STATUS OF SOME SELECTED WETLANDS OF UJANI RESERVOIR OF SOLAPUR DISTRICT, MAHARASHTRA (INDIA).

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ABSTRACT

Wetlands are the biological supermarkets having many benefits such as purifying water, controlling erosion and providing habitat for wetland dependent species. Two of the most important wetland ecosystem services affecting human well-being involve fish supply and water availability. According to National Plan for Conservation of Aquatic Ecosystems (NPCA), which works for holistic conservation of lakes and wetlands; 26 wetland sites were identified as Ramsar sites all over India. In Maharashtra, the Ujani wetland was identified in 1987 with Jayakwadi and Nalganga (2006).

Ujani water reservoir is also known as Bhima Dam or Bhima Irrigation project located near Ujani village of Madha tehsil of Solapur district. It is composite type of dam. Ujani lake is the terminal reservoir on the river Bhima, the catchment of which lies in the intensively urbanized and industrialized upper Bhima basin. The coordinates are 18°4′26′′N, 75°07′12′′E. The present study was done from Jan.2015 to March 2017 to assess status and threats for Ujani wetlands like Palasdev, Dalaj, Kumbhargaon, Diksal, Kondhar Chincholi, Rajegaon (Bhigwan) and Khanota. These wetlands are rich in biodiversity but day by day they facing challenges like unplanned tourism, sand lifting, over fishing, uncontrolled siltation and weed infestation, encroachment like agricultural expansion resulting in shrinkage of wetland area.

Keywords: Ujani reservoir, Wetland, NPCA, Siltation, Weed infestation.

Introduction:

Wetlands: As defined by the Ramsar Convention on Wetlands, wetlands are "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres" (Article 1.1 of the Convention text).

A wetland is wet land (i.e. land which is wet) ! But not all wet land results in a wetland. Why is this so? A wetland is found where the land is wet enough (i.e. saturated or flooded) for long enough to be unfavourable to most plants but are favourable to plants adapted to anaerobic soil conditions. As soil becomes increasingly wet, the water starts to, fill the space; between the soil particles. When all the spaces are filled with water the soil is said to be saturated. In areas which are not wetlands, water drains away quickly and the soil does not remain saturated. However, in wetlands the water persists or drains away very slowly and the soil remains saturated or flooded for long periods. Soil in these conditions is said to be waterlogged. Depending on factors such as temperature, it usually takes a week or so for the plant roots and other living organisms in the soil to use up the oxygen, causing anaerobic conditions to develop in the waterlogged soil.

Wetland is "the sum of the biological, physical and chemical components of the wetland ecosystem, and their interactions, which maintain the wetland and its products, functions and attributes" (Ramsar COP7, 1999). In February 2005, the STRP proposed updating the definition of ecological character, drawing on the MA's ecosystem terminology: "Ecological character is the combination of the ecosystem components, processes and services that characterise the wetland at a given point in time." This includes replacing "products, functions and attributes" with "services." This proposal will be formally considered by the Ramsar Convention's Contracting Parties in November 2005.

Wetlands are among the world's most productive environments; rich in biodiversity that provide the water and productivity upon which countless species of plants and animals depend for their survival (Kumar et al 2005). These are the lands transitional between terrestrial and aquatic ecosystem where the water table is usually at or near the surface or the land is covered by shallow water (Narayanan & Vijayan, 2007). Wetland ecosystems, including rivers, lakes, marshes, rice fields, and coastal areas, provide many services that contribute to human well-being and poverty alleviation. Some groups of people, particularly

those living near wetlands, are highly dependent on these services and are directly harmed by their degradation.

Ujjani water reservoir is having vital importance as far as Pune and Solapur districts are concerned. The project provides multipurpose benefits of irrigation, hydroelectric power, drinking and industrial water supply and fisheries development. The irrigation supplies benefit 500 km² (190 sq mi) of agricultural land, particularly in the Solapur district. Water supplied from the reservoir to irrigate agricultural areas primarily aims to reduce incidence of famines and scarcity during drought conditions.

