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How investing in girls' education can help fight climate change

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CONTRIBUTORS:

Host:

FRED DEWS

JOSEPH KANE

Senior Research Analyst and Associate Fellow,
Metropolitan Policy Program

CHRISTINA KWAIK

Postdoctoral Fellow, Center for Universal Education,
Global Economy and Development

(MUSIC)

DEWS: Welcome to the Brookings Cafeteria, a podcast about ideas and the experts who have them. I'm Fred Dews.

Climate change affects everyone worldwide but its damaging consequences hit hardest on the most vulnerable and least skilled people in developing countries, particularly women and girls.

The research from the Global Economy Development program here at Brookings sheds light on this challenge and offers policy ideas that focus on how girls' education may be one of the best responses to climate change.

To discuss these ideas I'm joined in the studio today by Christina Kwauk, co-author with Amanda Braga of three platforms for girls' education and climate change. She's a post-doctoral fellow at the Center for Universal Education part of Global Economy Development and also manages the Echidna Global Scholars Program. Her research focuses on girls' education in developing countries, gender equity and education, and 21st century skills and youth empowerment.

Stay tuned in this episode for another installment of Metro Lens. In this edition, Joseph Kane addresses the water infrastructure challenges in the U.S. You can get the latest information by following the Brookings Podcast Network on Twitter @policypodcasts. And now on with the interview. Christina welcome to the Brookings cafeteria.

KWAUK: Thank you so much, Fred.

DEWS: First I'd like to know more about your background and how you came to be interested in this topic?

KWAUK: I am postdoctoral fellow in the Center for Universal Education and I focus primarily on girls' education. When I came in we began to look at some of the evidence around what works in girls' education particularly to help girls in developing countries gain access to and complete equality education. And in that process we also looked at kind of what are the wider social benefits of educating girls around the world.

And one of the surprising pieces that we found was the impact that girls' education can have on things as unexpected as climate change.

When we saw this, we found that this to be a perfect opportunity to kind of investigate kind of the intersectionality of work, so girls' education, gender, empowerment, and climate change, and it just sort of rolled from there.

DEWS: I've interviewed Center director Rebecca Winthrop and other scholars in the Center for Universal Education about girls' education research so we have a lot of content out there on the topic. It's really interesting, but this intersection between it and climate change is really fascinating. I do want to dive more deeply into the paper that you've written with Amanda Braga here in a minute, but first I just want to take a detour and ask you what the is the Echidna Global Scholars Program?

KWAUK: So the Echidna Global Scholars Program is a visiting fellowship where we have a cohort of three to four girls' education leaders from around the world come to Brookings for a four and a half month residency to hunker down and really research a particular topic in girls' education that is relevant in their local context.

And the goal of this program is to really amplify the policy impact of their work as well as their own voices in the girls' education space. So Echidna is actually a small Australian rodent that lives in the outback I believe and it's known for its resilience, its sturdiness, and its ability to thrive in very hard environments.

So I think a very apt name for a program focused on girls' education in some of the most challenging environments.

DEWS: Very cool, very cool. All right, so climate change affects every human, but why does it have a more acute impact particularly on women and girls?

KWAUK: So climate change exacerbates existing gender inequalities that obstruct opportunities for girls and women's social and economic empowerment. We know that climate disasters lower women's life expectancy more than men's. In some cases girls and women can make up to 90 percent of those killed in a disaster. We also know that climate disasters increase girls and women's vulnerability to human

trafficking, sexual assault, especially in crowded shelters if they survive from the disasters.

We also know that because girls and women are often excluded from participation in decision making in the household in the community, also participation in disaster risk reduction activities, that they're often excluded from opportunities that could expose them to important and lifesaving information, resources, and skills.

We also know that girls endure some of the most consequential long-term impacts of shortterm coping responses that families and communities take in these sorts of circumstances. For example, they're at greater risk of early marriage under circumstances of long term climate change like drought for example where their dowries might bring in resources for families who are stretched in terms of their own ability to take care of their economic needs. And they're oftentimes the first to be withdrawn from school because of the increased number of hours it takes to finish routine chores like fetching water or fetching the firewood. And oftentimes these coping mechanisms that households engage in direct resources away from opportunities that could otherwise change the course of girls' futures, and forcing them to stay in existing conditions of poverty, vulnerability, and marginalization.

DEWS: So one of the introductory concepts in the research that really struck me is that there are three approaches to a lot of these big issues and they're kind disconnected. You've got gender approaches, you've got the education piece, and you've got the climate change piece, and each of them overlaps a little bit. So what is the kind of the overall problem that you and your co-author are addressing in this as they relate to those three kind of large areas?

