



# WaterStart

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## Annual Progress Report

Reporting Period: July 1, 2015 thru Sept. 30, 2016

October 30th, 2016

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## Project Purpose

WaterStart aims to make Nevada a global water innovation hub and portal for investment by leveraging the state's leadership and expertise in water. The WaterStart business model involves a joint venture between academic, public, and private sectors. Each partner brings critical resources to create a mechanism to accelerate the economic cycle through applied research. These resources will lead to technology commercialization that will bring high-value, shared services to a broad range of public and private sector clients as well as an advanced workforce with core technology skills and domain expertise to meet employers' needs and attract technology-focused companies to Nevada. At the same time the WaterStart's efforts will enhance Nevada System of Higher Education's goal of strengthening public private partnerships to generate additional sources of nonfederal grants and contracts. By combining the domain expertise of the NSHE institutions, SNWA, and the LVGEA, WaterStart will:

- Act as a portal for attracting, partnering with, and servicing national and international business in the water domain.
- Deliver high-value, shared services to public and private sector clients while building job skills and assisting DETR to grow Nevada's future workforce.
- Assist with commercializing and distributing the collective domain expertise in water sciences, technology, and management areas with NSHE & Water Utility Partners (SNWA, TMWA, etc).
- Provide additional sources of grants and contracts to NSHE faculty members

## Section I: Proposal Progress

Since July 1, 2015, the WaterStart has made significant progress toward meeting proposed metrics.

Major accomplishments include:

**Major Accomplishment 1: Initiated Research and Demonstration Projects** – WaterStart has supported 7 projects through the commercialization fund. In addition, WaterStart, in partnership with GOED, supported a project titled Development of Unmanned Aircraft Systems for Agricultural Applications with a Nevada-based company called AboveNV. The other 7 projects include:

*Ayyeka*- After a successful installation of Ayyeka's "Wavelet" System was completed within SNWA's infrastructure, WaterStart, SNWA, and Ayyeka have identified future initiatives relating to larger-scale installations, research and development, public policy development and regulatory enforcement, public relations, and workshops. In return, Ayyeka has committed to establish a business entity in Las Vegas within the first year and will further develop physical operations for business development, marketing, product development, and manufacturing over the next 3 years.

*Outlocks (Knock N'Lock, Ltd.)* – WaterStart successfully facilitated an agreement between Outlocks and SNWA. Installations have begun at locations throughout SNWA facilities of the Outlocks unique locking system which has been designed to address the unique requirements of securing outdoor assets. In return, Outlocks has agreed to find a Nevada-based business to sell and distribute their products to water utilities within the United States.

*Syrinx* - Syrinix, created in 2004, focuses on developing monitoring technologies that detect leaks and potential pipe failures at a very early stage. Their sales have primarily been targeted to the UK market (Thames Water is their largest customer) but they anticipate that the greatest opportunity for growth will be a U.S. expansion. Because of the significant benefits from Syrinix technologies in the areas of break reduction, risk and asset management, and reduced water loss, through WaterStart, SNWA is testing and demonstrating PipeMinder at 10 locations within SNWA's infrastructure. PipeMinder monitors pipelines and networks for pressure transients traveling through the transmission and distribution networks. As Syrinix forecasts their U.S. expansion, they are including considerations for developing supply chains and

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manufacturing options for lithium batteries and other product components as well as a location for hosting their data servers.

*Intelligent Modelling* – By utilizing satellite imagery in conjunction with their patent pending technology, Intelligent Modelling is able to map pluvial flood water pathways to predict and protect against flooding in urban and rural environments. Through discussions with the WaterStart, DRI faculty, and SNWA, two projects were identified in the Las Vegas Valley to demonstrate the technology’s capabilities. Intelligent Modelling has committed to basing its U.S. operations in Nevada with a local employment projection of 3 employees in year 1, 5-10 in year 2, and 20-30 in year 3 as opportunities for commercial revenue are created.

*Ionex* – Ionex is a UK-based water treatment company that has developed solutions for treating nitrates and hexavalent chromium. Their proprietary treatment process for capturing contaminants reduces waste-disposal volumes and operational costs compared to traditional systems. Ionex, at no cost to WaterStart or its partners, has installed their nitrate treatment technology at a potentially problematic well site operated by the Las Vegas Valley Water District/SNWA to verify removal rates and overall efficiency of the Ionex system. In return for the pilot opportunity, Ionex has begun establishing a Nevada-based office to further develop the control and communications software associated with their technology. The projected return-on-investment for Nevada is \$500,000 per year for 3 years.

