

## **Developing a Sustainable Business Model for WRI's Aqueduct**

### **Sustainability-Lab (S-lab) Team:**

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**Prepared for:** WRI Aqueduct

**Date:** May 18, 2017

### **I. Executive Summary:**

Traditionally, WRI Aqueduct has been funded by grants, donations, and through advising companies on the best methods of assessing their water risk. WRI Aqueduct has partnered with MIT's S-lab in order to develop a more sustainable funding model that does not solely rely on the goodwill and interest of donors. We have recommended three solutions to WRI that will increase the amount of funding it receives in return for products and services from \$640,000 in 2016 to over \$1,000,000 per year. In this report, we describe our research methodologies, the insights gained, the business ideas we have recommended to WRI, and the steps that WRI must take in order to successfully implement these business ideas to generate the required funding. In the development of these ideas we sought ways for WRI to capture more of the value that its thought leadership is creating in the market.

#### **Ia. About WRI Aqueduct:**

Established in 1982, the World Resources Institute (WRI) is a renowned global environmental think tank with a focus on six main areas: climate, energy, food, forests, water, and cities and transport.<sup>1</sup> Within the water program, WRI's Aqueduct team works with institutions to develop risk frameworks and indicators such as water stress, droughts, and floods. Aqueduct's signature tool is the Water Risk Atlas, which uses data to produce global water risk maps so that institutions can assess current and future water challenges.<sup>2</sup> Although applicable for both private and public institutions, Aqueduct is geared specifically to assess water risk from the lens of the private sector.

Established in 2011, WRI Aqueduct has achieved significant market penetration. According to documents from the Aqueduct team, Aqueduct data is included in commercial products, such as the Bloomberg terminal, and leading ESG risk rating services, such as those provided by MSCI ESG Research, Thompson Reuters, and Verisk Maplecroft. Data from Aqueduct is used by over 250 global companies reporting water risks to CDP. It is also used by many Global 500 companies and sector leaders, such as Walmart, Unilever, Royal Dutch Shell, Apple, General Motors, Microsoft, Nestle, PepsiCo, and Morgan Stanley. Aqueduct data is also used by the world's largest consultancies, including McKinsey & Co, Deloitte, PwC and KPMG, and by the World Economic Forum, World Bank, International Energy Agency (IEA), and IFC.

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<sup>1</sup> <http://www.wri.org>

<sup>2</sup> <http://www.wri.org/resources/maps/aqueduct-water-risk-atlas>

**Ib. Problem Statement:**

Seed funding of the Aqueduct tool came in 2011 from Goldman Sachs, General Electric, and Bloomberg in the form of a 3-year multi-annual commitment. The current trend is that most funders want their charitable funds directed to special projects, rather than be used for the general maintenance and upkeep of the tool. Considering this trend, a reliance solely on charitable giving alone does not provide a sustainable funding model to maintain and improve the Aqueduct tool in the long-term.

In order to actualize the long-term value of Aqueduct as an open-source data tool, WRI is looking to develop a sustainable funding model by 2019 that will yield at least US \$1,000,000 annually in a manner that remains aligned with the organization's values.

**Ic. Project Objectives:**

The S-lab team's main objective is to recommend Business Ideas (BIs) that will allow WRI Aqueduct to sustainably generate annual revenues of US \$1 million while remaining aligned with WRI's values of open data, transparency and cutting edge work. This amount was determined by the Aqueduct team to "successfully support the ongoing development, research, maintenance, innovation, and improvements of the Aqueduct tool required to continuously deliver value, respond to new market demands, and successfully meet WRI's mission and programmatic objectives."<sup>3</sup>

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<sup>3</sup> From WRI application to S-lab

## II. Methods:

Our research spanned 3 phases:

Phase 1: Data gathering

Phase 2: Business Idea Generation

Phase 3: Feedback and Business Idea Refinement

Our work was iterative as we gathered data and sought to refine our ideas.

**Phase 1:** Our project kicked off at the end of February. We gathered data from various sources. We had weekly meetings with our Sponsors from Aqueduct, Paul Reig and Eliza Swedenborg who helped anchor our understanding of WRI and the field of assessing water. We also conducted online literature reviews to understand areas like WRI use cases, the functionality of the Aqueduct tool, and other competing and complementary non-governmental (NGO) tools. During Phase 1, we started our interviews with relevant stakeholders.

From March to May, we interviewed 14 stakeholders from 5 market segments to understand Aqueduct's value proposition to major markets. Paul and Eliza recommended and provided introductions to stakeholders. They were chosen because they were using the Aqueduct tool or had worked with the Aqueduct team in the past. These market segments and stakeholders were:

1. **Consultancies** (Antea Group, WSP, Deloitte, and Anthesis)
2. **Corporate** (Mars)
3. **Rating Agencies/Data Providers** (Bloomberg, and MSCI)
4. **NGO** (Ceres, WRI)
5. **Government** (Netherlands)

**Phase 2:** By mid-April, we synthesized findings and brainstormed over 6 Business Ideas.

**Phase 3:** In mid-April to early May, we tested our Business Ideas with our remaining stakeholder interviews and further refined the ideas. To protect the reputation of WRI, we mentioned that these ideas were generated by us, students of MIT Sloan's Sustainability Lab course, and were not endorsed by WRI or do not indicate any intention of WRI. We applied 2 criterias to prioritize the ideas:

- 1) Does the idea contribute to the financial goal of \$1 million/year? Is so, by how much?
- 2) Does it fit within WRI's values and mission of open data and doing innovative work?

