

## Multidisciplinary Research and Studies Can Focus Birds Biodiversity Hub

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**Article History**

Received: 01.03.2024  
Accepted: 17.03.2024  
Published: 03.04.2024

**Abstract:**

**The study's objective:** The present study aims to observe the different types of birds in the Damodar River-based surroundings in Kanchannagar, Burdwan to find the most suitable bird resident.

**Methodology (materials and methods):** Here, mainly the photographers, visitors, tourists, communities, scientists, social workers, teachers, ex-students, educationists, students and guide teachers of Kanchannagar D. N. Das High School as 'Nature Scientists' forming different active groups, properly discuss among themselves, undertake, random sampling, counting, collecting, recording, analyzing, seeing patterns, trends and local problem, and interaction-survey and mentions some of the solutions deployed to overcome the problem by using mobile phones, camera, and binocular, etc.

**Results and Findings:** The results indicate that the different types of birds shown in five areas in the 'Damodar River-based Kanchannagar'; 'Idilpur and Banka-Siphon' have maintained the steadily increasing different types of bird populations from December 2010 to January 2024 helped to find the most suitable bird resident for establishing 'Natural Birds Hub' with different eco-components.

**Practical Implications:** It may be implied as a 'Natural Birds Hub' for the natural bird lover tourist, which may enrich the circular socio-economic environment health and prevent future pandemics.

**Scope for Future Work:** The 'Idilpur' will be the best 'Natural Birds Hub' for migratory birds, and the 'Banka-Siphon' may be established or transformed into an excellent 'Research Centre for birds, pisciculture, fishery, indigenous breeding, wild animals, bio-medicines, eco-technology, socio-economy, circular economy, environmental policy, ecology, tourism education, agriculture, horticulture, eco-components, and management of natural, public and private future complex relationships, scientific healthcare, biomedicines, and skill development with job facilities for well beings.

**Limitations:** The success mainly depends on the different types of Government support, large amounts of financial grants, different specialist scientists, engineers, ethics, priorities, values, motivation, priority, and a good attitude, etc.

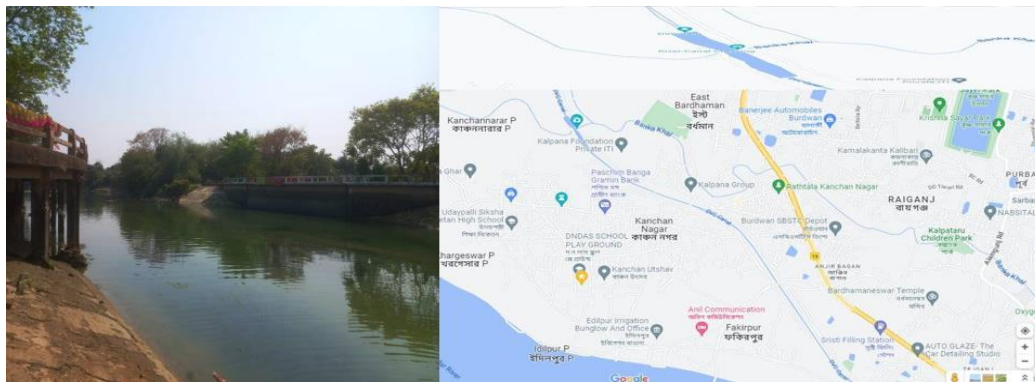
**Keywords:** Multidisciplinary Research-Studies; Focus; Birds Biodiversity-Hub.

## Introduction

Kanchannagar, Burdwan, West Bengal, India is the Damodar-River-Based (DRB) attached to Eden Canal (EC) and Banka-Siphon-Dam (BSD) of Banka River (BR) covering 10-12 km sq

km area (**Figure 1**), is the oldest enriched habitat of different flora- and faunal- diversity with large population densities of birds that attract nature lovers and tourists 15 years ago (Peterson, 1910; Hossain and Aditya, 2014; Datta,2023a,2023b; Datta and Das, 2023).

