Challenge Funds and Innovation in the Water Sector

A Report to the High Level Panel on Water

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Executive Summary



Executive Summary

The High Level Panel on Water (HLPW) – a group of eleven heads of state and government and a Special Advisor, convened by the UN Secretary General and the President of the World Bank Group – is exploring new ways to spur more effective action on the major water-related problems facing the world today as highlighted by the water-related Sustainable Development Goals. Australia, on behalf of the HLPW, enlisted the help of Results for Development (R4D) to conduct a stocktaking exercise on the use of challenge funds in the water sector, and develop recommendations for how the HLPW might leverage the mechanism to spur increased innovation in the sector. R4D conducted a broad literature review focusing on 18 key documents, expert interviews with 17 key authorities, and examined relevant previous challenge initiatives (focusing on the 25 most pertinent challenge funds).

Findings

More innovation in the water sector is greatly needed. Investment in innovation has been notably insufficient compared to need and to other sectors (such as energy). Knowledge-sharing and continuity of support have been inadequate, greatly inhibiting scale-up. Technological innovations have received the most investment in the past despite the urgent need for innovation in areas such as water governance (improved policies and regulations), water data (for good monitoring and solution-finding), and water financing. Other priorities include: water for agriculture, and rural and urban water and sanitation supply. Challenge funds, if based on best practices, can funnel funding and creativity where most needed.

Conclusions and Recommendations

The Panel is ideally placed to stimulate faster progress, drawing on its prestige and political visibility. Its approach to doing so should involve: (1) unleashing greater investment in water innovation; (2) galvanizing stronger partnerships including leaders, experts, and, stakeholders; (3) identifying best practices for innovation in the water sector that can be shared and adopted; and (4) targeting key priority areas with challenge fund investments. Key priority areas identified in the research for potential challenge-driven innovation and investment are water data, water and sanitation in rural and urban areas, water governance, and agricultural water use.

As a vehicle to carry forward these actions, the High Level Panel on Water should launch a Water Innovation Engine—an efficient, cost-saving, and manageable mechanism for leveraging the power of challenge funds to spur innovative thinking and action to drive progress. The Water Innovation Engine should build on existing institutions and partnerships that bring together interested experts, funders, and stakeholders. It should carry out four core functions, led by a diverse steering committee: 1) implementation, 2) marketing, 3) coordination, and 4) evaluation. The panel should assemble the necessary funding and partnerships for a launch in 2017.





About The High Level Panel on Water (HLPW)

The <u>High Level Panel on Water</u> (HLPW) was convened by the United Nations Secretary General Ban Ki-Moon and President of the World Bank Group Dr. Jim Yong Kim. The HLPW consists of eleven heads of state and government and one Special Advisor. Its purpose is to provide the leadership required for comprehensive, inclusive and collaborative action to improve (i) water supply and sanitation and (ii) water resources management.

The HLPW is focused on urgent water challenges resulting from increasing pressure on dwindling water resources. Poor access to clean water and sanitation threatens the health and wellbeing of millions around the world, especially those living in low and middle income countries, and countries with scarce water resources. As the HLPW points out in their <u>Action Plan</u>, "the consequences of such [water] stress are local, transboundary and global in today's interconnected world."

The HLPW was announced at the World Economic Forum in Davos in January 2016 as a time-bound initiative, active for an initial period of two years. During this time, the HLPW will focus on Sustainable Development Goals (SDG), including SDG 6: universal, equitable and sustainable access to water and sanitation for all. An Action Plan was issued that outlines a new approach to water management that will help the world achieve SDG 6 and the other 16 SDGs. The HLPW leaders commit to action and call upon other Heads of State and Government to do the same.



The HLPW and Challenge Funds

A "challenge fund," for the Panel's purposes in this work, is a financing mechanism designed to surface innovative products, services, and approaches that have some important social value, such as contributing to progress toward the SDGs. Examples of challenge funds include: USAID's Wash for Life initiative, and the "Challenge Program on Water and Food", spearheaded by the Consultative Group on International Agriculture Research. Typically, the word "fund" is used when there is an entity, the "fund manager," that invites innovators to submit applications, decides which to support, and provides loans or grants to the winners. A "challenge" is a specific goal that applicants must show that they would help address, such as the "Water Data Challenge," or "Saving Lives at Birth" (focused on reducing infant and maternal deaths at delivery) or "Saving Brains" (focused on early childhood development).

