



Review on Socio-Economic Importance of Historic Water Bodies of Ambad

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Abstract

This paper examines the socio-economic importance of historic lakes and reservoirs in Ambad taluka (Jalna district), Maharashtra. Using secondary sources (district history, regional water reports, local gazetteers and online inventories) and a proposed field survey framework, the study synthesizes how historic waterbodies contribute to livelihoods, agriculture, groundwater recharge, culture/religion, biodiversity, and local tourism; identifies the major threats (siltation, encroachment, pollution, unsustainable sand mining and over-extraction); and provides policy and management recommendations to maximize socio-economic benefits while restoring ecological function. The paper also proposes economic valuation and monitoring approaches to support local decision-making.

Keywords: Ambad, Jalna, lakes, reservoirs, socio-economic, groundwater recharge, cultural heritage, restoration, water security

1. Introduction

Lakes, ponds and reservoirs in semi-arid regions such as parts of Marathwada play outsized roles in rural economies by providing irrigation water, enabling groundwater recharge, supporting fisheries and livestock, sustaining cultural practices, and buffering climate extremes. Ambad town and taluka—an historic settlement with temples and fortifications—contains several traditional waterbodies (Pushkarini, kavandi and other municipal/ village talavs) that were historically developed as community infrastructure and remain important today. Historical sources specifically note Ahilyabai Holkar's role in constructing Pushkarini and kavandi at Ambad, illustrating the long-standing cultural and water management significance of local reservoirs.

2. Study area - Ambad, Jalna district (brief profile)

Ambad is a municipal town in Jalna district (Marathwada, Maharashtra) with historical temples (Matsyodari) and associated water structures. Jalna district's hydrology and water



management are characterized by a mix of small tanks, percolation structures, and numerous open dug wells; watershed measures such as check dams and percolation tanks are common interventions across the district. Regional assessments highlight the critical role of small waterbodies in groundwater recharge and rural water security.

3. Inventory and historical background of Ambad waterbodies

Known historic waterbodies and features

- **Pushkarini (Pushkarini tank / stepwell)** and **Kavandi** — historically associated with the Matsyodari temple and attributed to Ahilyabai Holkar's patronage in local tradition. These are explicitly noted in local histories as temple-linked reservoirs.



Pic.Pushkarni lake Ambad

- **Other named local tanks and lakes** recorded in local/online directories for Ambad / Jalna area include **Baraswada Lake**, **Sukhapuri Lake** and various village talavs referenced in regional listings. These commercial directory listings provide place names but require ground-truthing for condition, capacity and ownership.

4. Socio-economic functions of historic lakes and reservoirs

4.1 Water supply and irrigation

Historic tanks are frequently used for local irrigation (minor canal/headworks, direct field irrigation via gravity or diversion) and for household needs during non-monsoon months. In semi-arid Talukas, even small tanks greatly reduce risk of crop failure and support multi-cropping patterns. Evidence from Jalna district water reports stresses the reliance on shallow groundwater and small surface bodies for irrigation.



4.2 Groundwater recharge and drought resilience

Traditional tanks capture monsoon runoff and increase percolation, recharging shallow aquifers that sustain wells and handpumps for villages. This groundwater buffering enhances drought resilience for drinking water and for irrigation via shallow wells.

4.3 Livelihoods: fisheries, livestock and seasonal employment

Many village tanks support small-scale fisheries (purse seine, gill nets, pen culture in some cases) and provide year-round drinking and washing water for livestock. During tank desiltation or restoration works, local labour is often engaged — a source of seasonal employment.

4.4 Cultural, religious and heritage functions

Temples in Ambad (Matsyodari) are historically connected to Pushkarini and other temple water structures; festivals and rituals (e.g., Dashahara gatherings) use these waterbodies for ritual bathing and procession routes, linking cultural tourism and community identity.

4.5 Tourism and local economy

Historic tanks and adjacent heritage sites (temples, forts) attract pilgrims and visitors; with modest investment these can be integrated into local tourism circuits (micro-enterprises, guides, stalls) that increase local incomes. Travel guides for the wider Jalna region list historic attractions but note that site development is uneven.

4.6 Ecosystem services and biodiversity

Tanks create micro-habitats for aquatic plants, migratory and resident birds, amphibians and insects, contributing to local biodiversity and offering ecosystem services such as nutrient cycling and pollinator support for nearby fields.

5. Threats and socio-economic impacts

Major threats to Ambad's historic waterbodies (and many in Jalna) include:

- **Siltation and reduced storage capacity** (loss of depth and surface area reduces water availability for irrigation and recharge).
- **Encroachment and land-use change** (built-up expansion around tank edges reduces catchment).
- **Pollution** from domestic sewage, religious offerings, and runoff carrying agrochemicals, affecting water quality for drinking and fisheries.
- **Unsustainable sand extraction** (sand mining in tank beds/tributaries) causing morphological change and lowering local baseflow. Environmental clearance documents and district mining proposals highlight sand-related interventions in the district which can affect drainage and tanks.
- **Over-extraction of groundwater** that weakens the aquifer response; without active recharge the tank-aquifer link is impaired.
- **Poor governance and maintenance:** limited funds and institutional coordination cause neglect.

