

## Management of water and natural resources

This is in response to 'Water, land and India's economic expectations' by T. N. Narsimhan<sup>1</sup>. Essentially, what Narsimhan is saying is, India is using up too much of natural resources, with scant regard for the environment.

It is outrageous that a citizen of a society that uses 8000 kW of electricity and 25 barrels of oil per capita per year, and is known as world's biggest polluter, thinks it fit to lecture on environmental sustainability to a people who use only 500 kW and 0.547 barrels of oil per capita per year, and are one of the cleanest societies.

Even from a purely scientific perspective, the paper is untenable. It is written in the typical environmental activist lingo, based on axiomatic assertions, e.g. he writes 'if so, how may one account for India's lack of attention to the role that earth-science plays in economic growth?'. But where has he first proved that there is such a lack of attention? On the contrary, India is a leader in introducing EIA in every major project, and environmentalists in India enjoy a huge freedom to put every major project through a stringent scrutiny.

The paper is a rhetorical web of words. For example take the sentence 'To assure efficient and equitable distribution of available water even at the present economic levels, India has to pay serious attention to the earth, and formulate policies that, at their core, recognize the attributes of natural resource systems'. But he has nothing specific to say what these policies could be. In simple English, what he is saying is 'To provide water to all, we must formulate the environmentally right policies'.

The next sentence does even better. 'The fact that economic expectations of steady growth based simply on human desires are pursued at all, is indicative of a mindset that vital national policies can be based entirely on political and economic aspirations'. Put simply, what he is saying is 'National decisions are based on people's desire to live comfortably'. Would Narsimhan please tell us how are these decision taken elsewhere? To the best of our knowledge, industrialized societies have been resisting cutting their emissions as that would compromise their standard of living.

Throughout the paper he refers to what 'India' should or should not do, and

never to what 'we' should/should not do, i.e. he is clearly advising a third party, and the advice neither affects him, nor is necessarily applicable to him. There is no evidence to believe that the advice is driven purely by environmental concerns.

1. Narsimhan, T. N., *Curr. Sci.*, 2009, **95**, 1525–1526.

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### Response:

Chetan Pandit's comments highlight the challenges of human attitude confronting a constructive coming together of science and policy.

From a science perspective, he strongly disagrees with my observation that India's economic aspirations do not give adequate consideration to the attributes of the nation's water and land resources, and that there is a lack of attention given to the role of earth knowledge in economic growth. I have presented credible hydrological data to indicate that India's current rate of water use is close to its full replenishable potential. Given this, and considering the potential for negative impacts of economic growth on the integrity of water and land resources, I have expressed an opinion that earth science is not being given due consideration in formulating India's economic expectations. In a report published in November 2009, the 2030 Water Resources Group<sup>1,2</sup> has estimated that the world's water availability will lag demand by 40% by 2030, and that in India availability will lag demand by 50% by that time. It is also pertinent here that Balam<sup>3</sup> has expressed concerns about the status of earth science studies in India. Thus, I am not alone in sounding a note of caution about India's earth resources and implications to economy.

Chetan Pandit faults me for axiomatic assertions. Scientists know no better than to think axiomatically, draw consistent inferences, and present their findings for whatever they are worth. For example, in a recent article in *The Hindu*<sup>4</sup>, this writer

presented data on how major ground-water basins in the United States have been subjected to mining, leading to unsustainable impacts on irrigated agriculture and industry. This information, along with comments on how the country is striving to adapt to a finite resource, was presented so that India may gain useful insights from the American experience. This is in the spirit of science.

*Current Science* is an international journal that encourages opinions and commentaries on issues at the intersection of science and society, regardless of national boundaries. The journal expects that such opinions and commentaries be presented in a spirit of constructive debate. I am persuaded that my article satisfies this expectation.

Chetan Pandit asserts, 'Throughout the paper he refers to what "India" should or should not do . . .'. This is utterly false. I ran a word-check, and found a single occurrence of the word 'should' in the context of India's expected GDP growth.

Chetan Pandit's statements such as 'outrage', 'environmental activist lingo', and 'rhetorical web' do not belong in a scholarly journal. Nor does his innuendo that my advice is not driven by purely environmental concerns. Sadly, however, the fact that he has made these statements cannot be ignored. His statements underscore the reality that mobilizing science in the service of society is beset with challenges of human attitude.

1. 2030 Water Resources Group, Charting our water future: Economic frameworks to inform decision-making. November 2009; [http://www.mckinsey.com/client/service/Water/Charting\\_our\\_water\\_future.aspx](http://www.mckinsey.com/client/service/Water/Charting_our_water_future.aspx)
2. Narsimhan, T. N., Towards sustainable water management. *The Hindu*, 25 January 2010.
3. Balam, P., *Curr. Sci.*, 2005, **88**, 5–6.
4. Narsimhan, T. N., Groundwater mining: American experience. *The Hindu*, 28 December 2009.

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