean energy, fresh water can be pumped to where it is wanted to counter droughts.