

# RECOVERING INDIA'S MOST ENDANGERED TURTLE - BATAGUR BASKA IN SUNDARBANS



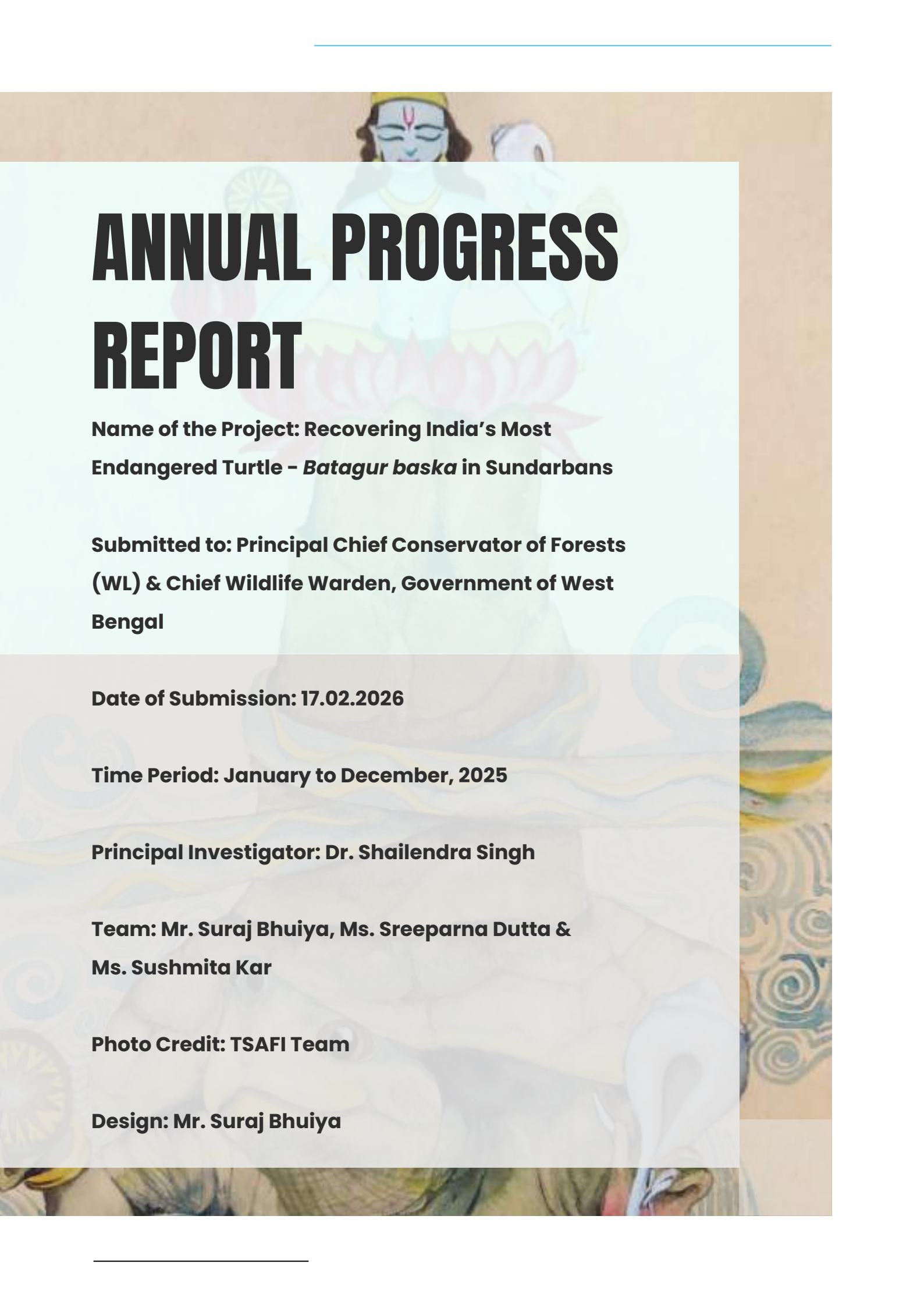
## ANNUAL PROGRESS REPORT

PREPARED BY :  
TSA FOUNDATION  
INDIA



# 2025





# ANNUAL PROGRESS REPORT

**Name of the Project: Recovering India's Most  
Endangered Turtle – *Batagur baska* in Sundarbans**

**Submitted to: Principal Chief Conservator of Forests  
(WL) & Chief Wildlife Warden, Government of West  
Bengal**

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**Photo Credit: TSAFI Team**

**Design: Mr. Suraj Bhuiya**

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Finally, we extend our sincere gratitude to all Research Assistant, STR, Beat Officers, Veterinary Officer, Forest Guards, and frontline ground staff of the STR. Their dedication, local knowledge, and tireless efforts under challenging field conditions form the backbone of this conservation programme. This work would not have been possible without their commitment to safeguarding *Batagur baska* and the fragile mangrove ecosystem of the Sundarbans.

# PROJECT HIGHLIGHTS



Assisted in safe translocation of 20 potential gravid female *Batagur baska* into designated breeding pools following standardised handling and welfare protocols, strengthening breeding output during the reporting year.



Helped to achieve high hatching success under both artificial and natural incubation regimes, with 105 hatchlings produced under vermiculite-based incubation and 118 hatchlings emerging from protected natural nests.



Assisted in successful completion of a full reproductive cycle of *Batagur baska* under managed conservation, including confirmed breeding by captive-born individuals, marking a major milestone in global freshwater turtle conservation.



Helped strengthened scientific understanding of egg morphometry, clutch-wise variation, nest-layer effects, and egg shape through detailed statistical analyses supported by graphical visualisations.



Generated long-term growth monitoring datasets, enabling comparison of growth trajectories across quarters and incubation regimes.

# PROJECT HIGHLIGHTS



Initiated PIT tagging and individual-based monitoring to support long-term life-history and demographic studies.



Sustained conservation education through structured school outreach, creative learning tools, and event-based awareness programmes across the Sundarbans.



Initiated conservation-linked livelihood interventions engaging women from multiple JFMCs through skill-based embroidery training themed around *Batagur baska* conservation.

