

UTILIZATION OF BIO-DIVERSITY FROM UDAIPUR LAKE IN WEST CHAMPARAN AND CLIMATE CHANGE

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Abstract- Wetlands in north Bihar is very rich in biodiversity. Udaipur Lake in West Champaran district is famous for its water quality and fishes. The Utilization of macrophytes are proving the back bone of economy. Saccharum, Spontaneum, Phragmites karka and calamus tenuis are serving the people in many ways. Euryale ferox, Trapa Bispimosa and Nymphaea nouchali are aquaphytes cattering the need of village folk. Most of the fishes are naturally occurring in this lake and climate is playing important role for this rich biodiversity. Some of the common fishes are Puntius Chola Channa Punctatus, Channa Gachua and air breathing fishes are good catch. Certain macroinvertebrate is also exploited from this habitat such as Pila globosa Bellamya dissimilis and certain mud crab paratelpuse Spenigora for meat material. Thus wetland produce may be exploited on sustainable basis for developing the economy.

Keywords: Utilizaation, Biodiversity, Udaipur Wetland.

INTRODUCTION:

After the division of Bihar state all the major industries and natural resources became the part of Jharkhand and What left to our truncated Bihar is plenty of water resources in the Forms of wetlands, Ponds, pools, ditches, chaur, dhar, man, marshes, lakes and river flood, plains 10,11,5,9, These water bodies harbour rich biodiversity. These biodiversity are Cattering the need of the people of area where they live and dependent on wetland produce in terms of food, fodder, fibre, medicine, paper pulp as well as basketry material. The macrophytes which is integral part of the system grow profusely therein as a floating, submerged and rooted floating became easily available to the native folk for civilization. The emergent microphytes are very much in use for various purpose 3,5,8,2,12,1. As the wetlands occupies vast area in north Bihar and vary very much in there nature along with flora and fauna. Thus a thought has been developed to survey the wetlands of North Bihar and utilization of there resource which have there own ecological niche. Keeping in view the resource utilization a perusal of literatures have been made related to there economic aspects 2, 1, 6 are either fragmentary or insufficient. In order to boost the economy of our state it is rather compulsion to work out the method by which we can suggest the ways how to utilize the wetland produce such as several macrophytes enlisted in table - (1) are being used by the people these are depending on wetland resources Fishes and molluscs are also utilized.

MATERIALS AND METHODS:

Udaipur lake is one of the important wetland of West champaran District because of very rich biodiversity and high productivity, Because of climate. This lake is surrounded by thick plantation of Jamun tree in an around the lake. The Champaran is very rich for different types of wetlands such as Dhars, Mans, Swamps and chaur. Out of listed wetlands of champaran Udaipur commonly known as Sarayaman is one of the biggest lake, located in dense forest. This is very much natural habitat away from human interference. Series of the exploration were conducted over a period of three years. Specimen were examined and identified with the help of literature. Local people were interviewed in order to get information about utilization of wetland produce and there commercial aspects. The lake extends from 26⁰, 35⁰ to 27⁰ 32⁰ North latitude and 83⁰, 50⁰ to 84⁰, 53⁰ East longitude. Climate of this lake is significant for the rich biodiversity.

RESULTS AND DISCUSSION:

The survey reveals that wetlands are the most productive ecosystem of the world because producer and decomposer trophic level lies close together. Rich biodiversity was observed in almost all the wetlands under study. Biodiversity of different wetlands of north Bihar are under exploitation (Table - 1, 2). The native folk of the region collect the aquaphytes, there parts or products and put them for their diverse house hold purposes or sell them for cash in the

nearby haats and bazaar/market. The utilizations includes as food (roots of *Aponogeton Natans* rhizomes of *Nymphaea*, *Nouchali*, *Nymphaea* Sp. A probable hybrid propagating by vegetative means only and not following at all *Potomegeton*, *crispus*, tubers of *cyperus*, *rotundus*, leaves of *Marsilea*, *Minuta*, *Ipomea*, *Aquatica*, fruiting toros of *Nelumbo*, *nucifera* (Kamalhatta), seeds of *Eurale Ferox* (Makhana) and *Trapa bispinosa* are very good cash crop. are very good cash crop. *cyperus* Sp *Cyperus rotunds*, *Cyperus compressus*, *C difformis*, *C exaltatus* and *C iria* are very good source of cyperus oil, may be commercialy, exploited from the source. Another plant from poaceae family. *Vitivera zizinoide* may be exploited for khus-khus oil, because roots of this plant is having high quality of fragrance may also be exploited commercially on sustainable basis (table -2)

