



## Effect of cultural and traditional beliefs leading to conservation of marsh land and species

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**Abstract**— This case study focuses on the influences of traditional and cultural beliefs of local people that have led to the conservation of Chokhmanik marsh lands near Kolkata, West Bengal. There are about twenty water bodies within the village, some of which are abandoned by the local people due to the cultural and traditional beliefs relating to the god of death. Most of the wetlands are directly or indirectly connected to a main canal, which merges with the Hooghly River. These patches of wetlands support diverse ecosystems found in this region. There are four poultry farms in the village. The main canal is used as the dumping ground of organic and poultry wastes of the village.

There is a large population of water monitor lizards (*Varanus salvator*) found in the village, which are rarely sighted in the nearby villages around Chokhmanik. Apart from feeding on snakes, small birds and other garden lizards, the monitors depend largely on the garbage in the main canal for their food. The main canal acts as a good foraging ground for these reptiles. The local people have close interactions with the lizard monitors. They often share a symbiotic relationship as the monitors being scavengers, feed on the organic and poultry wastes, thereby helping in cleaning up of the Canal. A large number of dead hens are regularly thrown in the canal by the poultry farmers, which act as one of the main sources of food for the monitors. Man-Animal conflicts sometimes occur, there are common complaints that ducks are taken away (“stolen”, as popularly termed by the villagers) by the monitors. Fifty people of various age groups were interviewed by Successive Independent Sample Study, with open ended expert interview method. It is found that the majority of local people are in favor of conservation of the marsh lands and species depending on it, like the water monitor lizards. The diurnal behavioral study of the monitors was conducted in the area for eleven months. It has been found that the reptiles lived individually in the abandoned water bodies, but between 2 to 4 pm, frequently move to the canal. The monitors were observed to make burrows in the abandoned water bodies. They move to the main canal in search of food generally in the afternoons. There were several cases when the villagers stood against poachers to protect the monitors from being hunted. Over the years, villagers have protected these marsh lands and its species, and thus in an era of modernization and urban development, Chokhmanik stands out as an example of how the cultural and traditional beliefs of the village people can actually make a difference.

### INTRODUCTION

This case study has been conducted in Chokhmanik village, located in South 24 Parganas of Kolkata, West Bengal, India. There are twenty water bodies which are present in this area, among them twelve are abandoned, while eight are used by the local people for fishing and other purposes. There are popular superstitious beliefs among the villagers regarding the God of death (Yam) which has led to abandoning these wetlands. These water bodies are directly connected to a main canal, which further meets the Hooghly River. The main canal is used as the dumping ground of organic wastes of the whole village. A large population of water monitor lizards (*Varanus salvator*) use these ponds and the adjacent canal as an ideal undisturbed habitat. An interesting correlation between the traditional beliefs of local people leading to protection of the reptiles can be clearly observed from this case study. This study explores the relationship between the local village folk and the reptiles. The reptiles were studied in the area for eleven months. It was found that the main canal serves as the foraging ground, while the haunted abandoned water bodies act as a suitable undisturbed habitat for the water monitor lizards which use burrows dug at the periphery of the ponds.

### METHODOLOGY

A behavioral study of water monitor lizards was done to understand persistence limits in the suburban population in Chokhmanik for eleven months. It was observed that the monitors dig individual burrows near the periphery of the abandoned water bodies, but move to the main canal generally in the afternoon for foraging.

Fifty people of various age groups of the village were interviewed by Successive Independent Sample Study, using an open ended expert interview method to understand the beliefs and approach of the villagers towards the abandoned marsh lands, the use of the canal and their perceptions of the neighborhood monitors. The study documents the strong traditional beliefs of the local people for abandoning the ponds and protecting the marsh lands as a result of this superstition and their relationship with the reptiles. The study was done by observing the reptiles in each of the isolated ponds. The observation was done at an interval of fifteen minutes for six hours stretch in a day. The feeding patterns and behavioral observations

like sun basking, land and water movements were used as parameters for the study.

### TRADITIONAL BELIEFS

The people have several cultural and traditional beliefs related to the Marsh lands. These are locally referred to as fear of death and a part of religious beliefs. According to local residents, each year one person would drown in these water bodies. Thus, some of those were abandoned and named as “Yam Pukur”, Yam refers to the Hindu god of death and Pukur refers to the water body. Some of them also believe that an idol of Lord Shiva had once emerged from one of these water bodies. Thus, twelve of these water bodies are abandoned by the local people. They strongly believe that the marshes should be preserved in order to maintain the welfare of the village folk.



“Yam Pukur” during summer

**Village People:** The main occupation of the people includes fishermen, poultry farmers, auto drivers and peons. There are four poultry farms in the village. As the villagers use the main canal for their dumping ground, all the organic wastes including the poultry wastes are regularly disposed off in the main canal. The main canal acts as an appropriate foraging ground for the water monitor lizards. During the interviews, the villagers claimed that they largely depend on the reptile for cleaning of the canal and thus reduce chances of spreading diseases. Apart from feeding on poultry wastes, the monitors prey largely on snakes. Thus the villagers share a symbiotic relationship with the water monitor lizards. There have been a few reports of conflicts between the monitors and the fishermen, as fish is one of the major source of food for the juvenile water monitor lizards. The villagers complain that their ducks, fish and at times puppies are taken away (“stolen” as popularly termed by the villagers), by the monitors.