**Figure 1:** Kanchannagar Damodar-River-Based Idilpur Damodar and Banka-Siphon-Dam of Banka River (From Mobile photography and Google map)



**Figure 2:** Killing of Migratory Birds in Damodar-River-Bed (From News/Photographer)



But the number of mysterious death of migratory birds in the Damodar riverbed in Kanchannagar was decreasing significantly due to; climate change, loss of habitat, dwindling green patches, tourism, selection of un-scientific bird-watching places, hi-tech lighting, vigorous sound activities, killing, poison baits, pollution, cutting the trees, human encroachment, farming, disturbing, catching, unethical human behaviours, socio-economic conditions, lack of awareness, environmental consciousness, conservations (Figure 2 & 3), and urbanization, etc. badly affected 'Wetland DRB-Biodiversity', and it adversely impacts the environment and societal problems (Roy et al., 2016; Datta, 2023a,2023b; Datta and Das, 2023; Chakraborty, 2023).

**Figure 3:** Position of Biodiversity of Animals in Kanchannagar; Damodar-Based, Idilpur, Banka-River, Banka-Siphon, Pond and Land (Source: Mobile Photography and Google map)



On the other hand, the Covid-lockdowns also impacted the ecosystem during the pandemic coronavirus-disease (COVID-19), it has faced social and economic challenges among the communities, and health systems (Datta, 2023c,2023d,2023e). And it is well known that birds, especially the pure/exotic migratory birds are the most charismatic courtship displays that have recently been swept onto the global stage of nature tourism, especially the 'Natural Socio-Economic Eco-Tourism' and Influence of charismatic species and conservation engagement on the nature-viewing preferences of wildlife tourists (Mariyam *et al.*, 2022; Datta 2023a,2023b).

To overcome all the problems, primarily it has been observed that the different 'Biodiversity Hub' of Damodar-Based Kanchannagar, Enrich the Circular Socio-Economic Environment Health Preventing Future Pandemic, OR Advances in Clinical Toxicology Depend on Eco-Technology, OR Focused Ecological Foot Print Biodiversity Conservation Natural Resources Socio-Economic Management Ecosystems Improving Environmental Policy! (Datta, 2023a, 2023b,2023c, 2023d,2023e; Datta and Das, 2023).

## 2. OBJECTIVE OF THE STUDY

The research study specifically's main aims and objectives are to:

- Observe the different types of birds in the Damodar River-based surroundings in Kanchannagar, Burdwan to find the most suitable bird resident.
- Observe the various types of birds that come/are found day and night throughout the year.
- Establish or focus the 'Natural Birds Biodiversity Socio-Eco-Tourism Spot'.
- All student scientists, photographers, visitors, tourists, scientists, social workers, teachers, ex-students, educationists, and communities, will get the scope to see the prospects and study / explore how integrated management of land, water and living resources promotes 'Birds' conservation and sustainable use in an equitable way that establishes the scope, context, and significance of the research.
- Students can also study the wide range of ecosystem management activities that increase resilience and reduce the vulnerability of people and the environment to climate change.
- Encourage students to find local-level problems and take initiatives for developing local technological solutions from green eco-technology, appropriate technology, information and communication technology, or improvising traditional technology based on the principles of frugal innovation highlighting the potential outcomes of the study.
- So, in the Azadi Ka Amrit Mahotsav (77th-Anniversary of Indian Independence), primarily the general aims and objective is to survey the types of birds for ideal resident population zones with biodiversity for establishing or focusing the 'Natural Birds Eco-Tourism Spot', OR ultimately it is tried to focus the "Emerging Birds Eco-Tourism Economies Need Much More Funds for Circular Socio-Economy and Climate Transition".

- During the course of study, it will be considered other eco-components for the 'Biodiversity-Ecology' of the "Socio-Economic Management Ecosystems Environmental Policy".