Calamus tinus known as Bait was observed growing luxuriantly at udaipur lake in another marshy habitat in an around Bagha, Its cultivation alone can boost the economy of village folk If they are encouraged by certain incentive. In general the exploitation of wild macrophytes frames the economic backbone of the area and the aquatic cash crops further boost it up. Besides their house hold utilization, the commercial sale of wild macrophytes, their parts and products for medicine (Red flowers of *Nymphae* nouchali) fish food entire plants of *Eeratophyllum demersum* and *Hydrilla verticillata* under the trade name "darah ghaas") handicraft items of *Aeschynomene sp* basketary material made from stems of *cyperus iria*, shoots of *saccharum spontaneum*, leves of *typha angustifolia* culms of *phragmites vallatoria*, and *calamus tenius* pays too much in the economy of common people of the area. The cultivatio of aquatic cash crops on commercial scale in the diverse wetlands also plays a vital role in their economic life, the main beneficiaries are the landlords. The integrated aquaculture involving the macrophytes especially Makhana and singhara and air - breathing fishes like Garai (*Channa punctatus*) Kawai (*Anabus testudines*) Singhi (*clarias batrachus*) Inhance their economy 4, 12, 5, 9, 8, 9 Despite integrated farming of aquaculture the aquatic bodies in and around West Champaran are very much important for the development of gastronomics. None of the haat and market is spared where extracted meat material is not sold. It is attractive neat item even to the white coller people with the belief that this meat is having several medicinal properties along with vitamins and calcium, 10, 11, 12. Fresh water mud crab is also being eaten as a delicious dish by some of the people. Authors of this paper in belief that fresh water crab cultivation should also encourage in order to boost the pisci culture. It is also important to point out that near by West Champaran district there is place Mahesi where more than sixty cottage industries are working and making toys and button using shell collected out of molluscs population. Thus shell fishries may also be encourage *Parreysia favidens*. One of the important genus which is almost depleted because of over exploitation. Pearl may be cultivated by rejuvenating this shell fishries, which can enormously boost the economy of North Bihar. Now it is imperative to encourage cottage industries, handicraft, integrated aquaculture etc. to consume the resource potential of macrophytes, macroinverbrates including mud crab of the region with the objective of economic upliftment of the native population which live below the poverty line.

Table – I List of Macrophytes from Udaipur wetland being used by Village folk

S.No.	Botanical Name	Family	Habit	Remarks on uses
1	<i>Aeschynomene aspera</i> sarkanda	Fabaceae	WE	Dicot plant abundant in marshes. Adds N ₂ to the soil by nitrogen fixation. Stem is used in making marriage cap of bride groom. Pith is also used to make fish net floats
2	<i>Ceratophyllum demersum</i> kacher/darah ghaas	Ceratophyllaceal	US	Common in water bodies like chauras, ditches, lakes. Used as a fish trap, feed for fishes especially grass carp and rohu (<i>Labcorohita</i>) duck feed, sold commercially in the trade name darah ghaas by local fisherman.
3	<i>Euryale ferox</i> makhana	Nymphaeaceal	RF	Aquaphyte commonly called makhana plant, growing in water bodies like chauras in Darbhanga Aquatic cash crop, perisperm famous for its rich nutritional content.
4	<i>Ipomea aquatica</i> Karmi	Convolvulaceae	RF/WE	Rooted feoating in deep water lakes, ponds but emergent in marshes. Cooked as vegetable (karmisag)Dried stems used as fuel, planted to check the soil erosion by water current
5	<i>Nelumbo nucifera</i> Kamal	Nymphaeaceae	RF	Growing in diteties, lakes and ponds Rhizome and seeds eaten cooked. Rhizome powder used to cure pites Leaves and flowers are used in many ways. Thallamus commonly known as

				Kamalgatta is sold in vegetable market.
6	Trapa bishpinosa singhara	Trapaceac	RF	This aquaphyte is next to Makhana Aquatic cash crop. Frequent in monoculture, growing in water-logged area. Starchy cotyledon eaten raw or cooked.
7	Cyanodon dactylon Doobhi	Poaceae	WE	Frequently growing in marshes and on the bank of other wetland shoots are used as excellent fodder
8	Cyperus iria motha	Cyperaceae	WE	Frequent in marshes, robust growing emergently at the bank of ponds, waterlogged badies. Excellent fodder. Stem splitted and used in weaving baskets.
9	Hydrilla verticillata	Hydrochri taceae	AS	Common in water bodies used as fish trap specially grass carp and rohu Sold in the market in the trade name darah ghash by local fisher man.
10	Vetiveria ziznoides khas-khas	Poaceae	WE	Growing at the bank of wetland in west champaran exploited for the extraction of khus-khus oil by big traders. Roots are digged out for the purpose.
11	Phragmites karka Narkat	Poaceae	WE	Profusely growing in kawar lake, Udaipur lake serious obstracle in the flight of birds and future threat for existence This emergent macrophytes is used in cottage industries by making chairs, tables, basket mats, culms made into indi-genous fluets (Bansuri) and pens for rural school children. Tender shoots are used as fodder, bundla of dried culms sold in the market to prepare hedge.
12	Saccharuon spontanoum khar	Poaceae	WE	Frequent in marshes and along the sides of water bodies, plans highly variable in morphology and phenology. Shoots used be thatching material for roots, in making basket, mats. Shoosls also used fodder and fuel.
13	Calamus tenius Bait	Bambooaceae	EM	Growing enly in Udaipur wettand used by local people of prepration of chairs and Table. Commercially very much important plant

Table – II List of fishes recorded from Udaipur lake

S.No.	Family	Zoological Name	Local Name
1	Clupeidae	Gttodusia chopra	Chagri
2	Cyprinidae	Chela laubuca	Cheffiris
3	Cyprinidae	Danico dajgila	Dharvi
4	Cyprinidae	Cirrbittus ingwla	Mrigla
5	Cyperinidae	Labeorobita	Rohu
6	Cyprinidae	Puntius chola	Pothia
7	Silurtopei	Mystusnor	Aria
8	Silurtopei	Clariusbatrachus	Mangur
9	Silurtopei	Heteropneustes fossils	Singhi
10	Amphinoidae	Amphipnous cuchia	Bami

Table – III List of Molluscs population from Udipur lake

S. No.	Name
1	Bellamya bengalensis

2	Bellamyia dissimilis
3	Pila globosa
4	Thiara scabra
5	Thiara tubercidate
6	Thiara lineate
7	Brotia costala
8	Lymnaea accuminata
9	Lymnaea rufescens
10	Indo linorbis exustus
11	Lamcllidens corrianus
12	Lamellidens marginolis
13	Lamelliden corrianus F
14	Parreysia favidens
15	Corbicula straitella
16	Cryptozonea eigulata

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