# EXECUTIVE SUMMARY

The Northern River Terrapin (*Batagur baska*), critically endangered globally, finds one of its last strongholds in the Sundarban Tiger Reserve (STR). The *Batagur baska* Conservation and Recovery Programme, implemented jointly by the West Bengal Forest Department, STR, and TSA Foundation India (TSAFI), integrates captive breeding, scientific research, habitat management, education, and community engagement to secure the species' long-term survival. In 2025, the programme consolidated its conservation efforts with significant operational and scientific achievements. Twenty potential gravid females were safely translocated to designated breeding pools, while two adult males were relocated to the Jhilla Conservation Facility, where a sand bank was developed for the first time. Protective

monitoring demonstrated consistent development across quarters, with early advantages observed in artificially incubated hatchlings. PIT tagging and individual identification further strengthened long-term monitoring, supporting non-invasive sex identification and future population management.

The programme also advanced education, outreach, and capacity building. Structured school visits, cultural events, and creative learning tools reached thousands of students, teachers, and community members. Women from Joint Forest Management Committees participated in skill-based embroidery training, linking livelihoods with conservation messaging. Institutional capacity-building engaged forest officials, trainees, and

measures, standardised handling, and video-guided training ensured safe egg collection and incubation, resulting in high reproductive success.

Incubation outcomes were excellent, with 105 hatchlings from vermiculite-based artificial incubation and 118 from natural incubation, supported by detailed morphometric analyses of 125 eggs. Statistical evaluation revealed significant variation in egg weight, length, diameter, and EL/ED ratio across clutches, nest layers, and egg shapes, providing critical insights to optimise breeding and hatching protocols.

Post-hatching care followed structured protocols for health monitoring, feeding, and habitat enrichment, producing robust growth trajectories. Monthly growth

professionals from across India, reinforcing technical knowledge and inter-regional collaboration.

Systematic quarterly reporting captured operational achievements, seasonal trends, and adaptive management lessons, ensuring transparency and evidence-based decision-making. Overall, 2025 marked a pivotal year for *Batagur baska* recovery, demonstrating that integrated conservation combining science, management, and community participation can secure a viable future for this globally threatened species.

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# INTRODUCTION

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The Sundarbans, a UNESCO World Heritage Site and the world's largest contiguous mangrove ecosystem, represent one of the most ecologically complex and biologically productive landscapes on Earth. Characterised by a dynamic network of rivers, tidal creeks, estuaries, and forested islands, the Sundarban Tiger Reserve (STR) supports a unique assemblage of freshwater, estuarine, and marine biodiversity. Within this intricate socio-ecological system, the Northern River Terrapin (*Batagur baska*) occupies a critical ecological niche and holds exceptional conservation significance.

Historically widespread across major river systems of the Indian subcontinent and Southeast Asia, *Batagur baska* has suffered catastrophic population declines over the past century due to unsustainable exploitation, habitat degradation, river regulation, egg predation, and incidental mortality linked to fishing practices. As a result, the species is now classified as Critically Endangered, with only a few remnant populations surviving globally. The Sundarban Tiger Reserve currently represents one of the last strongholds for the species and supports the world's largest managed population under active conservation intervention.

Recognising the imminent risk of extinction, the West Bengal Forest Department initiated a structured conservation and recovery programme for *Batagur baska* in STR, subsequently strengthened through long-term collaboration with TSA Foundation India (TSAFI). The programme was conceptualised not merely as a captive breeding effort, but as an integrated conservation model combining biological management, scientific research, adaptive monitoring, education, institutional capacity building, and community participation. This holistic approach reflects the understanding that species recovery in the Sundarbans must be embedded within the broader ecological, cultural, and livelihood context of the region.

The year 2025 represents a critical consolidation phase in this long-term recovery programme. Building on foundations laid in earlier years, the reporting period witnessed a transition towards refined management protocols, evidence-based decision-making, and expanded outreach. Key conservation actions during the year included intensive breeding season preparation, strategic translocation of reproductive individuals, optimisation of incubation and hatchling rearing protocols, and the generation of robust biological datasets supporting long-term population assessment. Parallel efforts in conservation education, capacity building, and livelihood-linked interventions further strengthened local stewardship and institutional engagement.

This Annual Report documents the activities, outcomes, and lessons from January to December 2025, presenting a comprehensive account of progress achieved under the *Batagur baska* Conservation and Recovery Programme in the STR. By integrating field-based management, scientific analysis, and community-oriented initiatives, the programme continues to move steadily towards its overarching goal of securing a self-sustaining future for one of the world's most threatened freshwater turtle species.



# PROJECT COMPONENTS AND ACTIVITIES

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## 2.1 ROUTINE HUSBANDRY AND FACILITY MANAGEMENT

Routine husbandry formed the foundation of conservation efforts throughout the year. Daily management activities included regulated feeding, water exchange, enclosure maintenance, and behavioural observations across all *Batagur baska* facilities in STR. Diets were seasonally adjusted and comprised a balanced mix of plant and animal components such as pumpkin, banana, water spinach, *Avicennia marina* leaves, soybeans, fish, and shrimp.

Hatchlings and sub-adults were provided finely chopped feed to facilitate digestion and nutrient uptake. Regular cleaning and monitoring were particularly emphasised during monsoon months to minimise disease risks associated with high humidity. Coordination with the Veterinary Officer ensured timely health checks and welfare monitoring.



## 2.2 BREEDING SEASON PREPARATION AND NEST MANAGEMENT

**Breeding season preparation involved coordinated biological assessment, habitat preparation, and risk mitigation.**

# 20

potential gravid female *Batagur baska* were safely translocated into two designated breeding pools in 2025 breeding season, following established handling and welfare protocols. These two pools were prepared to simulate natural nesting conditions while allowing close monitoring of reproductive activity.

# 02

adult male *Batagur baska* were translocated to the Jhilla Conservation Facility, in preparation for the 2026 breeding season.



Sand banks were developed and maintained within breeding pools through debris removal, levelling, compaction, and slope optimisation. Protective measures such as temporary fencing and mesh barriers were installed in vulnerable areas to minimise predation and disturbance. Nesting activity was monitored closely, with minimal disturbance protocols strictly followed.

A sand bank was developed at Jhilla for the first time to facilitate future breeding activities. Additionally, prior to 2026 breeding season, facilities housing mature individuals were provided with a video-based tutorial demonstrating best practices for egg collection, handling, and safe translocation to Sajnekhali for successful incubation. These measures standardised breeding preparation across facilities and strengthened preparedness for upcoming seasons.

