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Tellurium May Play a Crucial Role in Alleviating the World's Growing Water Crisis.

New research indicates tellurium nanoparticles could reduce the energy required for water desalination by a factor of 10.

Vancouver, BC, Canada, September 18, 2018 – Deer Horn Capital Inc. (CSE: DHC, OTCBB: GODYF) (the “Company” or “Deer Horn”), reports that, according to the International Resource Panel (IRP), almost half the world’s population will suffer severe water stress by 2030. Titled *Options for Decoupling Economic Growth from Water Use and Water Pollution*, the [IRP report](#) claims that as the global population continues to rise, increased urbanization, climate change and a shift in how food is consumed are likely to dramatically increase future demand for water.

An even stronger warning comes from a recent story in MSN called *Ticking Timebomb: When Will the World's Natural Resources Run Out?* This piece, referring to the IRP findings, states, “High demand means we could soon run out,” while reminding us that 2030 is only 12 years away.

The IRP study emphasizes both the seriousness and the daunting challenges in solving the world’s water problems. “Under current trends, demand for water will exceed supply by 40 per cent in 2030.” This shortage will force governments “...to spend US \$200 billion per year on upstream water supply as demand outstrips cheaper forms of supply – up from historic averages of US \$40 to US \$45 billion.”

Compounding this crisis is relative scarcity. Fresh water makes up a very small fraction of all water on the planet, and humans are using it up at an unprecedented pace. According to *National Geographic*, one of the primary challenges now faced by the human race is “...how to effectively conserve, manage, and distribute the water we have.”

Reports and studies from a broad spectrum of major institutions, including The United Nations, The World Wildlife Fund and World Resources Institute, note how the use of fresh water has increased twice as fast as the world’s population over the last century. This trend is clearly unsustainable.

For those living with easy access to clean, fresh water, such omens may seem like an abstract concept. However, the World Health Organization reports that about three in ten people worldwide, or 2.1 billion, already lack access to safe, readily available water in their homes.

What are the possible solutions? Better use of our water, along with technology, provide some hope for solving or at least moderating some of our fresh water shortages.

“The scientific and environmental communities seem to agree on two primary ways to resolve the crisis,” says Deer Horn CEO Tyrone Docherty. “The key solution is conservation. As the world becomes more aware of the problem, we are finding ways to reduce water waste and pollution. This is where solving the problem has to begin.”

The other probable solution, says Docherty, is desalination. “While over seventy percent of earth is covered in water, it’s like the *Rime of the Ancient Mariner*.” ‘Water, water everywhere. Nor any drop to drink.’ Desalination changes that dynamic and provides essentially unlimited supplies of fresh water. However, it’s

not as easy as simply building more plants. They're expensive, and they consume enormous amounts of energy."

Over half the expense of operating desalination plants come from energy, a roadblock that makes the technology prohibitively expensive for many regions. However, researchers recently reported a possible breakthrough for the energy issue, claiming that tellurium nanoparticles could dramatically increase the efficiency of desalination and reduce the energy required for the process *by a factor of 10*.

In an [August 2018](#) article titled "Nanoparticles Take Solar Desalination to New Heights," the engineering journal *IEEE Spectrum* reported on major advances using tellurium particles to enhance "solar thermal" technologies, where sunlight is used to convert water into steam that runs electric turbines or performs desalination.

The *IEEE Spectrum* story noted how researchers at Sun Yat-sen University in China used tellurium nanoparticles to boost evaporation by a factor of three under solar radiation. This process made it possible to increase the water temperature from 29 degrees to 85 degrees Celsius within 100 seconds. "These findings suggest that the Te nanoparticle can be expected to be an advanced photothermal conversion material for solar-enabled water evaporation," said the researchers, requiring one-tenth the energy of current methods.

There are currently more than 18,400 desalination plants operating worldwide, providing water for more than 300 million people in 150 countries. As the desalination industry makes advances in efficiency, these numbers are expected to grow.

If tellurium is to provide a solution, where do we get it? Roughly 90% of the world's tellurium today comes from copper refining. However, as noted recently by the United States Geological Survey (USGS), shifts in the way copper is refined mean that tellurium consumers are examining alternative sources, including primary tellurium deposits in stable political jurisdictions.¹ Deer Horn Capital's gold-silver-tellurium property, now under development in west-central British Columbia, is noted by both the USGS² and First Solar Inc.³ as an important potential source of tellurium not dependent on copper refining.

The Deer Horn Property may be unique in North America for hosting an NI 43-101 resource for gold-silver-tellurium. Deer Horn recently reported positive results from an independent Preliminary Economic Assessment ("PEA") at the property, where the Company is planning to conduct further drilling to both expand and upgrade the current resource.

"An essential part of Deer Horn's vision is to supply critical metals that can help solve some of the world's most pressing problems," said Docherty. "Tellurium is emerging as an element that may contribute to important solutions such as providing abundant, economical supplies of fresh water."

Added Docherty, "As far as we know, we're one of the few, if only, junior mining companies focused on tellurium exploration and development. We believe primary sources of tellurium will be in high demand in the future, which is why we're looking at acquiring additional tellurium-rich projects in North America."

For more information, please visit www.deerhorncapital.ca, or download the Deer Horn [Fact Sheet](#).

¹USGS Critical Mineral Resources of the United States – [Tellurium](#), p R-1

²USGS Critical Mineral Resources of the United States – [Tellurium](#), pp 10-11

³First Solar Inc. presentation to International Minor Metals Conference, Cologne, Germany. April 24, 2012

On behalf of the board of directors of
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