## 3. MATERIALS AND METHODS

### 3.1 Work Plan:

Here, mainly the nature-lover communities, photographers, visitors, tourists, scientists, social workers, NGOs, teachers, ex-students, educationists, students and guide teachers as 'Nature Scientists' forming different active groups, properly discussing among themselves, undertaking, random sampling, counting, collecting, recording, analyzing, seeing patterns, trends and local problem, and interaction-survey and mentions some of the solutions deployed to overcome the problem by using mobile phones, camera, and binocular, etc. The students of Kanchannagar D. N. Das High School (HS), from Class-V to Class-XII student of act as 'Child-Scientists' try to innovative ideas regarding Kanchannagar establish or focus the 'Natural Birds Biodiversity Socio-Eco-Tourism Spot' (Datta, 2023a, 2023b,2023c; Datta and Das, 2023).

### 3.2 Location and Weather:

Kanchannagar, Burdwan Town, Purba Bardhaman, District, West Bengal, India, (from 22°56' to 23°53' North latitude and from 86°48' to 88°25' East longitudes, **Figure 1**) covering 10-12 km, where the average temperature was 22±5°C, relative humidity was 75±5%, is situated beside the Damodar, and it is surrounded by rivers, siphon, ponds, forest, different trees, park, garden, playground, different storehouse, rice mill, markets, agriculture-horticulture-land, brave-yard, temples, etc. forming the 'Location-Wise an Ideal Place' for keeping-and-caring of the 'Birds Biodiversity', with the average rainfall was 150 millimetres, and it was the locality as 'Sample Area' (Datta, 2023a, 2023b,2023c; Datta and Das, 2023).

### 3.3 Division Survey Zones:

The study area (**Figure 1**) was divided into five (5) areas named; I. Idilpur Damodar, II. Banka River, III. Banka Siphon, IV. Pond & Land, and V. KDNDHS (Kanchannagar D. N. Das High School) (Datta, 2023a,2023b; Datta and Das, 2023).

### 3.4 Study Samples:

The 'Study Samples' were mainly the different types of birds like Local Resident (**LR**), Local Migrant (**LM**), and Pure Migrant (**PM**) in the river, siphon, water bodies, agricultural land, vegetation, and local community (Datta, 2023a, 2023b; Datta and Das, 2023).

### 3.5 Observation of Other Eco-Components:

During the course of the study, it will be observed other eco-components for record only.

### 3.6 Duration of Study:

The study duration was December 2010 to January 2024, up-to-date (Datta, 2023a, 2023b; Datta and Das, 2023).

### 3.7 Formation of Groups:

According to the age of students, the 15 groups were formed from the 'Child Scientists residing in different localities of Kanchannagar; standard-V to standard-XII, with one team leader, one team member, an average of 2 captains per 10 core students-

group, and some senior ex-students-NGOs- photographers, from the local communities (Datta, 2023a, 2023b; Datta and Das, 2023).

### 3.8 Division of Work:

Here, the different 'Nature Lover' teams, and students as 'Child Scientists' frequently randomly block designs in the morning (5 am to 8 am), afternoon (12 noon to 3 pm), and dusk (5 pm to 8 pm) with good vision, practical understanding, problems, and all have identified patterns, trends and problems in lockdowns based on main observation- and interaction based -a survey among communities, experience old worker/labour, student scientists, photographers, visitors, tourists, scientists, social workers, teachers, ex-students, educationists, fisherman, farmer, and communities, etc., and observe the birds biodiversity during the day-and-night- and -Covid periods informing all directly or indirectly to the guide Dr Subhas Chandra Datta, Nature Scientist, and Sri Arnab Das, Animal Lover Social Worker (Datta, 2023a, 2023b; Datta and Das, 2023).

