

# Accelerate Access to Resources – Land, Clean Energy, Water, and Sanitation

Facts, Solutions, Case Studies, and Policy Recommendations

## OVERVIEW

When girls and women endure restricted access to resources such as land, energy, and water and sanitation, there are far-reaching implications. Such limitations can affect their health, education, housing, and livelihoods as well as the safety and sustainability of the environments in which they live. This brief explores seven solutions highlighting gender-responsive approaches that can accelerate much needed access to resources. These solutions include increasing access to clean energy both outside and inside the home, securing land and inheritance rights for women, employing a comprehensive approach for Water, Sanitation, and Hygiene (WASH), including women in all decisions related to resource management, and improving water services and Community Led Total Sanitation (CLTS).

## SECTION 1: FRAMING THE ISSUE

The Sustainable Development Goals (SDGs) offer a framework for accelerating women's access to land, water, sanitation, energy, and other resources, which has the potential to alleviate poverty across the globe (see Box 1). Girls and women, in particular, will benefit from greater access to these resources through improved wealth, health, education, safety, dignity, and financial security; they will also gain productive time and opportunities to speak out and engage in decision-making. Several international agreements recognize the important link between access to resources and advancing economic prosperity.

Land is an important resource for girls and women as a source of income, housing, and security every day and in times of hardship; yet inheritance and land laws, policies, and practices generally favor men.<sup>1</sup> In nearly all countries with available data, men are more likely than women to be agricultural land holders; in 27 countries, women make up less than 10% of all agricultural land holders, and women hold a smaller proportion of total agricultural land.<sup>2</sup> And this is only based on the data that is available—there is no systematically-collected global data on women's land rights, so much of the issue remains unknown.<sup>3</sup>

→ For more, please reference the brief focused on [Boosting Women's Economic Empowerment](#).

Rigid gender roles in many societies place women at the center of the family, responsible for securing household resources—such as food, water, and fuel for heating and cooking—and also serving as the primary caregivers, but they often lack the financial means to control access to these resources.<sup>4</sup> And given the time they must devote to meeting household needs, their opportunities for education, growing food, generating income, rest, community engagement, or caring for children—opportunities that would enhance their wealth and wellbeing and that of their family—are curtailed.<sup>5</sup>

Increasingly, environmental stress impacts access to resources, which disproportionately affects women.<sup>6</sup> By 2030 experts predict a global water shortfall of 40%, which will further burden women who are tasked with securing water resources for the family.<sup>7</sup> Furthermore, as water, firewood, and land grow scarce and women remain excluded from decisions impacting those resources, they are pushed further out of women's reach.<sup>8</sup>

→ For more, please reference the brief focused on [Investing in Women to Tackle Climate Change and Conserve the Environment](#).

Lack of access to and decision-making over the use of natural resources often taxes women's physical and mental health and reduces their ability to seek privacy and practice healthy behaviors. Additionally, as they are forced to go longer distances for resources, girls and women face an increased risk of sexual violence or animal attacks.<sup>9</sup> The following statistics highlight the challenges all people living in poverty, but especially women, face:

- On average worldwide, less than 20% of agricultural land is held by women,<sup>10</sup> yet no global data exists on the true scope of women's land rights.<sup>11</sup>
- 1 in 7 people practice open defecation either because latrines are not available at home or because latrines are considered unsafe or dirty.<sup>12</sup>



**Accelerating access for girls and women to resources, water, and sanitation is linked to the achievement of multiple SDGs goals and targets, including:**

**SDG 1: End poverty in all its forms everywhere**

- **1.3** Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable
- **1.4** By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
- **1.5** By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social, and environmental shocks and disasters

**SDG 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture**

- **2.3** By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women..., including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets, and opportunities

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- Girls and women collectively spend 97 billion hours annually securing a safe place to defecate.<sup>13</sup>
- 1 in 3 women experience gender-based violence.<sup>14</sup> Collecting fuel, fetching water, bathing in open water, and open defecation all can expose girls and women to sexual harassment and violence.<sup>15</sup>
- Women and children globally spend a cumulative 73 billion hours fetching water annually.<sup>16</sup>
- Women and children spend up to \$ per day gathering fuel for household needs due to a lack of access to clean cooking fuels and stoves.<sup>17</sup>
- 1-2 hour waiting times at water kiosks are common in dense urban areas, with standpipe to person ratios of 1:500.<sup>18</sup>
- About half of schools have inadequate access to water and sanitation in low and middle-income countries,<sup>19</sup> which increases the likelihood of absenteeism among adolescent girls.<sup>20</sup>

## SECTION 2: SOLUTIONS AND INTERVENTIONS

Restricted access to resources has cross-cutting implications, affecting the health, education, secure land tenure, housing, cultural practices, self-determination, and human rights of affected individuals and communities. Within this multi-sectoral landscape, a one-size-fits-all approach will not suffice. This brief explores seven solutions that encompass gender-sensitive approaches that can be scaled up to make a real impact for women:

- Engage women in efforts to advance universal access to affordable, safe, and sustainable sources of clean energy, including clean cookstoves and other productive technologies, throughout homes and communities
- Improve and enforce secure land and productive resource rights for women, including their rights to access, control, own, and inherit
- Include women in decision-making related to land and resource management, including national energy planning
- Employ the comprehensive approaches for water, sanitation, and hygiene (WASH) framework
- Improve water services
- Promote Community Led Total Sanitation (CLTS)
- Implement comprehensive WASH services in schools, including provisions for menstrual hygiene management (MHM)

### Engage Women in Efforts to Advance Universal Access to Affordable, Safe, and Sustainable Sources of Clean Energy, Including Clean Cookstoves and other Productive Technologies, Throughout Homes and Communities

Every home needs a safe, reliable, environmentally sustainable, and clean source of energy for cooking, lighting, heating, and productive uses. Access to clean, affordable, and safer household lighting can save money, improve health, reduce the risk of fires, and contribute to livelihoods, as women are able to invest the time they save collecting fuel in more productive pursuits.<sup>21</sup> Access to clean and safe household lighting also allows women to reduce spending on lighting alternatives like kerosene, candles, and battery torches—channeling more financial resources to their household and children’s needs.<sup>22</sup>

➔ *For more, please reference the brief focused on Investing in Women to Tackle Climate Change and Conserve the Environment.*

Though robust empirical data are not available to quantify the gains of rural electrification, experience suggests that when a household or community has access to electricity and cleaner and more efficient cookstoves and fuels, the economy and people’s quality of life improve. For example, a lack of electricity is a challenge to improving the literacy of the 774 million people in the world who cannot read, two-thirds of who are women.<sup>23,24</sup> And one study from Bangladesh found that women’s literacy was 22% higher in electrified households than those without electricity.