*Well To Do* – Well To Do is an Israeli startup also focusing on treatment of nitrates. Well To Do, through WaterStart, will be installing a pilot project at a well site within SNWA/LVVWDs distribution system. The pilot program will evaluate the performance of WellToDo’s catalytic reduction water treatment technology aimed at reducing nitrate concentrations at select SNWA groundwater wells. WellToDo will cooperate with Corona Environmental Consulting, the SNWA, and the Las Vegas Valley Water District to develop the pilot testing protocol and install and operate the treatment system. Data from the pilot program will be used to further evaluate the technology and provide a benchmark compared to other treatment systems. The main benefit and innovation in the WellToDo system is its ability to remove nitrate and other ground water contaminants without producing waste brine, concentrate or other byproducts. The projected return on investment for Nevada is \$500,000 within 5 years.

*Reindrop*- technology summary pending; WaterStart has funded UNLV faculty to develop the first prototype and associated firmware for this technology. In return, WaterStart, UNLV, and Reindrop negotiated a shared licensing agreement.

**Major Accomplishment 2: Generated Additional Income** – WaterStart has generated an additional \$405,000 in income through contracts, matching funds, and adding additional members.

**Major Accomplishment 3: Conducted four international recruiting trips** – WaterStart participated in 4 international recruiting trips since July 2015:

*Trade Mission to the United Kingdom and Ireland*- As part of the Governor’s trade mission, WaterStart (still recognized as the Nevada Center of Excellence at that time) organized three significant events; a meeting with the IBM Smart Water group, a meeting with British Water, and a workshop titled Nevada’s Gateway to the U.S. Water Market. These events focused on identifying opportunities to collaborate with WaterStart. As a result of the interest generated from this trade mission, WaterStart and GOED released the first round of request for proposals (RFP). Further, WaterStart met Ionex, Syrinix, and Intelligent Modeling (listed in Major Accomplishment 1) during the trade mission leading to a projects and a future return-on-investment for Nevada.

*Trade Mission to China*- As a delegate on the trade mission to China, WaterStart staff visited Nanjing and met with a team from the University of Hohai, including water resource ministry officials. In addition, the

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Governor signed a MOU with the Jiangsu Province for collaboration on various water technologies. WaterStart also had discussions with a Singapore-based company that is starting a water innovation center in Nanjing focusing on developing collaborations centered around water technologies.

*Singapore International Water Week-* A delegation of 8 people, which included WaterStart staff, members of the Board, and staff from WaterStart's partners (GOED, SNWA, and LVGEA) represented WaterStart at

the biennial SIWW in July, 2016. The objective of WaterStart's 2016 participation as an exhibitor was to connect with international utilities, large multi-national companies, and technology companies from the Asia-Pacific region interested in breaking into the U.S. market. Significant outcomes included:

- Interacting with almost 70 different companies
- Hosting 16 formal meetings with a variety of technology companies
- Hosting 5 meetings with large corporations
- Hosting 6 meetings with other agency/utilities regarding partnership opportunities
- Sponsoring and speaking at the TechXchange in partnership with Isle Utilities
- A poster presentation by DRI/WaterStart staff
- Seven promising leads (two of which have generated projects currently being negotiated) as solutions for the technology priorities identified by WaterStart's partners and/or as having significant interest in establishing an office in Nevada

*Trade Mission to Australia-* As part of the trade mission to Australia, WaterStart participated in over 20 business-to-business meetings and 2 potential agency partnership meetings, identifying 9 promising leads with technology companies and 3 academic leads. Of the 9 leads, two projects are currently being negotiated.

### **Additional Accomplishments:**

- WaterStart has received 157 proposals from technology companies from 5 rounds of requests for proposals.
- WaterStart (formerly the Nevada Center of Excellence) officially introduced the outcome of a rebranding campaign during Q1. This included new logos, a new tagline (Channels for Innovation), and a new website ([www.waterstart.com](http://www.waterstart.com)). Since the launch, there have been over 8,000 visits to the new website.
- WaterStart has received national, regional, and statewide coverage. POLITICO magazine (a political-journalism organization) published an in-depth feature article on WaterStart titled "Las Vegas is Betting it can become the Silicon Valley of Water." The nationally published article highlighted the efforts of GOED and SNWA's efforts to develop an innovation ecosystem in Nevada around water. Since it's publication, WaterStart has been featured on NPR's On Point with Tom Ashbrook, CCTV America and various Nevada print media and television news outlets. The estimated circulation reach from this media coverage is 44.5 million.
- Since inception, WaterStart has built a pipeline of over 250 company leads.
- Since July, 2015, WaterStart staff has attended and spoken at various national and international conferences and workshops:
  - Water Technology and Environment Control Exhibition and Conference in Israel
  - USAID proposal development workshop in Germany
  - World Water Tech Investment Conference in London
  - Water Environment Federation water quality event (WEFTEC) in New Orleans
  - VERGE Conference (where technology meets sustainability) in California

### **Commercialization / Partnering**

In the past year, WaterStart has grown its partners to include the Truckee Meadows Water Authority, Winnemucca Farms (Water Asset Management), and MGM Resorts International. WaterStart has worked

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with each member as well as with representatives from the mining and wastewater sectors to generate a list of over 50 technology priorities for which WaterStart is seeking solutions.

