Post Doctoral Hiring through Research Initiation Grant

Project: Quantitative Water Policy Research

Praharsh M. Patel (Asst. Prof, Environmental Economics)

Research Objective and Motivation

Water-related risks induced by climate change—such as increasing frequency of droughts and floods—pose significant challenges to agricultural productivity, rural livelihoods, and urban water security. Gujarat, in particular, faces acute pressures due to groundwater over-extraction, expanding irrigation demand, and large-scale water infrastructure investments. Despite substantial public expenditure, rigorous empirical evidence on the environmental and welfare impacts of these interventions remains limited.

This project seeks to establish a **quantitative water policy research program** that integrates economic analysis with hydrological and agronomic insights to inform sustainable water management. Given the scale and complexity of available datasets and the interdisciplinary nature of the research, the engagement of a dedicated postdoctoral researcher is essential to generate timely, policy-relevant outputs.

Objectives

The proposed research aims to:

1. Quantify environmental externalities associated with agricultural and industrial water use.
2. Assess the causal impacts of water-related policies and infrastructure investments on farm outcomes and social welfare in Gujarat.
3. Develop empirically grounded policy simulations that balance environmental sustainability with economic development.

Methodology and Work Plan

The project will primarily rely on **secondary data analysis**, complemented by targeted primary data collection where necessary. Key datasets include the Agricultural Census, Minor Irrigation Census, Water Resources Information System (WRIS), and remotely sensed hydrological and land-use data.

The postdoctoral researcher will apply advanced **microeconometric and structural modeling techniques** to identify causal impacts and simulate alternative policy scenarios. Spatial and raster-based analyses using remote sensing data will be integrated to capture heterogeneity in water availability and use across regions. The research will be conducted in close collaboration

with experts in hydrology, civil engineering, and agronomy to ensure methodological rigor and contextual relevance.

Expected Outcomes and Deliverables

- Development of a sustained research agenda on water conservation and agricultural sustainability.
- Submission of at least one to two research papers to peer-reviewed applied economics journals.
- Policy briefs and dissemination materials targeted at state and national water policy stakeholders.

Justification for Postdoctoral Position

The scope of the proposed research—combining large-scale data integration, causal econometric analysis, spatial methods, and interdisciplinary collaboration—requires specialized expertise beyond routine research assistance. A postdoctoral researcher with strong training in environmental and applied economics will play a critical role in data management, methodological development, and manuscript preparation, thereby accelerating the establishment of the PI's research program under the RIG.

Duration of Engagement

The postdoctoral appointment will be for **one year**, with the possibility of extension for a second year subject to satisfactory progress and availability of funds.

Expected Salary Range

INR 72,000 – 80,000 / month

Required Skills and Expertise

- Ph.D. in Economics, Agricultural Economics, Environmental Economics, or a closely related discipline.
- The percentage/grade points with respect to the academic qualifications will be a minimum of 60% or equivalent grade from Graduation onward and 55% or equivalent grade in class 10th and 12th.
- Strong quantitative and micro econometric skills; **proficiency in R is mandatory**.
- Experience working with spatial, raster, or remote sensing data using R and/or ArcGIS.
- Willingness to conduct fieldwork in Gujarat; knowledge of Gujarati is desirable.
- Demonstrated publication record in applied economics or water policy journals.
- Prior experience with structural economic modeling is added advantage.

Application Link: https://forms.gle/vyj3VWKppmAYXXaM8

Last Date to Apply Online: Feb 22, 2026