In early May, we had the opportunity to visit WRI's headquarters in Washington DC. There, we presented our top four Business Ideas to three groups of staff: a) senior management, b) business development staff, and c) data and tool experts.

This report describe are our three final Business Model Ideas after obtaining WRI feedback. Throughout this project, we received guidance from our MIT mentors, Jason Jay and Julian Koelbel. While we provide quotes from stakeholders throughout this report, actual names are not listed to protect confidentiality as per MIT guidelines.



### IIIa. Current Aqueduct Business:

The three major pillars that underpin WRI's and specifically the Aqueduct team's work are:<sup>4</sup>

“Count it”: Generating data to help develop new insights and inform smart strategies

“Change it”: Using research to influence action

“Scale it”: Engaging with decision makers to elevate impact

One WRI leader told us that “any proposal will be a significant cultural shift for the organization”. We felt that applying these pillars to our analysis and recommendations would allow WRI to better understand and relate to our proposals.

**Figure 1. Three Pillars of WRI**

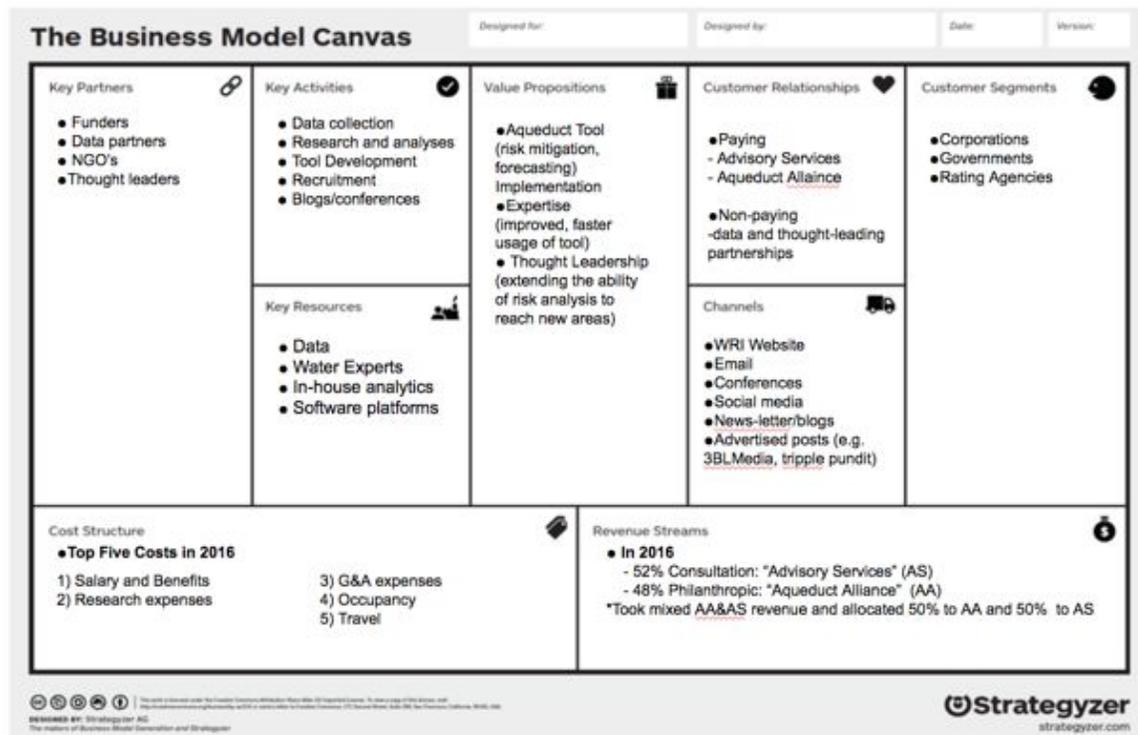


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<sup>4</sup> <http://www.wri.org/resources/videos/count-it-change-it-scale-it>

We used the Business Model Canvas to map our theory of Aqueduct’s business (Figure 2).<sup>5</sup>

**Figure 2. Business Model Canvas**



Aqueduct has two major sources of revenue<sup>6</sup>

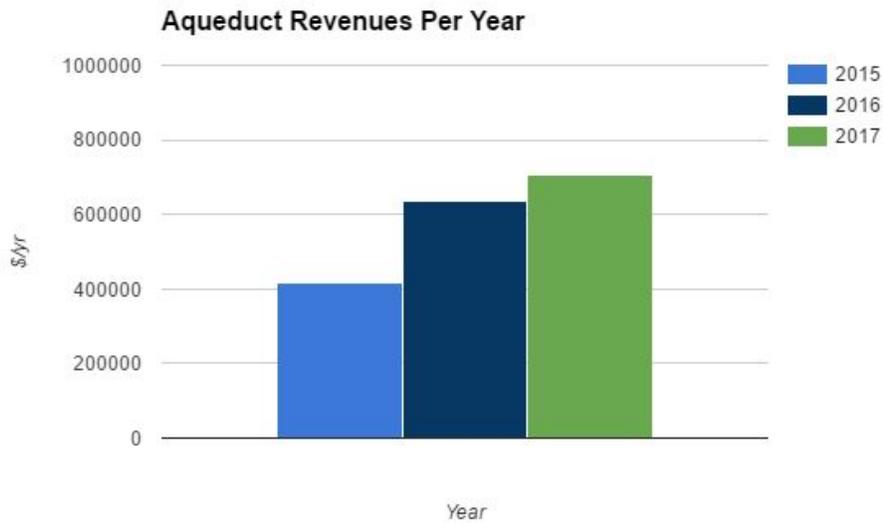
1. **Advisory Services** Aqueduct’s consulting arm. While Aqueduct cannot charge for data because of its transparency mission and because the data comes from government agencies, NGOs, that have specific rules, it can charge for tool functionalities and advisory services. However, as one staff member put it “We don’t want to be a consultancy”. Through its Advisory Services, Aqueduct focuses on “change it” work by selecting top leaders in field (“leaders of the pack”) to do cutting edge projects that would help advance knowledge in the water risk field, as well as AQ internal capabilities. In 2016, advisory services accounted for 52% of revenues generated from projects for 10 clients.
2. **Aqueduct Alliance** is Aqueduct’s member services arm. In 2016, the Aqueduct Alliance had 5 members that accounted for 48% of Aqueduct’s revenues. The Aqueduct Alliance members include both private companies and governments. Fees for Aqueduct Alliance are more like philanthropic funding where the fee paid is based on the ability to contribute. The contributions from members of the Aqueduct Alliance range from \$5k to \$150k annually, which depend on how passionate the institution is about Aqueduct or a particular issue.

