

## **Ecological-Economic-Social Research in India:**

### **An urban update and challenges ahead**

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Dear Colleagues:

I will begin by adding my own voice of welcome to the welcome by Chanakya and Seema. I do so in multiple capacities: as the President of INSEE, as a member of co-host ATREE, as an alumnus of this Institute, and as a resident of Bengaluru. Of course, as a true Bangalorean, I was expecting to hear that half of you would still be stuck in traffic, but fortunately that does not seem to have happened!

In today's e-enabled world, the phrase 'standing on the shoulders of giants' probably reminds everyone of Google Scholar! But as I stand here to make a 'Presidential address', I feel that I am standing on the shoulders of giants in a much more personal and real sense, and I would like to greet those of them who are here and whose work and support has inspired me and indeed many of us in this room:

- Sunita Narain—whose 2<sup>nd</sup> Citizens' report with Anil Agrawal was responsible for my shifting from engineering to environmental studies.
- Professor Kanchan Chopra and Professor M V Nadkarni—the founding President and founding Vice-President of INSEE respectively.
- Professor Gopal Kadekodi—also a past President of INSEE, and who along with Professor Kanchan Chopra, has contributed substantially to the early work on ecological economics in India
- Professor Joan Martinez-Alier—a past President of the International Society for EE and known to many of us also through his collaboration with Ramachandra Guha and his regular presence at all INSEE conferences.
- Professor Arild Vatn—a past President of the European Society for EE, and known to many of us through his award-winning book on Institutions and the Environment.

I have been privileged to have been associated with these giants in the field of ecological economics and also with INSEE from the day it was formed, and the debt I owe (and I think many of us here owe) to all of them is enormous. So a special welcome to all of you!

#### **Introduction**

In the 16-17 years since the formation of INSEE, the study of environmental problems in India in particular and developing countries in general has, I believe, expanded and deepened in many ways. And INSEE is doing its best to both promote and reflect these

changes. Indeed, it would be fair to say that INSEE has evolved to a stage where it does not see itself as an association of people working in a sub-discipline of economics (as many may perceive it from its name) but rather as an association of those interested in issues at the interface of Ecology, Economy and Society, very broadly conceived. So in my talk today, I will try to provide a birds-eye view of the changes that have taken place and the challenges that remain. In doing this, I will specifically focus on the evolution of, and challenges in doing research on, environmental issues in an urbanizing context.<sup>1</sup>

### Point of departure

In crafting this birds-eye view, I found it useful to use a similar review piece written in 1997 (which, by the way, is just before INSEE was started) as a point of departure. This is a piece written by (who else!) Ramachandra Guha, another giant and source inspiration to all of us—and published in EPW (where else!). It is titled “Socio-ecological research in India—a status report” and it gives a typically brilliant summation of the state-of-the-art at that time (Guha, 1997). Guha ended the piece by outlining the ‘unfinished business of social ecology’, in which he covered:

- 1) Gaps in research
- 2) Disciplinary limitations, and
- 3) The external challenge.

Fascinatingly, the research gaps he flagged were:

- a) the question of people-friendly biodiversity conservation
- b) the ‘gender’ dimension, and (*most pertinent from this conference’s perspective*)
- c) the ‘rural bias’ in this research, which ignored ‘urban’ and ‘industrial’ systems.

With regard to disciplinary limitations (or rather limitations imposed by disciplinary thinking), he wrote about the divide between history and sociology, and more broadly between the social and natural sciences, and how these divides hamper good socio-ecological research.

Finally, he highlighted the external challenge of post-1991 liberalization policies which (he wrote) ‘were more antipathetic to environmental research (and environmentalism) than was [state-led] development in its heyday’.

I will now try to update this review, admittedly in a much less eloquent manner than Guha. My review will also be more eclectic and broad brush, given the much larger literature I have to cover and the restrictions of time. I will organize the review in terms of expansion (thematic coverage) and deepening (in terms more disciplinary perspectives brought to bear on the same theme). I will focus on the research on urbanization-related environmental

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<sup>1</sup> I consciously use the word urbanizing rather than urban, because I believe that the environmental (and developmental) implications of urbanization are not just for the urban environment but far beyond.

problems. I will then talk about the limitations that remain in reaching an integrated understanding and engaged scholarship on environmental problems.

