

Policy Brief # **50**

**Better Water, Better Jobs –
Envisioning a Sustainable Pakistan**

By:

Sebastian Gollnow

All rights reserved. No part of this paper may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or information storage and retrieval system, without prior written permission of the publisher.

A publication of the Sustainable Development Policy Institute (SDPI).

The opinions expressed in the papers are solely those of the authors, and publishing them does not in any way constitute an endorsement of the opinion by the SDPI.

Sustainable Development Policy Institute is an independent, non-profit research institute on sustainable development.

First edition: April 2016

© 2016 by the Sustainable Development Policy Institute

Mailing Address: PO Box 2342, Islamabad, Pakistan.

Telephone ++ (92-51) 2278134, 2278136, 2277146, 2270674-76

Fax ++(92-51) 2278135, URL: www.sdpi.org

Table of Contents

1. Introduction	2
2. Political economy of water	2
3. Impact on Pakistan's economy	3
4. Key Recommendations	5
5. References	5

1. Introduction

Pakistan is an arid to semi arid economy with low and variable rainfall. Water is a scarce resource and most of it is utilized in agriculture sector. The major water resource here is the sophisticated Indus Basin irrigation system, which irrigates more than 90 per cent of the country crops.

Agriculture constitutes the largest part of Pakistan's economy, as majority of the population, directly or indirectly, depends on it. It contributes to 24 per cent of the Gross Domestic Product (GDP), accounts for half of employed labour force, and is the largest source of foreign exchange earnings (Ministry of Finance 2015). These facts underline the importance of water for economic growth and employment.

This policy brief aims to review the relation between water management and employment in Pakistan.

2. Political economy of water

Pakistan's National Climate Change Policy provides a detailed list of policy recommendations that need to be implemented to ensure water security, cope with a changing climate and handle increase in demand due to a fast growing population (Figure 1). These policy measures require the following actions:

- **Water storage and infrastructure:**
Additional storage and distribution infrastructure requirements need to be addressed. Furthermore, the existing structures should be upgraded.
- **Water conservation:**
There is a need to incentivize efficient irrigation techniques, and harvest rainwater.
- **Integrated water resource management:**
It must be ensured that water allocation is regulated between sectors and regions. Groundwater use also requires regulation. Participatory irrigation management reforms for farmers need to be implemented;
- **Legislative framework:**
There is a need to enact waste and waste water management practices;
- Enhance institutional capacity of relevant stakeholders and raise public awareness

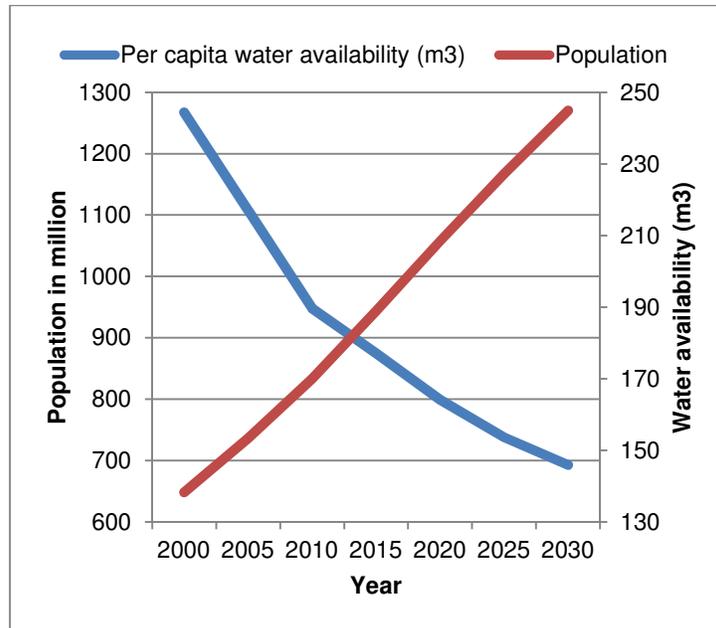


Figure 1: Pakistan's population and water availability, 2000-2030 (UNESA 2016)

These policy measures to a great extent are in line with the policy recommendations put forwarded by the World Bank, the UN, and NGOs (SDPI 2006; IUCN 2014; World Bank 2015). The critical point of the policy is that the Ministry of Climate Change cannot implement it, as it has no authority over the sectors' concerned. It can only recommend and support the coordination of institutions that have the authority through the National Climate Change Implementation Committee.

In short, the policy measures identified by the Ministry of Climate Change to ensure water security today and in future lack implementation. Despite water scarcity and dependency on irrigation, Pakistan is still managing to achieve most of its foreign exchange earnings through the export of water intensive agricultural products. Also, water-related jobs are the main source of livelihood.

3. Impact on Pakistan's economy

Water scarcity, dependency on agricultural production, population explosion, and inefficient water management has made the country extremely vulnerable to climate change.

Its agricultural yields are currently the lowest in the world. About 60 per cent of the country's population is facing food insecurity, and nearly 50 per cent of women and children under five years of age are malnourished (WFP 2015). Food and nutrition insecurity in the country are primarily attributable to limited economic access and utilisation by the poorest and most vulnerable — particularly women — to an adequate and diverse diet (WFP 2015).

