

Asia's Developing Future



ASIAN DEVELOPMENT BANK INSTITUTE

India shows how boosting clean water delivery can improve women's economic participation

The burden of water collection and distribution often disproportionately falls on the shoulders of women in Asia's developing economies, where gaps in water infrastructure and hygiene persist and are particularly acute at a household level.

In this podcast, Ashish Sedai of Colorado State University describes clean water access challenges in the region, how the adoption of piped water in households in India is helping to increase women's labor force participation, and the impact gender-balanced household income can have on water service quality and sustainable development.

The discussion draws on the ADBI Working Paper [Who Benefits from Piped Water in the House? Empirical Evidence from a Gendered Analysis in India.](#)

[Interviewer]

Hi Ashish, thank you for joining Asia's Developing Future. Can start by explaining the status of drinking water availability in India?

[Sedai]

Absolutely. India is currently facing one of the worst water crises in its history. There is an urgent need for improved management of water resources in India and safe water supply, the backbone of a healthy economy. Yet, it is woefully under-prioritized in India. Waterborne diseases have an economic burden of approximately \$600 million a year in India. Less than 50% of the population in India has access to safely managed drinking water. We are only halfway there in terms of access to safe drinking water in the households. Even the half that we have covered is not drinkable. There is a lot to do in terms of progress in safe drinking water in India.

[Interviewer]

What are the biggest challenges for clean water distribution in India and what policy lessons do they offer?

[Sedai]

The technical issue that exists is an outdated infrastructure of water supply in India. In rural areas, the water distribution system is not well functioning and not well maintained. There is no monitoring of the water quality on a day-to-day basis. And then there is another issue of undervaluing water in the sense that we as Indians tend to spend a lot on other kinds of infrastructures, such as telephone, internet, electricity. But we under-value water, thinking that it's a public resource and that it should be provided for free.

In cities, people are being charged for the household water supply. However, in rural areas, people are still not paying for the water supply. Massive poverty exists in rural areas. Charging people for water in addition to electricity adds to the household consumption expenditure, which has the effect of lowering per capita food expenditure available for rural households. India at the state level also would not be willing to do that, because they would be risking elections. But that does not in any way mean that the way forward or the future does not lie in charging households for the marginal cost of water supply. There is massive inefficiency in water distribution and water quality because of that. In the future, policy makers should come up with a mechanism, a policy action, or at least a marginal cost action with regards to the supply of drinkable water to rural households in India.

[Interviewer]

Can you briefly explain how social-economic factors weigh on water distribution and vice-versa in India?

[Sedai]

There's caste-based inequality in India on water supply, the caste hierarchies, and the caste atrocity in terms of who gets the water first and who does not at a village level, even in the urban areas. And there are religious differences that have an impact on how water supply is distributed

in India. There is gender inequality as to who takes part early in the morning for the water supply in the household. And women tend to be one of the losers when it comes to distributing water available for day-to-day use in the household.

[Interviewer]

How can piped water in households affect women's employment and income?

[Sedai]

I have looked at data from 2005 to 2012 at the national level in India, and at the state level from 2015 to 2018 for six major states in India. I found that indoor piped drinking water betters women's situation, socially, economically in rural areas. My results show that a 1% higher access to indoor piped drinking water in the village implies a 4.7 percentage point higher probability of overall employment. This is for men in rural areas, and there is a 3.3 percentage point higher probability of employment for women in rural areas.

If we look at wage salary employment, which is a subset of overall employment, the results show that a 1% higher average access to indoor piped drinking water in the village implies a 3.9 percentage point higher probability of wage salary employment for women. So in a time from 1990 until 2010, when women's labor force participation drastically declined in India, a 3.9 percentage point increase in employment in rural areas with indoor piped drinking water is huge. It adds up to over a million more jobs for women. So one-fifth of the total earnings can be gained by providing clean drinking water to households in India for women. So in that respect, safe drinking water has a strong effect on women's earning potential.

[Interviewer]

What are the broader social benefits of greater piped water access for women?

[Sedai]

The first one is the direct effect of time, in that they don't have to spend time collecting water, maintaining it, boiling it, or treating it. In those ways, it saves a lot of time, which increases women's employment. Employment consequently increases their decision-making ability in the

household. And having clean drinking water improves the productivity of women, in terms of higher earnings through better health and time saved in water collection.

Providing a clean drinking source of water supply to the household increases women's employment. So overall, there will be higher economic activity in the region, implying more demand for other products. It means more economic growth, more demand for better products, and better living standards, which is going to boost the economic potential of a region that is emphasizing a clean drinking water supply. Increasing adult women's employment and earnings through adequate provisioning of basic infrastructures, such as water, electricity, toilet, gas, could lead to a welcome increase in consumption at the national level. It could also lead to potentially better technology and consequently a better standard of living for the overall population of a country.

[Interviewer]

What can policy makers do to promote indoor piped drinking water growth in India and across developing Asia and the Pacific?

[Sedai]

From a policy maker's perspective, understanding how water effects are different for different members of the household is critical in determining what prices they want to charge for poor households and more remote households. So, all women-based concerns of socio-economic inequality should be taken into consideration when deciding how much and what to charge for water supply in the households. At this moment, if we start charging for water to households, it may undermine women's ability or the likelihood of women's participation in the labor force.

Providing free access to the water supply, at least the connection of the water supply through pipes, and then charging households upon a certain base rate might be helpful in increasing women's labor force participation and reducing socio-economic inequality that exists with regards to women's employment and health in rural areas. Once women start participating in wage salary employment, that is going to increase the household budget which can then be utilized for supplying clean drinking water at a marginal cost. If the government sees piped water supply as having a strong impact on reducing gender differences, then why not start providing it

at a subsidized rate first. Let the household income increase because of that. And then we can start having this marginal cost technique for charging for safe drinking water to the households.

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