The present study was an attempt to assess the status of some selected wetlands of Ujjani reservoir. The study area includes wetlands like Palasdev, Dalaj, Diksal, Kumbhargaon, Kondhar Chincholi, Rajegaon (Bhigwan) and Khanota having rich biodiversity.

Methodology:

The study is based on primary and secondary data collected from various sources such as journals, books, internet and other published and unpublished works. The present study was carried out from Jan.2015 to March 2017 by seasonal visits to wetland sites and focuses on the present status and threats to selected wetlands of Ujani reservoir.
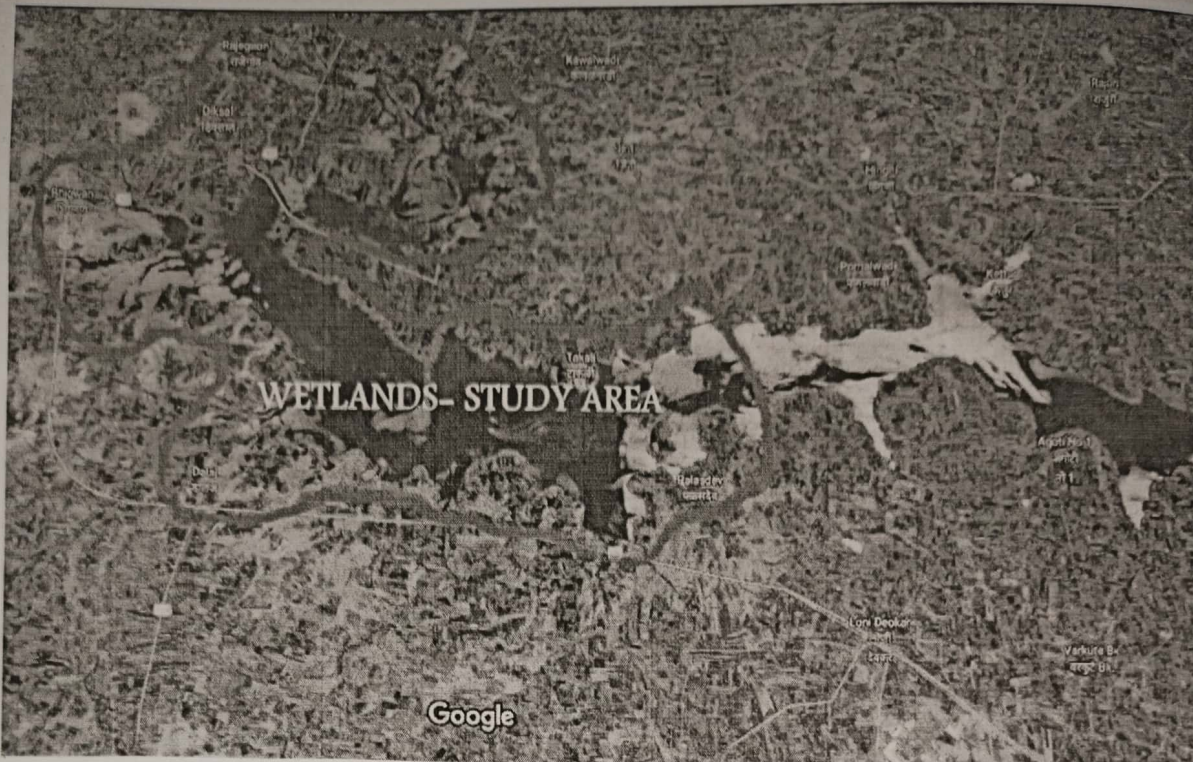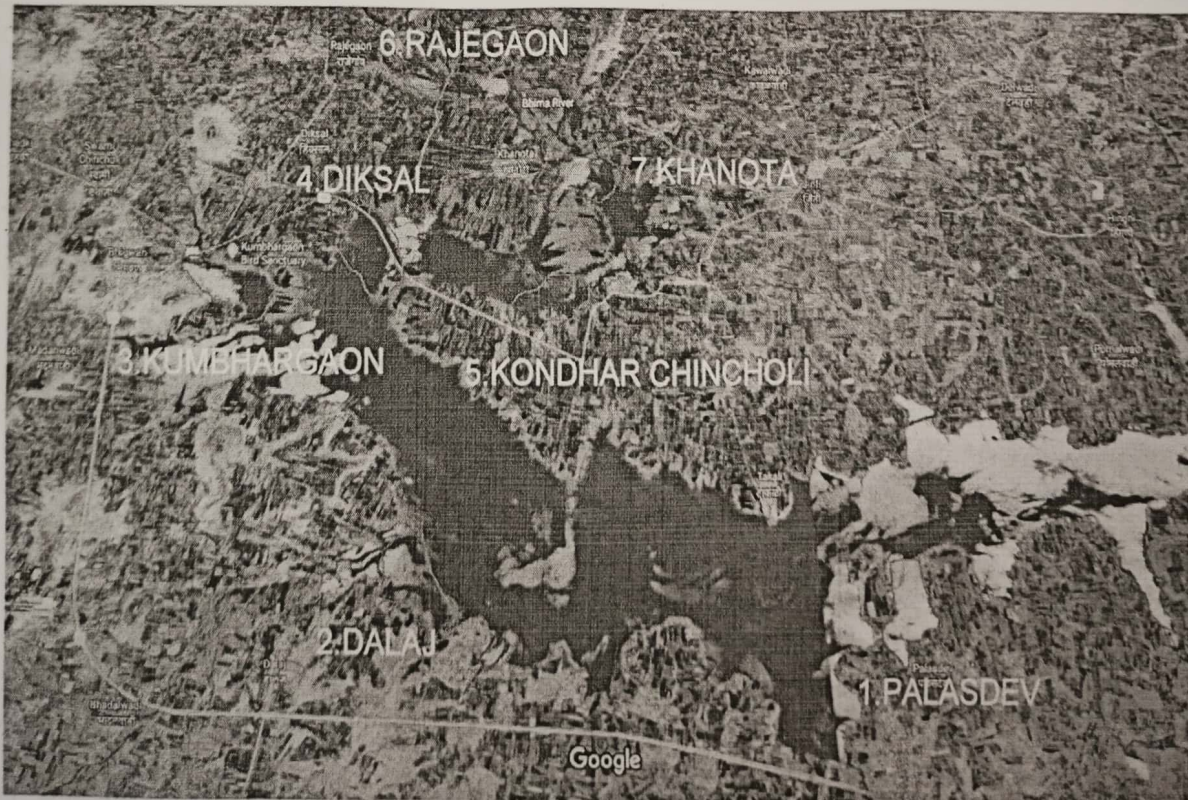

