

Estimating Multidimensional Water Poverty Index in India: The Alkire Foster Approach

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Abstract : The Sustainable Development Goals (SDGs) for 2016-2030 were adopted in response to Millennium Development Goals (MDGs) which focused on access to sustainable water and sanitation. For over a decade, water has been a significant subject that is explored in various facets of life. Our day-to-day life is significantly impacted by water poverty at the socio-economic level. Reducing water poverty is an important policy challenge, particularly in emerging economies like India, owing to its population growth, huge variation in topology and climatic factors. To design appropriate water policies and its effectiveness, a proper measurement of water poverty is essential. In this backdrop, this study uses the Alkire Foster (AF) methodology to estimate a multidimensional water poverty index for India at the household level. The methodology captures several attributes to understand the complex issues related to households' water deprivation. The study employs two rounds of Indian Human Development Survey data (IHDS 2005 and 2012) which focuses on 4 dimensions of water poverty including water access, water quantity, water quality, and water capacity, and seven indicators capturing these four dimensions. In order to quantify water deprivation at the household level, an AF dual cut-off counting method is applied and Multidimensional Water Poverty Index (MWPI) is calculated as the product of Headcount Ratio (Incidence) and average share of weighted dimension (Intensity). The results identify deprivation across all dimensions at the country level and show that a large proportion of household in India is deprived of quality water and suffers from water access in both 2005 and 2012 survey rounds. The comparison between the rural and urban households shows that higher ratio of the rural households are multidimensionally water poor as compared to their urban counterparts. Among the four dimensions of water poverty, water quality is found to be the most significant one for both rural and urban households. In 2005 round, almost 99.3% of households are water poor for at least one of the four dimensions, and among the water poor households, the intensity of water poverty is 54.7%. These values do not change significantly in 2012 round, but we could observe significance differences across the dimensions. States like Bihar, Tamil Nadu, and Andhra Pradesh are ranked the most in terms of MWPI, whereas Sikkim, Arunachal Pradesh and Chandigarh are ranked the lowest in 2005 round. Similarly, in 2012 round, Bihar, Uttar Pradesh and Orissa rank the highest in terms of MWPI, whereas Goa, Nagaland and Arunachal Pradesh rank the lowest. The policy implications of this study can be multifaceted. It can urge the policy makers to focus either on the impoverished households with lower intensity levels of water poverty to minimize total number of water poor households or can focus on those household with high intensity of water poverty to achieve an overall reduction in MWPI.

Keywords : .alkire-foster (AF) methodology, deprivation, dual cut-off, multidimensional water poverty index (MWPI)

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