Challenge funds are often described as a type of "innovative funding mechanism," along with, but different from, development impact bonds, impact investment funds, and other initiatives leveraging money to achieve more impact and surface new and creative ideas. Key components of most challenge funds are open application processes, expert review of submissions, and staged funding (multiple grant sizes available depending on how well tested the idea is) or matched funding (to encourage private sector companies to raise venture capital funds to match the grant funds). Challenge funds also start with a problem, and invite applicants to submit their most creative ideas to solve the specific problem. In this way they differ from traditional grant funding where activities have been fully defined in advance and the funder seeks the best applicant to carry out the solution. Applicants (from the public or private sectors, or both) are encouraged to submit their ideas, and those that are selected receive funding.



About Results for Development (R4D)

Results for Development (R4D) was chosen by the Australian Government, on behalf of the HLPW, to conduct this study. R4D is a nonprofit organization focused on international development based in Washington, DC with more than 75 partners and activities in more than 55 countries around the world. R4D has extensive experience designing and influencing global policy mechanisms similar to the HLPW, and has been working extensively in the water, sanitation, and hygiene (WASH) sector for nearly 24 months with more than 130 WASH innovators in East Africa and India. R4D is also engaging intensively on projects in agricultural development, nutrition, and primary healthcare, sectors that are deeply connected with WASH, and with global donors on assessing the impact of "challenge funds" through its stewardship of the International Development Innovation Alliance (IDIA).



Methodology

The Australian government, on behalf of the HLPW (of which it is an active member), commissioned Results for Development (R4D) to undertake this stocktaking exercise to (i) map and learn from existing water-related challenge funds and other innovative funding mechanisms, and (ii) provide recommendations to the HLPW on how best to leverage its political influence and resources to support ambitious, innovative breakthroughs in the water sector.

The HLPW pre-identified three possible areas for priority attention:

- 1) Efficiency of agricultural water use;
- 2) Safe drinking water and sanitation in remote rural areas, especially for women and girls; and
- 3) Water data.

Additional areas of potential importance that emerged from the mapping exercise were identified as well. When assessing options, we considered the following: 1) Political Feasibility, 2) Operational Tractability, 3) Financial Requirements, 4) Potential for Breakthrough, 5) Potential for Implementation Partnerships, 6) Aligned with HLPW Strengths.



Methodology (cont'd)

To accomplish this, we conducted interviews with 17 experts and stakeholders with backgrounds in challenge funds and water issues, including researchers, funders, practitioners, NGOs and technical groups. In addition, we conducted a broad literature review including an in-depth focus on 18 key documents. Based on this body of knowledge, we mapped 25 existing challenge funds in the water sector and water-related sectors, and identified where there has been heavy investment as well as low-investment "innovation deserts."

The remainder of this report lays out the insights gleaned from our research and specific recommendations flowing from those insights.





There is a need for fresh thinking in new areas of the sector.

Many experts we spoke to felt that the technology needed to solve some of the most persistent water-related challenges already exists. These respondents felt that investing in innovation focused on developing new technologies was less urgent and less necessary relative to investing in areas that help make better use of existing technologies, such as financing, policy, and scaling up.

This view is echoed in the literature. The authors of "<u>The Path to Water Innovation</u>" call for financial and regulatory (instead of technological) innovations, noting that:

While the water sector offers many opportunities to innovate and deploy new technologies, in practice the sector has barely tapped the potential those technologies offer. Various hurdles currently inhibit the development, testing, adoption, and diffusion of new water technologies.

In <u>another thought piece</u>², Remi Kaupp of WaterAid says that "innovation" and "invention" have been conflated. "The main ingredients needed to achieve universal water and sanitation coverage are well known," Kaupp argues, saying that the most exciting innovations are in data use and public-private partnerships.