### **Some initial correctives**

To begin with, I would point to two biases or oversights in Guha's review, (which he himself acknowledges in passing). Firstly, with his bias towards sociology, social anthropology and history, his coverage of the economic analysis of environmental issues in India was decidedly incomplete. A literature on the economic valuation of forests (Chopra, 1993; Appasamy, 1993) and benefit-cost analysis of dams (Lele *et al.*, 1988; Paranjpye, 1990) had already emerged by the early 1990s, as had economic explanations of differences in forest management (Lélé, 1993) and variations in energy use (Bhagavan and Giriappa, 1987; Reddy and Reddy, 1983).

Secondly, his coverage of socially relevant ecology and technology was even thinner, missing out important contributions on energy technologies from here in the Indian Institute of Science (which for instance, has made Bangalore the solar water heater capital of India), or the work on technological alternatives to the Narmada dam (Paranjape and Joy, 1995), or the experiments with energy efficient lamps that had already been started by Ashok Gadgil (Gadgil and Jannuzzi, 1991).

Given that this update is addressed to INSEE, while I shall try to correct the disciplinary imbalance within the social sciences, I suspect I will do only limited justice to the vast literature that has simultaneously emerged in the applied sciences and engineering disciplines.

### **Update: Thematic expansion**

During the two decades since Guha's review, a significant expansion of socio-environmental research in India has taken place that has filled several of the gaps flagged by Guha and has covered few new areas as well. Everyone is aware of the vast literature on biodiversity conservation that has emerged in India, and it has in fact been the theme of a previous INSEE conference. The theme of gender and environment has also received significant attention during this period.

Coming specifically to urban and industrial issues, which is the focus of this conference and this address, I would say that environmental / ecological economists have been the first to fill the 'urban/industrial' gap. The late 1990s and early 2000s saw the emergence of a large literature on the economics of pollution control in tanneries (Sankar, 2004), air pollution (Parikh, 2004; Kumar and Rao, 2001), industrial water pollution (Appasamy and Nelliya, 2000). In parallel, of course, engineers and environmental scientists have studied the extent, sources and processes of pollution. A small interdisciplinary literature has slowly emerged that links pollution levels to health impacts on the one hand and regulatory policies, polluter behaviour and pollution outcomes on the other (Kathuria, 2005; Kandlikar and

Ramachandran, 2000). I am sure Sarath Guttikunda will tell us more about this research in this context of air pollution in his keynote address tomorrow. Other social sciences, although not engaging directly with the causes of polluting behaviour, have asked (for instance) whether the policies that followed have been fair to the poorer polluters or how they have displaced relatively benign small-scale industries (Sinha *et al.*, 2006).

Another theme that has been prominently addressed in the urban sector is that of water supply. Social scientists have engaged with questions such as urban water pricing and efficiency, equity in distribution, and urban water supply privatization. There has been, lesser engagement with the biophysical side of the problem, viz., where is the water coming from, how long will it last, where is the polluted water going, and who is affected by it. The interdisciplinary analysis of Chennai's water use and its impact on groundwater by Veena Srinivasan is, however, an outstanding exception (Srinivasan *et al.*, 2013), and work recently initiated by Deepak Malghan from IIM-Bangalore (Mehta *et al.*, 2013) and the ATREE water group ([www.atree.org/research/ced/lwl/BangaloreWater](http://www.atree.org/research/ced/lwl/BangaloreWater)) continues this approach.

Other themes that are slowly gaining prominence include urban biodiversity, where urban ecologists are not just mapping or cataloguing urban biodiversity, but now beginning to look at the social benefits of urban green spaces (e.g., Devy and Swamy, 2009).

Some themes are cross-cutting, that is, they are about phenomena that are correlated with urbanization or industrialization but studied at a pan-Indian scale rather than just an urban scale. For instance, the use of fossil energy in household consumption, both directly and indirectly, draws attention to urbanized and industrialized lifestyles, and researchers such as Jyoti Parikh, P.R. Shukla and Shonali Pachauri<sup>2</sup> have engaged extensively with the first part of this question: how fossil energy consumption and (therefore carbon footprint) varies with income.

