

## THE GLOBAL BENEFITS OF OPEN RESEARCH

According to historical records, there were several precarious situations across the globe at the start of the 21<sup>st</sup> century. Africa was plagued with the Ebola outbreak, the American continent dealt with severe rainstorms and floods; following the Middle Eastern Syrian upheavals and the short European Union dichotomy spurred by Brexit. But it was the global environmental and energy crises which plagued the century the most. Australian-born Martin Green and Swiss-born Michael Gratzel drove the research community in solar energy which significantly spurred energy sustainability in that century. At this time, open research was a debate with significant restraining factors such as data validity and web abuse (Schmidt, 1997), financial support, quality and value of research data (Sveinsdottir et al, 2014), cloud storage and data security (Hashem et al, 2015). However, the resolution of the environmental and energy challenges in the middle of the century spurred a new age of open research collaborations. The path was laid but still needed leadership and harmony on a global scale. Schmidt (1997) had noted that travel cost savings and instant feedback allowed the World Wide Web spur new research opportunities. In 2014, the West African Ebola outbreak was stymied in Nigeria with possibly thousands of lives saved. The Nigerian approach had adopted online research findings from publications like Spengler et al (2016) calling for adequate surveillance, diagnosis and better community understanding about the disease.

Today is January 1<sup>st</sup>, 2120 and open research is no longer was a debate; the Juéwàng (“hopeless”) Crises (2116-2120) of the last decade was the rallying point of the World Science Hub (WSH) and is proof of the success of an international collaborative effort. Open research had flourished for over 50 years in the scientific community but an eminent global epidemic had placed the world in danger of an extinction level event. The Juéwàng Crisis began four years ago when astronomers at the North Atlantic Observatory noticed a small earthbound achondrite meteor. It was later shot down but an encrusted alien pathogenic organism stowed on the meteor into Earth. It mutated and spawned in the oceans where the fragments landed; the resultant infections were calamitous. The World Science Hub set up a 4-Phase Emergency Response; firstly, define the core source, next gather relevant data, analyze gathered data and develop mitigation strategies. The American, African and Asian continents were most affected due to the ocean currents at the time; Europe provided humanitarian relief and skilled personnel to the research stations.

In Phase 1, top scientists met online to debate this global challenge, migration of the aquatic pathogenic carrier and reported sightings. High tide, ocean currents, and intercontinental drift made it difficult to define the exact location of the organism. Although the American station reported the most recent sightings, the African station had noticed the most severe outbreak. It was a combination of ocean mapping using undersea stations and miniature marine drones across the three stations that eventually pinpointed the location of the organism in Asia. Economic barriers were swiftly addressed as the global effort released funds for a 1000km modular seafront barrier set to contain physical movement. The European station installed the ASE 2 (Aquatic Sonic Ell) program developed to protect endangered marine organisms during the last Underwater Olympic Games in 2118. These collaborative scientific, economic and technical efforts were particularly crucial to the success of Phase 1.

Data Collection and Analysis Phases were estimated to take 12months if run in a single station but only took 4weeks! It was a global campaign as research institutes, government agencies, and non-governmental organizations deployed advanced ocean mapping satellites, ocean divers, and aquatic drones to gather every piece of data on the epidemic. As the projected 6-month timeline before the pandemic ominously approached, the global effort saved much needed time. But it was

the analysis phase that proved more miraculous. The American station connected the Hub to her energy-self-sustaining Moon-orbiting station powered by the prototype Web 7.0. The flow of information and refinement of methodology for various stages of analysis across the Hub was seamless; if it wasn't a crisis situation one would have relished a time of such scientific harmony of intent and display of open research passion.

In the final phase, the WSH met with presidential representatives to develop country-specific solutions to the mutating virus. At this point economic altercations, intellectual property rights, research ownership, and low governmental will had been trounced. The single goal was to save the human race. That represents the aim of open research; regardless of the taunts of critics, the benefits outweigh the challenges. The conclusion of this report drawing from two centuries of research brings to light via a case study approach the opportunities and global benefits of open research.

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