### 3.9 Typical Work Done:

Mainly the students, photographers, nature-lover NGOs, and different volunteers organized some social awareness camps among the local communities, and tourists regarding the benefit of biodiversity, circular economy, biomedicines, fishery, agriculture, socioeconomic, ecology education tourism, health, etc. and planted fruits trees with hanging artificial nests for establishing the 'Natural Birds Eco-Tourism Spot' (Datta, 2023a, 2023b,2023c; Datta and Das, 2023).

### 3.10 Covid Protocols:

The photographers, visitors, tourists, local community, students, NGOs, and different volunteers use masks mandate, clean their hands with soap, maintain physical distance, and avoid touching eyes-nose-mouth, etc. (Datta, 2023a, 2023b,2023c; Datta and Das, 2023).

### 3.11 Counting:

Different teams of students helped with the proper count of types of birds only in the river, siphon, land, trees as well as in the pond water. The direct counting technique is used at random (Datta, 2023a, 2023b,2023c; Datta and Das, 2023).

### 3.12 Collection-and Recording-Data:

The data were collected by Child Scientists and were recorded in the 'Logbook' and were authenticated by the guiding teacher Dr. S. C. Datta (Datta, 2023a, 2023b,2023c; Datta and Das, 2023).

### 3.13 Analysis of Data:

The data were analyzed by comparison and referring to well-reputed published papers (Datta, 2023a, 2023b,2023c; Datta and Das, 2023).

### 3.14 Science Technology Communication Applications Ecology:

The students, NGOs, scholars, researchers, artists, teachers, staff, community, photographers, different scientists, academicians, clinicians, administrators, institutions, farmers, media personnel, and visitors make the news of "Sustainable Future 'Natural Birds Eco-Tourism Spot Ecology'", and published it in different prestigious journals (Datta, 2023a, 2023b,2023c; Datta and Das, 2023).

## 4. RESULTS

### 4.1 Birds Eco-Components:

**Table 1** indicates that only the average three different types of birds (**LR**= Local Resident, **LM**= Local Migrant, & **PM**= Pure Migrant) were shown in five areas in the 'Damodar River-based Kanchannagar' from December 2010 to January 2024.

#### • In 2010:

The average highest total number of different three types of birds 145 was found in the 'Pond & Land' of Kanchannagar (**Figure 4,5,6,7,8**), and the total lowest type of birds 75 were found in the 'Kanchannagar D. N. Das High School (KDNDHS)' (**Figure 5**). The average highest number of 'Pure Migrant (PM)' birds 20 was found in the 'Idilpur Damodar' (**Figure 6**), and the lowest type of PM bird 5 was found in the KDNDHS. It was notable that the highest 93 'Local Resident (LR)'- and 42 'Local Migrant (LM)'- types birds were visualized in the 'Ponds & Land' respectively, whereas the lowest 41 'LR'- and 29 'LM'- type's birds were visualized in the KDNDHS.

#### • In 2015:

The average highest total number of different three types of birds 135 was found in the 'Banka River', and the average lowest total type of birds 91 were found in the 'KDNDHS' (**Figure 5**). The average highest 20 types of 'PM' birds were seen in the 'Idilpur Damodar' (**Figure 6**), and the average lowest 7 types of 'PM' birds were found in the 'KDNDHS'. The average 95 different highest 'LR' types were found in the 'Banka River' (**Figure 4,5**) whereas 61 were in the 'KDNDHS'.

**Table 1:** Observation of Different Types of Birds in Five Areas in the Damodar River Based Oldest Kanchannagar, Burdwan