Imagery ©2017 DigitalGlobe, CNES / Airbus, DigitalGlobe, Map data ©2017 Google   2 km

Map1: Entire Ujani Reservoir (Source: Google Maps)

**Map2: Ujani Reservoir: Study Area (Source: Google Maps)**

Map 3. Selected Wetlands of Ujjani Reservoir (Source: Google Maps)

The selected wetland area for study is having remarkable avifaunal diversity during winter season. These wetlands are also used for Fishing, as a tourist places, sand lifting, water used for agricultural purpose etc.

| Sr. No.	Name of Wetland	Geographic Co- ordinates
01	Palasdev	N- 18° 14' 13.2", E- 74° 52' 30.2", Alt.495 m.
02	Dalaj	N- 18° 14' 23.4", E- 74° 49' 14.6", Alt.496 m.
03	Kumbhargaon	N- 18° 16' 29.4", E- 74° 48' 55.4", Alt.494 m.
04	Diksal	N- 18° 17' 56.2", E- 74° 48' 05.7", Alt.488 m.
05	Kondhar Chincholi	N- 18° 17' 40.6", E- 74° 49' 18.6", Alt.497 m.
06	Rajegaon (Bhigwan)	N- 18° 17' 56.2", E- 74° 48' 27.3", Alt.528 m.
07	Khanota	N- 18° 19' 14.3", E- 74° 49' 56.9", Alt.489 m.