<sup>5</sup> <https://strategyzer.com/canvas/business-model-canvas>

<sup>6</sup> There was a mixed revenue of both Advisory and Aqueduct Alliance which we allocated as 50% Advisory and 50% Alliance for simplicity.

Aqueduct’s revenues in aggregate grew 54% from \$415k in 2015 to \$638k in 2016, and revenues are expected to continue growing at double-digit rates until price and available capacity to take on new projects plateau. Revenues of \$707k have been booked in the first half of 2017 alone which are already above 2016 annual levels.<sup>7</sup>

**Figure 3:**



Top five costs in 2016 were salary and benefits, research expenses, general and administrative, occupancy, and travel.

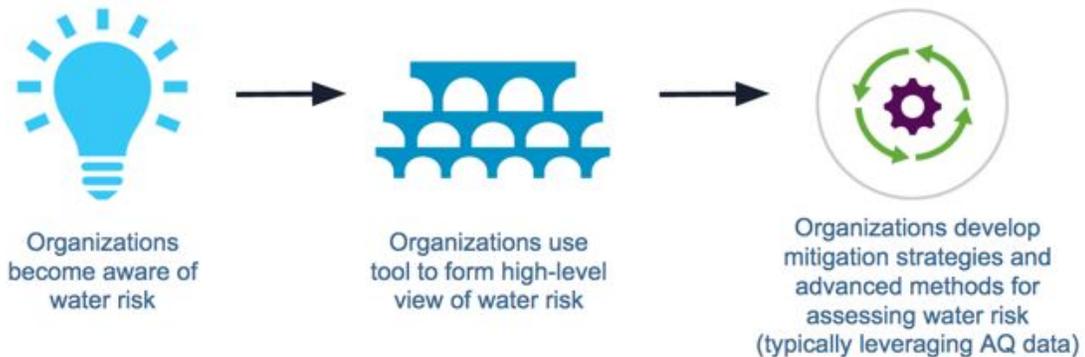
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<sup>7</sup> Per financials provided to S-lab team

### IIIb. Customer Journey:

Currently there are several tools available.<sup>8</sup> Our customer interviews indicated that the Aqeduct tool is highly valued and widely recognized as one of the most reliable, credible water risk tools available. Stakeholders (corporations, governments, and consultancies) told us that their water assessments journeys started with Aqeduct water risk assessment, as the “step 1” tool in the landscape of tools. Figure 4 shows the journey customer go through.

**Figure 4. Customer Journey**



The most frequently cited reasons for stakeholders choosing Aqeduct were:

1. Ease of use (of tool)
2. Reliability of data - tool of choice for “hotspot” water risk assessments
3. WRI’s reputation
4. Endorsement from the Carbon Disclosure Project (CDP), a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.<sup>9</sup>

<sup>8</sup><http://commdev.org/wp-content/uploads/2015/05/The-Value-of-Water-Discussion-Draft-Final-August-2015.pdf>

<sup>9</sup> CDP website. <https://www.cdp.net/en>

## **IV. Results of Research - Business Idea Recommendations**

Overall, our research showed that WRI has strong existing structures which could provide the ideal institutional framework to act as a launchpad for our proposed Business Ideas (BIs) below. Throughout our interviews and meetings, we saw a great deal of potential in the current work that Aqueduct is doing. In the following recommendations, we sought ways make its offerings stronger by better articulating and formalizing them. We have developed an excel spreadsheet with our financial projections and have highlighted areas where we have made assumptions.

### **IVa. Business Idea 1: Increase rates of Advisory Services so they are closer to market rates.**

#### IVa.1 Rationale:

As mentioned above, Aqueduct provides customized, “cutting edge” services to leading institutions through its Advisory Services - supporting its “Change it” strategy. However, WRI staff interviews indicated that Advisory Service costs are sometimes underestimated and margins are low. According to one staff member, “We don’t charge enough”.

Meanwhile, consultancies told us that they charge 200%-400% more than NGOs like WRI. One consultancy told us they lost a bid to a client who chose an NGO over them because the client preferred having access to the thought leadership of the NGO and the client wanted to give charitably. This suggests that NGO, like WRI, are perceived by companies to hold a unique position in this market providing a value-add different from consultancies.

We believe charging more signals the premium services that Aqueduct is currently providing, e.g., advanced level of service that beyond the functionality of the online tool.