SI No	Survey Zones	Average Number of Three Different Types of Visualized Birds from December 2010 to January 2024																
		2010				2015				2022				2024				2010-2024
		LR	LM	PM	T	LR	LM	PM	T	LR	LM	PM	T	LR	LM	PM	T	Remarks
I	Idilpur Damodar	82cx ±4.2	38by ±2.4	20az ±1.2	<b>140</b>	72c ±3.4	29a ±1.3	20a ± 0.8	<b>121</b>	82d ±2.2	39e ±1.3	27a ±1.7	<b>148</b>	83c ±3.1	40b ±1.6	30a ±1.1	<b>153</b>	<b>Increasing birds</b>
II	Banka River	88bx ±3.6	35cy ±2.3	11cz ±0.7	<b>134</b>	95a ±5.3	30a ±1.8	10b ±0.4	<b>135</b>	104a ±5.4	42c ±1.8	13c ±0.7	<b>159</b>	87b ±4.3	28c ±1.4	7c ±0.3	<b>122</b>	<b>Decreasing birds</b>
III	Banka Siphon	78dx ±1.2	36cy ±1.8	13bz ±0.9	<b>127</b>	88b ±4.2	32a ±1.4	12b ±0.2	<b>132</b>	90c ±4.6	49a ±1.3	16b ±0.4	<b>155</b>	94a ±4.2	50a ±1.3	18b ±1.2	<b>162</b>	<b>Increasing birds</b>
IV	Pond & Land	93ax ±5.1	42ay ±2.8	10cz ±0.2	<b>145</b>	89b ±4.3	26b ±1.2	9c ± 0.1	<b>124</b>	98b ±5.2	46b ±1.4	14c ±0.4	<b>158</b>	45d ±4.3	23d ±1.1	10c ±1.2	<b>78</b>	<b>Decreasing birds</b>
V	KDNDHS	41ex ±2.3	29dz ±1.3	5dz ±0.3	<b>75</b>	61d ±3.9	23c ±1.1	7d ± 0.3	<b>91</b>	67e ±2.9	35d ±1.3	12d ±0.4	<b>114</b>	46d ±4.2	17e ±0.3	8c ±0.4	<b>71</b>	<b>Decreasing birds</b>
<b>All Total</b>		<b>382</b>	<b>180</b>	<b>59</b>	<b>612</b>	<b>405</b>	<b>140</b>	<b>58</b>	<b>603</b>	<b>441</b>	<b>211</b>	<b>82</b>	<b>734</b>	<b>355</b>	<b>158</b>	<b>73</b>	<b>586</b>	<b>Decreasing</b>

**KDNDHS**= Kanchannagar D. N. Das High School, **LR**= Local Resident, **LM**= Local Migrant, **PM**= Pure Migrant, and **T**= Total. ‘a,b,c..’- Different small letters in a column, and ‘x,y,z’ different small letters in a row show significant difference by the analysis of variance ‘ANOVA’ (P<0.01).

● **In 2022:**

In the major-/minor-COVID periods or different lockdowns, the total average number of three different types of birds increased in the five areas of Kanchannagar compared to previous years. The first highest average number of 27- and second highest average number of 16-, ‘Pure Migrant’ types birds were visualized in the ‘Idilpur Damodar’- and –‘Banka Siphon’ respectively (**Figure 4,6,7,8**), whereas the lowest type of ‘PM’ bird 12 was found in the ‘KDNDHS’. And the ‘Local Migrant’ type of birds was increasing than previous years in all areas (**Figure 5**).

● **In 2024:**

In the post-COVID periods or after different lockdowns, the total average number of three different types of birds increased in the ‘Idilpur Damodar’ i.e. 153 and ‘Banka Siphon’ i.e. 162 respectively (**Figure 4,6,7**) than other two areas, and also increased in the previous year whereas the lowest found in the ‘KDNDHS’. The best average number of ‘Pure Migrant’ type birds was found in the ‘Idilpur Damodar’ i.e. 30 in all respects. Though ‘PM’ type birds were increasing in the ‘Banka Siphon’ to previous years. And other three areas; ‘Banka River’, ‘Pond & Land’, and ‘KDNDHS’ (**Figure 4,5,6,7,8**), decreased the average number of ‘PM’ type birds i.e. 122, 78 and 71 respectively to previous years. The best average number of ‘Local Migrant’ type birds i.e. 50 and ‘Local Resident’ type birds i.e. 94 visualized in the ‘Banka Siphon’ and previous years also (**Figure 6,7**).



