# Working to understand the gender impact of water degradation

Environmental degradation not only affects the biophysical world, but also people's livelihoods and wellbeing. Manchar Lake has suffered significant environmental degradation; this project provided insights into the impacts of this degradation on livelihoods, health, children and education and how this translates to gender impacts.

## Background

For centuries, life around Pakistan's Manchar Lake, one of the largest freshwater lakes of Asia, revolved around fishing and agriculture. In recent decades, water quality deterioration has resulted in significant reduction of fish supply and lower agricultural yield. Water quality measurements by the Pakistan Council of Research on Water Resources (PCRWR) show that Manchar Lake is highly saline, and has total dissolved solids, heavy metals and Persistent Organic Pollutants all above the World Health Organisation's guidelines.

To understand the social and gender impacts of the degradation of Manchar Lake, CSIRO collaborated on a case study with PCRWR, the Sindh Irrigation Department, Australian National University and the US-Pakistan Center for Advanced Studies in Water at Mehran University of Engineering and Technology in Jamshoro.

## Findings

Information gathered from the project show that environmental degradation of Manchar Lake has led to livelihood, health and education impacts.

### Livelihood impacts

*Women have reduced incomes:* When Manchur Lake was healthy women earnt income gathering aquatic plants and fishing. These funds allowed women to spend money on their children and religious events. Degradation of the Lake took away this income and women have turned to sales of traditional colourful quilts or *rilli* as an income stream but often do not obtain a fair price for their work.

*Men have reduced incomes:* When the lake water was 'sweet to drink', men recalled catching so many fish that some were given away, farmers reminisced over the rich varieties of fruits and vegetables they cultivated. Now fisherfolk report a reduction in fish sizes and variety and they need to out-migrate to construction jobs where conditions are often exploitative. In addition, the salty water of the lake causes rapid deterioration of traditional fishing boats.

*Manchar Lake*

### Health impacts

*Poor health:* Due to poor water quality villagers noted prevalence of diarrhoea, especially among children, dysentery, gastric diseases, Hepatitis B and C, as well as skin diseases.

*Women care for the sick:* Women assume the double burden of coping with their own and family illnesses caused by poor water quality.

*Women sacrifice their share:* Women also suffer more from malnutrition consuming much less food and water, instead deferring the supplies to men and children. This also has consequences for complications during childbirth.

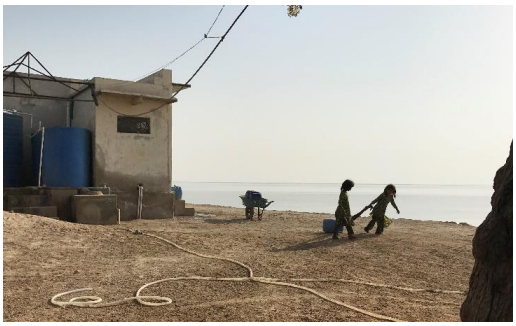
### Child and education impacts

*Girls have poorer education outcomes:* Parents are supportive of both girls' and boys' education but reduced incomes mean that a choice is made to support education for boys because of their future earning potential. The lack of livelihood and employment outcomes for young women, as a result of this poverty, mean that early marriage of young women is common.

*Poor health means lower school attendance:* Diseases transmitted due to poor water quality mean children are so unwell they cannot attend school.

*Water collection is more time consuming:* Girls have the main task of collecting water, although in areas where it is deemed unsafe, men and boys help.

*Young boys are sent to work:* Some boys as young as 12 also accompany their fathers to commercial fishing outside of Manchar Lake.



*Girls collecting water from a reverse osmosis plant*

**Building capacity to understand water policy and planning impacts on gender**

The project provided an opportunity to build capacity on gender analysis and raise awareness of the benefits of integrating gender into research methods. A two-day workshop was held in Lahore that focused on gender and development concepts, research methodologies and qualitative research methods, as well as the connections between gender and environment.

During a follow-up discussion with training participants, it was found that the workshop provided women with greater confidence to pursue gender-related research on water. Participants also shared that they have a better understanding of how qualitative research can be used to enhance biophysical research.

## Research methodology

A research team of mainly PCRWR staff (with an equal gender balance) provided input into research design and fieldwork planning. Qualitative data was collected from residents of villages surrounding Manchar Lake with separate men's and women's focus group discussions and key informant questionnaires with community health workers, Sindh Fisheries Department, Sindh Irrigation Department, environmental non-government organisations, community groups and academics.

Sindh Irrigation Department and PCRWR provided technical advice as well as logistical support for the fieldwork. PCRWR also conducted testing of the lake waters.

## Conclusions and ways forward

Some of the findings may assist in framing future research and water resource management plans.

*Alternative livelihood options are needed:* Poor water quality management in Manchar Lake has reduced livelihood options for women and men, requiring rapid shifts to alternative livelihoods.

*Families need support to overcome increased health problems:* Poor health associated with poor water quality is lowering school attendance and reducing access to education, particularly for girls.

*Gender-sensitive water resource management:* Research documenting the lived experiences of women and men provides richer insights that reveal the true costs of poor water quality and the unintended impacts.

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The CSIRO SDIP project team maintains an up-to-date website for sharing material and news on project activities.
<https://research.csiro.au/sdip>

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