A new theme, the rise of which even Guha could not anticipate, is that of climate change. Here, the most path-breaking contribution in the international debate had come from Anil Agrawal and Sunita Narain, through their analysis of global warming in an unequal world (Agrawal and Narain, 1991). While the challenge of ensuring a just and effective climate accord remains, attempts are also being made to integrate climate mitigation into a broader domestic agenda of sustainable development (Dubash *et al.*, 2013). Simultaneously, possibly driven by donor priorities, Indian researchers have engaged on a large scale with questions of mitigation and adaptation in both urban and rural contexts. Research on urban climate adaptation is still a young field and I will not attempt to summarize it at this stage.

Suffice to say that the research on urbanizing environments has expanded significantly, with a number of dimensions, including air pollution, water scarcity and pollution, greenhouse gas emissions, and adaptation to climate change, receiving research attention.

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<sup>2</sup> Parikh *et al.* (2009); Shukla *et al.* (2007); Pachauri and Jiang (2008).

### **Deepening through multi-disciplinary engagement, and gaps therein**

Socio-ecological research in India since Guha's review has also deepened in the sense that more disciplines are engaging with environmental questions. I will illustrate this again with examples from urban-industrial research, focusing on disciplines beyond environmental economics, which as I said, had already begun engaging since before Guha's review.

As Guha mentioned and as we all know, there is a flourishing literature from the institutional perspective on the rural commons—forests, fisheries, and so on. Institutional analysis of the urban commons is just beginning, such as work on collective action around urban lakes (Nagendra and Ostrom, 2014). But I foresee difficulties in transferring collective action perspectives from the rural commons to urban areas, where resources are accessed through major infrastructure that is managed by large organizations (water supply and sewerage boards, electricity utilities, pollution control boards, and urban local bodies). What is needed is for scholars of organizational theory to also engage with questions of urban resources and pollution, and ask why regulatory agencies switch from monitoring pollution to processing permits, or why state-run water supply agencies choose certain approaches to sewage treatment, or why municipalities are unable to deliver solid waste management services, and so on.

One major disciplinary strand that has been present in rural socio-ecological research (even though not labelled as such by Guha) is that of political ecology, which builds on but goes beyond the political economy perspective. While the majority of political ecology work in India continues to be on rural environments, significant contributions are emerging in urban environments also, e.g., the work on water privatization by Priya Sangameswaran (Sangameswaran *et al.*, 2008).

A third disciplinary strand is that of political science and law in understanding environmental governance. Given the limited engagement of Indian political science with environmental issues in general, one finds this strand somewhat thin, but there are exceptions as well, such as the work of Geetanjoy Sahu on understanding judicial decisions, their implementation and implications (Sahu, 2014). On the other hand, the legal profession has engaged much more, even if in a hands-on manner, and this was triggered by the capacity-building done by India-lovers like Armin Rosencranz, who almost single-handedly has trained a generation of environmentally-engaged lawyers (Divan and Rosencranz, 2002).

A few cultural anthropologists have critically analysed urban environmental movements as well as the urban bias in environmental movements at large (Baviskar, 2011; Mawdsley *et al.*, 2009; Mawdsley, 2004). But it seems to me that there has been little synthesis-oriented work that follows on Guha and Martínez-Alier's pioneering work in characterising and understanding environmentalism (for a nascent attempt, see Lele, 2011).

Finally, there is an emerging global literature on characterising outcomes, in the form of ecological footprint, carbon footprint, water footprint, and so on. This literature challenges the economist's hegemony of characterising outcomes only in monetary terms, and provides an alternative perspective on sustainability and equity of consumption practices (Martínez-Alier, 2008). While its application in the Indian context is yet to gain widespread

support within Indian academia, it relates to the research on carbon footprint mentioned earlier and is likely to expand as material consumption patterns of the rising middle class become a matter of concern. A prominent gap in this analysis, however, is the absence of any work on understanding the behaviour that creates these footprints, that is, the socio-psychology of consumption. Barring a study by Norwegian social scientist Harold Wilhite in Kerala (Wilhite, 2008), there is little by way of research in this area in India.

I am sure there is much work that I have missed out, given my limited understanding, biases, and limitations of time. Hopefully, this conference will tell us what other of themes and perspectives are being covered in urban environmental research in India.

