

How to Reverse Desertification and Turn the Sahara Desert Green

by Bill McNulty

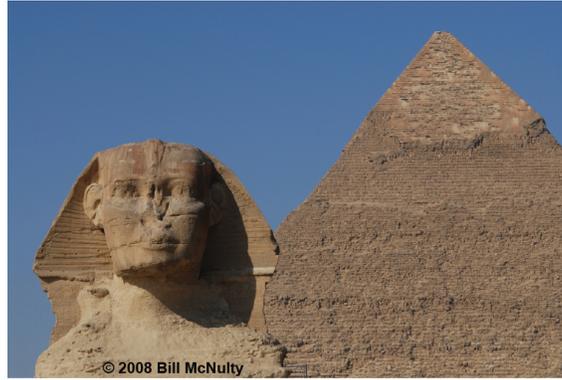


Fig. 1 The Sphinx as the Air God Shu

Ancient Egypt and the North African Continent used to be fertile lands with wild animals, grasslands, savannas and sustainable croplands. With the growth of the population and unchecked bad land management the forests, grasslands and croplands were cut down, eaten or dried up and eventually turned to dust. The trees and brush that dotted the landscape of Ancient Egypt were cut down to provide shelter, fuel and food for the Ancient Egyptians. This destruction of North African vegetation eventually led to the creation of the Sahara Desert.

In Ancient Egypt numerous Gods and Goddesses were worshipped to help Egyptians in their daily lives. Tefnut was one of the Ancient Egyptian Goddesses who was called upon to bring rain and moisture to the lands of the Ancient Egyptians. We need to invoke Tefnut's help today to create rainfall in the Sahara and alter the environment to bring rains to the Sahara and other desert regions around the World. This article will outline solutions to reverse desertification and reintroduce flora and fauna into deserts around the World.

Preventing Desertification

In the 1930s the Midwest of the United States was almost turned into a desert. Large clouds of black topsoil were blown across the Midwest and traveled as far east as Washington, DC. Franklin D. Roosevelt and Hugh Bennett came up with a solution that prevented the Midwest from becoming a desert. Their solution included the formation of the Civilian Conservation Corps and the Soil Conservation Service. These two agencies helped prevent the Midwest and other areas of the U.S. from becoming full blown deserts. By planting millions of trees and changing farming practices they helped reduce the loss of topsoil and stopped the desertification of the U.S. Midwest.

More recently a new soil enhancement system has been developed by Kristian Morton Olesen and his son Ole Morton Olesen. Their patented system turns barren desert sand into fertile soil in a matter of hours. This process can turn desert lands into productive and fruitful land. You can find info about their liquid nanoclay mixture system at www.desertcontrol.com.

The two systems described above can be used to help reverse desertification with the addition of water in the form of rainfall or irrigation waters. But, first we need to bring rainfall to the World's deserts to take advantage of the above systems.

How Rain Clouds are Created

For rain clouds to form a combination of factors need to be present in the environment before they are born, mature and eventually release their excess moisture to the ground.

Only recently have we come to recognise that a tiny seed particle, a humidity threshold, water vapor, a specific temperature range, particulate matter in the atmosphere and other factors are all needed to create clouds. When these components are present we should see the formation of clouds and their release of rain when they receive an excess of moisture. But, in desert environments and over Oceans these environmental components don't always combine to create rainclouds and rainfall.

How Islands Form Clouds

You can watch clouds form on the eastern side of Caribbean Islands as a temperature differential between the air mass flowing off the surrounding waters and the temperature of the land mass meet and stimulate cloud formation. If conditions are right these island formed clouds will fill with excess moisture and dump rain on the leeward side of the island.



Fig. 2 Clouds form over a Bahamian Island from the windward side of the island

Island formed clouds aren't seen year-round but, they can bring enough rainfall to sustain island vegetation that can vary from desert-like to lush tropical forests depending on whether a mountain range separates the leeward and windward sides of an island. Normally the areas with the most rainfall occur on the western or leeward side of Caribbean Islands due to this cloud forming phenomenon. If there is a large mountain or elevation located in the middle of an island the rain will generally accumulate on the eastern side of the mountain leaving the western side of the island with less rainfall.

For most of the year tradewinds blowing over Caribbean Islands cross from the east to the west and bring rain and cooling breezes to the western and northwest sides of these islands. Without the temperature differential between the Caribbean waters and the island land mass, combined with a certain set of conditions, cloud formation and rainfall would be non-existent during certain times of the year. This temperature differential caused by the air flowing over the islands helps cloud formation and rainfall and provides needed moisture.

Invoking Zeus and the Creation of Lightning

Nikola Tesla once observed that rainstorms don't start without a lightning strike. Most of us have seen rainfall come from a storm system where lightning doesn't make an appearance. But, Tesla may be right in regards to the development of intense rainstorms. Lightning strikes increase the intensity of storms.

In deserts there is a lack of paths for energy to flow from clouds to the ground. When the atoms that make up a cloud bump against each other they create a charge that builds up in the clouds. This excess electrical charge needs a path to discharge this energy. The excess electrical energy in clouds can travel up, down or sideways. Trees, buildings and other pointy objects provide pathways for air to ground lightning strikes in most environments. But, these pathways are virtually non-existent in a desert environment. We need to provide artificial pathways in deserts to create air to ground lightning strikes to increase storm intensity and rainfall.