#### IVa.2 Market segment:

Highly respected, large corporations and governments who are leaders in sustainability are the main market segment. Examples of past clients have been Nestle, Nike, PepsiCo, and Unilever.

#### IVa.3 Financial:

- Revenue: In 2016, Aqueduct earned \$333,530 from Aqueduct Services.<sup>10</sup> If Aqueduct increased its 2016 prices by 150% it would have earned \$498,795 and achieve 50% of financial goal.
- Cost: We do not expect WRI to incur any major additional cost in implementing this Business Idea.

#### IVa.4. Risks:

- Risk: WRI is supported by large donations and a potential unintended side effect is that it may lose the “goodwill” of some donors.<sup>11</sup> The worst case scenario is that donors will reduce their charitable giving (lowering revenue) and/or withdraw pro bono services (increasing cost).
- Risk: Another risk is that this may lead to a drop in demand. However, from one staff interview, we have some evidence that increased prices in 2017 has not led to a drop in

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<sup>10</sup>We calculated 2016 AS revenue as \$182,530 and allocated 50% from AS & AA (eg \$150,000)

<sup>11</sup> <http://www.wri.org/annualreport/2015/donors/>

demand.

IVa.5 Next Step Recommendations:

1. According to the Aqueduct team, Aqueduct will be rolling out a new 3.0 version of its Aqueduct tool. Aqueduct should coordinate timing of an increased price to the launch of a new, improved product offering as this will create a logical rationale.
2. WRI should get additional data from consultancies and other NGOs to benchmark prices and willingness to pay. From this data, WRI can develop a range of prices, from reference “low end price” to cover costs to an aspirational price that is close to what consultants charge at market. WRI could use this information to develop a zone of possible agreement (ZOPA), or bargaining range to negotiate in a fair and principled way with clients while maintaining relationships in the long-term.<sup>12</sup> As one WRI leader mentioned, “we don’t want to reject (projects) based on price”, however, at the same time, WRI does not want to charge below cost.

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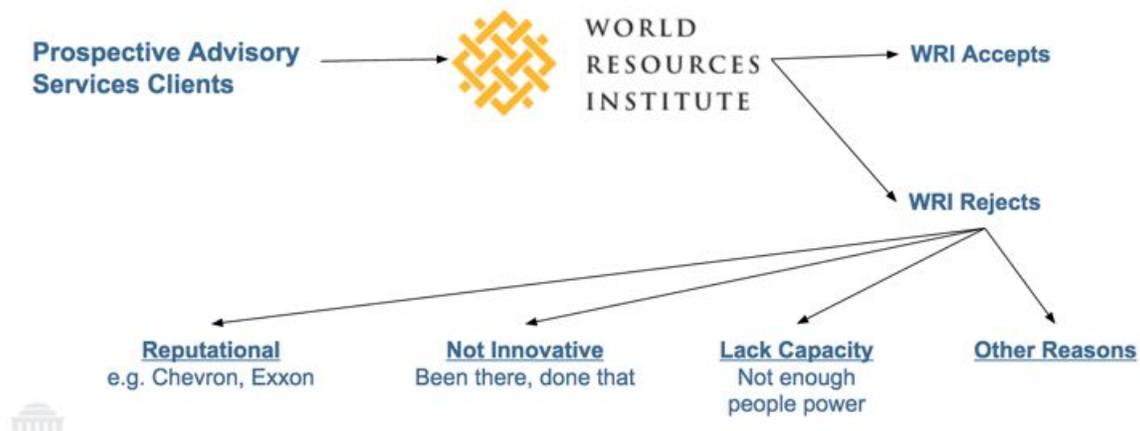
<sup>12</sup> Fisher, R., Ury, W., & Patton, B. (2011). *Getting to YES: Negotiating agreement without giving in*. Third Edition. New York: Penguin Books.

## IVb. Business Idea 2: Create An Aqueduct Certification/Pipeline Program

### IVb.1 Rationale:

Large companies like PepsiCo and Cargill pay to work with WRI to “Count it” and “Change it” which leaves a large untapped “Scale it” part. According to one WRI leader, “We work with 5%, but we need to work with 95%. How do we translate what we’ve learned and scale to rest of 95%? Otherwise the rest has to wait with no budget [and] no know how.” The Aqueduct team wants to continue to do innovative work and scale, but not become a “consulting shop”. As a result, WRI rejects a number of opportunities for various reasons ranging from lack of capacity to reputational risk (Figure 5). As one staff member put it, “There is limited capacity in the organisation to take on additional advisory projects”. This Business Model seeks to address this problem by creating an Aqueduct certification and pipeline.