² http://www.wateraid.org/news/blogs/2015/november/does-the-wash-sector-need-innovation



¹ https://woods.stanford.edu/sites/default/files/files/path to water innovation thompson paper final.pdf

Sophie Trémolet describes why so many innovative WASH technologies fail to scale, and calls for greater focus on building supportive and strong systems within which technologies can achieve greater impact:

The WASH sector has witnessed substantial innovation in the last few years, in areas spanning leak-detection systems, smart water systems, point-of-use water treatment technologies or sanitation facilities that support re-use of treated by-products. However, most of these innovations have been deployed on a pilot basis by international NGOs or social entrepreneurs and have yet to be scaled-up. Reasons for such inability to scale-up include low demand, the lack of a conducive institutional environment and the absence of business models that support deploying those technologies at scale. Leading sector actors urged us to think beyond technology and to investigate how innovation could be stimulated to develop "system changes" so that existing technologies can be deployed at scale, with a maximum impact on the poorest customers.

A disproportionate focus on technological innovation has left an under-met need for other types of innovation, such as policy and regulatory reform, use of data, new partnerships and collaboration, and service delivery innovations.



There is too little investment in innovation in the water sector.

Many experts we spoke to agreed that while there is a significant need for innovation in the water sector, actual investment in innovation is insufficient. While the data are imperfect, Scott Mosely, Director of Investment Strategies at The Water Council, <u>examined early stage venture capital deals</u> in 2015 and found that only \$44 million in deal flow went to water technology start-ups, compared to almost \$60 billion in other industries. The water sector's low investment level makes up less than 1% of the broader startup market. According to OECD statistics, business enterprise investment in research and development in the electricity, gas and water sectors is much smaller than sectors like manufacturing and the service industry in both OECD and non-OECD countries.

There are many reasons why investors might be hesitant to invest in new water-related businesses and technologies. The sector is risky and complex. Any new business models and technologies must operate within policy, economic and social environments that vary widely from location to location. There is a lack of accurate, reliable and actionable data on water resources, leading to pricing and regulations that may not adequately finance water services and infrastructure and protect existing resources. Disputes around ownership and land rights can create barriers to proper resource management, and geographic challenges like population density in urban areas can create technical challenges in providing sufficient access to safe water. These issues have persisted through two so-called "water decades," in the 1980s and 1990s/2000s, and continue to grow today. Increased investment in new approaches is needed urgently to achieve development goals.



Challenge funds can be an effective way of spurring innovation.

Our sources (experts and the literature) concurred that challenge funds are useful tools for surfacing new ideas, and encouraging unlikely players to participate in creative problem solving in the sector. They have the potential to generate interest from both the public and private sectors and encourage fruitful partnerships. The literature revealed five main purposes for which a challenge fund might be launched:

- To spur innovation in certain areas where established approaches haven't been working or progress has stalled.
- To reduce risk of market entry and stimulate market growth.
- To use competition to find the most intelligent and cost-effective solutions.
- To create partnerships and strengthen links between the public and private sector.
- To involve the private sector in tackling development challenges or adopting products or practices with social benefits.



Challenge funds are favorable for funders and investors as well as innovators. Funders are able to form partnerships with organizations outside of their usual applicant pool and surface solutions from the ground up. Innovators are able to mitigate risk as they enter new markets and launch new ideas.

At the same time, challenge funds require smart and inclusive design and implementation to succeed. For example, challenge funds have sometimes been unwisely designed as one-off "idea factories" that leave good ideas stranded without a pathway to scale. In addition, short-term challenge funds often fail to secure meaningful buy-in from key stakeholders, including government, and ignore existing policy and enabling environment factors, limiting impact.



Challenge funds can fall short of intended impact if implemented poorly.

Since challenge funds were first introduced in the 1990s, many promising breakthroughs have been made as a result of the increased creative problem solving that challenge funds facilitate. However, many challenge fund designers seem to have caught "Silicon Valley fever," conflating "innovation" with "invention." Challenge funds have been transformed into a competition for the next silver bullet technology. Many of these inventions have failed to take off because they lack demand in the market, and are often developed without considering the social, cultural, economic and political environments into which they are being injected.

These and other warnings from the literature and experts lead to the following list of traps to avoid:

- One-off "idea factories" that lack clear pathways to scale often fail to get past the pilot stage.
- Short-term challenge mechanisms often fail to secure meaningful buy-in from key stakeholders (especially government).
- Over-engineering of challenges can edge out resource-strapped (but innovative) applicants such as local small and medium enterprises and civil society organizations.
- One-off challenges often ignore existing policy and enabling environment factors, which limits their impact.