Threats to Wetlands:

The major threats identified at Ujani wetlands are illegal and improper Sand lifting at Dalaj, Rajegaon (Bhigwan), Diksal and Khanota. Agricultural expansion at Kumbhargaon , Diksal, Rajegaon (Bhigwan) , Kondhar Chincholi and Khanota which release untreated water runoff having lot of pesticides during irrigation directly affects wetland fauna, Unplanned and over fishing at Dalaj, Kumbhargaon, Diksal and Rajegaon (Bhigwan). The major disturbances also include unplanned tourism at Kumbhargaon, Diksal and Rajegaon (Bhigwan).

Threats to Wetlands
- Over Fishing
- Sand Lifting
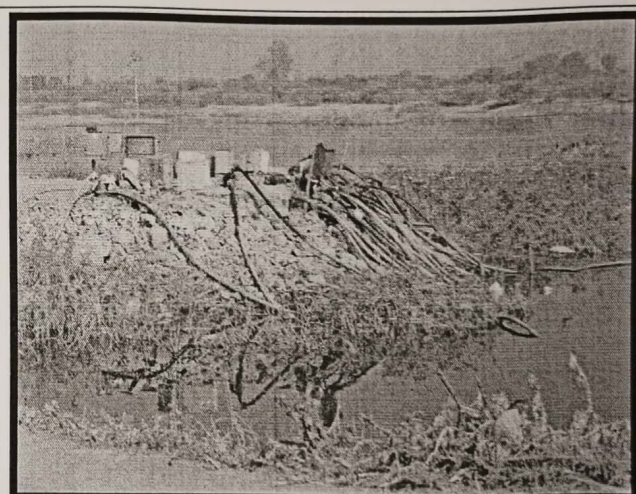- Agricultural Expansion
- Unplanned Tourism
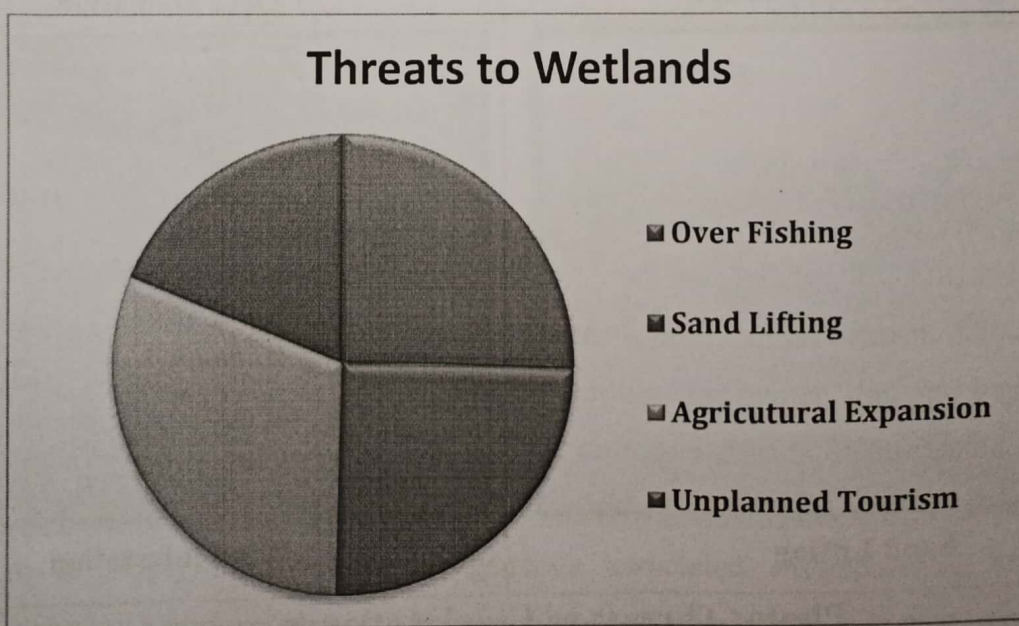
The pie graph indicates that, the major threats to wetlands are agricultural expansion along with over fishing and sand lifting.