## 2.3 INCUBATION, HATCHING SUCCESS, AND HATCHLING MANAGEMENT

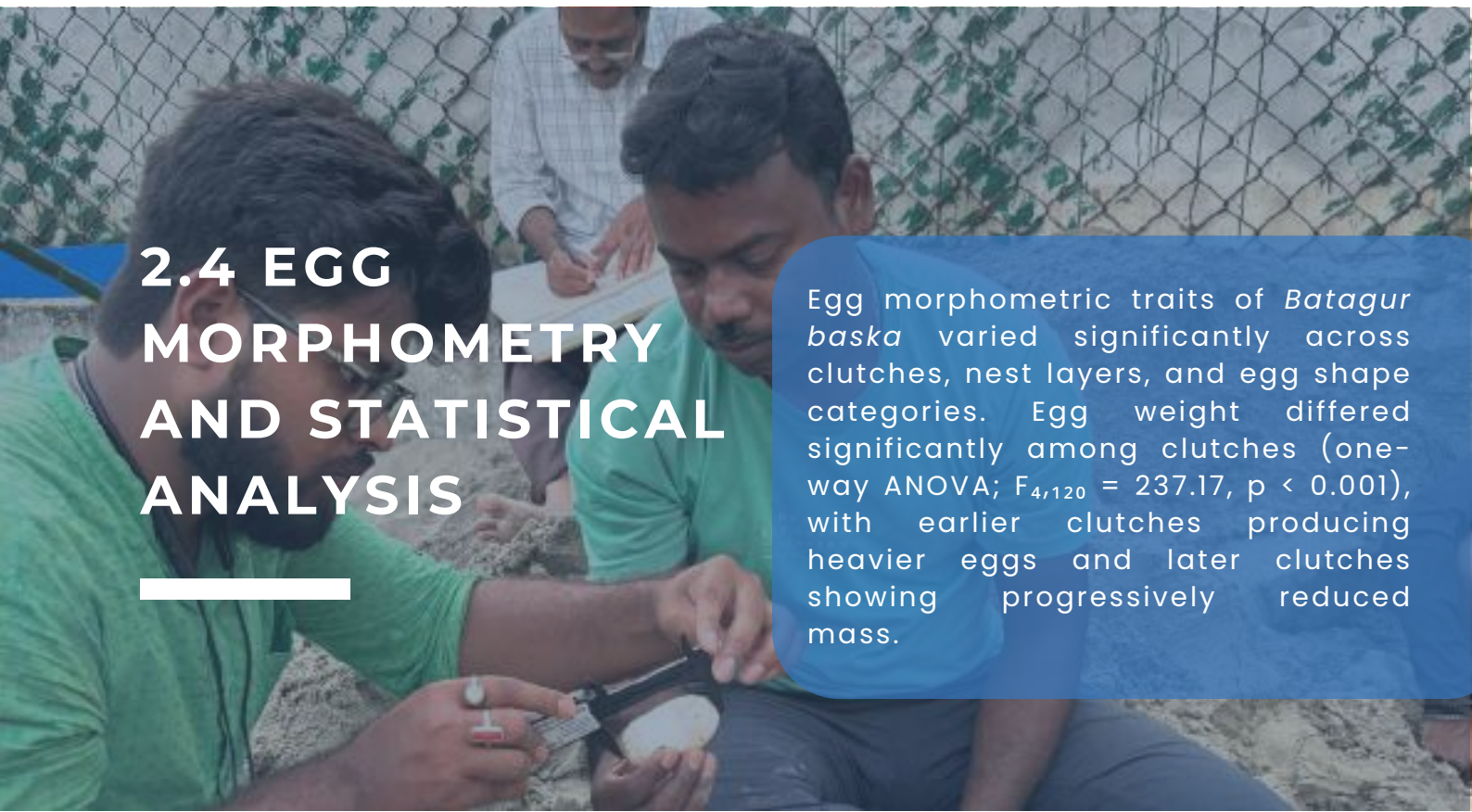
Incubation management during the reporting year was undertaken using both artificial and natural methods, with a strong emphasis on standardisation, environmental control, and documentation. Artificial incubation was conducted using vermiculite as a substrate, selected for its moisture retention capacity, thermal stability, and proven success in previous years. Eggs were placed in labelled incubation boxes, ensuring correct orientation and spacing to avoid physical damage and facilitate uniform development.

*In 2025 alone,*  
**223 eggs**

*hatched successfully, with the first-generation hatchlings from 2012 now reaching maturity and laying eggs—a full circle moment that marks a critical milestone in the species' comeback.*



Temperature and humidity within the incubation facility were monitored daily and maintained within optimal ranges (27°C to 31°C and 70% to 90%, respectively) for *Batagur baska* embryonic development. Passive ventilation, shading, and simple humidity-regulation techniques were employed to ensure consistency, reflecting a cost-effective yet biologically sound management approach. Hatching success achieved during the year was among the highest recorded since the programme's inception, an 84% success rate in artificial media that significantly surpasses previous years. In parallel, natural incubation continued on sandbanks of both breeding pools (L-shaped and 8-shaped), yielding an additional 118 hatchlings from an estimated 135–140 eggs, reinforcing the efficacy of refined incubation protocols.



## 2.4 EGG MORPHOMETRY AND STATISTICAL ANALYSIS

Egg morphometric traits of *Batagur baska* varied significantly across clutches, nest layers, and egg shape categories. Egg weight differed significantly among clutches (one-way ANOVA;  $F_{4,120} = 237.17$ ,  $p < 0.001$ ), with earlier clutches producing heavier eggs and later clutches showing progressively reduced mass.

Egg length (one-way ANOVA;  $F_{4,120} = 63.74$ ,  $p < 0.001$ ) and egg diameter (one-way ANOVA;  $F_{4,120} = 100.90$ ,  $p < 0.001$ ) followed a similar pattern, exhibiting significantly higher values in early clutches and declining across successive clutches.

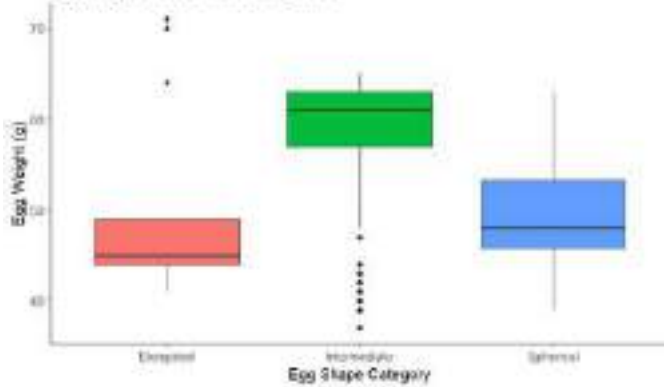
Egg shape, expressed as the egg length-to-diameter (EL/ED) ratio, varied significantly across nest layers (one-way ANOVA;  $F_{2,122} = 5.56$ ,  $p = 0.0049$ ). Eggs deposited in deeper nest layers exhibited higher EL/ED ratios, indicating a tendency toward more elongated egg shapes with increasing nest depth.

