8. Conclusion:

After the overall conclusion, the present study reveals the presence of 160 species of aquatic and marshy land angiosperms belonging 43 families, out of these 92 species in 54 genera and 15 families belonging to Monocots; 68 species in 39 genera and 28 families belong to Dicots. A comprehensive study was done first time in this district with their density, frequency and abundance values. It was observed that climatic factors such as light intensity and duration, temperature, humidity, water quality, wind velocity and pattern of precipitation have a direct effect on aquatic plant life. The heavy rainfall, high humidity, and moderate temperature are collectively responsible for this rich amalgamation of different aquatic and marshland plant types in this district.

In the district, some blocks such as Belpahari, Binpur, and adjoining areas have less aquatic reservoirs, these areas known as hill zone. In the westernmost portions are drought-affected dry areas with developing lands, borders with hills and mounts. In the east highly wet flood-affected marshlands areas with semi-aquatic vegetation, such as blocks Sabong, Ghatal, Chandrakona, Debra, Pingla and also some places of Narayangarh, Gopiballavpur. These areas possess huge aquatic angiosperms due to their different edaphic factor with a huge number of the aquatic and semiaquatic zone. Few plants grow exclusively in some marshy land zone such as *Alternanthera philoxeroides*, *Eichhornia crassipes, Kyllinga brevifolia*, and others are common in different places. Some of the plants recorded from the study area as rare (uncommon) such as *Alpinia aquatica*, *Caldesia parnassifolia, Aponogeton crispus*, *Blyxa japonica, Blyxa echinosperma, Coix aquatica, Limnophyton obtusifolium, Sagittaria sagittifolia, Eriocaulon xeranthemum, Eriocaulon truncatum, Eriocaulon setaceum* and *Xyris indica* in monocot. Among these ***Eriocaulon setaceum***, ***Caldesia parnassifolia*** and ***Blyxa japonica*** are very rear. In dicot *Hygrophila polysperma, Ludwigia prostrata, Ranunculus sceleratus,* and *Utricularia gibba* are very rare, especially ***Hygrophila polysperma*** and

Ludwigia prostrata are very much uncommon plant species in the study area. Many plants grow besides aquatic zone but did not consider these plants due to lack of their original aquatic habitat; those are excluded from present observation.

Density values of the members are very low in dicot than the monocot. Values over 10 only in six members and in between 5-10 were in 10 members after observation among all taxa, so lower density values reflected that population growth, development and yield formation is slow. In frequency (%) of the observed taxa over 50 in 18 members and in between 30-50 in 31 members among 160 plant species, so the observation reflected that plant were present moderately in survey area.The abundance values reflected that over 50 in three species, in between 30-50 in 3 species in monocot, dicots members were under 20, so it refers to relative representation of the population members in this area are moderate.

According to Mishra and Narain (2010), unproductive useless waterlogged aquatic and wetland ecosystems, occasionally even as detrimental have recently been emphasized as an ecosystem with specific ecological characteristics, functions, and values. Macrophytes play an important role in maintaining the wetland ecosystem (Harsha et al., 2006; Dhote and Dixit, 2007). Wetland plants are exclusive and compose very significant property of medicine, and food for the rural inhabitants. A large number of aquatic floras also provide food and feed materials for local human beings. These are *Ipomoea aquatica*, *Enhydra fluctuans*, *Nelumbo nucifera*, *Trapa natans*, etc. After the survey, a total of 21 edible plants, 32 medicinal plants, 24 fodder plants, and 12 plants collected those are used for home remedies for local inhabitants. The tribal people have used these plant parts such as plant roots, leaves, fruits, seeds, and whole plants in different diseases. They apply for medicine in their eye, skin, urethra, vagina, nail's corner and anus. The tribal is a belief in doctrinaire these plants as supernatural powers. Tribals and local people are protecting these plant areas by declared the aquatic land as a sacred grove. The whole plants of these aquatic and marshy lands never take

off, only some selected plant parts used. They leave reproductive parts and some fruits in the ripening stage for the next generation. This type of restriction helps them for the conservation of plant genetic resources till even today.