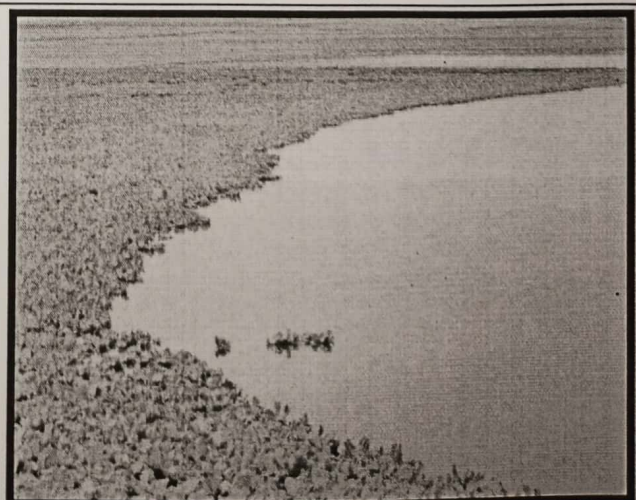
Unplanned Tourism
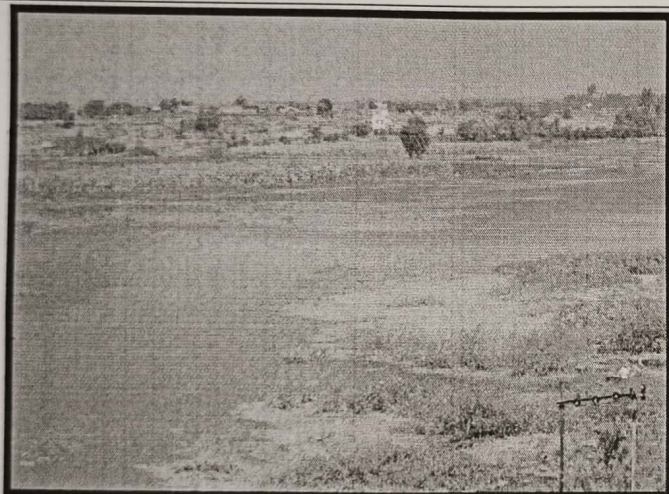
Agricultural Expansion

Over Irrigation

Sand Lifting

Weed infestation

Photo: Threats to Ujani wetlands

Management:

Loss in wetland area results in adverse impacts on ecosystem services performed by wetlands (Zedler and Kercher, 2005). Wetland are often describes as "Kidneys of the landscape" (Mitsch and Gosselink, 1986). Hydrological conditions can directly modify or change chemical and physical properties such as nutrient availability, soil salinity, sediment properties and P^H. Although there are several laws protects wetlands, but there is no special legislation pertaining specially to these ecosystems. The following steps can be useful for conservation of wetlands.

➤ There should be planned tourism, ban on sand lifting, controlled fishing, Awareness among community regarding agricultural expansion etc.

➤ To promote the importance of wetlands to the community regarding preventing the fragmentation and reconnecting the wetland systems is must.

➤ Determining what activities are unsustainable on the basis of a social and economic circumstances and prohibiting such activities.

➤ Controlling the introduction of alien species.

➤ Carrying out Environmental Impact Assessment (EIA) and environmental audits regularly in wetlands.

➤ Dumping of any garbage within the wetland area or nearby should be strictly prohibited.