Linear regression analyses revealed strong positive relationships between egg weight and egg length ( $R^2 = 0.66$ ,  $p < 0.001$ ) and between egg weight and egg diameter ( $R^2 = 0.75$ ,  $p < 0.001$ ). The relationship between egg weight and egg diameter explained a greater proportion of variance, indicating that egg diameter was a stronger predictor of egg mass. Egg length and egg diameter were also positively related ( $R^2 = 0.33$ ,  $p < 0.001$ ), although this association was comparatively weaker, reflecting variation in egg shape rather than uniform

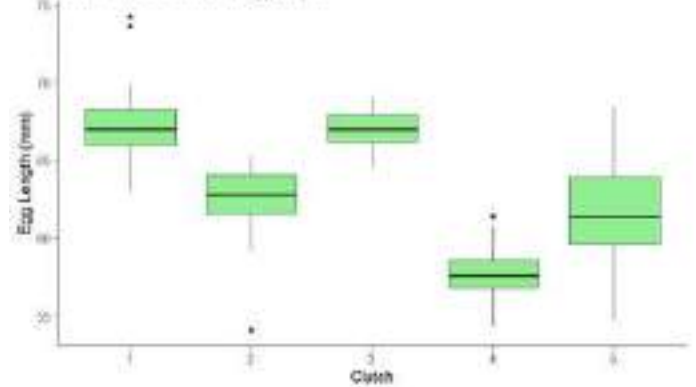
scaling.

Egg weight also differed significantly among egg shape categories (one-way ANOVA;  $F_{2,122} = 5.56$ ,  $p < 0.01$ ). Intermediate-shaped eggs exhibited the highest median weights, followed by spherical eggs, while elongated eggs were significantly lighter (Tukey's HSD,  $p < 0.05$ ).

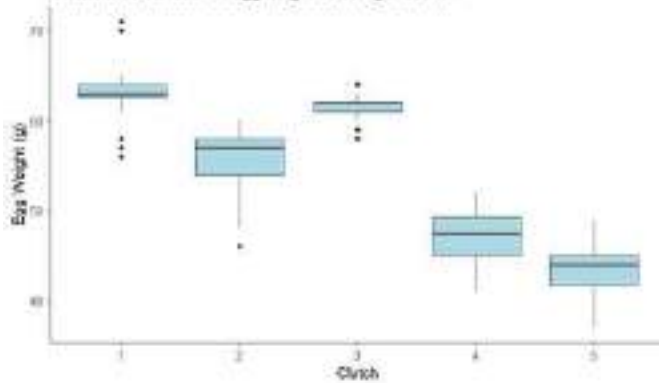
Egg weight across shape categories



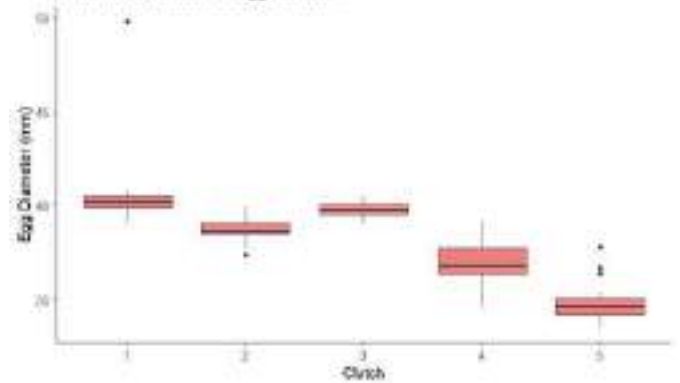
Clutch-wise variation in egg length



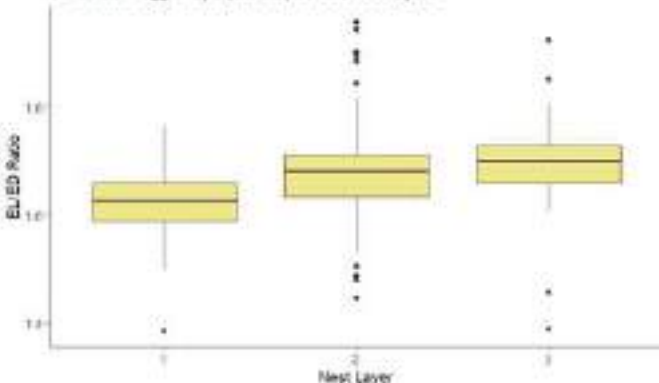
Clutch-wise variation in egg weight of Balaguri baska



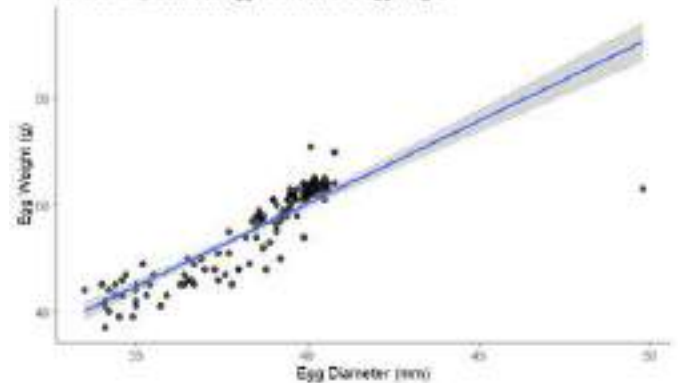
Clutch-wise variation in egg diameter



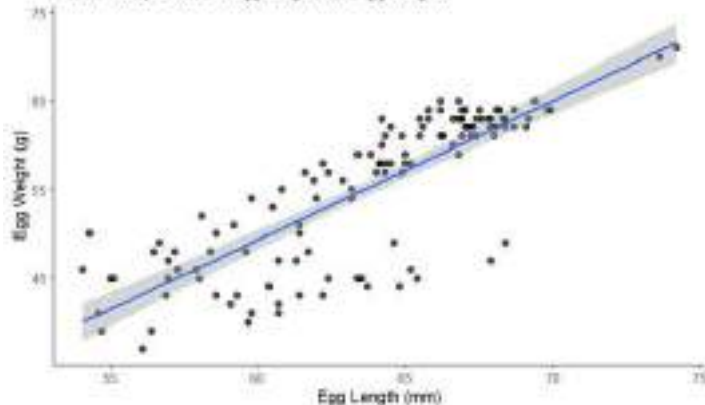
Variation in egg shape (ELED) across nest layers



