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**Diminishing Wetlands of East Kolkata and its Socio-Economic Impact on Inhabitants – A
Case Study of Thakdari Mouza, North 24 Parganas**

Abstract:- Wetlands occur when water meets land. East Kolkata Wetlands were designated as “Wetlands of International importance” having the site no. 1028 under the Ramsar Convention. Although have some immense importance the EKW are dying. This decaying wetlands create an impact on socio- economic life of the local inhabitants. This paper is an attempt to find out the changing land use pattern of the thakdari mouza of Rajarhat block of North 24 Pargana and also try to figure out the patterns and scale of transformation of occupation of local villagers.

Introduction:- Wetlands are lands, transitional between terrestrial and aquatic system where the water table is usually at or near the surface, or is covered by shallow water(Cowrdin, 1979). But Ramsar Convention defines wetlands as “the area 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”. Wetlands offer several substantive benefits. East Kolkata Wetland(EKW) is a classical example of harnessing natural resources of the wetland system for fisheries and agriculture through ingenuity of local people with their traditional knowledge. EKW were designated as “Wetland of international importance” having the site no.1208 under the Ramsar Convention on August 19, 2002. This EKW is renowned for its multiple uses and importance. But due to rapid urbanization, expansion of agricultural land, over population growth, changing man-land ratio this valuable natural resource is accepting such a real threat. This paper is a

persistent attempt to depict the environmental and socio- economic impact on the local villagers due to shrinking of wetlands and changing land use pattern.

Geographical location of the study area:- The East Kolkata Wetlands comprises a large number of water bodies located in the district of 24 Parganas(North & South), West Bengal. It is adjacent to eastern part of Kolkata and borders of the Salt Lake Township on the one hand and the upcoming new township at Rajarhat on the other. It is situated between 22°25'N to 22°40'N and 88°20'E to 88°35'E. The multifunctional wetland ecosystem consists of an area of farms. 12500hectares. It comprises 254 sewage fed fisheries, small agricultural plots and solid waste farms. Besides there are some built up areas. 45.93% are of EKW are manmade waterbodies. patterns and scale of transformation of occupation of local villagers.

Importance and problems of the study area:- The East Kolkata Wetlands sustain the world's largest and oldest integrated resource recovery practice based on a combination of agriculture and provide livelihood support to a large economically underprivileged population of around 27000families which depend upon the various wetland products, primarily fish and vegetables for substance. The immense ecological and socio-cultural importance is discussed. The wetland system currently produces over 11000MT of fish per annum from its 264 functioning aquatic ponds, locally called "Bheries". Nearly 150MT of vegetables are produced daily by subsistence farmers. The paddy fields produce 15000MTs of paddy annually. These wetlands collected roughly 2500 MTs of garbage (solid waste) generated by Kolkata daily.

Although have some immense importance, the EKW are dying. This paper is a conscious attempt to identify and solve the following problems of the study area:-

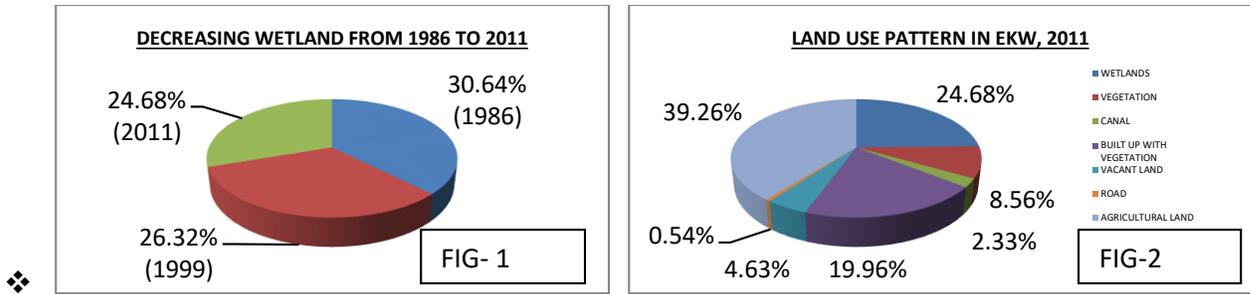
- ❖ Encroachment, siltation, weed infestation, pollution and indiscriminate aquaculture.

- ❖ Decrease biological diversity
- ❖ Decrease migratory bird population & fish
- ❖ Due to rapid and uneven and unplanned urbanization the land use pattern is changing
- ❖ Changing socio-economic life of local villagers

Aims and Objectives:- The present study is based on some aims and objectives which are given below:

- ❖ To find out the change in land use pattern.
- ❖ To estimate the growth of population.
- ❖ To identify the impact of changing land use and over urbanization on biodiversity.
- ❖ To assess patterns and scale of Transformation of occupation of the local villagers.
- ❖ To examine the socio-economic impact of waning wetlands.
- ❖ To mention some suggestions to prevent the curtailing of wetlands.
- ❖ **Methodology:-** The methodology has been taken in preparation of this paper can be divided into three steps. These are-
 - ❖ **Pre- field work:-** This paper involved collection of different levels of secondary data and maps from different offices such as Office of the East Kolkata wetland & Management Authority(EKWMA), Census Office etc. Many browsing websites are also used to collecting pre-field information.
 - ❖ **Field work:-** After the literature survey and collecting maps and data a questionnaire was prepared for door to door survey. About 220 families of thakdari mouza surveyed to get a real picture.
 - ❖ **Post- field work:-** The collected primary and secondary data information were compiled and tabulated. Maps, diagrams, cartograms were prepared with the help of the information to fulfill the objects. Then the results were analyzed and interpreted to deduce the findings and probable suggestions.