Recommended Action



Recommended Action

The Water Innovation Engine

Our main recommendation is to create a Water Innovation Engine that can mount and manage challenge funds. Based on what we learned from the literature review, interviews with experts, and our own experience, we concluded that some of the primary weaknesses in the water innovation space are a lack of investment, a lack of continuity, and a lack of knowledge sharing. The HLPW is uniquely positioned to address those needs. The HLPW's political visibility and convening power can draw attention and funding to some of the most pressing water issues, bringing together those who have identified where innovation is most needed with those who know how to surface and refine innovative solutions. For these reasons, we recommend that the HLPW stand up a water-specific innovation vehicle: **The Water Innovation Engine.**

The Water Innovation Engine's four main roles would be:

- 1) To spur greater investment in water innovation
- 2) To bring together experts, leaders, and stakeholders
- 3) To identify and follow best practices in challenge fund design and implementation
- 4) To target key priority areas with challenge fund investments

In the following pages of this report, we will expand on each of the four roles of the Water Innovation Engine outlined above.



1. Spur greater investment in water innovation

With the leadership of members of the HLPW, much-needed investment can be raised to surface innovative solutions to the sector's most pressing challenges, and advocate for continued investment in innovations that show promise for scale. To achieve this, we recommend the following:

- Aim for an initial fund of **US\$25 million** (which can grow further over time) to finance the Water Innovation Engine and the challenge funds launched with its backing. Based on lessons that emerged from the literature review and expert interviews, we recommend offering staged funding opportunities where early stage funding can be provided to new innovations that need to be piloted, and another option for ready-to-scale innovations that have shown promising results.
 - For example, with US\$25 million, we estimate the engine could support up to 40 early-stage and 20 ready-to-scale programs, with early stage innovations awarded up to US\$250,000 each, and more mature and tested innovations ready for scale receiving up to US\$1 million. The proportion of early stage to mature funding should be decided by the steering committee with the implementing partner, but we recommend that the committee strongly consider a robust incubation program that supports promising innovations with technical support, peer learning opportunities, connections to private and public sector investors, and other opportunities for learning and growth.
- Tap many stakeholder groups to raise the necessary funds, including:
 - HLPW members and other countries
 - Private philanthropists such as Gates, Rockefeller, and others
 - Traditional aid donors
 - Private sector companies in industries such as agriculture, textiles, manufacturing, and consumer goods industries that heavily rely on water for operations



2. Bring together experts, leaders, and stakeholders

The architecture of the Water Innovation Engine is designed to encourage and facilitate collaboration and intelligent use of funds. We recommend that the Water Innovation Engine be led by a Steering Committee, and work with partners to carry out four main functions: Implementation, Marketing, Evaluation, and Coordination.

Steering Committee

The key roles of the Steering Committee are to set priorities, raise funds, and advocate for best practices in challenge fund design and execution. This steering committee should be composed of a diverse group of stakeholders with a broad range of perspectives: country leaders from the North and South; practitioners and technical experts in water-related issues; and philanthropic, public, and private funders. The HLPW can lead in the formation of this steering committee, using its convening power to encourage participation by a broad range of stakeholders.



Implementing Function

Implementation of challenge funds is resource intensive and complex. It will be necessary for the HLPW to identify a partner that can advise the Steering Committee, co-design challenges, and, critically, carry out the challenge funds themselves. Examples of these kinds of institutions include Grand Challenges Canada, Global Innovation Fund, and Gates Grand Challenges.

Marketing Function

A successful challenge fund relies on strong marketing to ensure a consistent pipeline of applications to challenge fund initiatives. Prestige and visibility—through recognition of winning proposals by high level individuals or agencies, and a highly trafficked website and media attention—are important keys for attracting high volumes of applications and high quality proposals. Without sufficiently investing in marketing, low volumes of applications or poor quality applications can lead to a dead end and wasted resources. This role can be (and most often is) outsourced to an organization or company that specializes in web design, communications or marketing.



Coordinating Function

The work of coordinating efforts across the Steering Committee, the Implementing Partner, the Panel, and other partners will be considerable. A secretariat function would benefit the group, filling the critical role of liaising and communicating between various partners. The coordinating partner might also be responsible for managing the receipt and processing of funding, and/or one or more of the other Water Innovation Engine functions. The Panel and Steering Committee could consider either having the Implementing Partner fill this coordination role, hiring staff to support the Steering Committee chair, or other options.