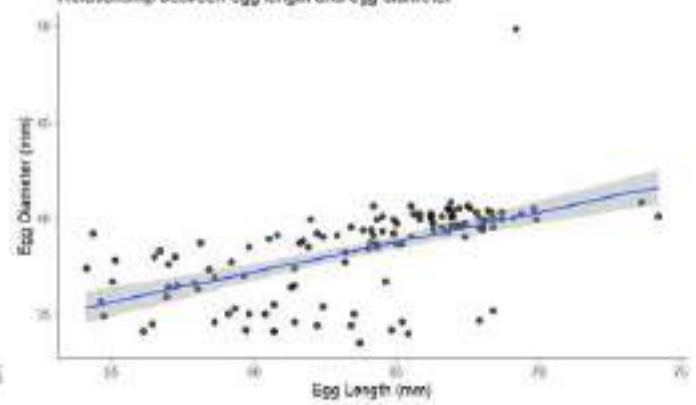
Relationship between egg diameter and egg weight



Relationship between egg length and egg weight



Relationship between egg length and egg diameter



## 2.5 POST-HATCHING CARE AND REARING

Post-hatching management followed a structured protocol. Newly emerged hatchlings were initially allowed a resting period to facilitate yolk sac absorption, after which they were gradually introduced to shallow water environments. Feeding regimes were phased, beginning with easily digestible feeds and progressing to fresh plant material and protein sources. Regular water changes, hygiene maintenance, and health observations were prioritised to minimise mortality during early life stages. Hatchlings were subsequently transferred to nursery ponds, providing increased space for swimming, basking, and behavioural development.

## 2.6 GROWTH MONITORING AND PERFORMANCE ASSESSMENT

Growth monitoring represented a core scientific component of the programme and was conducted through systematic monthly morphometric measurements of hatchlings and juveniles. Parameters recorded included straight carapace length, straight carapace width, plastron length, height, and body weight. Standardised measuring tools and protocols were used to ensure consistency across facilities and observers.

Data collected over successive months were consolidated into structured datasets and analysed using pivot-based summaries and graphical representations. Comparative assessment between hatchlings originating from artificial (vermiculite-based) and natural incubation regimes consistently demonstrated enhanced growth performance among artificially incubated individuals. These individuals exhibited greater increases in body dimensions and mass during early developmental

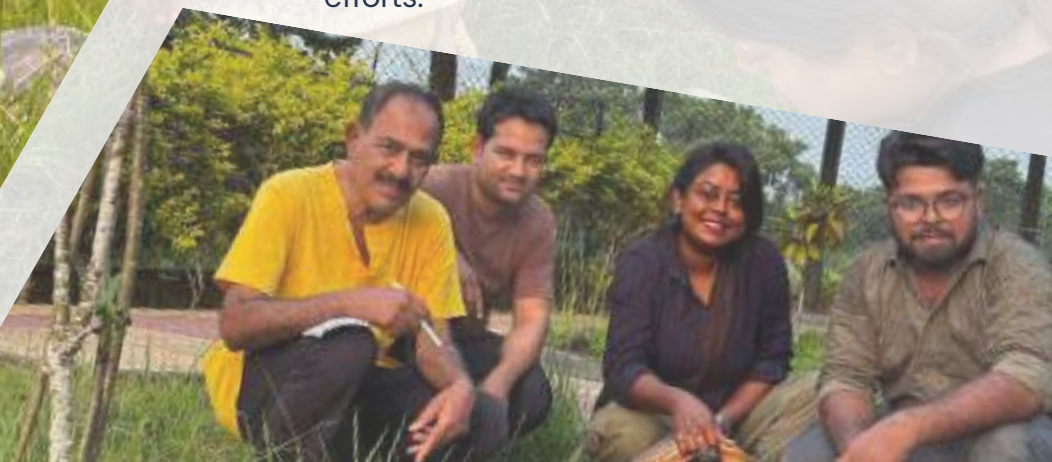
stages, suggesting improved embryonic development and early physiological resilience. Beyond immediate growth outcomes, these datasets form an essential foundation for long-term growth modelling, survivorship analysis, and future correlations with environmental parameters such as salinity and temperature. Continued monitoring will allow assessment of whether early growth advantages persist into sub-adult and adult stages, thereby informing management decisions related to release readiness and population augmentation strategies.

## 2.7 PIT TAGGING AND INDIVIDUAL IDENTIFICATION

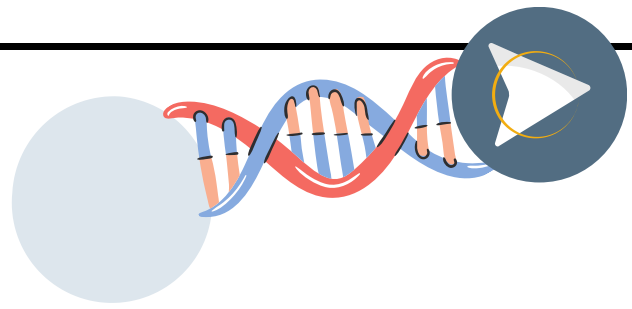
Individual identification through Passive Integrated Transponder (PIT) tagging was significantly advanced during the reporting year. PIT tags were implanted in 67 selected individuals across multiple age cohorts and conservation facilities, following established veterinary and animal welfare protocols. Each tagged individual was assigned a unique identification number linked to morphometric, health, and location-specific records.

The expansion of PIT tagging has substantially strengthened the programme's capacity for long-term individual-based monitoring. This system enables accurate tracking of growth trajectories, movement between facilities, health interventions, and survival over time. PIT tagging is also a prerequisite for robust implementation of non-invasive sex identification research, allowing repeated measurements and observations to be reliably attributed to specific individuals.

In the long term, the PIT tagging database will support advanced analyses related to life-history traits, demographic structure, and population viability, and will be critical for managing any future reintroduction or supplementation efforts.



## 2.8 SCIENTIFIC RESEARCH AND DOCUMENTATION



Scientific research and documentation were pursued in parallel with field management activities to ensure that conservation actions remained evidence-based and forward-looking. A comprehensive Life History Trait Study was developed, compiling available data on growth, mortality, survivorship, and management interventions across captive and semi-natural settings. This draft was submitted to the Research Wing of STR for review and is intended to serve as a baseline reference for long-term monitoring.

In addition, a proposal titled “Population Genetics and Phylogeographic Assessment of *Batagur baska* in the STR” was submitted. The proposed study aims to assess genetic diversity among founder individuals and recently documented wild specimens using mitochondrial DNA markers. Outcomes from this research are expected to guide breeding management, minimise inbreeding risk, and inform translocation and release strategies.