**Figure 5. Pipeline of Opportunities Exist**

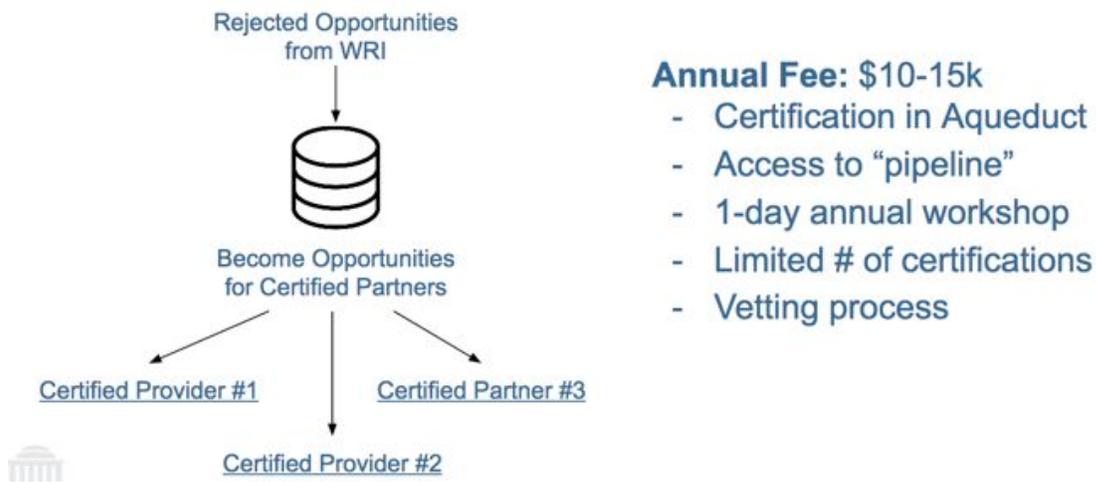


In this Business Idea, we propose leveraging Aqueduct’s credibility as a thought leader and data tool provide, to vet and certify other professionals of the highest credibility and empirical track records of successful projects to do the “Scale it” part. In this business model, consultants act as scaling partners for an existing pipeline incoming projects. Figure 7 provides an overview of this business idea design.

In this idea, accredited providers will conduct the work that WRI team would have had to refuse. Connecting these orgs with accredited providers will allow for the water analysis work to happen at a greater scale than if the work were to be done only by WRI team. This means more impact happens around water. The program also creates a race to the top by consultants who want to compete to remain certified since there are a limited number of certifications available.

Also, providers cannot renew unless they come to the annual learning module. WRI might also want to require the certified providers to report back on their impact as a consultant specifically as it relates to opportunities generated from pipeline. These impact metrics can potentially get rolled up and reported on by WRI.

**Figure 6. Aqueduct Certification/Pipeline Program**



Precedents to this idea already exist. Staff interviews reveal that WRI informally refers institutions to trusted consultancies. However, it does this in an informal way and does this for free. We recommend formalizing and systematizing this process through a pipeline/certification program. Doing so will reduce the administrative burden of such a program while creating a dynamic wherefrom WRI can enjoy some of the value that it is contributing to the marketplace but which consultants are disproportionately benefitting from. Additional precedents exist at WRI internally through the Built on GHG certification program whereby tool creators get to claim that their tool was built on and adheres to the GHG Protocol.<sup>13,14</sup> A number of other organizations like the CDP and Sustainability Consortium offer certification programs, but none of these programs offer access to a pipeline of opportunities.<sup>15, 16</sup>

<sup>13</sup> [http://www.ghgprotocol.org/Tools\\_Built\\_on\\_GHG\\_Protocol](http://www.ghgprotocol.org/Tools_Built_on_GHG_Protocol)

<sup>14</sup> WRI Staff Interview

<sup>15</sup> <https://www.cdp.net/en>

<sup>16</sup> <https://www.sustainabilityconsortium.org/>

#### IV.b.2 Market Segment:

The market segment would be consultants. The following numbers came from the ENDS directory.<sup>17</sup> These numbers may be high and further criteria should be applied.

<b>Criteria</b>	<b>Market Segment N</b>
All environmental consultant and service providers in ENDS Directory	1000
Search term:"Water" in keyword	314

#### Value to consultants:

As mentioned, WRI is uniquely situated as a “step 1” tool in the landscape of water tools. As a step 1 tool, professional service providers rely on it to conduct initial hotspot analysis with clients to identify and prioritize specific areas to dive deeper into. Aqueduct is thus, a natural inlet to open the door with clients to a range of other water related consulting services.

- “Aqueduct is perhaps the most complete dataset that’s out there. Certainly the easiest one I’ve found to use. It’s the go to one we go to for any of that type of work.” Consultant
- “I find the tool is very comprehensive. I have a background in water. I don’t think we need anything more. “ Consultant”
- “Amazed at clients that we’ve done screenings for using AQ because it catapults them to do a lot more ultimately”. Consultant

During the Phase 3 of our project, we asked consultancies about this idea. Reactions were positive.

- “ROI is absolutely clear...What [certification] does is it accelerates the discussion because the client believes that you are an expert in that field.”
- “Partnering with [Aqueduct] is a fantastic opportunity.”

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<sup>17</sup> <https://www.endsdirectory.com/>

IV.b.3. Financial:

- Revenue: Revenue would come from membership. We assumed a flat annual fee of \$15,000. This amount is slightly higher than what is charged by other NGOs that provide certifications<sup>18</sup> considering that this business idea provides a pipeline of opportunities and certification. When asked about the value of a single hotspot analysis using the Aqueduct tool, a consultant we interviewed indicated that they would charge up to \$20,000. We recognize that however, there may be heterogeneity in the market of consultancies (Deloitte vs. 5-person boutique firm) and that further analysis of pricing models may be needed (more details in Limitations).
- Cost: Would come from holding a workshop, the cost of vetting consultants, staffing costs.

Below are our financial projections. We expect that that this Business Idea will generate 39% of Aqueduct’s goal in Year 1 and this would increase to 75% in Year 5.