➤ A multi-disciplinary study on the status and threats of wetlands could provide a key to conserving these wetlands.

➤ Sanitary landfill should be used for final solid waste disposal to avoid acute pollution problem associated with discharging waste into wetlands.

Conclusion:

Wetlands provide many societal benefits: food and habitat for fish and wildlife, including threatened and endangered species; water quality improvement; flood storage; erosion control; economically beneficial natural products for human use; and opportunities for recreation, education, and research. When we destroy wetlands, there can be enormous impacts on biodiversity. If we preserve the health of wetlands and restore wetland ecosystems, it simply follows that we generate associated environmental, social, and economic benefits. Ujani wetlands are hotspots to observe and study avifaunal, reptilian and fish diversity.

References:

An Introduction to the *Ramsar Convention on Wetlands*: Ramsar Handbooks 5th edition 2016.

Ashoka Trust for Research in Ecology and the Environment (ATREE), 2010. *Comments on Draft Wetlands (Conservation andManagement) Rules* 2009. Ashoka Trust for Research in Ecology and the Environment, Bangalore.

Boyd, J., Banzhaf, S. (2007) *What are ecosystem services? The need for standardized environmental accounting units.* Ecol. Econ.63 (2–3), pp. 616–626.

Centre for Science and Environment (CSE), 2012. *Living With Changing Climate: Impact, Vulnerability and Adaptation Challengesin Indian Sundarbans.* Centre for Science and Environment, New Delhi.

Gopal, B., Sah, M., (1995), *Inventory and classification of wetlands in India.* Vegetatio 118 (1–2), pp. 39–48.

Karikar Shraddha, Mali Subhash, Kulkarni Prasad (2017), *Status of Wetland birds at associated lakes of Ujjani Reservoir, Maharashtra*, India ,International Journal of Applied Environmental Sciences , Volume 12, Number 5, pp. 909-924

Kumar, A., J.P. Sati, P.C. Tak & J.R.B. Alfred (2005). *Handbook on Indian Wetland Birds and Their Conservation.* Zoological Survey of India, 472pp.

Knebusch, K. (2014, August 29). For students at Ohio State Wetland, new meaning to swamped by classes.

Liang Zhang et.al (2010) A review of published wetland research, 1991–2008: *Ecological engineering and ecosystem restoration.* Ecological Engineering 36 pp. 973–980.

Ministry of Environment and Forests (MoEF), 2012. Annual Report 2011–2012. MoEF, Government of India, New Delhi.

Mitsch W.I. and I.G. Gosselink, (1986) Wetlands. Van Nostrand Reinhold, New York

Narayanan, S.P. & L. Vijayan (2007). Status of the colonial breeding waterbirds in Kumarakom heronry in Kerala, Southern India. *Podoces* 2(1): pp. 22–29.

Nitin Bassi, M. Dinesh Kumar, Anuradha Sharma, P. Pardha-Saradhi (2014), *Status of wetlands in India: A review of extent, ecosystem benefits, threats and management strategies* Journal of Hydrology: Regional Studies 2 1–19

Scholz, M., Harrington, R., Carroll, P., Mustafa, A., (2007). *The Integrated Constructed Wetlands* (ICW) concept. Wetlands 27 (2), PP. 337–354.
S.N. Prasad, T.V. Ramchandra,N. Ahalya, T. Sengupta, A. kumar, A. K. Tiwari, V.S. Vijayan and L. Vijayan, (2002), *Conservation of wetlands of India*- a review, International society for tropical ecology, 43(1)

The Wilma H. Schiermeier (2014.) Olentangy River Wetland Research Park. 1).

Vymazal, J.,(2007), *Removal of nutrients in various types of constructed wetlands.* Sci. Total Environ. 380 (1–3), pp. 48–65.

Zedler, J.B., Kercher, S., 2005. Wetland resources: status, trends, ecosystem services, and restorability. Annu. Rev. Environ.Resour. 30 (1), pp. 39–74.