**Figure 6:** Birds of Banka River, Ponds & Land, and Kanchannagar D. N. Das High School



**Figure 7:** Birds of Idilpur-Damodar and Banka-Siphon (Source: Photography by Avijit Koner)



**Figure 8:** Birds of Banka-Siphon (Source: Photography by Avijit Koner)



**Figure 9:** Biodiversity of Idilpur, Banka-Siphon, Banka River, and Ponds & Land (Source: Photography by Somnath Nandy, Arnab Das and Avijit Koner)



**Figure 10:** Biodiversity of Idilpur, Banka-Siphon, Banka River, Ponds & Land, and Kanchannagar D. N. Das High School (Source: Photography by Arnab Das)



#### 4.2 Other Eco-Components:

**Table 2** shows the presence of different biodiversity eco-components in the five areas in the ‘Damodar River-based Kanchannagar’ from December 2010 to January 2024 only, and the results depend on typical physical photographs-based observation-survey interaction (**Figure 9,10**).

**Table 2: Visualized Different Types of Eco-Components in Five Areas in the Damodar River Based Oldest Kanchannagar**

Sl No	Survey Zones	Average Number of Different Types of Visualized Living Eco-Components from December 2010 to January 2024											Remarks
		Plants (Flora)	Indigenous Fishes	Water Monitors	Fishing/Jungle Cats	Foxes	Porcupines	Snakes	Mongoose	Medicinal Plants	Turtles	Indian Hare/Black Neck Hares	
I	<b>Idilpur Damodar</b>	Low	High	49b ±0.13	35a ±1.03	32b± 0.2	24b ±1.12	13a ±0.07	48b ±1.14	Low	48b ±1.22	3b ±0.01	Increasing Wild Biodiversity
II	<b>Banka River</b>	Medium	Medium	26c ±1.12	11c ±0.07	23c ±0.1	13c ±0.09	9b ±1.01	33c ±0.13	Medium	38c ±1.16	1c ±0.01	Decreasing Wild Biodiversity
III	<b>Banka Siphon</b>	High	High	59a ±1.01	25b ±1.03	44a ±0.2	35a ±1.03	7b ±0.01	67a ±1.11	High	56a ±1.14	11a ±0.01	Increasing Wild Biodiversity
IV	<b>Pond &amp; Land</b>	High	High	18d ±0.04	7d ±0,01	3d ±0.1	3d ±0.01	6c ±1.03	25d ±1.05	High	12d ±1.02	1c ±0.01	Decreasing Wild Biodiversity
V	<b>KDNDHS</b>	Low	Nil	2e ±0.02	Nil	Nil	Nil	2d ±0.02	Nil	Low	Nil	Nil	Increasing Owls Population

‘a,b,c..’- Different small letters in a column shows significant difference by the analysis of variance ‘ANOVA’ (P<0.01).

The wild biodiversity of plants and animals especially “Plants (Flora), Medicinal Plants, Indigenous Fishes, Water Monitors, Fishing/Jungle Cats, Foxes, Porcupines, Snakes, Mongooses, Medicinal Plants, Turtles, and Indian Hare/ Black Neck Hares”, increased in the ‘Idilpur Damodar’ and the ‘Banka Siphon’. Only the wild owl population increased in the school (KDNDHS).

## 5. DISCUSSION

- The different types of birds were shown in five areas in the ‘Damodar River-based Kanchannagar, Burdwan from December 2010 to January 2024 and up-to-date’ due to enriched faunal diversity or biodiversity for the sustainability and awareness of ideal birds’ habitat conservation to local people (Peterson, 1910; Hossain and Aditya, 2014; Ghosh, 2015; Roy *et al.*, 2016; Datta, 2023a,2023b,2023c,2023d,2023e; Datta and Das, 2023).