- ❖ **Growth of population of Kolkata and its peripheral:-** With the process of rapid urbanization the pressure of population on land has increased dramatically in Kolkata and its surrounding suburban region. The extending industrial growth accelerates the process of transformation of agricultural land and wetlands into built up area and industrial belt. The Salt Lake city is a perfect example of this process. From the secondary sources it is clear that Kolkata has gone through a clear spatial expansion. Its area has expanded from 144sq. km in 1971 to 633.2sq. km.in 2010. The one noticeable fact in this perspective is that this expansion has occurred mainly in east and southward portion of Kolkata. With the spatial elongation, the growth of population has reached its peak. From the census of Kolkata it can be said that the population increased from 8.7million in 1971 to over 15million in 2010.
- ❖ **Changing Land use pattern:-** Land use map of an area is nothing but a graphical representation of physical, as well as cultural elements which play an important role for the socio-economic development of a particular geographical area. So this paper is an attempt to depict the socio-economic changes of EKW area by consulting its changing pattern. As we know the EKW is called the green heart of the city due to its greenery and rich land use resource. Land use change in EKW over a period of years from 1986- 2011 has resembled a distinct change. From the satellite images the changing land use pattern was recorded. From fig-1 it is clear that the wetlands are decreasing. It was 30.64% in 1986 which decline to 24.68% in 2011. The rate of declination is 5.96%. The fig-2 also shows the land use scenario of 2011. It shows that 24.68% of the total area is covered by wetlands, 8.56% is covered by vegetation. The another sector of land use is built up area with vegetation(19.96%). The major percentage of land which is 39.26% is used for agricultural purpose.



Transformation of occupation and economic status of local villagers:- After reviewing the changing and reducing pattern of land use of the study region and collected primary data we have try to analyze the socio- economic impact of this disastrous situation. From the primary data it can be said that the occupational pattern of this region is mainly based in the physical aspects. Among the respondents 31.81% are fish producers from ponds and bheries, 23.64% are agricultural laborers, 27.73% are cultivators, 10.45% are engaged in garbage management farms and remaining 6.36% of villagers are engaged in different service sectors. From the primary data the ownership of land and bheries will be clear. It shows that in case of bheries the proportion of 24.29% respondents have their own bheries and 75.71% have rented bheries. In the later case, the owners of the bheries are engaged in other secondary and tertiary

Table – 1 Pattern of transformation of occupation

From	To	No. of respondents	% of respondents
fish production	agricultural worker	20	9.09
fish production	cultivators	7	3.81
fish production	other services	17	7.73
cultivators	other services	5	2.27
Remain unchanged		171	77.73

Table- 2 Reasons and result of transformation of occupation

Reasons of transformation	% of respondents	Changed economic status	% of respondents
Changed forcefully	56	Economically benefited	27
Changed at own will	44	Economically loss	49
		Remain unchanged	24

Source of table-1 & table-2: Primary data collected and tabulated by author

sectors of economy. The primary survey also emphasized on the transformation of the occupation of the respondents 22.27% have gone through the phase of transformation of their prime economic activity. The reasons behind the transformation were also reviewed. The table- 2 shows that among those respondents (who changed their occupation) 56% took this decision under some pressure and 44% took it for their own benefit. But the fact which is the matter of concern is that after the transformation only 27% respondents were economically benefited. But 49% respondents faced a huge economic loss and rest 24% maintained the same levels of income.

Major findings:- After reviewing different primary and secondary data, maps and tables we have some real picture about the changing scenario of EKW and its impact on the studied mouza. These are:

1. The EKW have a great role in maintaining ecological balance of Kolkata and its adjacent periurban area.
2. Due to rapid growth of population, fast process of urbanization, industrialization the wetlands are shrinking and the rate is 5.96% from 1986 to 2011.
3. It creates a socio-economic impact on the local villagers.
4. The pattern and trend of change in occupation of the villagers are changing at a high scale.

5. Ecological diversity and balance is at a high risk.
6. 22.27% of the villagers have changed their occupation which create an impact on their levels of income.
7. In 56% cases it was noticed that this transformation has occurred forcefully.

Suggestions:- After analysing the whole paper it can be suggested that the process of destroying of wetlands should be stopped immediately. The developers or promoters who convert the wetlands for their own economic purpose should be penalised. The NGO's or concerned Govt. sectors should be concious and take necessary steps to stop the threat. The local villagers should take the releavant actions to fight against this situation.

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