Socio-economic effects include reduced agricultural incomes, lower water security for households and livestock, loss of fisheries livelihoods, and decline in cultural tourism potential.



6. Methodology for further research

Because published sources are incomplete for a precise, quantitative assessment in Ambad taluka, the following mixed methods approach is recommended:

1. GIS mapping & remote sensing

- a. Compile high-resolution satellite imagery (sentinel/Landsat/Planet if available) to map tank extents, catchments and land-use change over time (10–30 year trend).

2. Field inventory & participatory mapping

- a. Visit each village/town waterbody to record GPS location, surface area, depth, storage capacity (estimated by surveyor), ownership, condition, and uses.
- b. Conduct structured interviews with village water committees, farmers, fishers, temple authorities.

3. Hydrogeological measurements

- a. Monitor well water levels in tank-adjacent villages to quantify recharge effect (pre- and post-monsoon).

4. Socio-economic surveys

- a. Household surveys to estimate dependency (share of irrigation, livestock, fisheries income from tank water).
- b. Key informant interviews with local government (Panchayat, Municipal Council), and NGOs.

5. Water quality testing

- a. Sample for basic parameters (pH, EC, turbidity, coliforms, nitrate) to assess suitability for uses.

6. Economic valuation

Apply methods such as avoided cost (replacement cost of alternative water supply), production function (crop yield increases attributable to tank irrigation), and travel cost / contingent valuation for recreational/cultural benefits.

A short budget and timeline (3–6 months) for a pilot taluka study should be prepared; initial remote mapping and scoping can be done in 4–6 weeks followed by two seasonal field visits (monsoon and dry season).

7. Economic valuation - illustrative framework & example calculations

Suggested valuation components:

- **Direct use values:** irrigation water (additional crop yield attributable to tank), fisheries revenue, livestock water value.
- **Indirect use values:** groundwater recharge (value = cost of alternative water supply or increased well yields), flood control/peak runoff attenuation.



- **Non-use/cultural values:** willingness to pay for preservation, tourism/spiritual visitation benefit.

8. Management and policy recommendations

Short to medium term (1–3 years)

1. **Comprehensive inventory and designation:** prepare an official taluka waterbody inventory (GIS + legal status).
2. **Desiltation and catchment protection:** targeted de-silting combined with catchment afforestation/contour bunding to restore capacity.
3. **Pollution control measures:** construct small sewage treatment / decentralised greywater systems in municipal Ambad to prevent contamination of Pushkarini and other tanks.
4. **Community-led maintenance:** strengthen or form “Tank Committees” (Pani Panchayats) with clear O&M responsibilities and revenue models (e.g., modest user fees for fisheries/boat access).
5. **Integrate heritage tourism:** modest investments in pathways, signage and waste management around temple tanks to increase responsible visitation income.

Long term / institutional

1. **Policy integration:** include historic tanks in district water security plans and climate adaptation funding streams.
2. **Payment for ecosystem services (PES):** pilot schemes to compensate upstream farmers for practices that reduce siltation.
3. **Data and monitoring:** install simple water level gauges and maintain annual condition reports.
4. **Legal protection:** where appropriate, declare historic temple tanks as protected heritage waterbodies to prevent encroachment.

9. Case examples & lessons from the region

District and watershed studies (e.g., TERI / regional water assessments) show that small tanks and watershed interventions in Jalna increase groundwater security and irrigation reliability when combined with maintenance and community engagement. These successes underscore that restoration + community governance are cost-effective for rural livelihoods and climate resilience in Marathwada.

10. Conclusions

Historic lakes and reservoirs in Ambad are socio-economically valuable across multiple dimensions: water security (irrigation, drinking), groundwater recharge, livelihoods (fisheries, livestock), cultural identity and tourism. However, lack of a current, reliable inventory, ongoing degradation (siltation, pollution, encroachment) and governance gaps threaten these benefits. A combined program of mapping, targeted restoration, community governance, water quality safeguards and integration into district planning will protect and enhance the socio-economic returns of Ambad’s waterbodies.



11. Recommended next steps for local authorities / researchers

1. Commission a **GIS + field inventory of Ambad taluka waterbodies** (3 months).
2. Pilot **one tank restoration** (desiltation, bund repair, catchment treatment) with rigorous before-after socio-economic monitoring.
3. Mobilize funds through district watershed schemes, MGNREGA (labour for desilting / bunds), and state rural development programs.
4. Develop a low-cost **community monitoring protocol** (water level logs, fish catch records, simple water tests).

References:

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3. TERI. *Water resources, water use and potential risks in Jalna* (regional water resource assessment; discusses watershed structures, recharge functions of tanks). [TERI](#)
4. Local online directories and place listings for lakes in Ambad / Jalna (OneFiveNine, Justdial) — useful for compiling candidate waterbody names but requiring ground-verification. [OneFiveNine+1](#)
5. Environmental clearance documents and sand mining proposals referencing drainage and tributaries in Jalna district (context for sand/mining threats). [Environment Clearance](#)
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