The use of polluting fuels also poses a major burden on sustainable development. Globally, three billion people rely on biomass fuels to cook (wood, animal dung, and crop waste), causing serious environmental and health impacts that disproportionately affect women and children. According to the World Health Organization, household air pollution from cooking kills over 4 million people every year and sickens millions more. Increasing women’s access to safe, affordable, clean cookstoves and fuels is one solution that can dramatically reduce fuel consumption and exposure to harmful cookstove smoke, as well as reduce risks associated with fuel collection or acquisition.<sup>25</sup>

To accelerate the path to universal access to household energy, it is essential to integrate women’s needs and opinions into every aspect of the value chain—from research, design, and production to marketing, sales, and distribution.<sup>26</sup> Experience shows that without women’s opinions and input, products do not meet their needs and will not be used consistently. Engaging women also creates



### SDG Goal 5: Achieve gender equality and empower all women and girls

- **5.a** Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance, and natural resources, in accordance with national laws

### SDG 6: Ensure access to water and sanitation for all

- **6.1** By 2030, achieve universal and equitable access to safe and affordable drinking water for all
- **6.2** By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

### SDG 7: Ensure access to affordable, reliable, sustainable, and modern energy for all

- **7.1** By 2030, ensure universal access to affordable, reliable, and modern energy services

### SDG 11: Make cities inclusive, safe, resilient, and sustainable

- **11.1** By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums



livelihood opportunities for them in the cooking fuel value chain as suppliers of agricultural waste for cooking fuel, producers of charcoal briquettes, and distributors of these products. Support should be provided to women-led enterprises that sell clean fuel, cookstoves and clean technologies and employ women as marketing agents, distributors, and after-sales service providers. As household energy managers, women are in a unique position to connect with their peers, increase awareness, and deliver energy products and services.<sup>27</sup>

**Case Study: Women Cookstove Sellers Outsell Men**

A study based in Kenya by the Johns Hopkins Bloomberg School of Public Health found that when it comes to selling cookstoves, women are the experts. The study's results showed that women sellers outsold men by 3 to 1, and high-volume sellers were twice as likely to be female than male.<sup>28</sup> Not only were women sellers more effective in closing deals, but they were also more effective in demonstrating the benefits of their product: women who purchased cookstoves from women sellers were more likely to report consistent and correct use of the product compared to those who bought from male sellers; they were also more likely to report the benefits of using their cookstove.<sup>29</sup> This study demonstrates that engaging women entrepreneurs in the clean cooking value chain pays off for both individuals and the community.

To increase access to household lighting for communities off the grid, the private sector must create and market affordable household lighting products, such as solar products, for lower-income populations. One approach is to support pay-as-you go lighting schemes, in coordination with credit and savings cooperatives or microfinance institutions; these enable households to pay off the cost of lighting systems in installments equal to their usual expenditure on kerosene or candles.<sup>30</sup> Public-private partnerships can also explore new approaches to increase the demand for household solar lighting by giving women the opportunity to use the solar lights at home before purchasing them.

**Case Study: The Barefoot Approach - Women Barefoot Solar Engineers of Africa**

The Women Barefoot Solar Engineers of Africa work to improve the lives of the rural poor living in remote villages off the energy grids.<sup>31</sup> These women, many of them grandmothers and most of them illiterate, work in the 21 least developed countries in Africa, helping to supply their communities with clean, low-cost household lighting from solar energy.<sup>32</sup> Since 2005, over 704 women from Africa have trained at the Barefoot College.<sup>33</sup> Within six months, these women learned how to fabricate, install, and maintain solar-powered household lighting systems and were capable of transforming the lives of over 2,000 families in solar-electrified villages in Africa.<sup>34</sup>

**Improve and Enforce Secure Land and Productive Resource Rights for Women, Including Their Rights to Access, Control, Own, and Inherit**

Promoting women's land rights is an effective long-term solution to advancing opportunities for women and enhancing community health and wellbeing.<sup>35</sup> When women have secure rights to land, their status improves and they are better equipped to care for themselves and their families and break out of poverty.<sup>36</sup> Evidence shows that when women have rights to land, their status and the role they play in household decision-making improves. This can lead to better nutrition and food security, increased education for children, better health outcomes, decreased vulnerability to HIV, and in some situations, less exposure to domestic violence.<sup>37,38</sup>

In 2016, the Land Policy Initiative (LPI) launched a campaign demanding that 30% of land in Africa be individually or jointly owned by women by 2025.<sup>39</sup> Though African women hold a significant role in the agricultural sector and food production, a system of customs and laws prevents them from having access to and control of the land they work.<sup>40</sup> The campaign aims to achieve this goal through research into existing laws and regulations, advocacy for women's land ownership, and improving efficiency of land administration.<sup>41</sup>

**Case Study: The Greatest Predictor of Poverty in India is Landlessness**

An estimated 18 million families in rural India are landless and tens of millions more have insecure rights to the land they rely on. Their long-term insecurity and inability to protect and secure the land they depend on is a major predictor of poverty, seeds conflict, and hinders economic growth.<sup>42</sup> Since 2000, Landesa has been working to change this reality. By partnering with state and central government leaders, Landesa strives to create opportunity, incentive, and security through strengthening land rights. Landesa supports the creation of policies that strengthen girls and women's land rights, raise legal awareness, and grant homestead and farmlands to rural women.<sup>43</sup> By working with Indian state government officials and central government leaders, Landesa has reached more than one million families.<sup>44</sup> Increasingly, leaders in India's poorest states are recognizing that insecure land tenure is a significant hurdle to development and stability. Already, the governments of Bihar, West Bengal, Odisha, Karnataka, Andhra Pradesh, Telangana, and Uttar Pradesh have launched programs to bolster women's and girls' land rights.<sup>45</sup>

**Include Women in Decision-Making Related to Land and Resource Management, Including National Energy Planning**

To implement effective and sustainable resource management programs, women must be engaged in the decision-making process, as they are most affected by land and resource inequities. Gender plays a defining role in how individuals utilize and benefit from land and natural resources, which are closely linked to livelihoods for the vast majority of people.<sup>46</sup> Failing to recognize the unique challenges and



**Relevant International Agreements:**

- United Nations Conference on Environment and Development (Earth Summit) 1992
- Millennium Development Goals (2000-2015)
- International Decade for Action "Water for Life" (2005-2015)
- Sanitation and Water for All Partnership (2010)
- Sustainable Energy for All (2011)
- Sustainable Development Goals (2015-2030)
- The New Urban Agenda (2016)



opportunities women face—especially in conflict settings, which includes the risk of physical insecurity linked to their role in collecting natural resources or growing food for the family—has the potential to further perpetuate inequalities regarding land and natural resource rights, access, and control.<sup>47</sup>

### **Case Study: Bringing Women to the Table in Sudan**

Following the establishment of the Republic of South Sudan in 2011, SOS Sahel, an international NGO working in partnership with local groups, implemented a resource-based conflict reduction program providing women and youth with natural resource management and conflict resolution skills.<sup>48</sup> Women pastoralists in the region have a reputation for being extremely influential as peacebuilders, but they had been excluded from decision-making processes.<sup>49</sup> SOS Sahel engages women and marginalized groups, encouraging traditional leaders to incorporate them into formal decision-making processes.<sup>50</sup> Through education tools and sessions provided to women in the communities, steering groups with women representatives were developed, and community structures were registered as legal bodies in accordance with Sudanese regulations.<sup>51</sup>