KWAUK: Yes, so in our research, we saw that there are these different communities of actors that are approaching climate change adaptation and mitigation in their own ways. The problem we see is that the identification of problems and solutions are often confined within the sectors from which they emerge. So, at the end of the day, they failed to integrate on the whole.

So for example, with gender actors who are really focused on women's empowerment and their participation and inclusion and climate decision making processes, they tend to focus on the adult woman and her education and her inclusion, but they oftentimes overlook the long term and accumulative effect of being denied access to education for example for all of their lives.

The education actors that we looked at tend to focus on behavioral change among children and youth, but in their attempt to do so they take a gender blind approach and they fail to take into consideration the disproportionate impact that climate change has on girls because they faced deeper structural inequalities and deeper structural vulnerabilities.

Then we have the girls' education actors, where we situate ourselves as the researchers, but typically girls' education actors are rather disconnected from climate change in general from climate change issues, topics, discussion, action. And so we saw that these three particular communities of actors are relatively isolated and separate from each other. And so we proposed in the paper that actors from gender education and climate change communities come together through multicenter partnerships and collaboration to increase the effectiveness of their approaches. At the end of the day what we're really trying to promote is that by investing in girls' education you're addressing the underlying gender inequalities that are driving much of the unequal impacts that climate change has on girls and women and what ultimately limits girls and women's roles in climate change as victims rather than solution makers.

DEWS: So you call these multi-sector approaches three platforms as reflected in the title of your piece; three platforms for girls' education in climate strategies. Could you just briefly outline what those three platforms are and then we can go into them in some more detail?

KWAUK: So the first platform is to promote girls reproductive rights order to ensure equitable climate action. The second one is to invest in girls' education in order to foster climate participation and leadership. And the third one is to develop girls Life Skills for a green economy.

DEWS: So let's start with girls reproductive rights. We often hear that one of the goals of promoting reproductive rights and reproductive freedom is to empower girls and women to have better choices in their reproductive lives. Perhaps also to have fewer children that will then consume resources. But you're making a strong connection between this goal and climate. How does promoting girls' reproductive rights affect climate change?

KWAUK: So girls who have completed their secondary education are likely to have one less child over her lifetime than a girl who has only completed primary schooling. So we know that with increased levels of education there is a relationship to lower numbers of children that she bears across her lifespan.

But the issue here is that, or at least what we're arguing that many actors that are sort of gravitating towards this approach are missing, is that the underlying lever of change is actually the impact of education on her ability to control her reproductive life. So although we know that research shows that there's a strong correlation between girls' education and reduce fertility rates, there is something deeper that's happening that most actors who are promoting girls' education and climate change are missing.

DEWS: There are some ethical issues with reducing fertility rates. It's like oh, we're going to have population control rather than a focus on gender justice and a rights-based approach. Can you kind of address that conflict a little bit?

KWAUK: One of the major concerns here is that it places the costs of reproductive decisions on the shoulders of girls and women in the global south while ignoring other kinds of anthropogenic factors that contribute to climate change like consumption levels and technology that are typically and have historically been driven by the global north.

It also ignores other population dynamics like urbanization, aging, household consumption levels, and household size that also affect how demographic trends can influence carbon emissions. So by moving away from this heavy focus on girls' education and women's eventual fertility, what we're really saying is that we need to approach women's reproductive health from a gender justice and a rights-based

approach which allows us to avoid some of these more tricky terrain where our population focus agendas might be misappropriated by coercive state policies that further infringe on the reproductive rights of marginalized women in the global south.

We also argued that a focus on more of the a gender justice and a rights-based approach to women's reproductive health also creates a more equitable climate action and that is focused on girls empowerment and gender equality rather than her reproductive decisions.

DEWS: There's this fascinating paragraph in the report, it's got a lot of fascinating paragraphs, but this one was very striking to me and I'm just going to quote here. "In addition, environmental economists and other researchers have demonstrated that family planning is a more cost effective investment in reducing harmful greenhouse gases than other more technical strategies including adopting wind power technology, shifting from carbon power to solar power, or driving hybrid vehicles."

You're showing that family planning, giving girls and young women reproductive control, actually in the long run is a more effective way to fight greenhouse gas emissions than you know carbon sequestration and solar power and all these other things that we often hear about. That's fascinating.

KWAUK: Yeah, I know. I mean if we look at some of the estimations, researchers have shown that if we wanted to reduce carbon emissions in the atmosphere we could be spending about \$4.50 per ton of carbon emissions taken out of the environment if directed at family planning efforts versus \$5 per ton spent on forestry and agriculture solutions, and \$20 per ton spent on low carbon energy strategies.

