

Drought resilience in agricultural areas

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Introduction

South Asia is one of the world's regions most sensitive to drought (IPCC, 2022), and water and food shortages are expected to become more frequent. Afghanistan and Pakistan, both in south Asia, share nine rivers with a combined population of around 43 million where droughts occur 4 in 10 years, and challenge agricultural production.

Methodology

Work undertaken as part of Water Management for Enhanced Productivity, a USAID funded, IWMI-implemented project, characterizes climate extremes including agricultural droughts and links these events with crop yield using projected climatic data in the agriculturally important Gomal River basin.

Results

In Gomal River basin adaptation measures e.g., drought resistant crop varieties, improved irrigation methods and farm practices have shown significant acceptance and uptake. Drought assessment and prediction in agricultural settings, in and beyond south Asia, has high prospects for better planning and implementation of adaptation measures and has global relevance.

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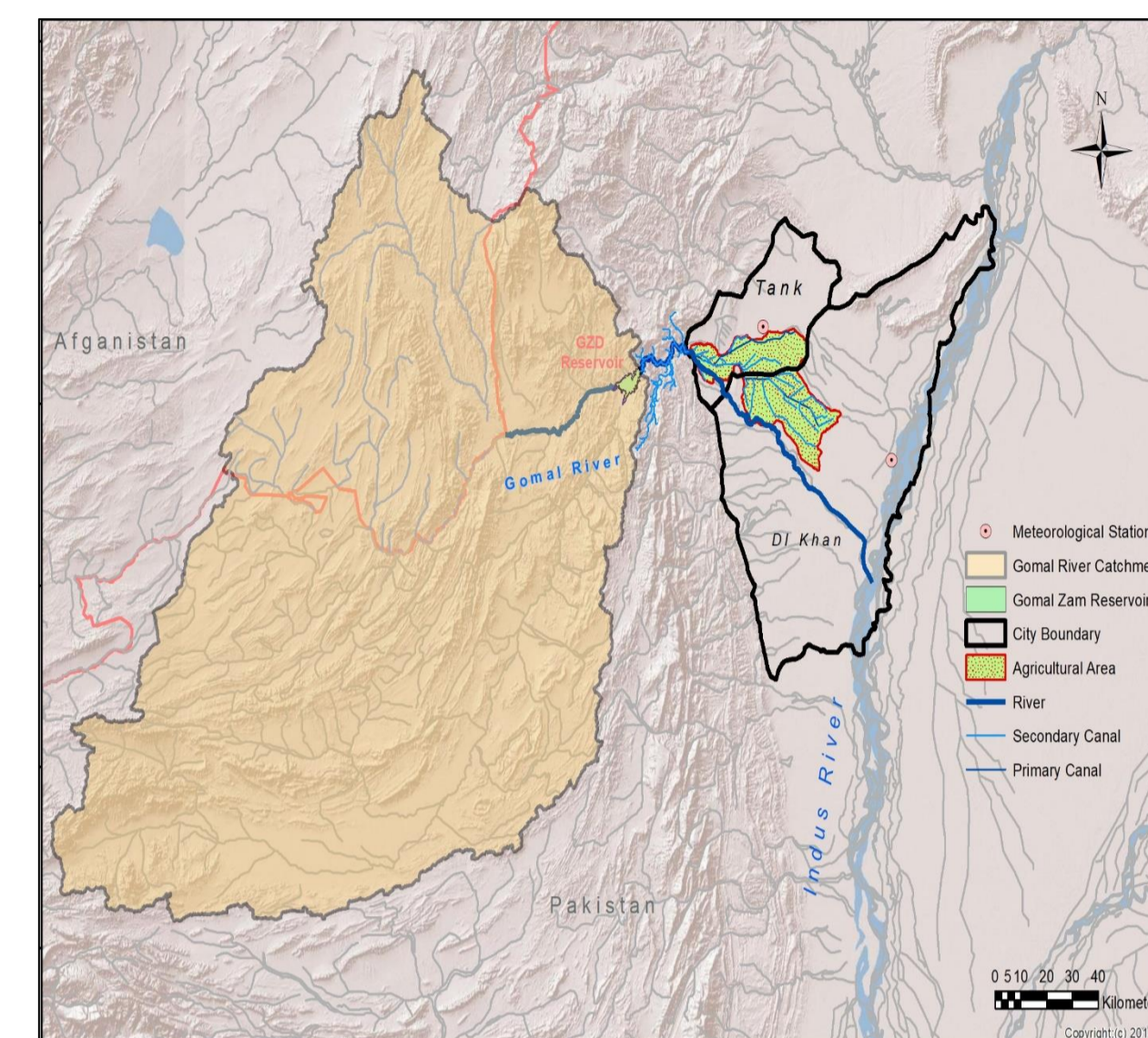
Drought effects on **agriculture**, though relatively overlooked, may **exceed impacts to urban areas**

Climate shock outlook can be prepared to agricultural areas to **predict and prepare for drought** through roll out of adaptation measures.

There are **many global and regional networks** where leadership of cities are in action to confront the climate crisis. There is **no such network** where managers of **agricultural districts/areas** can unite to develop strategies on drought resilience.

Gomal Agricultural Area

The boundaries of catchment, cities and agricultural areas differ from each other and hence the associated vulnerability and impacts of droughts.



For agricultural areas/ districts, agricultural droughts indices e.g. eRDI, aSPI are more relevant than commonly used drought indices.

Agricultural drought indices can be used to link drought effects – through crop calendars and models – to crop yield and future occurrence using projected climatic data.

In Gomal Agricultural Area, adaptation measures that has shown significant acceptance and uptake are around drought resistant, crop varieties, irrigation methods and farm preparations.

Further Reading:

<https://www.nature.com/articles/s41598-023-36909-4>

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