Evaluation Function

Many experts that support and advocate for challenge funds also recognize that there is a lack of hard evidence on the long-term impact or effectiveness of these instruments. The Water Innovation Engine has a unique opportunity to invest in and commit to rigorous evaluation of challenge funds, focusing on measuring: 1) impact (benefits to low-income groups or other vulnerable communities); additionality (the extent to which the fund furthered an innovation that would not have proceeded otherwise); and 3) systemic change (structural changes to the economic, social, or political environment).



3. Use best practices for designing and implementing challenge funds.

The literature review and expert interviews also surfaced critical lessons for best practices in the design and implementation of challenge funds:

- Address a specific problem, especially one that would benefit from added attention
 - One of the inherent benefits of both the HLPW and challenge funds as an instrument is that they bring attention to important issues, and funnel innovative thinking and investment toward tackling those problems. But designing a challenge fund that is too broad can dilute the call to action, making it more difficult to develop a pool of promising solutions.
- Incorporate learning and collaboration into the application and review process
 - The collaboration built into the design of the Water Innovation Engine should be reflected in the design of challenge funds and their application processes. Encourage applicants to work with public and private partners. Allow them to iterate on their applications through collaborative workshops, like the model used by the <u>Global Resilience Partnership</u> challenges, which involves a regional workshop for shortlisted applicants to refine their proposals with help from their peers and experts. According to participants, these workshops allowed them to expand their network and develop a strong proposal that—even if not funded through the Global Resilience Partnership—would have a strong chance of finding funding elsewhere. Practices like these expand the impact of the challenge fund, facilitating partnerships and opportunities that may last long after the challenge fund period.



- Embrace multi-year timeframes and staged funding opportunities
 - In order to mitigate the risk of leaving good ideas stranded without a pathway to scale, design funding timeframes and windows to support incremental growth over time. In other words, provide funding over multiple years to allow the idea to be properly resourced through the stages of development, testing, marketing, and distribution. The Water Innovation Engine will operate beyond the lifespan of the HLPW in order to ensure that this happens.
- Align the challenge fund with national priorities
 - Work closely with national and local governments to ensure that the approach, technology, or product helps government leaders progress toward their development goals and aligns with their existing strategies. Winning this buy in from local governments is critical to the long-term success of innovations.
- Develop opportunities for investment and adoption post-challenge fund
 - Through its multi-stakeholder design, the Water Innovation Engine can coordinate with public and private sector partners to ensure that an innovation that shows potential for scale up has viable investment opportunities available from the private sector, or enthusiasm for adopting the innovation by private or public utilities.



- Invest in robust and long-term evaluations
 - As discussed previously in this report, challenge fund evaluations that measure impact, additionality, and systemic change can encourage increased use of challenge funds as a mechanism, attract greater investment, and lend additional legitimacy to the approach. The HLPW can provide a long-lasting public good to the sector by publishing the results of these evaluations.
- Invest in marketing making visibility and prestige an incentive to apply
 - A strong web presence, media attention, and prestige serve two purposes when attached to the challenge funds launched by the Water Innovation Engine. First, it will increase the visibility of the initiative leading to higher volumes of applications. Secondly, it can act as a non-monetary award for winning applicants. More applicants—and more highly motivated applicants—will increase the likelihood of success of challenge funds launched by the Water Innovation Engine.
- Provide technical support as well as financial support
 - With a Steering Committee comprising both experts and practitioners, the Water Innovation Engine has the opportunity to be a resource throughout the implementation process for its winning innovations. A combination of technical and financial support is considered beneficial to many implementers, given that they maintain ownership and leadership over their innovations.



- Design challenge funds that encourage and support local solutions by local stakeholders
 - Ideas that have the highest likelihood of local adoption and growth will be those developed by local stakeholders themselves. To ensure that these applicants participate in challenge fund opportunities, best practice suggests that the more specific the geographic focus, the more participation by local stakeholders. In addition, local governments, small and medium enterprises, and civil society organizations may be resource-strapped and struggle to commit the time and human resources necessary to respond to over-engineered, complex and time-consuming application requirements. Instead, offer a staged application process that asks for increasing amounts of detail as applicants get shortlisted. This can reduce the risk of demotivating potential applicants who may be hesitant to invest heavy resources into applying for a challenge that they may have a low chance of winning.