- In the COVID period (2020 to 2022), the average of three different types of birds increased due to pollution-free and noise-free environments, enriched natural resource factors and health of wetlands, foods, human-interference-free calm and quite undisturbed residents, and wetlands associated with life in nearby trees. So, the ‘Idilpur Damodar’ and the ‘Banka Siphon’ steadily increased the three different types of birds from December 2010 to January 2024. The other reason is due to the wide channel of Damodar flowing from west to east, developing numerous bars and islands, the average ‘Pure Migrant’ water types of birds were the highest in the ‘Idilpur Damodar’ whereas the ‘Local Migrant’ type birds increased most in the ‘Banka Siphon’ within the same period (Ghosh, 2015; Roy *et al.*, 2016; Mandal *et al.*, 2021,2022; Datta and Das, 2023).

- The presence of different enriched plants- and animals-biodiversity as eco-components in the five areas in the ‘Damodar River-based Kanchannagar’ from December 2010 to January 2024 only, was known from the community, history, and the typical physical photographs-based observation-survey interaction forming a ‘Eco-Tourism Zones’ (Peterson, 1910; Hossain and Aditya, 2014; Ghosh, 2015; Roy *et al.*, 2016; Datta, 2023a,2023b,2023c,2023d,2023e,2024; Datta and Das, 2023).

- The typical wild biodiversity of plants and animals with agricultural fields and dense vegetation especially “Plants (Flora), Medicinal Plants, Indigenous Fishes, Water Monitors, Fishing/Jungle Cats, Foxes, Porcupines, Snakes, Mongooses, Medicinal Plants, Turtles, and Indian Hare/ Black Neck Hares, etc.”, increased in the ‘Idilpur Damodar’ and the ‘Banka Siphon’ due to pollution-free environments, green patches, wetlands, foods, water quality, enriched natural resource factors and health of human-interference-free calm and quite undisturbed residents associated with life in nearby herbs, shrubs, and big trees. It was noticed that the frightened migratory birds especially ‘Pure Migrants’ flocking or shifting towards the river near Kanchannagar for safety in all respects of the wetland where less man encroachment, and the satisfactory water quality, and the awareness, motivation, and willingness of the local communities helping to maintain biodiversity with the management of the wetland for framing better management, and the well-balanced combination of water, land and vegetation making mild micro bio-climate environment forming an ‘Eco-Tourism Zones’ by the interaction of the “Typical-Complex-Ecosystem” (Peterson, 1910; Ali, 2012; Sanyal and Raychaudhuri, 2012; Hossain and Aditya,

2014; Ghosh, 2015; Roy *et al.*, 2016; Datta, 2023a,2023b,2023c,2023d,2023e,2024; Datta and Das, 2023).

## 6. FUTURE PROSPECTS

- The ‘Idilpur Damodar’ and the ‘Banka Siphon’ may become the most attractive and fascinating zones for ornithologists, nature lovers, bird watchers, wildlife photographers, students, NGOs, scholars, researchers, artists, teachers, staff, community, scientists, academicians, clinicians, administrators, institutions, farmers, media personnel, and visitors for the sustainable future “Natural Birds Eco-Tourism Hub”, and it will be strongly recommended for excellent new emerging zones for the amateur of bird photography as well as ornithology (Ghosh, 2015; Datta, 2023a,2023b,2023c,2023d,2023e,2024; Datta and Das, 2023).

- It may transformed by conserving the different ‘Typical Biodiversity Hubs’ like Fruit Trees Hub (by planting fruit trees on the land), Bio-Medicinal Hub (by planting medicinal plants on the land), Nests Hub (by hanging artificial nest on the trees), Wildlife Hub (by restoring natural habitat), Fishery Hub (by scientific culture of fish), Pisciculture Hub (by scientific culture of aquatic animals), Manure Hub (by using dead materials of plans and animals), Breeding Hub (by scientific culture and release of seedling or increasing breeding place and food), Research Hub (by establish research laboratories), and Tourist Hub (by making or arranging all types of facilities), etc. for the ‘Day-Tourism’, and the last but not least the ‘Fireflies Hub’ by increasing fireflies-habitat (Datta, 2023a,2023b,2023c,2023d,2023e,2024; Datta and Das, 2023).