During the reporting period, a proposal on Non-invasive Sex Identification of *Batagur baska* was also developed and formally submitted to STR for review. This study focuses on integrating morphometric parameters, growth trajectories, and non-invasive physiological indicators to develop a reliable sex identification framework without the need for surgical or stressful procedures. Successful implementation of this research will be critical for optimising captive breeding management, maintaining balanced sex ratios, and planning future population augmentation and release programmes.

Conceptual planning was also undertaken for future studies addressing salinity tolerance, sexual dimorphism, and long-term health assessment. These research components are designed to integrate field observations, morphometric data, and emerging analytical techniques, thereby strengthening the scientific rigour and applied relevance of the *Batagur baska* conservation programme.

## 2.9 CONSERVATION EDUCATION AND OUTREACH

Conservation education formed a central pillar of the Batagur baska recovery programme, recognising that long-term species survival in the Sundarbans is intrinsically linked to awareness, stewardship, and behavioural change among communities living in close proximity to the mangrove ecosystem.

As part of on-ground outreach and preparatory activities, orientation visits were conducted in seven schools across Gosaba, Mollakhali, and Bali Islands during the year. These visits were carried out through classroom interactions and school assemblies and collectively reached more than 1,800 students. The sessions introduced students to the objectives of the *Batagur baska* conservation programme, the ecological role of river terrapins within freshwater and mangrove ecosystems,

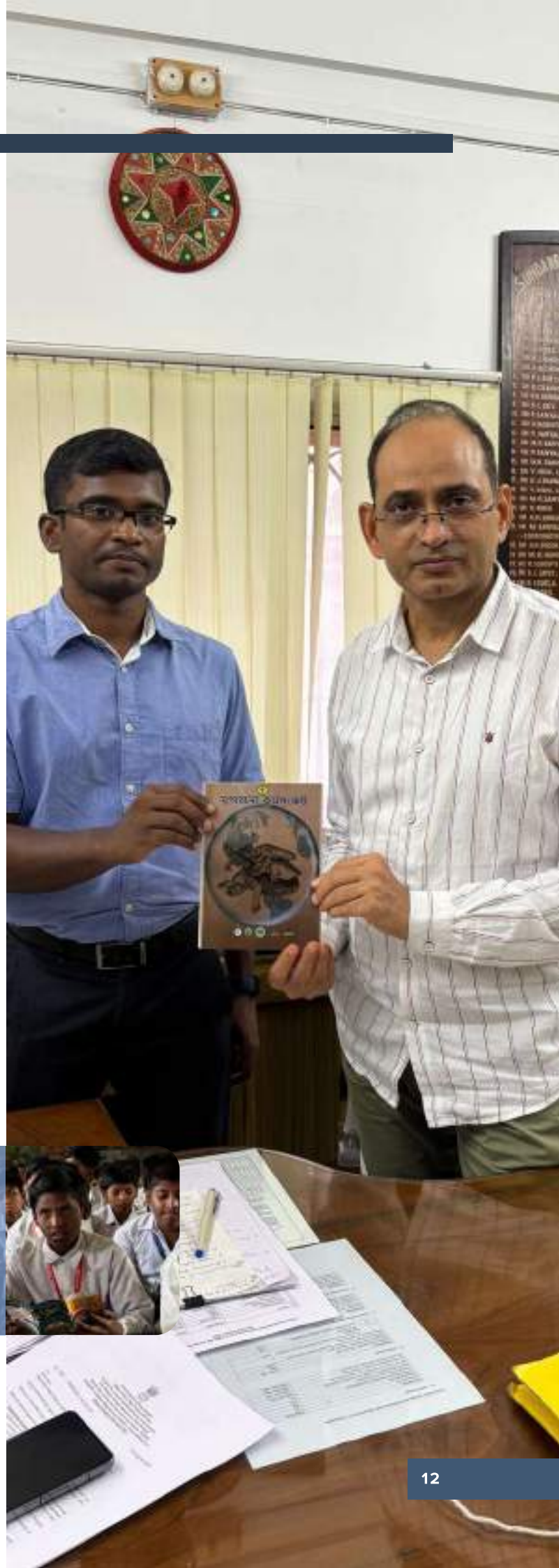
and broader themes of environmental stewardship and coexistence.

During these visits, the project team distributed informative brochures, facilitated interactive discussions, and encouraged schools to view themselves as active partners in the conservation mission. Direct engagement with teachers during these visits proved particularly valuable, as it allowed the team to assess existing knowledge levels, identify curriculum linkages, and lay the groundwork for future teacher training programmes and student-led conservation initiatives. Feedback and learning outcomes from these visits played a critical role in shaping the design and content of a dedicated Teacher Training Programme (TTP) Manual.



Based on insights gathered from these extensive school engagements, a comprehensive TTP Manual titled “মৃগারণ্যে কূর্মসংকট” was developed. The manual was formally released by FD & CCF, STR and DFD, STR along with a note from PCCF, Wildlife & CWLW, West Bengal. The manual was conceptualised to serve as a culturally rooted, scientifically accurate, and pedagogically accessible resource for teachers working in Sundarbans’ fringe villages. It addresses the ecological importance of river terrapins, threats faced by *Batagur baska*, conservation actions underway in STR, and the role of local communities in safeguarding freshwater and mangrove ecosystems. The education programme will enter its full implementation phase in the academic year 2026. Selected teachers from each participating school will be trained as “Green Teachers”, using the TTP manual developed, who will act as nodal representatives for conservation education. A quarterly magazine is planned to document school-level activities and student initiatives, and the annual cycle will culminate in a Year-end Turtle Fest, bringing together nominated students from each school to reinforce learning outcomes and celebrate conservation leadership among youth.

Creative outreach also formed an important dimension of education activities. A significant milestone during the year was the completion and refinement of the Bengali storybook “সন্ধান”, inspired by the rare wild finding of *Batagur baska* in the Sundarbans, which was submitted to STR for review. The story employs local characters, cultural motifs, riverine landscapes, and an emotionally engaging narrative to introduce children to the species and its conservation context.





*World Turtle Day, 2025 was commemorated with a vibrant community rally that blended cultural performance and conservation messaging.*



.A three-kilometre march led by a tribal dance troupe proceeded from Dulki Ghat to Sobnomoskar Primary School, drawing participation from students, forest staff, and local residents. The rally concluded at the Dulki JFMC community hall, where brief addresses were delivered by the RO/Ecotourism, BO/Sajnekhali, and TSAFI's Project Biologist. Distribution of notebooks, informational leaflets, and refreshments enhanced engagement, while media coverage by TV9 Bangla and Arannya TV helped amplify conservation messages across the region.