4. Target key priority areas with challenge fund investments

Five key priority areas in the water sector were identified through the research that are in need of increased innovation, and might be addressed with a challenge fund approach by the HLPW:

- Water data*
- Water governance (policy and regulatory reform)
- Safe drinking water and sanitation in rural areas*
- Safe drinking water and sanitation in urban areas
- Agricultural water use*

The priority areas marked with an asterisk were identified by the HLPW in their Action Plan (water data, safe drinking water and sanitation in rural areas, and agricultural water use), and the research surfaced two additional areas for consideration: water governance and safe drinking water and sanitation in urban areas.



The specific needs that might be addressed in each of these categories are detailed in Table 1 on the following page. Guidelines for further refining those focus areas into challengeable questions is provided in Annex 4. Each potential focus area was evaluated for feasibility across six different criteria (see Table 2 on page 32):

- 1. Political feasibility
- 2. Operational tractability
- 3. Financial requirements
- 4. Potential for breakthrough
- 5. Potential for implementation partnerships
- 6. Plays to HLPW strengths



Table 1: Potential areas of focus

Water Data	Tools for bottom-up reporting on water access and quality issues designed to hold public and private utilities accountable and to encourage responsiveness
	Technology to collect water resource data for use by farmers, local governments, and businesses
	Improved public water data systems that take advantage of satellite-based data and crowdsourced data from citizens, and platforms that link different systems
Water Governance	Water tariffs or public financing approaches that get closer to covering actual O&M costs, while protecting the poorest and most vulnerable populations
	Better regulations around water and land rights that promote access to water and sanitation for all
	Policy or regulatory solutions for addressing intermittent water supply in urban areas
Rural & urban water supply and	Appropriate sanitation and sewerage technologies for densely population urban areas
sanitation	Business models and distribution channels that promote uptake of existing water purification technologies
	Fecal sludge management systems for rural and urban areas
	Effective monitoring solutions (technological or business model solutions) for water pumps to reduce downtime due to repairs and maintenance
Water for Agriculture	Solutions around distribution and uptake of water efficiency and conservation tools/practices for agriculture



Table 2: Potential areas of focus evaluated across six criteria

	Political Feasibility	Operational Tractability	Financial Requirements	Potential for Breakthrough	Potential for Implementation Partnerships	Plays to HLPW Strengths
Water data						
Accountability tools for citizens to collect, report and solicit responses from private or public utilities on water access and quality	Medium	Low	Low	Low	High	Medium
Technology to collect water resource data for use by farmers, local governments, and businesses	Medium	Medium	High	High	High	Medium
Improved public water data systems that take advantage of satellite-based data and crowdsourced data from citizens, and platforms that link different systems	Medium	Low	High	High	High	High
Policies and regulations						
Water tariffs or public financing approaches that get closer to covering actual O&M costs, while protecting the poorest and most vulnerable populations	Low	Low	High	High	Low	High
Better regulations around water and land rights that promote access to water and sanitation for all	Low	Medium	Low	High	Low	High
Policy or regulatory solutions for addressing intermittent water supply in urban areas	High	High	Medium	High	High	Medium
Rural & urban water supply and sanitation						
Appropriate sanitation and sewerage technologies for densely population urban areas	Medium	Medium	High	Medium	High	Medium
Business models and distribution channels that promote uptake of existing water purification technologies	Medium	Low	High	High	Medium	Medium
Fecal sludge management systems for rural and urban areas	High	Low	High	High	Medium	Low
Effective monitoring solutions (technological or business model solutions) for water pumps to reduce downtime due to repairs and maintenance in rural areas	High	Medium	High	Medium	High	Low
Water for Agriculture						
Solutions around distribution and uptake of water efficiency and water conservation tools/practices for agriculture	Low	Medium	Medium	High	Low	Low

Based on our conversations with water and challenge fund experts, an extensive literature review, and analysis of the options, we recommend the Water Innovation Engine launch two challenges in 2017 focusing on water data and urban sanitation.