## **Employ the Comprehensive Approaches for Water, Sanitation, and Hygiene (WASH) Framework**

Sustainable solutions for girls and women require comprehensive approaches—approaches that facilitate access to water, sanitation, and hygiene (WASH) services. Yet there is no one size fits all solution. Each intervention needs to be adapted to fit the contextual realities of the community. Decades of WASH programming experience dictates that the first steps to success involve conducting an explicit analysis of the needs on the ground and identifying a hypothesis of change before any action is taken.<sup>52</sup> Many major development organizations working in WASH have identified a wide range of factors that should be considered as part of analyzing local strengths and weaknesses, to design an appropriate intervention that encompasses the broader needs of the community.<sup>53</sup> Such comprehensive frameworks are vital to ensuring sustainable gains over the long term.<sup>54</sup>

These comprehensive frameworks consider three domains around which interventions are developed and implemented:<sup>55</sup>

1. Access to supplies and services, such as water supply, sanitation systems, latrines, handwashing stations, soap, water treatment supplies and equipment, fecal sludge management services, menstrual hygiene products, etc.;
2. An enabling environment that incorporates supportive policies, strengthened institutional capacity, private sector involvement, organizational support from government and civil society, adequate financing, partnerships, and cross-sectoral collaboration;
3. Establish hygiene promotion activities for social and behavior change, through interpersonal communication, mass media, community theatre, community mobilization, sanitation marketing, social norm change, and habit formation.

All three domains are interrelated and together promote healthy and sustainable changes in behavior. Consider menstrual hygiene management as an example. It requires access to products and services, including pads, adequate supplies of water for washing, and a private place to change and bathe.<sup>56</sup> And improved sanitation behaviors call for access to sanitation facilities, but they may also require microfinance loans for households to purchase latrines over time and fecal sludge management services to sustainably maintain the facilities.<sup>57,58</sup>

The second pillar, an enabling environment, requires governments to enact policies that focus on providing sanitation and water services for communities and ensure that WASH services are included in the education budget.<sup>59,60</sup> Best practice around community water and sanitation services includes strengthening community governance and calling for fair representation and meaningful participation of women in the planning, designing, and monitoring of services.<sup>61</sup> Going back to the menstrual hygiene management example, an enabling environment might include eliminating taxes on feminine hygiene products.<sup>62</sup> It could also include school policies that allow girls to use the sanitation facility as needed and budgets for soap and menstrual supplies. Finally, having ready access to WASH products and services and a supportive enabling environment does not ensure individuals and communities will consistently and correctly perform improved WASH practices. It is critical to change behavior by creating demand.

### **Case Study: Multi-Sector Approach to Reducing Malnutrition**

In Bangladesh, the Strengthening Household Ability to Respond to Development Opportunities program adopted a multi-sectoral approach to improving the nutritional status of mothers and children in four remote rural areas.<sup>63</sup> The framework focused on enhancing the literacy and leadership skills of girls and women, educating them about sound health and nutrition practices, and installing wells for access to safe drinking water; these interventions led to better health within the communities and a reduction in malnutrition.<sup>64</sup> And by incorporating the importance of proper WASH practices, the percentage of mothers who wash their hands before food preparation rose from 60% to 94%; households with access to safe, clean water rose from 57% to 71%; and the percentage of people with access to a sanitary latrine rose from 13% to 54%.<sup>65</sup>

## **Improve Water Services**

When women spend less time fetching water, they gain more productive time that can be dedicated to focusing on their children, growing food, or pursuing education or economic opportunities.<sup>66</sup> And when women do not need to trek long distances to fetch water, they also avoid associated risks, such as gender-based violence and animal attacks.<sup>67</sup> Beyond that, there are multiple health benefits linked to reducing the time they spend fetching water. A 15-minute decrease in time spent walking to a water source is associated with a 41% average reduction in diarrhea prevalence, an 11% reduction in under-five mortality, and improvements in the nutritional status of children—a likely result of more water being available in the household.<sup>68</sup>

Comprehensive national water strategies should be developed and include the construction, operation, maintenance, and rehabilitation of water points.<sup>69</sup> The optimal number of beneficiaries and optimal distance from households within the service area must be explicit; past recommendations define reasonable access as no more than 1 km from the dwelling.<sup>70</sup> Water strategies should also clearly address safe access in informal settlements and peri-urban areas and develop an acceptable definition at the country level for time invested in fetching water outside the dwelling. They must discourage any sort of stigma or discrimination regarding menstruation or minority groups and avoid other disempowering social norms or community practices.<sup>71</sup> The role of women in fetching and treating water, or irrigating, should be systematically tracked to monitor changes and improvements and to better understand how improved water services change a woman's status in the household and in society.

Empowering women is an important part of service delivery. Women must be involved in planning water service provision and be represented and meaningfully participate in governing bodies. Furthermore, women should be supported to become involved in WASH service delivery, granting them income generating opportunities. Evidence suggests that communities with water and sanitation user groups that include women function more effectively and sustainably.<sup>72</sup>



## Promote Community Led Total Sanitation (CLTS)

Community Led Total Sanitation (CLTS) is a facilitated participatory process to inspire rural communities to abandon the accepted practice of open defecation, without reliance on external subsidies to build toilets. When facilitated effectively, CLTS ignites a sense of shared disgust and shame within the community as members realize they are literally ingesting one another's feces so long as open defecation continues.<sup>73</sup> This often leads to the spontaneous decision by most households to build or improve latrines and engages social norms to spur community action to shame violators and sustain improvements in latrine use and sanitation practice. The do-it-yourself approach to latrine construction fosters local innovation, often resulting in communities becoming open defecation free within 3-6 months.<sup>74</sup>

Bringing sanitation options closer to the home is a critical improvement for women in the community, who may have to walk long distances to find a site that is private, which puts them at risk of gender-based violence.<sup>75</sup> Having sanitation available within the home can ease multiple burdens on women. It saves them time and energy, ensures their dignity, reduces their exposure to violence, and improves their nutritional status, which in turn has a positive impact on their reproductive health and pregnancy outcomes.<sup>76,77</sup>

Over time, implementers have expanded and innovated the concept of CLTS to incorporate a range of actions for improving health outcomes, including the promotion of handwashing with soap and supporting sanitation marketing to engage private sector contributions.<sup>78</sup> CLTS also opens the door to conversations about topics once considered taboo. Women can discuss health risks related to unsafe menstrual hygiene management (MHM). And once they understand the issues and potential pitfalls, men and boys want to assist their wives and sisters. By starting these conversations in the home, it becomes easier for women to participate in community discussions, as well as in decisions that will impact their health, instill dignity, and help to change social and cultural norms.<sup>79</sup>