**Table 1. Financials for Business Idea 2**

	y1	y2	y3	y4	y5
New Members	30	20	15	10	7
Churn	0	7	7	8	6
# of Members @ end of year	30	43	51	53	54
% churn		23%	16%	16%	11%
% capacity	60%	86%	102%	106%	108%
Revenue from Membership	\$450,000	\$645,000	\$765,000	\$795,000	\$810,000
% growth YoY		43.3%	18.6%	3.9%	1.9%
<b>Expenses</b>					
-1 Day Annual Workshop	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
-Costs associated with Vetting	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
-Staffing Costs (3 people @ 1 for each: forest, water, climate)	\$180,000	\$180,000	\$180,000	\$180,000	\$180,000
Total Expenses	\$195,000	\$195,000	\$195,000	\$195,000	\$195,000
Net New Cashflow*	\$385,000	\$580,000	\$700,000	\$730,000	\$745,000
% of \$1M goal	39%	58%	70%	73%	75%

<sup>18</sup> Interview with consultant: “We pay \$5-25k / year for certifications”

#### IV.b.4. Risks and Risk Mitigation:

- Risk: The perception of profiteering in a saturated landscape of NGO certifications  
Mitigant: WRI should frame the decision as a matter of strategy to scale the adoption and impact of Aqueduct and potentially other tools across the institution. WRI will also review every organization it certifies on an annual basis to ensure that the organization is creating the most impact. This can create a “race to the top” where consultancies are encouraged to engage as vigorously and impactfully as they can.
- Risk: Diminished interest by consultancies if “positive leads” don’t materialize and pressure to maintain pipeline.  
Mitigant: WRI should monitor the number of opportunities that it turns down in a given cycle across all of the programs that provide advisory services. This number of “rejected opportunities” should be a factor in deciding what the ceiling should be for how many certifications to provide.

#### IV.b.5. Next Step Recommendations:

1. Define the process of certification (is it a workshop, training?)
2. Articulate the vetting process for consultants (e.g. what clients they’ve worked with, years of experience, number of staff working on the subject, demonstrated proficiency in the Aqueduct tool, signs of financial distress)
3. Identify a list of potential candidates for the certification program
4. Highlight past advisory services success stories (might require getting permission from client) to “build the top of the funnel” and send stronger signals about WRI’s innovative work / thought leadership
5. Review certification programs and prices charged<sup>19</sup>
6. Develop a survey to gauge interest and willingness to pay

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<sup>19</sup> Step 3 and 6 may be one way to get a more reliable estimate of this Business Idea

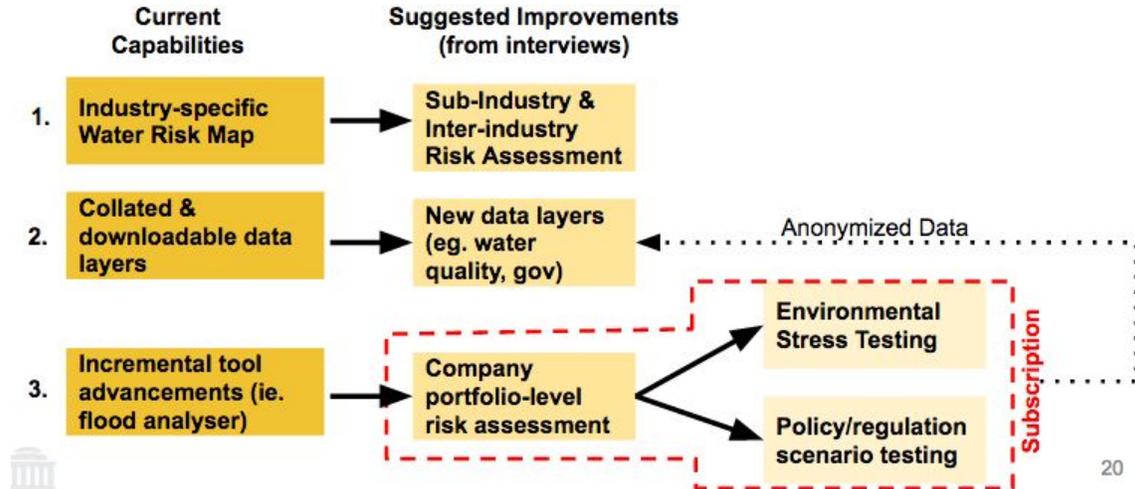
## IVc. Business Idea 3: Subscription Based Analytics

### IVc.1 Rationale:

There is a proven use case for advanced analytics capabilities for Aqueduct, as many users, including consultants and companies, are already utilizing and extracting data from the tool for advanced analysis. Typically through a company portfolio level or regional risk assessment which incorporates company and supply chain data, corporate players are particularly interested in understanding their individual water risk. These assessments include environmental stress testing and policy/regulation scenario testing overlaying company data with existing Aqueduct data layers, capabilities that are presently not available in the publically accessible online Aqueduct platform.

A subscription-based online platform would allow companies to securely input their data (standardized) through a password protected platform and retrieve personalised analysis on their water risk. In this model, all existing data layer and capabilities on Aqueduct, will remain public with only company data being password protected which is in line with the open data commitment of WRI. The arrow “anonymized data” in Figure 7 refers to the future potential of companies contributing data back to the tool, in an anonymized way, so that new data layers are added.

Figure 7. Subscription Based Analytics Business Idea



As advanced analytics analysis is currently only being conducted by cutting-edge companies who are ahead in their sustainability (and in turn, water risk) journeys, an easy-to-use subscription based analytics tool will allow WRI to scale their impact through engaging with companies that are in an earlier stage in their water risk management journey.

#### IV.c.2 Market Segment:

The market segment for Subscription Based Analytics would be companies (early stage water risk assessment), investors and consultants.