Water data

Specifically, the Water Innovation Engine should consider launching a challenge that aims at addressing the following water data needs:

- Improved public water data systems that take advantage of satellite-based data and crowdsourced data from citizens, and platforms that link different systems
- Technology to collect water resource data for use by farmers, local governments, and businesses

A challenge launched in water data by the Water Innovation Engine creates an opportunity for addressing issues via collective action approaches, borrowing techniques from adjacent sectors/challenges such as <u>Global Forest Watch</u>, which is a partnership between dozens of actors (ranging from the World Resources Institute to Google) designed to make satellite data on deforestation publicly available and usable.

As noted above (page 30), these specific topics will require further testing and refinement with experts before a challenge is launched.



Urban Sanitation

Given the complexity of urban sanitation systems coupled with rapid urbanization, increased political attention and investment is urgently needed. The Water Innovation Engine could accelerate progress by launching a challenge focused specifically on addressing regulatory and financial barriers to urban sanitation access, for example supporting challenges focused on:

- Water tariffs or public financing approaches that get closer to covering actual O&M costs, while protecting the poorest and most vulnerable populations
- Better regulations around water and land rights that promote access to water and sanitation for all

The challenge could encourage municipal authorities to design and implement their own innovative solutions to the urban sanitation challenges in their municipalities. While it is uncommon to use challenge funds as an instrument for public finance or regulatory reform, there is broad enthusiasm about the potential for impact and examples of early success. The best example is perhaps the <u>Sanitation Challenge for Ghana</u>, an initiative of DfID open to Metropolitan, Municipal, and District Assemblies in Ghana. Its goal is to bring transformational changes to city-wide sanitation services in urban areas. The challenge is in its second iteration and the approach has been received enthusiastically by cities across Ghana. While it is too early to determine the long-term impact, it has drawn attention to urban sanitation issues by local leaders, spurring the development of solutions by local leaders themselves.

Again, these specific topics will require further testing and refinement with experts before a challenge is launched.



What's next?



What's next?

By forming the Water Innovation Engine, the HLPW can spark the creative energy and forward momentum that will propel the water sector toward sustainable water resource management and universal access to water and sanitation for all. The HLPW should launch the Water Innovation Engine at a suitable event in 2017 with at least US\$10 million pledged by partners and HLPW member countries towards the initial US\$25 million target. Two initial challenges (one on water data and one on urban sanitation) could be designed early and fast-tracked for announcement at the time of the Water Innovation Engine launch.



Annexes



Annex 1: Water Challenge Funds

Name	Supporting Agency
2017 Water Data Challenge	Imagine H2O, Wells Fargo, Suez, TetraTech
GFDRR Challenge Fund	Global Facility for Disaster Recovery and Reduction, DfID
Securing Water for Food: A Grand Challenge for Development	USAID, Sida, Netherlands, South Africa
CGIAR Challenge Program on Water and Food	CGIAR, AusAID, European Commission, Sida, DANIDA, Swiss, GIZ
Open IDEO: "How might we use market based approaches to expand water and sanitation solutions?"	IDEO, Water.org
Online Innovation Challenge	VIA Water, Aqua for All, Africa Funded, UNESCO-IHE
Big Data Innovation Challenge	World Bank
Global Giveback Challenge Series	Innocentive, Global Giving, Rockefeller Foundation
Girl Power Awards	Dasra, USAID, DSP Blackrock Investment Managers, Piramal Foundation
Reinvent the Toilet Challenge	Gates
Grand Challenges Research	Princeton University
Global Innovation Fund	DfID, USAID, Omidyar, Sida, Australian DFAT
Swedish Agency for Economic and Regional Growth	Swedish Agency for Economic and Regional Growth
Funding Innovation for Business in Africa	Alliance for Green Revolution in Africa, Australia, Canada, Denmark, Netherlands, Sweden, UK, CGAP, IFAD
XPRIZE	High Net Worth Individuals, Tata Group, Australian DFAT
Dreampipe Challenge	Ideas to Impact, DfID
Sanitation Challenge for Ghana	Ideas to Impact, DfID
WASH for Life	Development Innovation Ventures (USAID)
Stars in Global Health	Grand Challenges Canada
Novel Enabling Tools and Models Supporting Development of Interventions for Enteric Disruption	Grand Challenges Explorations
Labor Saving Strategies and Innovations for Women Smallholder Farmers	Grand Challenges Explorations
Create the Next Generation of Sanitation Technologies	Grand Challenges Explorations
The Schindler Global Award 2017 for Young Designers – Improving mobility systems in Sao Paolo	Schindler Group, ETH Zurich
Mawazo Challenge	Human Development Innovation Fund, UKAID, Palladium
CA Water Policy Challenge	Imagine H2O