Excess electrical energy discharged between clouds is normally referred to as heat lightning. Electrical energy discharged downwards from clouds is called cloud to ground lightning. When lightning discharges are numerous, the constant charging and discharging that occurs between clouds and the ground can lead to more violent weather.

Lightning is artificially stimulated by means of a rocket with an attached wire apparatus at a testing facility near the University of Florida. A rocket is fired into clouds that researchers believe have excess charge which can be released as lightning. The UF Research Labs ability to create lightning on demand is a necessary part of their research. Like the UF Research Labs we need to create paths for cloud to ground lightning over deserts where clouds can be stimulated to grow into cumulonimbus clouds and eventually release their excess moisture as rainfall.

Balloons or kites flown in the path of possible rainstorm clouds can facilitate the transfer of energy between clouds and the ground. These balloons or kites would need to be attached to wire tethers and placed in the path of developing storms. They would provide a pathway for the transfer of electrical energy between the clouds and the ground. Metallic spikes in the form of large spears could also be used as pathways for transfer of electron charges between the ground and clouds. The pointier the better. All personnel should be safely away from any of these devices during storm formation.

How to Form More Clouds and Rainfall

Watching clouds forming over islands led me to wonder why clouds don't form over the Sahara when cloud forming components are present. You can see satellite images of clouds and rainfall across Central Africa while Northern Africa doesn't show the slightest blip of cloud formation. I believe the missing component that prevents cloud formation over desert areas is a temperature differential. Without a temperature differential between the land and air masses clouds will not form when cloud building components are present over desert regions.

It may be possible to reverse desertification in North Africa and other desert locations by changing the albedo or reflective sunlight that reaches the ground and creating islands of temperature differential in desert areas. By creating temperature differential islands (TDI) it may be possible to bring rainfall where there is currently little to none.

I believe creating a large temperature differential between the land and air temperatures can trigger cloud formation when all the environmental components for cloud formation are present and I call this the Tefnut Rain Concept. The Tefnut Rain Concept aims to provide the missing component needed for raincloud formation over deserts when all the environmental conditions needed to form rainclouds are present.

The basic principle of this new idea is that for cloud formation over a desert to occur a temperature differential between land and air masses combined with a combination of environmental conditions need to be present before clouds will form. If clouds don't form when their essential components are present in the atmosphere then a temperature differential between the land and air masses may lead to cloud formation and the eventual release of rainfall. By creating areas of temperature differential between the land and air masses it may be possible to start cloud formation and rainfall in desert areas around the World.

Creating Temperature Differential Islands in the Desert

It may be possible to create TDI by painting the desert floor with an artificial coloring. These TDI could be created by painting the sands with a colored water applied by planes, helicopters or all-terrain vehicles towing water tanks.

The best way to stain the water used to create a TDI may be by adding algae. A quick growing algae could be added to a seeding water before it is spread across the desert surface. A central tank or tanks could be filled with a growing medium for green algae that contains nutrients to start an algal bloom turning the seeding water a green color.

This algae filled water would then be applied to the desert floor to create a temperature differential between the painted desert and the surrounding unpainted areas.

Strips of painted desert between 10 to 30 miles long parallel to prevailing winds and between 3 to 20 miles wide may offer the best opportunity for cloud formation as the prevailing tradewinds travel northeast to southwest across the Sahara. The gap between TDI would have to be tweaked to determine the best conditions for cloud and rain generation to the southwest of successive TDI. Rainstorms can regenerate after an initial release of excess moisture as rainfall. The distance between TDI would need to be varied to determine the best possibility of creating more rainfall as the regenerating rainstorms travel with the prevailing winds.

The first temperature differential island should probably be a strip of desert between the Nile River near Lake Nasser and the Toshka Lakes. This section of desert should probably be painted between 3 to 20 miles wide with a green colored algae water applied by plane, helicopter or all-terrain vehicles.

The second TDI should be to the southwest of the Toshka Lakes between 30 to 70 miles from their western edge. This second TDI should be between 3 to 20 miles wide and 5 to 20 miles long. This second and succeeding TDI should have conductors placed over their surfaces to facilitate transfers of electric energy between clouds and the ground as lightning strikes. The more lightning strikes in this second and succeeding TDI will create more volatile weather and the possibility of rainfall in the direction of the prevailing winds.

If the TDI concept works it will germinate seeds buried in the seed bank under the sands of the Sahara. Once this hidden seed bank blooms it will provide a temperature differential between the blooming flora and the desert floor that doesn't receive rainfall.

Painting the desert would be a geoengineering feat that is easy to assess whether it works and it wouldn't create an environmental disaster if it doesn't. The proof would be easy to observe from the ground and confirmed by satellite imagery.

It would be great if someone would adopt the Tefnut Rain Concept and create temperature differential islands to bring rains across the World's deserts. With our increasing population and decreasing arable lands changes are necessary to prevent future famines and food catastrophes. Let's hope temperature differential islands will provide a geoengineering solution to improve the situation of millions living in or near the World's deserts.