But the catch here is that it's really the interaction between family planning and girls' education that is important and that we can easily miss as well. Family planning interventions are more effective in communities with higher levels of female education. So in order to make the family planning dollars go even further, we really need to ensure that girls have access to and complete quality education that includes sexuality, puberty, sexual reproductive health, education with an explicit attention to gender and power.

DEWS: One other factor about increased education- and again increase education is awesome and you know it's a good in its own right in addition to all these other benefits- but we're talking specifically about climate emissions or greenhouse gas emissions abatement, when people are more educated while their facility might drop, they tend to increase their consumption and therefore would that mean that carbon emissions would increase because of that increased consumption?

KWAUK: So it's sort of a domino effect where you increase girls' education, you and decrease fertility, but then that increases economic growth within households', increases consumption, and ultimately carbon. So the good thing is that research is suggesting that this domino effect is not inevitable and particularly because reductions in carbon emissions depend on so many other factors at once, including things like ageing and urbanization, that you know just a strict focus on population reduction is not going to take into account. And actually two research suggests that education actually improves the environmental consciousness and the sustainability consciousness of people. So this is specifically talking about their attitudes towards sustainable livelihoods and attitudes towards sustainable development.

So we see that better educated people are more likely to pursue more environmentally friendly lifestyle choices, transportation options, energy choices regardless of income. And then on top of that our research suggests that the wide ranging benefits of investing in girls' education produce an overall effect that could be stronger than the rise in consumption because the contributions of girls' education to climate change and climate action go far beyond curbing population growth.

DEWS: Well let's move on to Platform two which is "invest in girls' education to foster climate participation and leadership." Can you describe what this platform means?

KWAUK: So one of the striking things that we saw in our research is that the percentage of women in important climate decision making bodies and financing institutions is really dismal. If you think about the studies that demonstrate to us that there is a relationship between female leadership and the kinds of policies that they pursue that are particularly geared towards more sustainable use of resources the

question arises as to you know why aren't there more women in these particular decision making positions?

So this particular platform is really trying to garner attention to the important role that women's participation leadership and climate decision making plays and increasing the diversity of perspectives and experiences that go into actually defining and identifying problems as well as policy solutions.

But the issue too that this platform tries to highlight is that current efforts to draw attention to the need for more women in climate leadership misses the critical opportunity to address the longer term skill building opportunities, leadership opportunities, and experiences that need to be cultivated in a girl's lifetime before she becomes a woman and that is a critical link that we think needs to be addressed.

DEWS: So it comes back again to girls' education?

KWAUK: Yes.

DEWS: Let me quote again from the study on the same topic. "Studies show that female leaders are incredibly effective in conservation and protection efforts and are more likely to pursue more sustainable futures for their communities." Do you have examples of that?

KWAUK: This is an area that we're definitely more studies in, but we've seen based on larger multi-country studies that women are more likely to ratify international environmental treaties and they're more likely in their countries to protect land areas at higher rates. So countries with higher representation of women in their parliaments are more likely to pass legislation that protects land areas.

DEWS: Again I've had a lot of conversations with some of your colleagues in the center about girls' education and girls' curriculum specifically. So that suggests that when we're focusing on girls' education preparing them to be leaders generally but also in the climate space then there has to be a focus on curriculum.

Let's move on to platform three, which is to develop girls' life skills for a green economy. Can you briefly explain what that platform is all about?

KWAUK: So I think the appeal of the green economy is really around this vision of development and growth that doesn't sequester development, doesn't sequester economic growth, but presents opportunities for investing in new technologies and innovation that lead presumably to more sustainable development and continued economic growth.

But the issue with the green economy is that most actors leading green growth discussions fail to consider what these visions of a green economy mean for girls and women who are at the margins of the existing economic order. So what we try to highlight here is that there are important opportunities in which workforce development actors who are focused on trying to green the workforce, there are important links that they're missing in terms of how do you align for example girls' education programming that is focusing on developing girls' life skills with the kinds of green skills that are needed for the green economy and for green sector jobs.

DEWS: So for example what is a green skill?

KWAUK: A green skill could be something like systems thinking, or future thinking, critical thinking, those sorts of things. And what our research and girls' life-skills education show is that there is a really interesting overlap between what actors in the field have deemed our green skills and what girls' education actors have deemed our life skills. So for example, systems thinking, future thinking, and critical thinking are important for girls to be able to translate their life skills into empowered actions. It's important for them to be able to read their contexts and to be able to figure out, identify, potential strategies or solutions to negotiate a life changing situation. Or to be able to think about a particular line of action that she might pursue to better adapt to a particular life scenario.