*The outreach calendar reached a major milestone on World Environment Day, marked by the visit of Smt. Birbaha Hansda, Hon'ble Minister of State (Independent Charge), Department of Forests, Government of West Bengal, accompanied by senior forest officials.*

During her visit to the *Batagur baska* facility at Sajnekhali, the Minister expressed deep appreciation for the programme, particularly acknowledging the successful reproduction of captive-born individuals from the 2012 cohort. This full-cycle achievement brought significant visibility and motivation to the programme, which currently supports the world's largest captive population of *Batagur baska*.



*Wildlife Week 2025  
was celebrated on  
3rd November 2025  
at Sajnekhali Wildlife  
Sanctuary through a  
joint initiative of STR  
and TSA Foundation  
India.*



*The event saw participation from ten schools  
across different forest ranges and JFMC  
areas, with nearly sixty students, around  
twenty teachers, and thirty JFMC members in  
attendance.*



Students from remote and fringe island locations actively participated in quizzes, drawing competitions, dance performances, and recitation events centred on biodiversity conservation and coexistence within the mangrove ecosystem.



The programme concluded with prize distribution and motivational addresses highlighting the shared responsibility of safeguarding the Sundarbans and its flagship species, including *Batagur baska*.

## 2.10 CAPACITY BUILDING AND INSTITUTIONAL ENGAGEMENT

*Capacity building and institutional engagement were undertaken as key strategic components to strengthen conservation implementation, knowledge dissemination, and inter-agency learning.*

A total of six structured capacity-building programmes were conducted, engaging a wide spectrum of forest officials, trainees, academicians, and frontline staff from across India.

Two major capacity-building sessions were organised for Indian Forest Service (IFS) trainees, engaging a total of 108 officers. These included officers representing more than 23 state cadres, including Uttarakhand, Chhattisgarh, Madhya Pradesh, Maharashtra, Gujarat, Assam, and other regions. Participants ranged from probationary IFS officers to

senior trainees nearing cadre allocation, and sessions were conducted in field-based settings to provide practical exposure to *Batagur baska* conservation protocols.

In addition, two training programmes were conducted for Range Officer trainees, reaching 64 officers from multiple state forest academies. These sessions focused on captive management, incubation strategies, hatchling care, and challenges of conservation in mangrove ecosystems. Interaction with academicians accompanying

*these batches further strengthened academic-field linkages. Specialised orientation and knowledge-sharing sessions were also conducted for judicial officers and visiting dignitaries, highlighting the legal, ecological, and management dimensions of freshwater turtle conservation in the Sundarbans. These engagements helped sensitise decision-makers beyond the forest sector and strengthened cross-sectoral understanding of conservation challenges.*

*Collectively, the capacity-building programmes reached over 180 participants across different ranks, including IFS probationers, Range Officers, academicians, and officials from diverse geographic regions of India. Outcomes of these programmes included enhanced technical understanding of *Batagur baska* conservation, increased visibility of STR's recovery efforts at the national level, and strengthened institutional networks that will support long-term species management and policy-level advocacy.*

## 2.11 Community-Based Livelihood Initiatives

*Women members from different Joint Forest Management Committees (JFMCs) across the Sundarbans were engaged to develop hand-stitched embroidery products inspired by Batagur baska and its mangrove habitat.*

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*Recognising that long-term conservation success in the Sundarbans depends on aligning ecological goals with sustainable livelihoods, the programme initiated women-centric, community-based livelihood interventions.*

This Training Programme was conducted from 19th to 22nd December 2025 at Sajnekhali Wildlife Sanctuary. Jointly organised by STR and TSA Foundation India, the programme aimed to enhance alternative livelihood opportunities for forest fringe women while embedding conservation messaging within creative practices.

Participants included women from three JFMCs, with focused training provided to six members of the existing SHG at Sajnekhali Beat and eight women from other committees. Under the guidance of embroidery artist Mrs. Bina Dey, participants developed practical stitching skills, improved confidence, and gained exposure to market-oriented craftsmanship. A distinctive feature of the training was its thematic focus on *Batagur baska*, with embroidery designs inspired by the species' morphology and habitat, transforming participants into active communicators of conservation messages.

Hand-stitched embroidery products act as mobile ambassadors of conservation, carrying the message of *Batagur baska* recovery to visitors and buyers from within India and abroad. By highlighting that *Batagur baska* is a critically endangered species found in the Sundarbans and nowhere else in the world, the initiative draws attention from both local communities and external audiences. By positioning women as custodians and storytellers of conservation, the programme strengthens social inclusion, economic resilience, and long-term community ownership of *Batagur baska* conservation outcomes.





# *Adaptive Learning, → Future Direction, and Concluding Outlook*

The *Batagur baska* Conservation and Recovery Programme during January–December 2025 generated valuable operational and scientific insights within the dynamic Sundarban landscape. Seasonal monsoon conditions and associated logistical constraints were addressed through adaptive planning, strengthened husbandry schedules, improved water management, and enhanced incubation and hatchling monitoring, ensuring continuity of care and minimising risks across conservation facilities.

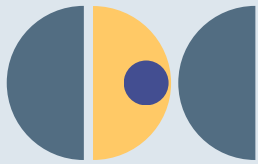
Strategic management of breeding individuals across multiple facilities required careful coordination. The safe translocation of potential gravid females and adult males during the reporting period reflected an evidence-based approach and supported refinement of standard operating procedures, including uniform handling and video-guided protocols for field staff. These measures enhanced operational consistency and preparedness for future breeding seasons.



Scientific monitoring and data management were strengthened through structured data consolidation, regular internal review, and expansion of individual-based monitoring using PIT tagging. These interventions improved data reliability and analytical capacity, supporting ongoing and planned research initiatives, including non-invasive sex identification and long-term population assessment.

Going forward, programme priorities include expanding individual-level monitoring, implementing approved research studies, refining incubation and rearing protocols based on empirical evidence, and transitioning education initiatives to full-scale implementation

# *Adaptive Learning, → Future Direction, and Concluding Outlook*



through trained teachers and student engagement. Conservation-linked livelihood initiatives will be strategically scaled to further strengthen community participation.

In conclusion, the 2025 reporting year represents a phase of consolidation and steady progress for the *Batagur baska* Conservation and Recovery Programme in the Sundarban Tiger Reserve. Through adaptive management, institutional coordination, and integration of science with community engagement, the programme continues to advance toward its long-term objective of securing a self-sustaining *Batagur baska* population. Sustained administrative support and evidence-based implementation will remain essential for long-term success.