Value to Market: As many companies already use the tool as a “step 1” in their baseline water risk assessment, they may be inclined to opt into the subscription based platform to assess their individual water risk. They are likely to choose this option over advisory services (Business Idea 1) or Aqueduct Certification/Pipeline (Business Idea 2) if their water risk assessment is relatively straightforward and they do not want to engage a specialised consultant. This may be a preferred alternative for relatively less water intensive industries as the risk is minimal. This would also draw interest from investors who are interested portfolio-level risk assessment.

#### IV.c.3. Financial:

- Revenue: More information around pricing are needed. In the table below we assume that the price of subscription would be \$1,000 per year, but this will need to be further benchmarked.

**Table 2. Subscription Based Analytics Business Idea**

	y1	y2	y3	y4	y5
New Annual Subscribers	50	60	72	86	104
Churn	0	10	20	30	42
# of Members @ end of year	50	100	152	208	270
Revenue from Subscriptions	\$50,000	\$60,000	\$72,000	\$86,400	\$103,680
% of \$1M goal	5%	6%	7%	9%	10%

- Cost: Additional headcount will be needed in order to to make the required additions to the existing online platform, acquire customers, keep customers, and maintain/update the tool (eg maintaining client data integrity, technology support/service costs etc). Some cost savings could be achieved by leveraging the internal capabilities and knowledge within Aqueduct Team and WRI.

#### IV.c.4. Risks:

- Risk: With current assumptions, this business idea has low revenue generation. Mitigant: This Business Idea needs to further tested with a broader sample of companies, consultants and investor groups to understand willingness to pay for subscription based analytics service. Moreover, a key aspect will be to convince institutions that their data is secure and will not be exploited.
- Risk: The future of sustainability risk assessment is moving toward a more holistic ESG assessments. Currently WRI is will be launching WRI’s Resource Watch<sup>20</sup>, WRI’s “one stop

<sup>20</sup> Resource Watch is a global repository of all WRI data plus other relevant social and environmental data that will be combined on one platform to allow non technical experts to see how these issues overlap, key insights that can be derived from looking at the data in a more comprehensive way; Common repository and architecture for all other data visualization products; All sitting on a common API, and aqueduct will be powered by this resource watch; data dashboards and all the

shop” for environmental data services. Mitigant: We suggest Aqueduct develop this as stand alone as a way to test interest and scale across WRI groups in the future if successful.

IV.c.5. Next Step Recommendations:

1. Survey companies to gauge interest and willingness to pay
  - a. “Will you purchase these capabilities at \$X price?”
  - b. “Is this a capability you already have?”
2. Determine cost of Aqueduct tool functionality addition for advanced analytics, and cost of module updates overtime
3. Develop/explore option to scale across WRI groups (Water, Climate, Forrest) for a more comprehensive ESG risk assessment tool

**V. Summary of Financials:**

We believe that these three Business Ideas will help Aqueduct achieve its goal. It yields almost double its goal of \$1 million, however we have not included expenses or investments.

**Table 3. Summary of Financials for all Business Ideas**

This plan builds on to current revenues generated by the Aqueduct Advisory Services and Aqueduct Alliance in order to demonstrate how the plan results in \$1M of annual revenue. The figures below are not net of expenses or investments incurred to achieve the cash flows.					
	2018	2019	2020	2021	2022
<b>MVP</b>	<b>y1</b>	<b>y2</b>	<b>y3</b>	<b>y4</b>	<b>y5</b>
Price Increase	\$658,148	\$644,985	\$632,086	\$619,444	\$607,055
Pipeline Certification	\$450,000	\$645,000	\$765,000	\$795,000	\$810,000
Data Analytics	\$50,000	\$60,000	\$72,000	\$86,400	\$103,680
<b>Total Incremental Revenue</b>	<b>\$1,158,148</b>	<b>\$1,349,985</b>	<b>\$1,469,086</b>	<b>\$1,500,844</b>	<b>\$1,520,735</b>
Existing Revenue	\$693,566	\$679,694	\$666,100	\$652,778	\$639,723
<b>Potential Total Revenue</b>	<b>\$1,851,714</b>	<b>\$2,029,680</b>	<b>\$2,135,186</b>	<b>\$2,153,622</b>	<b>\$2,160,458</b>

Other tools; all based on a common back-end.

## **VI. Limitations of Our Approach**

- As mentioned, more work is needed in determining willingness to pay, pricing, and costs for each Business Idea. For example flat pricing scheme for Business Idea 2 may not make sense given the heterogeneity consulting firms. WRI will want revenue to ramp up with impact, not with number of legal entities being certified. Instead of a flat fee, Aqueduct could consider a tiered pricing scheme based on “seats” the way a software license would work, or based on revenue/turnover of the consulting firm.
- Although WRI holds a highly regarded place in the market, there appears to be some competition from other NGO’s that have tools. We were not able to speak to many other NGOs on how they were successful in their business models. For example, we were told that World Wildlife Fund (WWF) has a different model mostly around unrestricted funds to develop their water risk tool. It would be interesting to explore how they achieved this.

## **VII. What’s Next?**

- Willingness to pay can be achieved through surveys and semi-structured interviews with larger sample set. We have developed what is essentially a monadic survey to test a single price point. (See Appendix 1)
- If Aqueduct can wait until the fall to precisely define pricing, is to engage with Professor Catherine Tucker’s 15.818 pricing course. The final project for this course could be leveraged for Sloan students to do an in depth pricing analysis of either Business Idea.
- Additional forced choice survey will also be helpful. ‘
- Momentum needs to be built to foster implementation of these ideas. Below, the organizational steps required to achieve critical mass are detailed

In order to successfully implement some or all of the business ideas that our group has recommended, WRI will need to continue to reduce the uncertainty associated with each of these ideas.