DEWS: So what is the role of STEM education, science, technology, engineering, mathematics, in this process?

KWAUK: So within the girls' education sector there are a number of initiatives and programs that are focused on trying to increase the number of girls in the STEM fields. So whether that's getting girls to code, whether that's getting girls more into

science studies and engineering. But the issue here is that these girls and STEM actors tend to really focus very narrowly on just getting girls into these fields without necessarily connecting the opportunity that once girls have STEM skills or are experts in STEM areas of study, they miss the opportunity to link those skills to the kinds of skills that green sector jobs demand.

DEWS: So I want to pull our focus back on a little bit just to reiterate for listeners the three platforms that you review in the paper; promote girls' reproductive rights in order to ensure equitable Climate Action; invest in girls' education in order to foster climate participation and leadership; and third, develop girls' life skills for a green economy.

I want to ask you a question that some listeners might have in their minds because it's come up before which is why the particular focus on girls here and not also on boys?

KWAUK: So I think what my colleagues and I like to say in the Center for Universal Education is that the focus on girls doesn't mean that we forget about the boys, but the issue is that girls tend to experience deeper systemic marginalization that perpetuates lower social class status as well as their poor life outcomes and so interventions need to be especially tailored to their unique needs.

And of course research also suggests that efforts at improving girls' educational outcomes and their life outcomes are also good for boys. So in a sense it's almost like the rising tide lifts all boats. Research also shows that returns to investment in girls' education are often much higher than boys at all levels of education whether that's her income or that's life outcomes like marriage and her levels of agency. So increased freedom of movement, increased sexual autonomy, as well as the other factors that are important for laying the foundations for greater gender equality in society.

DEWS: Another concept that I found really fascinating I hadn't thought of it this way at all till I read the report, you note that most climate dialogues frame children and youth as the victims of climate disasters were just inheritors of the future state of the earth. Can you discuss that in the context of your research here?

KWAUK: Yeah I think it goes back to sort of the dominant way of viewing girls as well as children in general as not really being agents of change and solution makers. And it speaks to kind of the dominant approaches where climate change or climate action as a technical solution is not a sociological one.

And I think that's really a point that we're trying to make in the paper is that in order to really tackle these larger challenges of climate change, weather related disasters, we really need to move beyond just a technical sort of fix where it's not just clean energy or renewable sources of power that will fix the problem and therefore sort of just dictates kind of who we see are the actors in creating those solutions. And then everybody else is sort of the victims of the problem. But it points us to a different direction and says children, girls especially, can be the problem identifiers and can be the solution identifiers.

DEWS: Well I know that the Center for Universal Education is very focused not only on analysis but on policy solutions and policy implementation, but we have to consider the politics at play today in our world. What Trump administration actions do you think are supportive and not supportive of girls' education and climate change?

KWAUK: Well there are three particular areas that immediately come to mind that are not supportive. The reinstatement and expansion of the global gag rule that places a ban on funding and aid to organizations that are providing services and information about abortion and family planning. That's a big, big hit.

DEWS: The so-called Mexico City policy I think?

KWAUK: Yes, yes, the Mexico City Policy. Then there's also the uncertainty around the future of the former administration's important contributions and initiatives to draw global attention to and mobilize political will to tackle the barriers to girls' education, particularly adolescent girls' education, and this was to Let Girls Learn initiative.

And then there is the denial of climate change and the withdrawal of the U.S. from the Paris agreements. This is not just a problem for the U.S. but for the world in terms of climate leadership. But I think our three platforms that we outline really chart

out an alternative to what our current administration has been doing to unravel some of the progress made.

DEWS: Well then that's the segue way to my final question. Insofar as this research and research of your colleagues as an alternative to what this administration seems to be doing, what is next for you and your colleagues in this particular research and the Center in general?

KWAUK: So for this particular research, we know that our overall recommendation and our call for these very disconnected actors to come together is a long shot. I mean, they're not in the space for a reason. So I think our next big piece is to really call the evidence, do the analysis, to enhance the evidence base for what we're trying to say. I mean what we've looked at right now is you know looking at existing literature, existing data that itself needs to be more robust, we really want to do a better job of highlighting the case for actors in the climate sector for example, those who are really focused on renewable energies, to think about girls' education in ways that they can contribute to girls and women's participation in their sector.

DEWS: Well I want to thank you Christina for sharing your time and expertise with me today.

KWAUK: Thank you so much Fred.

DEWS: You can find "Three platforms for girls' education and climate strategies" by Christina Kwauk and Amanda Braga on our website [Brookings.edu](https://www.brookings.edu).

KANE: Hello this is Joseph Kane, senior research associate at the Brookings Metropolitan Policy Program.