### Case Study: WASHplus Program in Mali

WASHplus integrated a WASH/nutrition program in the Mopti region of Mali to reach women of reproductive age and their children in 180 villages in three districts with high rates of stunting.<sup>80</sup> In addition to motivating villages to collectively abandon open defecation and increasing demand for low-cost sanitation, the program places a strong emphasis on improving nutrition and hygiene practices, including handwashing, water treatment, exclusive breastfeeding, and dietary diversity through a range of behavior change approaches.<sup>81</sup> Trained community health workers visit communities to educate women on WASH and also screen for undernourished children who are referred to the community health/nutrition centers for treatment.<sup>82</sup>

## Implement Comprehensive WASH Services in Schools, Including Provisions for Menstrual Hygiene Management (MHM)

Keeping girls in school produces better educated women who tend to plan their families, have healthier and better educated children, and are paid higher wages.<sup>83</sup> A systematic review of research found that girls' attendance in formal school is positively associated with delayed sexual initiation, marriage, and childbirth, lower rates of HIV/AIDS, and improved gender equality.<sup>84</sup> One critical pathway to increasing girls' school attendance is investing in WASH in schools,<sup>85</sup> as the lack of such facilities in schools is cited as a global obstacle to quality education.<sup>86</sup> Introducing WASH facilities and programs in schools would attract pupils and reduce absenteeism.<sup>87</sup> Furthermore, parents prefer to put children in schools with proper sanitation facilities.<sup>88</sup>

A comprehensive school WASH program includes access to water, sanitation, and hygiene facilities, hygiene education, and menstrual hygiene management (MHM).<sup>89</sup> Facilities should be gender-segregated, with roughly 25 girls per toilet and 50 boys per toilet, and have a functioning water point that is safe for drinking and handwashing.<sup>90</sup> The absence of gender-segregated toilets is especially challenging for menstruating adolescents, who can miss up to a week of school a month.<sup>91</sup> Many eventually drop out.<sup>92</sup> Ensuring that menstrual hygiene management programs are effective requires more than building girl-friendly facilities. Schools should also integrate puberty education for girls and boys, educating teachers, families, and communities about menstrual hygiene to break taboos and cultural constraints.<sup>93</sup> Girls should also have a say in types of facilities and menstrual products that would best serve their needs at school, leading to a more "girl-friendly" school that is a source of empowerment and pride.<sup>94</sup> The positive impact in schools may spill over to communities. A school WASH program in Zambia, for example, led to households installing latrines and handwashing facilities, children teaching parents better hygiene, and former taboo topics such as open defecation and menstruation being discussed openly.<sup>95,96</sup>

### Case Study: SPLASH in Zambia

SPLASH (Schools Promoting Learning Achievement through Sanitation and Hygiene), a USAID/Zambia funded WASHplus activity, brought clean drinking water, sanitation, and hygiene education to primary schools in Eastern Province.<sup>97,98</sup> By providing a cleaner and safer learning environment, SPLASH aspired to improve the health, learning, and performance of pupils and teachers.<sup>99</sup> Activities centered on providing safe water and adequate sanitation and adopting better hygiene practices.<sup>100</sup> As part of the menstrual hygiene management component, girls' latrines were equipped with washrooms and schools were encouraged to stock sanitary pads and other hygiene consumables, such as soap and toilet paper.<sup>101</sup> The SPLASH program saw an anecdotal increase in enrollment and a 26% reduction in student absenteeism.<sup>102,103</sup>

## SECTION 3: THE BENEFITS OF INVESTMENT

The results of a global cost-benefit analysis of water supply and sanitation depict the costs and benefits of investing in all water and sanitation improvements.<sup>104</sup> In developing regions, the return on a US\$1 investment ranged from US\$2 to US\$5.5, depending on the intervention.<sup>105</sup> The main contributor to these economic benefits was the time saved through better access to water and sanitation services, which accounted for over 70% of the overall economic benefits.<sup>106</sup>

Though comparable data for household energy has not yet been calculated, an analysis by the World Health Organization suggests an average of US\$91 billion in annual economic benefits could be accrued if half the people cooking with solid fuels switched to liquefied petroleum gas.<sup>107</sup> Societal benefits would take the form of improvements in health and social status, as well as reductions in drudgery, time spent collecting fuel, and risk of attack or assault while collecting fuel.<sup>108</sup> These gains would bring about additional economic benefits that are necessary for inclusive and sustainable development.<sup>109</sup>

Investing in efforts to improve women's access to and use of land also leads to positive impacts on local economies.<sup>110</sup> When women have secure land rights, their earning can increase significantly, impacting their ability to open bank accounts, save money, build credit, and make investments.<sup>111</sup> Furthermore, when women are empowered, their children are empowered too—a ripple effect that contributes to breaking cycles of poverty.<sup>112</sup> Women face a serious gender gap in accessing productive resources such as land, credit, water, energy, and technologies.<sup>113</sup> Closing this gap could lead to increasing agricultural yields on women's farms by between 20–30%, lifting 100 to 150 million people out of hunger.<sup>114</sup>





➔ For more, please reference the brief focused on *Boosting Women's Economic Empowerment*.

If done effectively, investing in safe access to water, sanitation, and household energy can better engage half the population and spur economic productivity. A gender lens approach can augment the positive impact of access to resources that benefits everyone—women, local communities, and low and middle-income countries.

## SECTION 4: CALLS TO ACTION

There is ample evidence to verify that the cross-cutting strategies outlined above have the potential to open access to resources and open opportunities for the women who struggle to acquire them. When adapted to address the specific contexts of each community, these approaches not only empower women, but they also improve the health and wealth of societies as a whole.

In order to power progress for all, many different constituents must work together –governments, civil society, academia, media, affected populations, the private sector, the United Nations and other bi- and multi-lateral organizations –to take the following actions for girls and women:

- Engage women in efforts to advance universal access to affordable, safe, and sustainable sources of clean energy, including clean cookstoves, throughout homes and communities.  
(Most relevant for: governments, civil society, academia, affected populations, the United Nations, and the private sector)
- Establish clear legal and regulatory frameworks and gender-disaggregated data gathering measures to guarantee women's secure rights to land, including the right to inherit, own, access, control, and participate in land governance.  
(Most relevant for: governments, civil society, and the United Nations)
- Improve safe access to water, sanitation, and hygiene (WASH) and work with communities and schools (rural and urban) to become open defecation free and "girl-friendly."  
(Most relevant for: governments, civil society, the United Nations, and the private sector)
- Ensure schools have adequate WASH facilities and supplies and provide education on menstrual hygiene management.  
(Most relevant for: governments, civil society, and the private sector)
- Practice girl- and woman-centered design to strengthen access to natural resources, land, water, sanitation, and affordable, clean energy.  
(Most relevant for: governments, civil society, the United Nations, and the private sector)
- Support women's development of, access to, ownership of, benefit from, and inheritance of assets, such as land, productive resources, capital, and technology.  
(Most relevant for: civil society, governments, and the private sector)

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*These briefs are intended to be used by policymakers, decision-makers, advocates, and activists to advance issues effecting girls and women in global development. These materials are designed to be open-sourced and available for your use.*

➔ To learn about the Deliver for Good campaign, visit [deliverforgood.org](http://deliverforgood.org).