### **Interdisciplinarity: persistent gaps and silver linings**

But is this expansion of themes and disciplines resulting in an integrated understanding that can provide the basis for policy and action? I would say that the concern about inadequate interdisciplinarity remains almost as valid today as it was 17 years ago. More research on more themes has not generally translated into more integrated understanding, for reasons elaborated below. But there are some silver linings as well, which I will highlight in the end.

The inter-disciplinary gap may be elaborated into three parts: an absence of multiple values in the characterisation of outcomes, poor linkage between social and biophysical processes, and an absence of integrated explanations of human behaviour. To an extent, these barriers are correlated, as different disciplines tend to focus on different values (Lélé, 2008), but nevertheless it is possible and useful to separate them out a bit.

Take the example of urban water research, which I have become somewhat familiar with in recent times. The engineering literature focuses on ensuring adequacy, ignoring both the sustainability question and the equity question. Average LPCD is the goal. The economics literature focuses almost exclusively on economic efficiency or fiscal solvency; consumer and producer surplus are the only relevant variables. The sociological literature focuses on problems of equity and social justice, and rightly so, but does not ask questions of biophysical or financial sustainability. More recently, climate folks talk only of resilience and adaptability, as if we have solved all other problems. But a holistic characterisation really means acknowledging that, in the real world, honest decision-makers have to simultaneously worry about adequate and safe water availability, sustainable resource use, fair allocation across sectors, financial solvency of water utilities, and environmental quality.

An equally critical gap is the poor linkage between the social scientists and the natural scientists and engineers, or each of them with the other's reality. Critical geographers focus so much on the idea that water scarcity or water table declines are social constructs that they seem to deny any possibility of these being 'real' phenomena. Hydrologists still use methods and models from research on pristine basins to describe human-dominated catchments, where the import of water through pipelines may far exceed natural flows. A number of supposedly interdisciplinary studies led by engineers and applied scientists end up using highly simplistic frameworks about human behaviour or policy change.

Improved linkage across the natural-social divide means not just learning about the other discipline, but actively and critically engaging in it. In the Indian context, it means going out and metering water consumption in unmetered households when needed, rather than only analysing the 10% who have metered connections, as economists have often tended to do! It means going out and measuring water pollution and then explaining why enforcement is not working, rather than accepting Pollution Control Board data that suggest 'all is well' or fitting complex functions on self-reported data from industry.

And finally, the rigid divisions and internecine battles within the social sciences have given us incomplete and even contradictory explanations of urban environmental problems. Do industries pollute because the right economic incentives are not in place, or because we do not have a credible pollution monitoring and enforcement process? Is poor pollution monitoring simply the result of insufficient resources, or the political power of the polluters, or do organizational structure and cultures also play a role? Is the rising consumerism of the Indian middle class purely a product of capitalist structures or do innate psychological tendencies to seek pleasure and avoid pain also play a role? Is the exercise of power by agency staff or elected officials always going to result in unfair outcomes? Are we to be stuck forever in binary thinking and theories that overlook complex reality?

I submit that we can move towards more integrative understanding only if we constantly measure our progress *not* in terms of papers published, but in terms of progress in understanding and solving real world problems. That alone will provide the impetus to overcome academia's inherent tendencies towards specialization and fragmentation.<sup>3</sup> If this means that our framework looks as complicated as this one, so be it!

I am happy to note, however, that some progress has been made, both individually and, more importantly, at an organizational level in promoting interdisciplinarity. Over the past 17 years, we see the emergence of several organizations that explicitly foster interdisciplinary environmental research. Here, I don't mean centres within universities that provide space for disciplinary faculty to interact, but full-time multi-disciplinary groups working collaboratively. CSE and TERI were of course already in existence in 1997. The new organizations include Ashoka Trust for Research in Ecology and the Environment (ATREE), Centre for Study of Science, Technology and Policy (CSTEP) and Indian Institute of Human Settlements (IIHS) in Bangalore, TERI University and the School of Human Ecology at Ambedkar University in Delhi, the School of Environmental Studies in Nalanda University, among others. I think we will see these organizations leading the push towards greater and better integration across disciplines.

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<sup>3</sup> It is worth noting that in most cases, 'non-academic' organizations such as CSE have been far ahead of academic researchers in not just highlighting problems but also doing the kind of research required to understand and solve them: whether it is air pollution (CSE, 1996) or urban water (CSE, 2012).