The present study related to tribal people gives us Ethnomedicinal knowledge that helps medical science to overcome the different harmful diseases. In the survey area where medical science does not progress, the peoples of these zones depending on the plant extract as medicines in the crude form or added with other suitable mixture.

It is noted that the emergent plants are more efficient to produce huge viable seeds and that can spread rapidly. Unlike the land plants, most of these aquatic floras can absorb the minerals and other nutrients through their leaf-surfaces and form the water phases. Some plants grow rapidly due to their quick regeneration ability and huge rate of vegetative and sexual propagation which chocked or clogged several irrigation canals, reservoirs, cultivated fields, and fishpond. Water plants are the key component that increases the efficiency of the aquatic ecosystem to maintain ecosystem balance. The aquatic macrophyte diversity supports a sustainable life system all over the world. All of the aquatic resources have barely been specified due to consideration for systematic studies and consequently, their potentiality ruins still unevaluated.

The significance of the aquatic flora in agriculture and horticulture is barely being emphasized as a resource of food and ornamental. According to Kappor and Sharga (1993), there are numbers of ornamental plants which rise in an aquatic and semi-aquatic environment, play an important character in environmental development of urban and rural areas for mollification of pollution, social and rural forestry, wasteland development, afforestation, and landscaping of outdoor and indoor spaces. During the survey, we collect different habitat, aquatic plants use as ornamental plants that are connected to the person's mind for their exceptional beauty.

Such as *Aeschynomene aspera, Bacopa monnieri, Centella asiatica, Ceratophyllum demersum, Crinum asiaticum, Arundo donax, Butomopsis latifolia, Coix aquatic, Hydrilla verticillata, Monochoria hastate, Ottelia alismoides, Saccharum spontaneum, Sagittaria sagittifolia, Typha* domingensis, *Drosera burmannii, Enhydra fluctuans, Hygrophila auriculata, Ipomoea fistulosa, Ipomoea aquatic, Nelumbo nucifera, Neptunia oleracea, Nymphaea nouchali, Nymphaea pubescens, Nymphaea rubra, Nymphoides hydrophylla, Nymphoides indica, Ranunculus sceleratus, Utricularia aurea Utricularia bifida, Utricularia stellaris, Utricularia caerulea, Trapa natans* etc.

The aquatic life forms and their biota of these areas have been widely investigated since last centuries and concentration has developed quickly in now a day due to the increasing requirement of water and fish, and the need for supervision the water quality.

These plants are wildly cultivated generally for attractiveness, for their pleasurable smell of flowers and their enthralling foliage (Swarup, 1998). According to Kaplan (1973), these beautiful natural surroundings afford a relax from mental tiredness arise from the prolonged focussed on a work that can lead to inaccuracy and descend. Ulrich (1984) provides evidence to minimize the stresses when any physiological condition straight connects with nature. The species diversities determine the pollution or eutrophication, that depends on the standard of water quality, community diversity is high in clean water and diversity is low in polluted water (Wilhm, 1967; Wilhm and Dorris, 1968).

People collect wild flower and ornamental plants from nature, but in the current situation regrettably many of the water bodies have been destroyed and macrophytes are now endangered, become extinct by overexploitation of human beings (Arora, 1993).

The increases in urbanization, the formation of new settlements, and industrialization extinct the aquatic habitat in that survey areas. Extreme utilization of natural aquatic resources on a

large scale for road, building, and development of tourism is resulting in infrequent aquatic land in this district. Industrialization, monoculture practice for fishery and other anthropogenic activities have resulted in ecological disequilibrium, which has threatened the origin of natural water bodies. Already many species of plants have become the least concern and many more are in rare condition. So needs urgent and supreme management to record the flora and to assess the diversity, potentiality of these aquatic macrophytes and all these plants need to be conserved to maintain ecological balance of this district before they will disappear forever.