SDPI, as part of the PRISE project, is currently assessing climate resilient economic development, migration trends and water governance in Pakistan (Box 1). Climate resilient economic development is assessed based on the example of the cotton value chain.

Cotton is particularly important to Pakistan's economy, as it is the main industrial crop and 40 per cent of the industrial labour force is employed in the textile sector (USDA 2015).

Cotton yields are comparably low in Pakistan and vary substantially between years. The variability affects the whole value chain as the textile industry requires cotton as input. Climate change is expected to increase variation in yields as the occurrence of climate extreme events will increase.

Groundwater is increasingly used to meet water requirements of crops as a consequence of limited surface water availability. This is leading to several environmental issues such as an increase in secondary salinisation of irrigated soils and a falling water table. Also, the usability of groundwater is in many areas limited, as it is already saline or polluted due to insufficient waste and wastewater treatment.

Estimates indicate that climate change effects, including water scarcity, rainfall shifts, and heat stress, may motivate anywhere from 25 million to 1 billion people to migrate by 2050 (global). Climate change in combination with other socioeconomic factors is also associated with the rural to urban migration trend. The PRISE project team at SDPI is currently assessing migration trends in Pakistan. Preliminary conclusions are: Supporting the development of intermediate cities could mitigate rapid urbanisation and the expansion of megacities. Migration is currently hard to monitor; it is, therefore, recommended to develop a monitoring system to capture migration trends. Pakistan's rural economy depends very much on agriculture. Agricultural production is threatened by climate change. Hence, adaptation strategies to cope with challenges need to be implemented. Current rural and urban service delivery through decentralised governance needs to be improved (Saeed et al. 2016).

Box 1: The PRISE project

Pathways to Resilience in Semi Arid Economies (PRISE) is a five year multi-country research project that aims to generate new knowledge about how economic development in semi-arid regions can be made equitable and resilient to climate change.

It supports decision-makers in local and national governments, civil society and businesses to strengthen their commitment for influencing policy interventions and investments that create more equitable and resilient economic development.

Some of the key objectives of the project are:

- To establish an evidence base on the impact of climate change on key factors conditioning the economic growth of semi-arid lands, and conversely, how these factors condition vulnerability to climate change.
- To develop an evidence base on the risks posed to economic growth in semi-arid lands by extreme climate events, particularly droughts and floods
- To identify investment, policy and planning measures for inclusive climate-resilient development and growth in semi-arid lands

Leveraging existing initiatives and networks in a stakeholder engagement process that co-creates knowledge builds credibility with research users and promotes the uptake of results.

For details: (<http://prise.odi.org>)

4. Key Recommendations

Recent climate disasters in 2010, 2011, 2012 and 2014 have demonstrated that, in the absence of policies promoting climate-resilient development, climate change is expected to multiply existing vulnerabilities and magnify climate risks (SDPI 2015).

While Pakistan has the necessary natural endowment and the world's most extensive irrigation system, harnessing these assets requires a paradigm shift in water policy and management in a context that would emphasize demand-side measures that promote conservation and control of excessive groundwater exploitation. Policies, as suggested by the Ministry of Climate Change, need to be implemented.

There is an urgent need to develop policies and approaches for bringing water withdrawals into balance with recharge, a difficult process, which is going to require action by the government as well as informed and organized users. Since much groundwater recharge in the Indus Basin is from canals, this requires an integrated approach to surface and groundwater. There is a little evidence that the government has adapted their capacity and support to deal with this great challenge. And here delay is fatal, because the longer it takes to develop such actions, the greater the depth of the groundwater table, and the higher the costs to restore resilience.

5. References

IUCN 2014, Policy Analysis in the Water Sector of Pakistan, IUCN, Pakistan, Karachi

Ministry of Finance 2015, Pakistan Economic Survey 2014-15, Agriculture (Chapter 2), Ministry of Finance, Islamabad

Saeed, F, Salik, K & Ishfaq, S 2016, Climate induced rural-to-urban migration in Pakistan, viewed 1st April 2016,

<http://prise.odi.org/research/climate-induced-rural-to-urban-migration-in-pakistan>

SDPI 2006, Pakistan's Water Challenges: A Human Development Perspective, Working Paper Series #105, Islamabad

SDPI 2015, Pakistan, Current Situation Assessment; viewed 1st April 2016, <http://prise.odi.org>

United Nations Department of Economic and Social Affairs (UNESA), Population Division 2016, Pakistan's Population, viewed 1st April 2016,

<http://www.worldometers.info/world-population/pakistan-population/>

USDA 2015, Cotton and Products Annual, Global Agricultural Information Network, viewed 1st April 2016,

<http://gain.fas.usda.gov/>

Recent%20GAIN%20Publications/Cotton%20and%20Products%20Annual_Islamabad_Pakistan_4-5-2016.pdf

WFP 2015, Pakistan Brief, World Food Programme viewed 1st April 2016,

<http://documents.wfp.org/stellent/groups/public/documents/ep/wfp272142.pdf>

World Bank 2015, Pakistan's Water Economy – Running Dry, University Press, Oxford.