

Tvedt's Water System Approach and Indian Rivers

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Abstract: *This essay discusses Tvedt's water system approach and its loopholes. In this essay, his idea of the approach has been applied in India taking the case of Kshipra river basin. The essay is to develop an understanding of how water as a resource can be sustained for future generations.*

Keywords: water system approach, Kshipra river, sustainability, water resource

1. Introduction

Tvedt (2015) in his book "Water and Society" opposes the traditional conceptual theory used in social sciences positing that water is both universal and particularistic in nature which therefore necessitates a new methodology. He first establishes how the abundance of water on earth does not dictate this need but the distribution and flow of water across the land is the basis of water systems. It is this availability of water that dictates human settlements, its progress, its power relations, its aesthetic beauty, etc. In order to understand this varied nature of water Tvedt discusses and comparatively explains how the water system approach he proposes can help change the condition of this natural resource.

The earlier approaches used to understand water was socio-ecological [Socio-ecological theory is based on a framework for understanding the multifaceted and interactive effects of personal and environmental factors that determine behaviours, and for identifying behavioural and organizational leverage points and intermediaries for health promotion within organisations. (UNICEF, 2014)] which tends to be reductionist and deterministic. According to the author (Tvedt, 2015), this approach limits itself to particulars and is biased. The water system approach that the author delineates does not condense itself to one discipline; neither advocates the superiority of one discipline over another. It tries to bridge the gap between the natural and cultural, both which governs water. He argues how water systems because they are both exogenous and endogenous, cannot be tackled by a socio-ecological theory which attempts to conform water either to the social or to the ecological. It breaks away from such reductionism and determinism, in which shrinking of the natural world takes place on the human stage and establishes results as irrefutable. The three layer approach that the author proposes as alternate acts as an open unit. The next section explains the dynamics of the approach.

2. Dynamics of the Approach

According to the author (Tvedt, 2015) water system approach has the following dynamics:

First Layer: expresses the water's natural form in terms of the hydrological cycle. This layer explains how physical and

chemical change effect societal change. According to this layer, water is exogenous and at the same time the part of the society. It refutes nature-culture dichotomy, at the same time draws another distinction conjoining the natural and cultural level. This layer includes in itself hydro-historical approach which is both synchronic and diachronic.

Second Layer: discusses the anthropogenic structures which help human beings consume water. Rather than giving to the river, the water is brought to their utility areas through several engineered constructions which beguile naturalness. These structures never look for nature-centric or anthropocentric approaches. The engineer when constructing a bridge does not regard the effects it may have on the water body. The hydraulic systems that one observes in most of the countries are symbols of power that demonstrates taming of nature and the human need for aesthetic beauty. A 'built environment' is solely the product of culture, but a 'waterscape built environment' cannot be because the flow of water cannot be curbed or constructed. Physical waterscapes and modified waterscape can be understood in the form of 'managed' and 'not-managed' resources. But the word 'managed' is contradictory for management varies synchronically and diachronically and also the question of what constitutes management cannot be established.

Third Layer: Water can never escape social construction because it has been ascribed different meanings and utilised in different ways throughout history of mankind. But there are no recorded historical documents about this. Such a history would aid in the management of water system. Water has been used as a metaphor throughout ages to denote the passage of time, end of all things, youth, fertility, power, male-female dichotomy, etc. The change in these metaphors denotes how water societal interactions have changed.

To understand water and its complexity without biases, it is essential to combine all three layers so that constructing a dam, canal, sewage pipelines, etc. does well both for water and the people. The author delineates the points of failure in earlier research. But on the contrary, this approach may also have its loop holes as these layers might not be applicable all over the world due to varying geographies. Next section discusses the operationalization of this theory and also its loopholes in terms of its layers.

3. Operationalization of Water System Approach

India can be used as a case study to test the said approach. India derives its name from the mighty river Indus (Sanyal, 2012). Rivers have been the essential part of the country from pre-historic times due to its inevitability in irrigational assistance, inland travel and trade, industrial sector and a rapidly growing economy. Manusmriti in its chapter 2 (Shloka-17) says that India is the land created by God which falls between two divine rivers Saraswati and Drishadwati. Saraswati went dry during 1900 BC as a result of geological change and tectonic upheaval's, but it is still considered an essential part of Indian identity. In other words, Indian civilization throughout ages have been built and preserved by rivers. This is in relation to the first layer of the water system approach. Hydrological cycle plays a very important part not only in a river's existence but also in the society built upon it.

The second layer i.e. the anthropogenic layer is a contemporary analysis of the river-society interaction. This layer fails in India mostly because anthropogenic structures are yet to reach global standards. In India, rivers are attributed mythological significance so much so that its natural state is often forgotten. Most rivers are considered to be self-cleanser and the acceptors of everything that is offered to it while performing rituals. These offerings range from flowers in polythene bags, ashes, dead bodies, clothes, sewage, etc. Festivals like Kumbh Mela, are famous for the holy dip in the revered rivers. But the anthropogenic structures meant to aid the river are almost non-existent. The rivers are left to replenish on their own till a next festival knocks the door of the country.

In terms of India, the third layer approach is related to the second layer approach. Although contemporary historic documentations of rivers are few and far between, Indian rivers have rich mythological histories. This leads to them being worshipped. This fact should have had a positive result on Indian water systems as the author posits. But in the case of India, this is not so. Mythological history has on the contrary lead to the sorry state of affairs in the case of Indian rivers. Rivers in India are worshipped because it is considered cleansing agents, both physically and spiritually. Due to this belief which is exaggerated as literal, the society pollutes the river both physically and symbolically assuming that it does not require external assistance to cleanse. The absence of a post-mythological history has led to a wide spread ignorance amongst the natives and resulted in a steady exploitation of rivers through ages. The change in the metaphor of river water being treated as God and not as a water body in this country would take some time, and hence the third layer is only partially true. India, therefore, needs not only a synchronic and diachronic water system approach but also revamp in ideology for the water system approach to be successful.

In order to explore more about water system approach in India this paper takes the case of Kshipra river Basin in its Malwa region. The study of this region portrays that the bridge between nature and culture would be beneficial for managing water the crucial resource of all times. The

physical and chemical change affecting the river is affecting the urban as well as rural areas; farmers suffer as they use water from this basin for irrigation purposes, urban people have to bear the foul smell as they pass by one of its tributary river Khan, weather variability bringing in less rain and making the river course weak, pumping water from other flowing rivers to this basin for fulfilling the requirements of the people. As the first layer explained through the approach is conjoin of nature and culture seems lacking behind.

The water from the Kshipra river basin has been exploited in such a way that now it has become very difficult to improve the conditions of the tributary rivers, the sewage pipelines which were built parallel to the river are broken at most of the places, and it has made the river a drain. The drinking water taps provided to people through river link projects also receive dirty water which is the cause of infection and disease amongst mostly the poor. Exploiting the river water and extracting as much it can give either makes the river extinct or suddenly when it rains heavily the river takes back what it has lost through a natural disaster like floods. So in the second layer, the study area only extracts, there are very few provisions or policies through which people have tried to rejuvenate rivers.

Lastly, the third layer is an extension of the second layer in which people consider Kshipra as a goddess, and so it is thought that it has all the capacity to be cleaned itself. Hence this approach suggests what needs to be done in order to improve the condition of rivers in India.

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