

Social-Ecological System Framework

Understanding urban lake governance and sustainability in India

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1. Urban lake is a kind of social-ecological system (ses). Governing and sustaining a ses involves complex problems and processes. With increasing pressure of urbanisation, governance and sustainability of a ses is a continued challenge. Urban lakes in India are a typical case of this. Understanding the science of ses is a bigger problem than governing and sustaining them. Poor understanding has accelerated the problems of urban lake governance and sustainability in India.
2. The terms ‘sustainable governance’ and ‘sustainable resource’ must be clarified in policy and analysis. Though sustainability of both is desired, presence of one does not guarantee the presence of the other. Sustainability here refers to ecological sustainability of a lake.
3. The integrated lake basin management approach is the mantra of the current lake governance in India. It involves collective action of the different organisations looking at the different social and ecological characteristics of a lake system.
4. Several urban lakes in India are restored in the last decade after years of deterioration in the urbanization process. It intrigues studying what/how/why certain things are done to ensure better lake governance and lake sustainability. Understanding the characteristics that drive the collective action towards lake sustainability is crucial to minimise the problems of the lake governance and lake sustainability.
5. The social-ecological system (SES) framework, a legacy of Elinor Ostrom’s theoretical and empirical foundations on long term sustainable resource and management, is a methodological framework applied here to understand the interactions and outcomes of the different social and ecological characteristics of a lake system.
6. The ontological structure of the SES framework containing the sub-variables of the resource system, resource services, resource users and rules, are useful in exploring, describing, explaining and organising the findings in a systematic way.
7. The lake sustainability is intertwined with the value that the local community and the policy makers ascribe to a lake. The direct use value of wastewater recipient and the option value of public open space drive the current lake governance. Sustainability remains a social-economic prerogative. The ecological sustainability is seen integral part of it, however it is weak in the governance approach.

8. The collective action situation towards lake restoration, results in different scenarios of collective action performance and lake performance, of which the causal relation that collective action leads to good lake conditions, is just one scenario. The different scenarios are influenced by events and disturbances happening in the social and/or the ecological sub-systems.
9. The dilemma of lake development versus lake conservation is here to stay in the minds of the policy makers and lake managers and will keep influencing the lake governance approach and the lake sustainability. It is augmented by the dilemma of looking for panacea versus designing local solutions for the problems of the lake governance and the lake sustainability.
10. The Urban lake system (ULS) framework developed here is a useful analytical framework for researchers who are interested to ask fundamental questions on lake governance and lake sustainability. The ULS framework is also useful to the lake managers to organise the findings of the different social and ecological characteristics of a lake system and monitor them over time.
11. The diagnostic approach of understanding a subject from whole to part and part to whole results in researcher's role as doctor operating on the problems of the urban lake systems as being the patients.

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