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## ENDNOTES

- <sup>1</sup> Giovarelli, Renee, Beatrice Wamalwa, and Leslie Hannay. "Land Tenure, Property Rights, and Gender Challenges and Approaches for Strengthening Women's Land Tenure and Property Rights." USAID. Jul. 2013. Web. 13 Apr. 2016. <[http://www.usaidlandtenure.net/sites/default/files/USAID\\_Land\\_Tenure\\_Gender\\_Brief\\_061214.pdf](http://www.usaidlandtenure.net/sites/default/files/USAID_Land_Tenure_Gender_Brief_061214.pdf)>.
- <sup>2</sup> Women at Work: Trends 2016. International Labour Office, 2016. Web. <[http://www.ilo.org/wcmsp5/groups/public/-/-dgreports/-/-dcomm/-/-publ/documents/publication/wcms\\_457317.pdf](http://www.ilo.org/wcmsp5/groups/public/-/-dgreports/-/-dcomm/-/-publ/documents/publication/wcms_457317.pdf)>.
- <sup>3</sup> "Land & Gender." Land Portal. N.d. Web. <<https://landportal.info/book/thematic/land-and-gender>>.
- <sup>4</sup> "Women's Economic Empowerment." Issues paper. 2011. Web. 1 Apr. 2016. <<https://www.oecd.org/dac/gender-development/47561694.pdf>>.
- <sup>5</sup> Ibid.
- <sup>6</sup> "Why Women Are Key." Women's Earth & Climate Action Network, International. 2016. Web. <<http://wecaninternational.org/why-women-are-key>>.
- <sup>7</sup> "UN Report: World Faces 40% Water Shortfall by 2030." 22 Mar. 2015. Web. 8 Mar. 2016. <<http://www.voanews.com/content/un-report-world-faces-40-percent-water-shortfall-by-2030/2690205.html>>.
- <sup>8</sup> Fonjong, Lotsmart N. and Martha Abongwa Ngekwi. "Challenges of Water Crisis on Women's Socio-Economic Activities in the Buea Municipality, Cameroon." Journal of Geography and Geology 6.4 (2014). Web. <<http://ccsenet.org/journal/index.php/jgg/article/view/39557/23146>>.
- <sup>9</sup> House, Sarah, et al. "Violence, Gender, & WASH: Making water, sanitation and hygiene safer through improved programming and services." A Practitioner's Toolkit. London: WaterAid/SHARE,