The United States faces a wide range of water infrastructure challenges from aging pipes and outdated sewer systems to polluted waterways and degraded flood plains. The enormous variety of water infrastructure in need of repair and investment can be difficult to track at times, especially since many of these systems are out of sight and out of mind. At the same time, the country is confronting a rising number of climate

concerns as we have seen this fall following Hurricanes Harvey, Irma, and Maria. In short, America's water infrastructure is at a crossroads.

Frequently overlooked and taken for granted, water is not just vital for life but also provides an economic foundation for millions of businesses, farms, manufacturers, and households that depend on a reliable supply each day. This foundational role puts considerable pressure on water utilities in particular which must maintain safe efficient infrastructure and ensure that water is affordable for end users. Yet many areas across the United States do not consistently understand how much water they use or how their water demands connect to industrial change, population growth, and environmental stability.

Our new research looking at metropolitan water use aims to fill this information gap. It not only highlights the scale and complexity of how users in different metro areas depend on water, but it also points to difficulties these users and providers face managing this scarce resource in an economically efficient and equitable way.

From power plants to households water usage generally on the decline as new conservation measures and technologies have been introduced. However, utilities must confront several competing needs as a result. Fixing ageing brittle infrastructure systems in service of a productive economy while generating less predictable revenues from lower levels of water use, rising water bills, in turn are helping to cover these costs and are often hitting lower income households and other vulnerable users the hardest. In other words, less water is being used and there is often more economic risk.

So how can utilities and other users strive for more efficient and equitable water use? By analyzing data from the U.S. Geological Survey over a period of more than 50 years, three key findings stand out in this respect. First, the need for more efficient water use depends on metro areas where more than 221 billion gallons of water use takes place each day accounting for 63 percent of the U.S. total. Metro areas are central to managing the country's water resources since they contain many of its biggest users. Just twenty five of these metros including New York, Chicago, and Washington use 90 billion gallons of water each day, a quarter of the U.S. total.

Second, Metro areas are already leading the charge toward more efficient water use driving almost 90 percent of the U.S. decline over the past three decades. But this also introduces greater economic risk. From 1985 to 2010, total water use nationally fell by about 42 billion gallons each day and metro areas were responsible for thirty nine billion gallons of that. However, increasing public-supply use in many metro areas is challenging utilities to provide reliable affordable water to a growing customer base.

Finally many factors have a significant effect on water use within metro areas revealing certain policy levers that might be available to drive additional water efficiencies. In line with previous studies our research finds that certain types of industrial activity, namely energy and agricultural production, have a positive effect on total water use in addition to higher temperatures and lower levels of precipitation. Crucially, however, a smarter compact mix of land use is likely to require less water and potentially result in greater efficiencies than more sprawling development patterns.

Viewed together, these findings show that water demand is either on the decline in many places or becoming increasingly unpredictable. In turn traditional ways of managing scarce water resources are no longer sufficient to achieve long term dependable service and fiscal certainty. These trends also reaffirmed that there are no one-size-fits-all solutions to the country's water infrastructure challenges. However, by having a more consistent barometer to compare different places and way different needs federal, state, and local leaders can begin to quantify the risks at hand and develop a more coordinated approach to the country's water infrastructure challenges.

At a local level it's essential to implement new water management plans, financial tools, and technological innovations. Encouraging greater collaboration and strategic action can help as can exploring innovative ways to pay for infrastructure maintenance and upgrades. Customer assistance programs are also becoming more widespread and addressing broader equity issues.

At the state and federal level, efforts need to focus on equipping localities with needed resources. Metro and non-metro areas must contend with a highly fragmented set of water challenges and cannot address these issues alone. State and federal leaders should help utilities industries and households across the country achieve

greater financial and technical capacity to unlock new solutions. At the same time, establishing a clear policy framework to guide these efforts is essential including steps toward greater technological innovation.

Designing and deploying these strategies will take time, and not airily come easily, but they offer a clear direction for the U.S. as a whole to address a substantial water infrastructure challenges. For more information you can download this report at [Brookings.edu](https://www.brookings.edu).

DEWS: Hey listeners, want to ask an expert a question? You can by sending an email to me at BCP@brookings.edu. If you attach an audio file I'll play it on the air and I'll get an expert to answer and include it in an upcoming episode. Thanks to all of you who have sent in questions already.

And that does it for this edition of The Brookings Cafeteria brought to you by the Brookings Podcast Network. Follow us on Twitter [@policypodcasts](https://twitter.com/policypodcasts). My thanks to audio engineer and producer Gaston Reboredo with assistance from Mark Hoelscher.

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