- The communities of Kanchannagar may be benefitted from the “Birds Biodiversity Hub of the Damodar-Based Idilpur and Banka Siphon Enriching the Socio-Economic Status Environment Biomedicines Health Eco-Components Preventing Future Pandemic for the Well Beings” (Datta, 2023a,2023b,2023c,2023d,2023e,2024; Datta and Das, 2023).

- If the government may undertake the total Kanchannagar, especially the Damodar-Based Idilpur and Banka Siphon, for the restricted “Birds Biodiversity Hub for Migratory Birds and Raptors” as well as the “Day-Night Tourist Hub for Different Biodiversity Hub”. (As a result, the local communities can use local eco-components or green components by applying the ‘Eco-Technologies’ that are not only environment-friendly, and local-cost-effective-indigenous technology but also easily applicable and available technology that prevents any toxic effects improving natural immunities highlighting the main research question, “Use Eco-Technologies Enriching the Circular Socio-Economic Status Environment Biomedicines Health Ecology Preventing Future Pandemic Saving Life by Transforming Green World”, which ultimately provide scientific healthcare, circular economy, and skill development with job facilities for ‘All Communities’. And the “Birds Biodiversity Hub for Migratory Birds and Raptors” as well as the “Day-Night Tourist Hub for Different Biodiversity Hub” of Kanchannagar, especially the Damodar-Based Idilpur and Banka Siphon, may improved focusing the ‘World’s Green Policy Initiatives for Green Wellbeing’ (Datta, 2023a,2023b,2023c,2023d,2023e,2024; Datta and Das, 2023).

## 7. CONCLUSION

The study concluded that the different types of birds shown in five areas in the ‘Damodar River-Based Kanchannagar, Burdwan’;

'Idilpur and Banka-Siphon' have maintained the steadily increasing different types of bird populations from December 2010 to January 2024 helped to find the most suitable bird resident for establishing 'Natural Birds Hub' with different eco-components that may be focused for the natural bird lover tourist enriching the circular socio-economic environment health and prevent future pandemics. The 'Idilpur' will be the best 'Natural Birds Hub' for migratory birds, and the 'Banka-Siphon' may be established or transformed into an excellent 'Research Centre for birds, pisciculture, fishery, indigenous breeding, wild animals, biomedicines, eco-technology, socio-economy, circular economy, environmental policy, ecology, tourism education, agriculture, horticulture, eco-components, and management of natural, public and private future complex relationships, scientific healthcare, circular socio-economy, biomedicines, and skill development with job facilities for 'All Communities'. And ultimately the "Birds Biodiversity Hub for Migratory Birds and Raptors" as well as the "Day-Night Tourist Hub for Different Biodiversity Hub" of Kanchannagar, especially the Damodar-Based Idilpur and Banka Siphon, may improve focusing the 'World's Green Policy Initiatives for Green Wellbeing'.

## 8. ACKNOWLEDGEMENT

I am thankful to the eminent Wildlife Photographer, Mr Avijit Koner and Somnath Nandy Government employee, Bird- & Wildlife-Watcher & -Photographer, Researcher, Social Worker, and Member of Birds Group, Burdwan, for intensive help in the study. The main acknowledgeable personalities are all the photographers, nature lovers, student doctors, scientists, regular visitors, teaching staff, tourists, NGOs, local communities, and aged people.

## 9. LIMITATIONS

The success mainly depends on the different types of Government support, large amounts of financial grants, different specialist scientists, engineers, ethics, priorities, values, motivation, priority, and a good attitude, etc.

## 10. CONFLICT OF INTERESTS

Both the authors have no conflict of interest for the 'A to Z' work or study.

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