

## ENVIRONMENT

### Nature is a Library©

by Valentine Rinner



It suddenly went viral... this eight-minute video clip of a neuroscientist explaining biomimicry and the knowledge economy to a room full of students, reached over five million views. Triple PhD holder Idriss Aberkane expresses what his research has been teaching him: that nature is a library - we should read it instead of burning it.

By definition, the science of biomimicry (*bios* means life, and *mimesis* to imitate) is the design of sustainable solutions based on nature's existing strategies to solve specific problems. The main idea behind biomimicry is the belief that Nature - due to its ability to adapt - has already optimally solved many, if not all problems we humans are tearing our hair out about. For example, we see CO<sub>2</sub> as one of the biggest problems of our time. Plants don't, they manage to use it to grow and stay alive. So how can we learn from them?

With biomimicry, instead of merely harvesting and using organisms to accomplish specific functions, we observe, deconstruct and reapply the underlying design principles of some organisms or ecosystems to our own innovations. Leonardo da Vinci observed birds' anatomy for the design of his flying machines; our Eiffel tower actually mimics the distribution of forces in a human thighbone; new Japanese trains significantly increased their efficiency after carefully analyzing the shape of kingfishers' beaks; and Velcro was invented in the forties after eight years of studying how burdock seeds catch our coats on our Sunday outdoor excursions.

More than simply inspiring design, nature is a source of complex organizational models. We know that termites are able to maintain their nest's temperature in an extremely wide array of thermal conditions. A project from Loughborough University has been scanning termite mounds to map their three-dimensional architecture in a level of detail never achieved before. This computer model has helped scientists understand exactly how the tunnels and air conduits manage to exchange gases, maintain temperature, and regulate humidity. This experiment is providing a blueprint for self-regulating human buildings and more generally more sustainable architectural models.

This type of research is crucial today and for our future on our planet. Indeed, we currently live in a world that abides by the theory of infinite growth while relying on the natural resources our planet has to offer, which are finite. We burn them. This infinite

growth versus finite resources organizational equation is unsolvable. We just can't have infinite growth based on finite resources.

More than being a finite source of raw materials, Nature is an infinite source of knowledge even while we are unfortunately slowly destroying it. If we exploit Nature as a source of knowledge instead of merely resources, we have so much more to gain. This is what Professor Idriss Aberkane is calling the 'switch to the knowledge economy'. When you give or take a piece of knowledge it does not burn, it duplicates. And when you add two pieces of knowledge together, you always produce a little extra knowledge and sometimes you produce revolutionary extra knowledge. It's all about switching from 'using' the natural world to 'learning' from the natural world.

Instead of crying over the consequences of current climate change, high levels of pollution and destruction of natural habitats I suggest that while you are waiting for your termite-inspired air conditioning system, you go and observe the closest bird's nest or beehive just for a few minutes and grab a piece of knowledge!

And PS: Start paying attention to nature preservation initiatives... nature still has so much to teach us.