Women and Children of Chokhmanik

**Flora and Fauna:** The vegetation of the Village comprises of Palm (*Arecaceae sp.*), Coconut (*Cocos nucifera*), Bamboo (*Bambusoideae sp.*) and several species of trees and shrubs. There are numerous species of butterflies like Blue Mormon (*Papilio polymnestor*), Common Palmfly (*Elymnias hypermnestra*), Peacock Pansy (*Junonia almanac*), Tawny Coster (*Acraea terpsicore*). A large number of reptiles like Water Monitor Lizard (*Varanus salvator*), Rat snake (*Pantherophis obsoletus*), Vipers, Skinks, Oriental garden lizards (*Calotes versicolor*) can be often seen near the water bodies. Chokhmanik is a home of various species of water birds like Water hen, Bitterns (*Botaurinae sp.*), Kingfishers (*Alcedines sp.*) like white breasted, stork billed and common kingfisher. Red vented and Red whiskered bulbuls (*Pycnonotus sp.*) are commonly found. Among the Raptors, Crested Serpent Eagle (*Spilornis cheela*) are most commonly seen in this area. There are a large number (450-500 approx) of Flying Foxes (*Pteropus sp.*) which can be roosts in this region. The area consists of mixed vegetation as a result of high rainfall during three to four months of the monsoon. The marsh lands are covered with water hyacinth throughout the year. The other eight water bodies were used by the local villagers for fishing and other household purposes.



Abandoned Water body covered with Water Hyacinth and surrounding vegetation



**Crested Serpent Eagle**

**Water Monitor Lizard:** There is a large population of Water Monitor Lizards in Chokhmanik.



**Water Monitor Lizard**

These reptiles move freely from one water body to the other. They make nests and burrows under the tree roots near the periphery of the abandoned marsh lands. They are often sighted swimming across the weed infested pond. It is found that individuals burrowing in the respective abandoned marsh lands move to the main canal during the afternoon between 2:00 pm to 4:00 pm in search of food. The juveniles are often seen feeding on small fishes from ponds around the village. A large number of dead hens are regularly thrown in the main canal by the poultry farmers while cleaning the enclosures. During this time of the day, a large number of the monitors are seen to gather in the main canal. Large splashing sounds of water can be heard at this time due to competition for the waste between the monitors. Due to the availability of food and a secluded habitat, the population of the water monitors is considerably high. The ecosystem around the village is maintained by this omnivore that cleans up the biodegradable waste.

**Role of Villagers in Conservation:** The villagers play an important role in conserving the marsh lands and its species. They protect the water bodies as according to their traditional beliefs these are important for the welfare of the village and its people. They also play an important role in protecting the Water Monitor lizards. They reported cases when the villagers stood against poachers to protect the Water Monitors from being hunted. The Monitors often visit the village houses in search of food, but surprisingly, the villagers patiently wait for the Monitors to leave, instead of disturbing, or throwing stones as is generally observed in other situations. The water monitor lizards play an important role in controlling the snake population of the area, and hence it is given as another reason for protecting them.

### RESULTS

**Responses of the local people:** From the open ended interview of fifty villagers by Successive Independent Sample study, it has been found that the total number of people supporting the conservation of the marsh lands is 98%. Only 2% believe that development is necessary for the village in this undisturbed habitat. There were 96% who are in favor of conservation of the water monitor lizards, while only 2% were not in favor of protecting them, while 2% chose not to comment. The results show that among the respondents a large majority of them supported the conservation of both the marsh lands and the monitors. From these observations it can be seen that there is link between the abandoned marsh lands and the existence of such a large population of monitors which are rarely observed in the nearby villages of Chokhmanik.

**Behavioral Study of the Water Monitor Lizard:** From the behavioral observations it was seen that the water monitors are very shy reptiles and are generally spotted sporadically one or two at a time. They frequently make their burrows in the mud at the bank of the pond on abandoned land made of fallen tree trunks and branches. It was observed that these reptiles regularly spend at least one to two hours basking in the sun during both summer and winter. A large number of the adults move from their nesting ponds to the main canal during afternoon. Frequent movements can be seen between land and water which form a composite habitat. After a meal, they move slowly and return to their own burrows in the irrespective ponds. They usually return at sun set. During they return between 5:00 to 5:30pm.



Burrows of the Monitors



Water Monitor Lizard, getting into one of the water bodies



Nest made of fallen tree roots and branches



Swimming through the main canal in search of food

**Change in the feeding habit:** It was reported that over the years the Monitors are increasingly dependent on the garbage in the main canal for their source of food than foraging in the surrounding area. This is due to the fact that the main canal has increasingly become a dumping place of the domestic organic wastes of the village. This provides a steady source of food for the Monitors. Thus their population is reported to be stable. Thus, both the human population and the Monitors benefit from each other. This change in their feeding habits can be considered an example of co adaptation of species to their environment.



After meal, heading back to the nest



### CONCLUSIONS

#### Initiatives to Conserve the Marsh Lands of Chokhmanik in the near future

The marsh lands of Chokhmanik are the home of several species of birds, reptiles, amphibians. Besides the traditional and cultural beliefs of the local people that lead to the conservation of these marsh lands, the existence of a large population of Water Monitor Lizards, on which the villagers depend largely for the waste management are also solely dependent on these abandoned marsh lands for their survival.

Hence, if these marsh lands are disturbed, then the whole ecological balance of the village will be disrupted. The co-existence of man and reptile suggests that there are unique local specific concerns that can lead to conservation of sites and species. Due to the effect of modernization, in the near future, the traditional and cultural beliefs of the local people are bound to change and hence the marsh lands and its diverse species may not have the same survival conditions.

The young generation of the village should be provided with an understanding of the ecological importance of the marsh lands and its species through a conservation education program. The young generation is a key to help in conservation of these rich marsh lands and its species.

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