In the above, we have highlighted the next steps that should be taken next in order to further test the risks and benefits of each idea. In this section, we explain the organizational next steps required to perform these risk reduction activities. As stated above, any change in the business model of Aqueduct will be an organization change for WRI. The steps required to ensure the success of this organisational change are best explained using Kotter's eight-step framework for organizational change<sup>21</sup>:

- 1. Creating Urgency:** Our visit indicated that WRI leadership and staff are engaged and feel a high level of urgency to make changes. As one staff member put it, WRI is data-driven organization. Thus, additional benefit/cost data will be useful to help make informed decisions.
- 2. Forming A Powerful Coalition:** In order to form a powerful coalition around these ideas, the Aqueduct team must engage team members such as the data analysts in refining these business ideas. After team members are engaged with refining these business ideas, executive leadership must be abreast of the plan to test these ideas. This will make engaging leadership later, to discuss the results of testing and the path to implementation, more simple. It will also be useful to identify who in WRI leadership might be willing to champion these ideas.
- 3. Creating the Vision:** Both the Aqueduct Certification and subscription-based analytics are empowered by WRI's core values of Count It, Change It, Scale It. The vision of how these business ideas will solidify WRI's position as an innovator in the water community must be clearly communicated. Developing communication materials will help to eventually communicate this vision.
- 4. Communicating the Vision:** After customer testing is completed, the vision for how these business ideas will help WRI must be restated to leadership and any additional stakeholders within WRI. This should be done in both informal and formal meetings.
- 5. Removing Obstacles:** Undoubtedly, there will still be some objections that leadership raises about the implementation of these business ideas. Further risk reduction activities will be required and additional manpower may be required to carry out these activities in a timely manner.
- 6. Creating Quick Wins:** In the case of the certification, a quick win may be getting verbal commitments from consultancies who are interested in obtaining a certification. This could help to persuade leadership and other stakeholders that it is a viable idea. In the case of subscription based analytics, this could involve building a superlight prototype that demonstrates some of the functionality subscribers can expect. This will allow further testing and realization of the concept.
- 7. Building on Initial Results:** Victory shouldn't be declared too early. Each of our ideas faces potential implementation challenges. These could potentially be higher than expected churn in the Accreditation program or lower than expected enrollment. The only way to mitigate these unexpected issues is to keep bandwidth available to resolve issues that pop up in implementation. Additionally, once initial implementation begins, it is time to begin working on upgrades for the next iteration of the idea.
- 8. Anchoring Change In the Culture:** The best way of helping these business ideas to stick is socializing how they embody WRI's values. This is very similar to being able to communicate the vision. Visuals and incorporating these new elements into the Aqueduct website will help to communicate how the programs relate to WRI's core mission.

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<sup>21</sup> <http://link.springer.com/article/10.1007/s11213-014-9317-0>

## **VIII. Conclusion and What the S-Lab Team Learned**

We learned that water risk assessment is important and the need for assessment is growing. WRI has talented and motivated staff who are driven to create impact and lasting change. Aqueduct tool has a strong brand and is considered “gold-standard” for step 1 water risk assessment. However, we found that WRI is undercharging or providing high-value services for free. WRI has strong existing structures and our Business Ideas were intended to articulate and differentiate its offerings. We believe that Aqueduct, with its many capabilities, is well positioned for a sustainable future.

## Appendix 1: Mock-up of Stakeholder Survey to Gather more Data

Section 1 of 3

# Stakeholder Survey

This survey, designed by our MIT Sustainability Lab team, will assess the attractiveness of two potential ways that WRI Aqueduct can further engage its stakeholders. These ideas do not indicate any intention of WRI and are simply ideas generated by us, students of MIT Sloan's Sustainability Lab course. Please answer these questions as truthfully as possible. Your answers will be anonymous and will only be shared with WRI leadership.

**Which best describes your organization?**

- A company that has used Aqueduct for internal water risk assessment
- A consultancy that uses the Aqueduct tool or data to serve customers
- A government funder of the Aqueduct tool
- Other...

**How does Aqueduct add the most value to your organization?**

- As a purveyor of thought leadership
- As a provider of water risk models and visualisations
- As a curator of reliable water risk data
- Other...

## Certification and Pipeline

Description (optional)

WRI Aqueduct wants to raise water risk awareness through collaboration and collective action. At the same time, WRI Aqueduct receives inbound requests for advisory services that it must reject due to a lack of capacity or other reasons. By certifying Aqueduct Accredited Providers, WRI can partner with the water consultancy community to scale the positive impact of the Aqueduct tool. WRI will require that Aqueduct Accredited providers undergo a vetting process and attend a 1-day annual workshop. As a benefit of certification, Aqueduct Accredited Providers gain exclusive access to the opportunities passed along from WRI Aqueduct. Is your organization interested in obtaining an Aqueduct Accredited Provider certification at a cost of \$15,000 per year?

- Yes
- No
- Other...

Please share any questions or comments about this Certification and Pipeline program.

## Aqueduct Analytics

Description (optional)

Aqueduct will begin to offer a subscription which allows a user to perform an aggregated risk assessment for multiple sites. This subscription will also allow a user to perform "environmental stress-testing" by altering levels of water supply or water demand from the baseline for any country or region in order to understand the impact on water stress. This premium subscription to the Aqueduct tool will cost \$1000 per year per license. How many licenses will your company purchase?

Long answer text

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**Please share any questions or comments about the Aqueduct Analytics program.**

Long answer text

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