

# Why NEP 2020 provides an opportunity to include water in higher education curricula

The policy's focus on the interdisciplinary approach should be leveraged to develop undergraduate courses on water management



The biggest challenge in natural resources management is how to reduce the impact of human activities on the environment, even as we try to improve livelihoods and living standards. (Representational Photo)

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As children, we are all taught the water cycle in schools. This integrated understanding of how the biophysical system works and the impact that human activities have on the environment gradually wanes away as we move into higher education. This gets magnified at higher levels because of the lack of interdisciplinary curriculum and training. Only a few higher education institutions (HEIs) offer programmes that look at water in an integrated manner drawing upon both natural and social sciences. The **National Education Policy (NEP) 2020** provides an opportunity to bring about a change.

One of the changes envisaged in NEP 2020 is the move towards a multidisciplinary and integrated curriculum, with emphasis on topics relevant to current times, including environmental conservation. The revised curriculum framework for environmental education that the University Grants Commission (UGC) released for undergraduate studies also takes inspiration from NEP 2020. The way water resources management courses are designed and taught in India would be interesting to look at in this context.

The biggest challenge in natural resources management is how to reduce the impact of human activities on the environment, even as we try to improve livelihoods and living standards. Compared to other resources such as soil or air, the links between the resource or the biophysical aspect and the socio-economic, political and institutional factors are complex in the case of water. This is partly due to the nature of the resource. Water flows downwards due to gravity and is stored in reservoirs or intercepted to be able to use it. Studies have shown that the benefits of engineering interventions such as dams have been mixed. Storage and distribution of water are fraught with social and institutional challenges. There are inequities in distribution between upstream and downstream users. Allocation for human use between agriculture, industry and domestic use is privileged leaving little environmental flows for aquatic life. There is mounting evidence that human activities and climate change have altered the natural water cycle.

These complex linkages have to be a part of water education and a siloed approach, focusing only on technical and engineering aspects or on social and policy aspects will not serve the purpose of water education and environmental conservation. A study covering close to 900 HEIs by A Kansal and G Venkatesh in 2020 noted that there are 337 HEIs in India that have programmes or courses on or related to water management. However, only 32 HEIs offer degree programmes or have departments focused on water. These are predominantly research institutions and not teaching. The study found that there is a “strong and perceptible bias towards the ‘engineering and technological’ aspects” of water education. Socio-political and institutional aspects are not given adequate attention.

Ideas such as Integrated Water Resources Management (IWRM) that incorporate complex social-biophysical linkages have been applied in the last couple of decades. IWRM seeks to promote efficient, equitable and sustainable management of water in relation to other resources such as land. The idea also emphasises participatory decision-making and recognises the central role of women in water management. Such approaches have made their way into policy and interventions on water in India. However, such thinking seems to have not had as much impact on Indian water education programmes and curricula.

Part of the problem lies in the incentive structure that exists in mainstream academic institutions. In spite of the growing thrust on multidisciplinary and interdisciplinary approaches in recent times,

disciplinary research tends to be valued more. Add to this the pressure to publish in high-impact journals. Disciplinary work offers a comfort zone whereas interdisciplinary collaboration and curriculum development is difficult. Interdisciplinary journals may not always have a high impact factor. Working on applied problems like climate change and water management also requires faculty to spend a significant amount of time and effort in outreach which eats into research time. This can be risky for securing tenure, promotions and career prospects, particularly in the case of early career faculty and researchers. Disciplinary hierarchies pose another barrier. Conventionally, applied sciences like engineering are accorded prominence over the so-called soft disciplines, such as social sciences. Such notions hinder collaboration in an area such as water resources management where engineers and social scientists have to work together.

It is then hardly a surprise that innovative and integrated curricula on water resources management have come from outside mainstream academia, from non-governmental research organisations and the new liberal arts universities. Tata Institute of Social Sciences, TERI School of Advanced Studies, and Shiv Nadar University are examples where full-fledged interdisciplinary water programmes combining natural sciences and social sciences were experimented upon. Government agencies such as the Advanced Centre for Integrated Water Resources Management (ACIWRM) have been conducting training programs on IWRM for department engineers, who are otherwise trained in conventional engineering curricula, to approach water in an integrated manner in their professional careers.

Water education in India needs to move towards an integrated approach with primary school curricula as the starting point. Interdisciplinary and collaborative research and teaching on water should be encouraged in HEIs keeping in mind the nature and importance of this resource. Structural changes and the implementation of associated steps such as the revised environment education curriculum framework of the UGC should reflect the larger vision of NEP 2020.

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