2014. Web. 12 Apr. 2016. <<http://violence-wash.lboro.ac.uk/vgw/Briefing-notes-toolsets-checklists/VGW-TS1-Case-studies-examples/VGW-TS1-Case-studies-GBV-and-WASH.pdf>>.
- <sup>10</sup> "Why Land Rights Matter." Washington: USAID, 2015. Web. <[https://www.usaid.gov/sites/default/files/documents/1865/USAID\\_Infographic\\_Why\\_Land\\_Rights\\_Matter\\_Print\\_rev.pdf](https://www.usaid.gov/sites/default/files/documents/1865/USAID_Infographic_Why_Land_Rights_Matter_Print_rev.pdf)>.
- <sup>11</sup> "Land & Gender." Land Portal. N.d. Web. <<https://landportal.info/book/thematic/land-and-gender>>.
- <sup>12</sup> "Water and Sanitation: The Pathway to a Sustainable Future." Infographic. New York: UN Water, 2015. Web. <<http://www.hopespring.org.uk/water-and-sanitation-the-pathway-to-a-sustainable-future-infographic/>>.
- <sup>13</sup> "We Can't Wait: A Report on Sanitation and Hygiene for Women and Girls." 2013. Web. <<http://www.wateraid.org/what-we-do/our-approach/research-and-publications/view-publication?id=a5ab0a96-1574-4225-a16a-75d5e5ec4232>>.
- <sup>14</sup> "Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence." Geneva: World Health Organization, 2013. Web. 8 Apr. 2016. <[http://apps.who.int/iris/bitstream/10665/85239/1/9789241564625\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/85239/1/9789241564625_eng.pdf?ua=1)>.
- <sup>15</sup> House, Sarah, et al. "Violence, Gender, & WASH: Making water, sanitation and hygiene safer through improved programming and services." A Practitioner's Toolkit. London: WaterAid/SHARE, 2014. Web. 12 Apr. 2016. <<http://violence-wash.lboro.ac.uk/vgw/Briefing-notes-toolsets-checklists/VGW-TS1-Case-studies-examples/VGW-TS1-Case-studies-GBV-and-WASH.pdf>>.
- <sup>16</sup> "Water for Women: Every woman counts. Every second counts." New York: UN Water, 2015. Web. <[http://www.unwater.org/fileadmin/user\\_upload/worldwaterday2015/docs/Water%20For%20Women.pdf](http://www.unwater.org/fileadmin/user_upload/worldwaterday2015/docs/Water%20For%20Women.pdf)>.
- <sup>17</sup> "Mutual Benefits of Empowering Women for Sustainable and Inclusive Development." Vienna: United Nations Industrial Development Organization, n.d. Web. 12 Apr. 2016. <[https://www.unido.org/fileadmin/user\\_media\\_upgrade/What\\_we\\_do/Topics/Energy\\_access/03\\_UNIDO\\_Energy\\_Gender\\_Brochure.pdf](https://www.unido.org/fileadmin/user_media_upgrade/What_we_do/Topics/Energy_access/03_UNIDO_Energy_Gender_Brochure.pdf)>.
- <sup>18</sup> Ray, Isha. "Women, Water, and Development." Annual Review of Environment and Resources 32 (2007): 421-449.
- <sup>19</sup> "Water, Sanitation and Hygiene." Annual Report 2011. New York: UNICEF, 2012. Web. <[http://www.unicef.org/wash/files/UNICEF\\_WASH\\_2011\\_Annual\\_Report\\_Final.pdf](http://www.unicef.org/wash/files/UNICEF_WASH_2011_Annual_Report_Final.pdf)>.
- <sup>20</sup> Ibid.
- <sup>21</sup> Practical Action. Poor people's energy outlook 2014: Key messages on energy for poverty alleviation. Rugby: Practical Action Publishing, 2014. Web. 8 Mar. 2016. <<https://www.gogla.org/wp-content/uploads/2013/09/539ae24e-74f8-4ef2-a359-1c690a000075.pdf>>.
- <sup>22</sup> Ibid.
- <sup>23</sup> The Power of Literacy: Women's Journeys in India, Indonesia, Philippines and Papua New Guinea. Asia South Pacific Association for Basic and Adult Education (ASPBAE), 2012. Web. <<http://www.campaignforeducation.org/docs/reports/members/The%20Power%20of%20Literacy.pdf>>.
- <sup>24</sup> Girls' education – the facts. UNESCO, Oct. 2013. Web. <<http://en.unesco.org/gem-report/sites/gem-report/files/girls-factsheet-en.pdf>>.
- <sup>25</sup> Household air pollution and health, WHO Fact sheet N°292, Updated February 2016 , <http://www.who.int/mediacentre/factsheets/fs292/en/>
- <sup>26</sup> "Women, Energy and Economic Empowerment." Boiling Point. A Practitioner's Journal on Household Energy, Stoves and Poverty Reduction 66 (2015). Web. 12 Apr. 2016. <<http://energia.org/wp-content/uploads/2015/07/BP66-Women-Energy-and-Economic-Empowerment-compressed.pdf>>.
- <sup>27</sup> "WE Programme." n.d. Web. 8 Mar. 2016. <<http://energia.org/what-we-do/womens-economic-empowerment/>>.
- <sup>28</sup> Shankar, Anita V., Mary Alice Onyura, and Jessica Alderman. Understanding Impacts of Women's Engagement in the Improved Cookstove Value Chain in Kenya. GLOBAL ALLIANCE FOR CLEAN COOKSTOVES, 4 May 2015. Web. <<http://cleancookstoves.org/resources/356.html>>.
- <sup>29</sup> Ibid.
- <sup>30</sup> Rolffs, P., R. Byrne, and D. Ockwell. "Financing Sustainable Energy for All: Pay-as-you-go vs. traditional solar finance approaches in Kenya." STEPS Working Paper 59. Brighton: STEPS Centre, 2014. Web. 12 Apr. 2016. <<http://steps-centre.org/wp-content/uploads/Financing-Energy-online.pdf>>.
- <sup>31</sup> Roy, Bunker. "Women Barefoot Engineers: A Community Solution." New York: United Nations Commission on the Status of Women, 2011. Web. 12 Apr. 2016. <<http://www.un.org/womenwatch/daw/csw/csw55/panels/Panel1-Roy-Bunker.pdf>>.
- <sup>32</sup> Ibid.
- <sup>33</sup> Ibid.
- <sup>34</sup> Ibid.
- <sup>35</sup> Peterman, Amber. "Women's Property Rights and Gendered Policies: Implications for Women's Long-term Welfare in Rural Tanzania." The Journal of Development Studies 47.1 (2011): 1-30. Web. 8 Mar. 2016. <<http://www.tandfonline.com/doi/abs/10.1080/00220381003600366>>.
- <sup>36</sup> Ibid.