## External challenge

Guha's last point was that while economic liberalization and the ideology of consumerism posed a serious challenge to environmentalism, "the moment will assuredly pass". It seems now as though he was too optimistic. Over the last two decades, we see a major upswing in this ideology, and increased hostility on the part of the state and the corporate sector towards environmental thinking, even as they pay lip service to it.

One form this hostility takes is the general refusal or reluctance to share existing socio-environmental data. Not to mention the complete lack of public scrutiny of the quality of these data.

A more institutionalized form of hostility is the lack of state support for serious and long-term socio-ecological research even as it has cranked up funding for narrowly professional higher education and defence research. (And where international donors step in, they often narrow the agenda to their specific interests, such as climate change alone.)

Finally, the hostility is manifest in state agencies' responses to such research, which range from arrogant neglect to active witch-hunting, of which we all know the recent examples. Our administrators and decision-makers often seem 'knowledge-proof', which increases the temptation to go back to our business of publishing papers.

But there is another dimension to this challenge, which ultimately is not 'external'. That is the seductive power of this consumerist age. Are we in danger of preaching environmentalism even as we increase our collection of gadgets and our indirect environmental footprint? Are we enjoying our distinctly 'urban' academic privileges while externalizing or simply ignoring their consequences?

I don't have neat answers to these questions. I will simply ask us to be alive to them. And to keep reminding ourselves that we are here not as an association of academics working in a narrow sub-discipline of economics. We are an association of activist scholars (to again use Guha's phrase) who engage with issues at the interface of ecology, economy and society, in order to generate knowledge for change. I appeal to all of you to help build INSEE in that image. Thank you!



## REFERENCES CITED

- Agarwal, A. and S. Narain, 1991, "Global warming in an unequal world: a case of environmental colonialism", Centre for Science and Environment, New Delhi.
- Appasamy, P. and P. Nelliya, 2000, "Economic assessment of environmental damage-A case study of industrial water pollution in Tirupur", EERC Working Paper Series no. IPP-1, Madras School of Economics, Chennai, India.
- Appasamy, P. P., 1993, "Role of non-timber forest products in a subsistence economy: The case of a joint forestry project in India", Economic Botany, **47**(3): 258-267.
- Baviskar, A., 2011, "Cows, Cars and Cycle-Rickshaws: Bourgeois Environmentalists and the Battle for Delhi's Streets", in A. Baviskar and R. Ray (Eds.), Elite and Everyman: The Cultural Politics of the Indian Middle Classes, Routledge, New Delhi, pp.391-418.
- Bhagavan, M. R. and S. Giriappa, 1987, "Class Character of Rural Energy Crisis: Case of Karnataka", Economic and Political Weekly, **22**(26): A-57 to A-69.
- Chopra, K., 1993, "The value of non-timber forest products: An estimation for tropical deciduous forests in India", Economic Botany, **47**(3): 215-219.
- CSE, 1996, Slow Murder: The deadly story of vehicular pollution in India, Center for Science and Environment, New Delhi.
- CSE, 2012, Excreta Matters, Centre for Science and Environment, New Delhi, India.
- Devy, M. S. and S. Swamy, 2009, "Reshaping urban green spaces", Economic and Political Weekly: 25-27.
- Divan, S. and A. Rosencranz, 2002, "Environmental Law and Policy in India", Delhi: Oxford University Press,
- Dubash, N. K., D. Raghunandan, G. Sant and A. Sreenivas, 2013, "Indian Climate Change Policy: Exploring a Co-Benefits Based Approach", Economic and Political Weekly, **XLVIII**(22): 47-61.
- Gadgil, A. J. and G. D. M. Jannuzzi, 1991, "Conservation potential of compact fluorescent lamps in India and Brazil", Energy Policy, **19**(5): 449-463.
- Guha, R., 1997, "Social-Ecological Research in India: A 'Status' Report", Economic and Political Weekly, **32**(7): 345-352.