As WaterStart's partners grow, so does the interest of other universities/agencies/clusters. Since July, 2015, WaterStart has entered into 3 agreements outlining details for future collaborations and technology exchanges:

- The Water Cluster and WE@EU International Cooperation Agreement- As a followup on introductions made as part of the trade mission to the United Kingdom, WaterStart signed an International Cooperation Agreement with the Water Cluster based in the UK. The agreement will foster collaboration, development, and innovation in water efficient technologies in urban water management among Nevada and the UK. The UK cluster unites and coordinates both regional efforts in the UK and across the European Unions through the Water Efficiency in European Urban areas (WE@EU). This agreement, thereby, connects WaterStart to a group of 6 European water clusters.
- The Environmental and Water Technology Centre of Innovation within Ngee Ann Polytechnic in Singapore focuses on developing technologies for environmental and water applications. Their mission is to partner with small to large organizations through applied research, development, and consultancy projects and to translate those ideas into practical solutions.
- Spread is a Japanese company providing environmentally sustainable vertical farming solutions, currently specializing in high-end lettuce products. Spread is interested in building long-term collaborations to strengthen their research capabilities, enhance faculty expertise, and provide educational opportunities for NSHE students while benefitting their commercial interests in Nevada.

In an effort to expand the recruitment efforts of water technology companies from abroad, WaterStart initiated month-to-month contracts with Booky Oren Global Water Technologies and Isle Utilities. Both companies specialize in facilitating relationships to support innovative technology development, strategy, growth, and investment.

## **Intellectual Property**

WaterStart (and UNLV through WaterStart) will receive a percentage of revenue generated from licensing, Leasing, and/or selling of the Reindrop technology (described in Major Accomplishment 1).

## **Programmatic & Project Changes**

In Q2, WaterStart was granted an additional \$250,000 to support the commercialization of new technologies equaling the original requested amount of \$500,000 for the commercialization fund.

## **Looking Forward**

Having gained valuable experience and a more refined perspective on the global water sector, WaterStart will focus on pursuing opportunities to grow its team and to expand on commercialization and recruitment successes in municipal water to further:

- Organize additional statewide partners to establish test-sites for new water-technologies and innovation
- In partnership with Isle Utilities and the Watersmart Innovations Conference, WaterStart will be hosting the Channels for Innovation summit for leaders and entrepreneurs in the water technology space. WaterStart anticipates this to be an annual event.
- WaterStart will be participating in a recruiting trip organized by Tekkes (the Finnish equivalent to GOED) along with representatives from GOED to further establish a global network of partner agencies.

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- The first half of the next year will be focusing on closing deals and initiating projects. At the time of submittal of this annual report, WaterStart has closed two projects and is scoping and negotiating projects with 7 other companies.
- WaterStart expects to expand its team within the next year to include a Business Development Administrator and formerly hire the existing Executive Assistant.
- WaterStart will also focus on identifying additional sources of funding within the next year.

Section II: Performance

Table 2: Progress Toward Metrics



Metrics as defined by the Knowledge Fund	Current Status	
	Actual from Jun 30, 2015	Estimated by Jun 30, 2017
Companies moved to Nevada	6 <sup>a</sup>	15
Start-up Companies	-	
Jobs Projected	29	180
Jobs Created	8	-
IP Licenses	1	-
IP Revenue	-	-
Grants Received	-	\$890,000
Sponsored Research:		
# of Contracts	2	-
Total \$ Committed	\$100,000	\$250,000
Matching Funds	\$105,000	
Patents:		
Filed		-
Awarded		6
Students placed with Companies	1	-
Faculty Hired	3	2
Gift/Donation/Memberships	\$200,000	\$1.025M
Student Internships	1	-

Notes:

a. Project has been initiated and agreement is in place with company committed to moving to Nevada.