Annex 2: Literature Review

- Challenge Funds in International Development Research Paper, Tripleline
- Beyond prizes, hackathons and contests: better ways to support innovation in international development, John Feighery, mWater
- Understanding Challenge Funds, ODI
- Meeting the challenge: How can enterprise challenge funds be made to work better?, EPS-PEAKS working paper
- Challenge funds as private sector development tools: progress and potential, KPMG
- Swedish experiences of challenge funds: case of Innovations Against Poverty, Sida
- Giving enterprise challenge funds a fighting chance, Dev Policy Blog
- Exploding the myth of challenge funds, a start at least..., David Elliott The Springfield Centre
- Do challenge funds work—or is the Emperor really naked?, The Practitioner Hub for Inclusive Business
- Enterprise challenge funds for development: rationales, objectives, approaches, Development Policy Centre Discussion Paper
- Challenging the Challenge Fund!, CHMI
- Can innovation prizes help address water and sanitation challenges?
- Review of umbrella fund evaluation focusing on challenge funds, Tripleline
- Measuring Results in Challenge funds: practical guidelines for implementing the DCED standard, DCED
- DCED Webinar measuring results in challenge funds, DCED
- The Evaluation of the challenge fund innovations against poverty, Sida
- DfID Civil Society Challenge Fund, Final Evaluation, IOC PARC
- Summative Evaluation & International Expert Panel Review, Grand Challenges Canada



Annex 3: Interviewee List

Name	Organization	Name	Organization
Bill Costello	Australian DFAT	Blanca Jimenez-Cisneros	UNESCO
Marcus Howard	Australian DFAT	Federico Properzi	UN-Water
Jane Haycock	Australian DFAT	Leanne Burney	UN-Water
Lisa Rauter	Australian DFAT	Erin Crossett	USAID
Anurag Chaturvedi	Dasra	Betsy Otto	Water Resources Institute
Abhay Rao	Dasra	Jennifer Sara	World Bank
Guy Howard	DfID	Patrick Vincent Verkoojien	World Bank
Jean-Paul Penrose	DfID	Stephan Dahan	World Bank
Radu Ban	Gates Foundation	Sophie Tremolet	World Bank
Ger Bergkamp	International Water Association	William Rex	World Bank
Nitu Pandya	Mahila Housing Trust	Alisa Ferguson	XPRIZE
Darmistha Chau	Mahila Housing Trust	Will Sarni	XPRIZE
Henk Ovink	The Netherlands		



Annex 4: Determining if a given problem is "challengeable"

Ideas to Impact, a DfID-funded initiative that designs and implements innovation prizes focused around climate change adaptation, energy access and WASH, provides valuable guidance for determining whether a given development problem is suitable to be addressed through a challenge fund mechanism. A framework is provided in their research paper entitled "Innovation Prizes: A Guide for Use in a Developing Country Context," available on their website at www.ideastoimpact.net. Below are four characteristics of a "challengeable" problem, quoted from the previously mentioned report:

Focused: Would resolving the specific problem lead to the desired development benefits?

Achievable: Are available resources sufficient to solve the problem?

Consistent: Is resolving the problem consistent with existing policy, the sponsor's objectives, and beneficiaries' needs?

Essential: Is there good reason to believe that the problem would not be resolved without further intervention?

In their accompanying report specific to innovation prizes in the WASH sector, Ideas to Impact recommends the following criteria for identifying "prizable WASH challenges":

- Problems that, if solved, would have significant impact on low-income households.
- Problems that, if solved, could generate "multiple gains," particularly to reduce energy consumption or generate renewable energy resources as a way to mitigate climate change.
- Areas where the market alone has not produced a satisfactory solution from the point of view of society as a whole, and is not likely to produce one in the near future, judging by recent market developments.
- Areas where the media buzz surrounding a prize would be beneficial, i.e., where raising awareness to this particular problem could have an impact beyond the monetary prize itself.

For an additional perspective on defining challengeable problems, refer to the Overseas Development Institute's report entitled "Understanding challenge funds," available at: https://www.odi.org/publications/8592-understanding-challenge-funds