- <sup>37</sup> Allendorf, Keera. "Do Women's Land Rights Promote Empowerment and Child Health in Nepal?" World Dev. 35.11 (2007): 1975-1988. Web. 15 Apr. 2016. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3657746/>>.
- <sup>38</sup> Knox, Anna, Aslihan Kes, and Noni Milici. "Organizational Approaches for Women's Property Rights." Washington: INTERNATIONAL CENTER FOR RESEARCH ON WOMEN (ICRW), n.d. Web. 15 Apr. 2016. <<http://www.icrw.org/sites/default/files/publications/Mending-the-Gap-Between-Law-and-Practice-Organizational-Approaches-for-Womens-Property-Rights.pdf>>.
- <sup>39</sup> "Put land in the hands of women for economic transformation – A call for policy makers." UNECA. 10 Jul. 2016. Web. <<http://www.uneca.org/stories/put-land-hands-women-economic-transformation-%E2%80%93-call-policy-makers>>.
- <sup>40</sup> Ibid.
- <sup>41</sup> Ibid.
- <sup>42</sup> "Landesa in India." Landesa. 2015. Web. <<http://www.landesa.org/what-we-do/india/>>.
- <sup>43</sup> Ibid.
- <sup>44</sup> Ibid.
- <sup>45</sup> Ibid.
- <sup>46</sup> "Women and Natural Resources: Unlocking the Peacebuilding Potential." New York: United Nations Environment Programme, United Nations Entity for Gender Equality and the Empowerment of Women, United Nations Peacebuilding Support Office and United Nations Development Programme, 2013. Web. <<http://www.unpd.org/content/dam/unpd/library/crisis%20prevention/WomenNaturalResourcesPBreport2013.pdf>>.
- <sup>47</sup> Ibid.
- <sup>48</sup> Ibid.
- <sup>49</sup> Ibid.
- <sup>50</sup> Ibid.
- <sup>51</sup> Ibid.
- <sup>52</sup> Dreifelbelis, R, et al. "The Integrated Behavioural Model for Water, Sanitation, and Hygiene: a systematic review of behavioural models and a framework for designing and evaluating behaviour change interventions in infrastructure-restricted settings." BMC Public Health 13 (2013). Web. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4231350/>>.
- <sup>53</sup> Ibid.
- <sup>54</sup> Ibid.
- <sup>55</sup> Storti, C, et al. The Hygiene Improvement Framework: a comprehensive approach for preventing childhood diarrhea. 2004.
- <sup>56</sup> Sommer, Marni, et al. "WASH in Schools Empowers Girls' Education: Proceedings of the Menstrual Hygiene Management in Schools Virtual Conference 2013." UNICEF, 2013. Web. <[http://www.unicef.org/wash/schools/files/MHM\\_Booklet\\_Final\\_HR\(3\).pdf](http://www.unicef.org/wash/schools/files/MHM_Booklet_Final_HR(3).pdf)>.
- <sup>57</sup> "Financing Sanitation for Cities and Towns." Learning Paper. Sydney: Institute for Sustainable Futures, University of Technology Sydney, 2014. Web. 15 Apr. 2016. <<http://www.colorado.edu/washsymposium/sites/default/files/attached-files/SNV%20Financing%20Sanitation%20Learning%20Paper.pdf>>.
- <sup>58</sup> Koné, Doulaye and Sylvie Peter. "Faecal Sludge Management (FSM)." Sandec Training Tool 1.0 – Module 5. Dübendorf: Sandec: Department of Water and Sanitation in Developing Countries, 2008. Web. 15 Apr. 2016. <[http://www.sswm.info/sites/default/files/reference\\_attachments/EAWAG%20SANDEC%202008%20Module%205%20FSM%20Lecture.pdf](http://www.sswm.info/sites/default/files/reference_attachments/EAWAG%20SANDEC%202008%20Module%205%20FSM%20Lecture.pdf)>.
- <sup>59</sup> "Public finance for water supply and sanitation: focus on national budgets." Briefing note. Addis Ababa: WaterAid in Ethiopia, n.d. Web. 15 Apr. 2016.
- <sup>60</sup> Sommer, Marni, et al. "WASH in Schools Empowers Girls' Education: Proceedings of the Menstrual Hygiene Management in Schools Virtual Conference 2014." New York: UNICEF, 2015. Web. 16 Apr. 2016. <[http://www.unicef.org/wash/schools/files/MHM\\_vConf\\_2014.pdf](http://www.unicef.org/wash/schools/files/MHM_vConf_2014.pdf)>.
- <sup>61</sup> "Minimum standard commitments to gender and diversity in emergency planning." Pilot Version. Geneva: International Federation of Red Cross and Red Crescent Societies, 2015. Web. 15 Apr. 2016. <<http://www.ifrc.org/Global/Photos/Secretariat/201505/Gender%20Diversity%20MScs%20Emergency%20Programming%20HR3.pdf>>.
- <sup>62</sup> Sommer, Marni. "Where the education system and women's bodies collide: The social and health impact of girls' experiences of menstruation and schooling in Tanzania." JOURNAL OF ADOLESCENCE 33.4 (2010): 521-529. Web. <[https://www.researchgate.net/publication/223035224\\_Where\\_the\\_education\\_system\\_and\\_women's\\_bodies\\_collide\\_The\\_social\\_and\\_health\\_impact\\_of\\_girls'\\_experiences\\_of\\_menstruation\\_and\\_schooling\\_in\\_Tanzania](https://www.researchgate.net/publication/223035224_Where_the_education_system_and_women's_bodies_collide_The_social_and_health_impact_of_girls'_experiences_of_menstruation_and_schooling_in_Tanzania)>.
- <sup>63</sup> "Multi-Sector Approach to Reducing Malnutrition Combining 'Short' and 'Long' Routes." Bangladesh 2006-2010: LARGE-SCALE PROGRAMS AIMED AT REDUCING MALNUTRITION THROUGH A CROSS-SECTOR APPROACH INCLUDING WASH. Washington: USAID, 2015. Web. <<http://www.washplus.org/sites/default/files/bangladesh-multisector2015.pdf>>.
- <sup>64</sup> Ibid.
- <sup>65</sup> Ibid.
- <sup>66</sup> "Water for Women: Every woman counts. Every second counts." New York: UN Water, 2015. Web. <[http://www.unwater.org/fileadmin/user\\_upload/worldwaterday2015/docs/Water%20For%20Women.pdf](http://www.unwater.org/fileadmin/user_upload/worldwaterday2015/docs/Water%20For%20Women.pdf)>.
- <sup>67</sup> House, Sarah, et al. "Violence, Gender, & WASH: Making water, sanitation and hygiene safer through improved programming and services." A Practitioner's Toolkit. London: WaterAid/SHARE,