- Kandlikar, M. and G. Ramachandran, 2000, "The causes and consequences of particulate air pollution in urban India: a synthesis of the science", Annual Review of Energy and the Environment, **25**(1): 629-684.
- Kathuria, V., 2005, "Vehicular Pollution Control in Delhi: Impact of Compressed Natural Gas", Economic and Political Weekly, **40**(18): 1907-1916.
- Kumar, S. and D. Rao, 2001, "Valuing The Benefits of Air Pollution Abatement Using a Health Production Function A Case Study of Panipat Thermal Power Station, India", Environmental and Resource Economics, **20**(2): 91-102.
- Lele, S., 2011, "Climate change and the Indian environmental movement", in N. Dubash (Ed.), A Handbook of Climate Change and India, Oxford University Press, New Delhi, pp.208-217.
- Lélé, S., 1993, "Degradation, Sustainability, or Transformation: A case study of villagers' use of forest lands in the Malnaad region of Uttara Kannada district, India", Ph.D. Thesis, University of California.
- Lélé, S., 2008, "Interdisciplinarity as a three-way conversation: Barriers and possibilities", in P. Bardhan and I. Ray (Eds.), The Contested Commons: Conversations between Economists and Anthropologists, Blackwell, London, pp.187-207.
- Lele, S. M., R. Norgaard and D. K. Subramanian, 1988, "Hydropower project design incorporating submergence costs", Journal of Environmental Management, **27**: 307-323.
- Martínez-Alier, J., 2008, "Languages of valuation", Economic and Political Weekly: 28-32.
- Mawdsley, E., 2004, "India's Middle Classes and the Environment", Development & Change, **35**: 79-103.
- Mawdsley, E., D. Mehra and K. Beazley, 2009, "Nature lovers, picnickers and Bourgeois environmentalism", Economic and Political Weekly, **XLIV**(11): 49-59.
- Mehta, V., E. Kemp-Benedict, R. Goswami, S. Muddu and D. Malghan, 2013, "Social ecology of domestic water use in Bangalore".
- Nagendra, H. and E. Ostrom, 2014, "Applying the social-ecological system framework to the diagnosis of urban lake commons in Bangalore, India", Ecology and Society, **19**(2): 67.
- Pachauri, S. and L. Jiang, 2008, "The household energy transition in India and China", Energy Policy, **36**(11): 4022-4035.
- Paranjape, S. and K. J. Joy, 1995, Sustainable Technology: Making Sardar Sarovar Project Viable, Centre for Environment Education, Ahmedabad.

- Paranjpye, V., 1990, High dams on the Narmada: a holistic analysis of the River Valley Projects, Indian National Trust for Art and Cultural Heritage (INTACH), New Delhi.
- Parikh, J., 2004, "Valuing the health impacts of air pollution", in G. Kadekodi (Ed.), Environmental Economics in Practice, Oxford University Press, New Delhi, pp.240-267.
- Parikh, J., M. Panda, A. Ganesh-Kumar and V. Singh, 2009, "CO2 emissions structure of Indian economy", Energy, **34**(8): 1024-1031.
- Reddy, A. K. N. and B. S. Reddy, 1983, "Energy in a stratified society - a case study of Bangalore city", Economic and Political Weekly, **18**(41): 1757-1770.
- Sahu, G., 2014, Environmental Jurisprudence and the Supreme Court, Orient Black Swan, New Delhi.
- Sangameswaran, P., R. Madhav and C. D'Rozario, 2008, "24/7, 'privatisation' and water reform: Insights from Hubli-Dharwad", Economic and Political Weekly: 60-67.
- Sankar, U., 2004, "Pollution control in tanneries", in G. Kadekodi (Ed.), Environmental Economics in Practice, Oxford University Press, New Delhi, pp.49-85.
- Shukla, P. R., A. Garg, S. K. Dhar and K. Halsneas, 2007, "Balancing Energy, Development and Climate Priorities in India: Current Trends and Future Projections", UNEP Risoe Centre on Energy, Climate and Sustainable Development, Roskilde, Denmark.
- Sinha, S., A. Baviskar and K. Philip, 2006, "Rethinking Indian Environmentalism. Industrial Pollution in Delhi and Fisheries in Kerala", in J. Bauer (Ed.), Forging Environmentalism. Justice, Livelihood, and Contested Environments, M. E. Sharpe, pp.189-256.
- Srinivasan, V., K. C. Seto, R. Emerson and S. M. Gorelick, 2013, "The impact of urbanization on water vulnerability: A coupled human–environment system approach for Chennai, India", Global Environmental Change, **23**(1): 229-239.
- Wilhite, H., 2008, Consumption and the transformation of everyday life: a view from South India, Palgrave Macmillan, London.