## Project Scorecard Narrative

Companies Moved to Nevada: Ayyeka, Outlocks, Syrinix, Intelligent Modelling, Ionex, Well To Do

Start-up Companies:

Jobs Projected: Jobs projected is a new metric which more accurately reflects the successful efforts of WaterStart. Specific job projections have not been outlined in each agreement. In some instances, total expenditures back to the State of Nevada (which could include salaries, purchase of products/services, etc.) have been negotiated versus actual job creation. In these cases, the number of jobs are projected with the assumption that these expenditures will act as a catalyst for job creation (with each job paying 100K).

Company Name	Return on Investment	Jobs Projected
Ayyeka	will develop physical operations for business development, marketing, product development, and manufacturing over the next 3 years	5
Intelligent Modelling	forecasts 3 jobs in year 1; 5-10 in year 2; 20-30 in year 3 (10 over 3 years is assumed to be more a more accurate projection)	10
Ionex	500K per year for 3 years	5
Outlocks	seeking a licensing partner	-
Syrinix	investigating supply chains and manufacturing options for batteries and other product components as well as a potential location for hosting data servers	4
Well To Do	500K over 5 years	5
Total		29

Jobs Created: 8 jobs have been created since July 1, 2015. These include 4 by WaterSharks in Q4, 1 by Intelligent Modeling (no longer employed) and 1 by Echologics in Q1, 1 by WaterSharks in Q2, and 1 by WaterSharks in Q3.

IP Licenses: WaterStart (and UNLV through WaterStart will receive a percentage of revenue generated from licensing, leasing, and/or selling of the Reindrop technology.

IP Revenue:

### Grants Received:

Sponsored Research: A total of \$205,000 has been generated through sponsored research which includes:

- Contracts/Total \$ Committed-
  - WaterStart was contracted by SWITCH during Q3 to conduct a \$50,000 preliminary study on the quality of effluent generated from the Sparks wastewater facilities in order to better understand the requirement for the use of effluent in cooling and other industrial purposes as part of planning for the SWITCH data center outside of Reno.
  - WaterStart, during Q3, facilitated the contracting of DRI faculty to conduct a \$50,000 linear modeling study for the Truckee Meadows Water Authority.
- Matching Funds- (identified as additional funding, in cash, leveraged by the commercialization fund and provided by partners to support projects. In total from July 1, 2015 to Sept. 30, 2016, WaterStart has generated \$105,000 in matching funds.

### Patents:

Students Placed with Companies: WaterSharks has hired a UNLV student during this past year.

Impact Faculty Hired: 3 faculty at UNLV were funded by WaterStart to support the Reindrop project this past year (an electrical engineer, an undergrad student, and a computer programmer)

Gifts/Donations/Memberships: A total of \$200,000 has been generated from new memberships this past year.

Student Internships: WaterStart had a student volunteer during Q3.

Section III: Budget

<b>Water Center of Excellence Expenditures</b>			
For Reporting Period			
Jul 1 – Sep 30, 2015			
	<b>Actual</b> (Year 1)	<b>Budgeted</b> (Year 1)	<b>Expenditures</b> Balance
<b>Total Salary &amp; Benefits</b>	\$ 519,176.35	\$ 635,000.00	\$ 115,823.65
<b>Operating Expenses</b>	\$ 141,093.81	\$ 137,500.00	\$ <b>3,593.81</b>
<b>Other Expenses</b>	\$ 98,575.65	\$ 105,000.00	\$ 6424.35
<b>Commercialization Fund</b>	\$ 420,896.81	\$ 300,000.00	\$ <b>120,896.81</b>
<b>Total</b>	<b>\$ 1,179,742.62</b>	<b>\$ 1,177,500.00</b>	<b>\$ 2,242.62</b>

<b>Water Center of Excellence Income</b>			
For Reporting Period			
Jul 1 – Sep 30, 2015			
	<b>Actuals</b> (Year 1)	<b>Budget</b>	<b>Income</b> Balance
<b>Grants / Contracts*</b>	\$ 100,000.00	\$ 965,000.00	\$ <b>865,000.00</b>
<b>Gifts</b>	\$ -	\$ 18,750.00	\$ <b>18,750.00</b>
<b>Cont. ED/ Outreach</b>	\$ -	\$ -	\$ -
<b>Other Contributions*</b>	\$ 200,000.00	\$ 230,000.00	\$ <b>30,000.00</b>
<b>Knowledge Fund</b>	\$ 1,179,742.62	\$ 1,177,500.00	\$ 2,242.62
<b>Total</b>	<b>\$ 1,479,742.62</b>	<b>\$ 2,391,250.00</b>	<b>\$ 911,507.38</b>

## **Section V: Appendix**

### Appendix 1 – Sales Pipeline

See Attached table