2014. Web. 12 Apr. 2016. <<http://violence-wash.lboro.ac.uk/vgw/Briefing-notes-toolsets-checklists/VGW-TS1-Case-studies-examples/VGW-TS1-Case-studies-GBV-and-WASH.pdf>>.
- <sup>68</sup> Pickering, AJ and J Davis. "Freshwater availability and water fetching affect child health in Sub-Saharan Africa." *Environ. Sci. Technol.* 46.4 (2012): 2391-2397. Web. <<http://pubs.acs.org/doi/abs/10.1021/es203177v>>.
- <sup>69</sup> "Global Water Supply and Sanitation Assessment." 2000 Report. 2000. Web. <[http://www.who.int/water\\_sanitation\\_health/monitoring/jmp2000.pdf](http://www.who.int/water_sanitation_health/monitoring/jmp2000.pdf)>.
- <sup>70</sup> Ibid.
- <sup>71</sup> House, Sarah, et al. "Violence, Gender, & WASH: Making water, sanitation and hygiene safer through improved programming and services." A Practitioner's Toolkit. London: WaterAid/SHARE, 2014. Web. 12 Apr. 2016. <<http://violence-wash.lboro.ac.uk/vgw/Briefing-notes-toolsets-checklists/VGW-TS1-Case-studies-examples/VGW-TS1-Case-studies-GBV-and-WASH.pdf>>.
- <sup>72</sup> "Water for a Sustainable World." The United Nations World Water Development Report 2015. Paris: UNESCO, 2015. Web. <<http://unesdoc.unesco.org/images/0023/002318/231823E.pdf>>.
- <sup>73</sup> Pickering, AJ, et al. "Effect of a community-led sanitation intervention on child diarrhoea and child growth in rural Mali: a cluster-randomised controlled trial." *The Lancet Global Health* 3.11 (2015): e701-e711. Web. <[http://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(15\)00144-8/fulltext](http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(15)00144-8/fulltext)>.
- <sup>74</sup> Rijsberman, Frank and Alix Peterson Zwane. "Sanitation and Water Challenge Paper." Challenge Paper. Copenhagen: Copenhagen Consensus 2012, 2012. Web. 8 Mar. 2016. <<http://www.copenhagenconsensus.com/sites/default/files/Water+and+Sanitation.pdf>>.
- <sup>75</sup> "Water for a Sustainable World." The United Nations World Water Development Report 2015. Paris: UNESCO, 2015. Web. <<http://unesdoc.unesco.org/images/0023/002318/231823E.pdf>>.
- <sup>76</sup> Pickering, AJ, et al. "Effect of a community-led sanitation intervention on child diarrhoea and child growth in rural Mali: a cluster-randomised controlled trial." *The Lancet Global Health* 3.11 (2015): e701-e711. Web. <[http://www.thelancet.com/journals/langlo/article/PIIS2214-109X\(15\)00144-8/fulltext](http://www.thelancet.com/journals/langlo/article/PIIS2214-109X(15)00144-8/fulltext)>.
- <sup>77</sup> Padhi, BK, et al. "Risk of Adverse Pregnancy Outcomes among Women Practicing Poor Sanitation in Rural India: A Population-Based Prospective Cohort Study." *PLoS Med* 12.7 (2015). Web. <<http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001851>>.
- <sup>78</sup> House, Sarah, Thérèse Mahon, and Sue Cavill. "Menstrual Hygiene Matters: A resource for improving menstrual hygiene around the world." 2012. Web. <<http://www.wateraid.org/what-we-do/our-approach/research-and-publications/view-publication?id=02309d73-8e41-4d04-b2ef-6641f6616a4f>>.
- <sup>79</sup> Ibid.
- <sup>80</sup> Bery, Renuka, Sahada Traore, and Lonna Shafritz. "WASHplus in Mali: integrating WASH and nutrition for healthy communities." *Field Exchange* 51 (2016): 134. Web. 15 Apr. 2016. <<http://www.ennonline.net/fex/51/washplusmali>>.
- <sup>81</sup> Ibid.
- <sup>82</sup> Ibid.
- <sup>83</sup> "Girls' Education." 16 Dec. 2015. Web. <<http://www.worldbank.org/en/topic/education/brief/girls-education>>.
- <sup>84</sup> Lloyd, Cynthia B. "Priorities for Adolescent Girls' Education." Policy/Programming Review. New York: Population Council, 2011. Web. 1 Apr. 2016. <[http://www.popcouncil.org/uploads/pdfs/2012PGY\\_GirlsFirst\\_Education.pdf](http://www.popcouncil.org/uploads/pdfs/2012PGY_GirlsFirst_Education.pdf)>.
- <sup>85</sup> Adukia, Anjali. "Sanitation and Education." Cambridge: Harvard University, 2014. Web. <[http://scholar.harvard.edu/files/adukia/files/adukia\\_sanitation\\_and\\_education.pdf](http://scholar.harvard.edu/files/adukia/files/adukia_sanitation_and_education.pdf)>.
- <sup>86</sup> "Making Education a Priority in the Post-2015 Development Agenda." Report of the Global Thematic Consultation on Education in the Post-2015 Development Agenda. New York: UNESCO and UNICEF, 2013. Web. <[http://www.unicef.org/education/files/Making\\_Education\\_a\\_Priority\\_in\\_the\\_Post-2015\\_Development\\_Agenda.pdf](http://www.unicef.org/education/files/Making_Education_a_Priority_in_the_Post-2015_Development_Agenda.pdf)>.
- <sup>87</sup> Adukia, Anjali. "Sanitation and Education." Cambridge: Harvard University, 2014. Web. <[http://scholar.harvard.edu/files/adukia/files/adukia\\_sanitation\\_and\\_education.pdf](http://scholar.harvard.edu/files/adukia/files/adukia_sanitation_and_education.pdf)>.
- <sup>88</sup> Ibid.
- <sup>89</sup> "PUBERTY EDUCATION & MENSTRUAL HYGIENE MANAGEMENT." Paris: UNESCO, 2014. Web. 8 Mar. 2016. <<http://unesdoc.unesco.org/images/0022/002267/226792e.pdf>>.
- <sup>90</sup> "WASH in Schools Monitoring Package." New York: UNICEF, 2011. Web. 8 Mar. 2016. <[http://www.unicef.org/wash/schools/files/wash\\_in\\_schools\\_monitoringpackage\\_.pdf](http://www.unicef.org/wash/schools/files/wash_in_schools_monitoringpackage_.pdf)>.
- <sup>91</sup> House, Sarah, Thérèse Mahon, and Sue Cavill. "Menstrual Hygiene Matters: A resource for improving menstrual hygiene around the world." 2012. Web. <<http://www.wateraid.org/what-we-do/our-approach/research-and-publications/view-publication?id=02309d73-8e41-4d04-b2ef-6641f6616a4f>>.
- <sup>92</sup> Ibid.
- <sup>93</sup> "PUBERTY EDUCATION & MENSTRUAL HYGIENE MANAGEMENT." Paris: UNESCO, 2014. Web. 8 Mar. 2016. <<http://unesdoc.unesco.org/images/0022/002267/226792e.pdf>>.
- <sup>94</sup> Sommer, Marni. "Where the education system and women's bodies collide: The social and health impact of girls' experiences of menstruation and schooling in Tanzania." *JOURNAL OF ADOLESCENCE* 33.4 (2010): 521-529. Web. <[https://www.researchgate.net/publication/223035224\\_Where\\_the\\_education\\_system\\_and\\_women's\\_bodies\\_collide\\_The\\_social\\_and\\_health\\_impact\\_of\\_girls'\\_experiences\\_of\\_menstruation\\_and\\_schooling\\_in\\_Tanzania](https://www.researchgate.net/publication/223035224_Where_the_education_system_and_women's_bodies_collide_The_social_and_health_impact_of_girls'_experiences_of_menstruation_and_schooling_in_Tanzania)>.
- <sup>95</sup> "Zambia - WASH in Schools." n.d. Web. <<http://www.washplus.org/countries/zambia>>.
- <sup>96</sup> SPLASH Spillover Effect: Unexpected Construction resulting from SPLASH Project Interventions. 2016. USAID/WASHplus project.
- <sup>97</sup> SPLASH Final Technical Report. USAID/WASHplus Project. WASHplus. 2016.
- <sup>98</sup> "Schools Promoting Learning Achievement through Sanitation and Hygiene (SPLASH)." n.d. Web. 15 Apr. 2016. <<http://www.fhi360.org/projects/schools-promoting-learning-achievement-through-sanitation-and-hygiene-splash>>.
- <sup>99</sup> Ibid.
- <sup>100</sup> Ibid.
- <sup>101</sup> "Zambia - WASH in Schools." n.d. Web. <<http://www.washplus.org/countries/zambia>>.
- <sup>102</sup> Menstrual Hygiene Management among Schoolgirls in Eastern Province Zambia. WASHplus. 2016. USAID/WASHplus project.
- <sup>103</sup> Hernandez, Orlando. "SPLASH/Zambia: School Outcomes Study Major Preliminary Results." 2015. Web. 15 Apr. 2016. <<https://waterinstitute.unc.edu/files/2015/12/UNC-2015-Hernandez-2015.11.9.pdf>>.
- <sup>104</sup> Hutton, Guy. "Benefits and Costs of the Water and Sanitation Targets for the Post-2015 Development Agenda." Working Paper. Washington: World Bank, 2015. Web. <[http://www.copenhagenconsensus.com/sites/default/files/water\\_sanitation\\_assessment\\_-\\_hutton.pdf](http://www.copenhagenconsensus.com/sites/default/files/water_sanitation_assessment_-_hutton.pdf)>.
- <sup>105</sup> Ibid.
- <sup>106</sup> Ibid.
- <sup>107</sup> Morgan, Trevor. "The Socioeconomic Impact of Switching to LP Gas for Cooking: A Report of the World LP Gas Association." World LP Gas Association. 2015. Web. 11 Apr. 2016. <<http://www.wlpga.org/wp-content/uploads/2015/09/the-socioeconomic-impact-of-switching-to-lp-gas-for-cooking1.pdf>>.
- <sup>108</sup> "Investment in cleaner household energy yields major health and economic benefits." 4 May 2006. Web. <<http://who.int/mediacentre/news/releases/2006/pr22/en/>>.
- <sup>109</sup> "Investment in cleaner household energy yields major health and economic benefits." 4 May 2006. Web. <<http://who.int/mediacentre/news/releases/2006/pr22/en/>>.
- <sup>110</sup> Peterman, Amber. "Women's Property Rights and Gendered Policies: Implications for Women's Long-term Welfare in Rural Tanzania." *The Journal of Development Studies* 47.1 (2011): 1-30. Web. 8 Mar. 2016. <<http://www.tandfonline.com/doi/abs/10.1080/00220381003600366>>.
- <sup>111</sup> Ibid.
- <sup>112</sup> "Women and Natural Resources: Unlocking the Peacebuilding Potential." New York: United Nations Environment Programme, United Nations Entity for Gender Equality and the Empowerment of Women, United Nations Peacebuilding Support Office and United Nations Development Programme, 2013. Web. <<http://www.undp.org/content/dam/undp/library/crisis%20prevention/WomenNaturalResourcesPBreport2013.pdf>>.
- <sup>113</sup> Peterman, Amber. "Women's Property Rights and Gendered Policies: Implications for Women's Long-term Welfare in Rural Tanzania." *The Journal of Development Studies* 47.1 (2011): 1-30. Web. 8 Mar. 2016. <<http://www.tandfonline.com/doi/abs/10.1080/00220381003600366>>.
- <sup>114</sup> "Women in Agriculture: Closing the gender gap for development." The State of Food and Agriculture 2010-11. Rome: FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, 2011. Web. 8 Mar. 2016. <<http://www.fao.org/docrep/013/i2050e/i2050e.pdf>>.