# ANNEXURES

## ANNEXURE I: IEC MATERIALS, BROCHURES & BANNERS



Figure 1: Brochure for cluster-level education programme (Front Page)



Figure 2: Brochure for cluster-level education programme (Back Page)

# ANNEXURES

## ANNEXURE I: IEC MATERIALS, BROCHURES & BANNERS



Figure 3: Approved and Printed Batagur baska Project Brochure



Figure 4: Hoarding design for Assurance Ponds

# ANNEXURES

## ANNEXURE I: IEC MATERIALS, BROCHURES & BANNERS



Figure 5: Approved and Printed Design for husbandry protocol banner



Figure 6: Notebook front and back cover, distributed on World Turtle Day, 2025

# ANNEXURES

## ANNEXURE I: IEC MATERIALS, BROCHURES & BANNERS

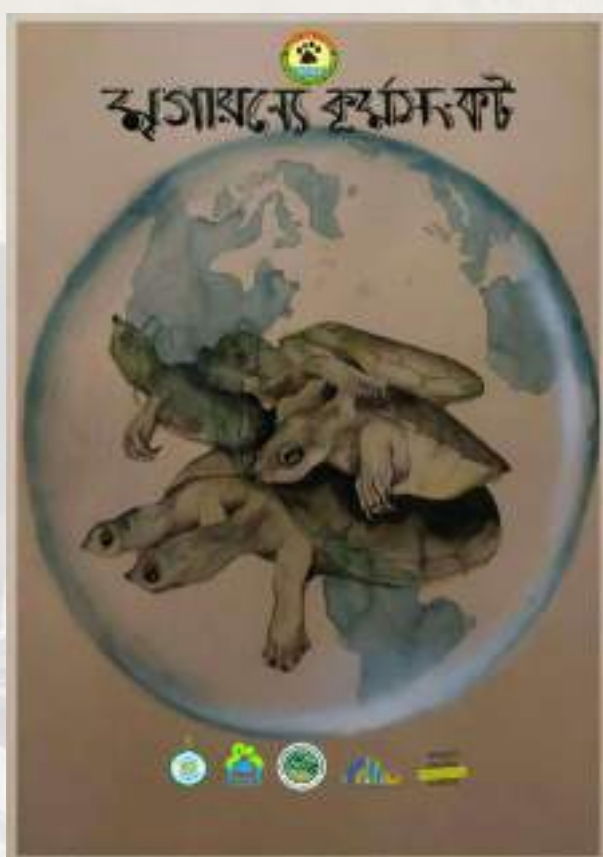


Figure 7: TTP manual of 66 pages developed for Cluster-level Education Programme

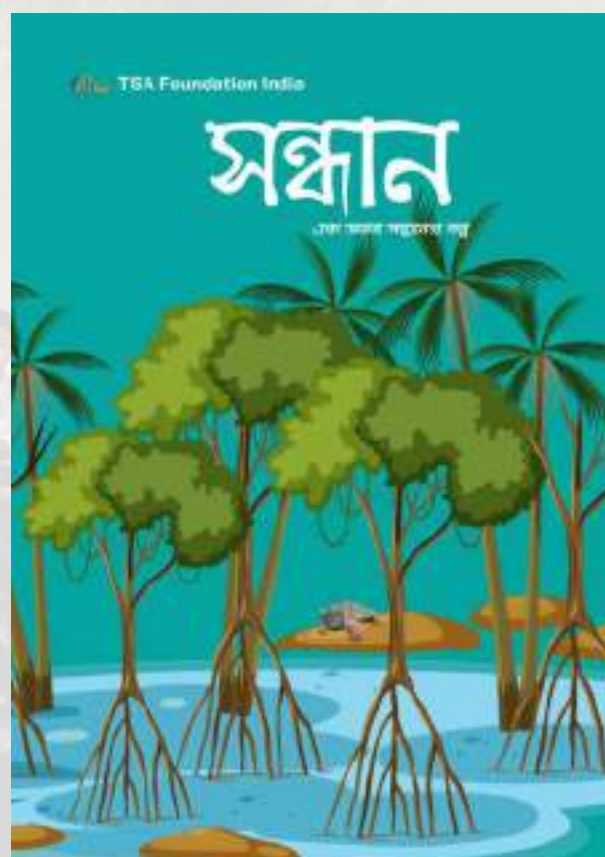


Figure 8: Draft Storybook of 22 pages developed to support the Cluster-level Education Programme



[illegible]

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# ANNEXURES

## ANNEXURE I: IEC MATERIALS, BROCHURES & BANNERS



Figure 10: Banner of Wildlife Week, 2025 celebration at STR



Figure 11: Banner of Alternative Livelihood initiative at STR



# ANNEXURES

## ANNEXURE II: MEDIA COVERAGE

### সংরক্ষণে নজির, আন্তর্জাতিক কচ্ছপ দিবসে পর্যবেক্ষণ বনদপ্তরের সুন্দরবনের নদীতে বেড়েছে লুপ্তপ্রায় বাটাগুড় বাস্কা

সীতাক বিশেষজ্ঞ, স্বাভাবিক লুপ্তপ্রায় কচ্ছপের প্রজাতি সংরক্ষণের উদ্দেশ্যে নেতৃত্ব দেন। বিশেষজ্ঞের আবেদন ২০২২ সালে প্রথম আন্তর্জাতিক কচ্ছপ দিবসে আয়োজন করা সুন্দরবনের সড়কসংলগ্নে। জাপানের থেকে প্রাপ্ত একটি সুন্দরবনে আয়োজিত হয়ে আসছে কচ্ছপ দিবস।

জাপান থেকে আসা সুন্দরবনের লুপ্তপ্রায় কচ্ছপের উদ্দেশ্যে পানির হলে আন্তর্জাতিক কচ্ছপ দিবস। জাপানের সুন্দরবনে জাপান থেকে আসা সুন্দরবনের নদীতে বন রিসার্চের বিদ্যুৎপ্রায় প্রজাতির কচ্ছপের সাথে উপস্থাপনা করা হয়েছে।

একটি সড়কসংলগ্নে বন রিসার্চের বিদ্যুৎপ্রায় প্রজাতির কচ্ছপের সাথে উপস্থাপনা করা হয়েছে।

উৎসে টিউবের মতো পিঁপড়ার মতো, দেখতেই সাধারণ প্রজাতির সুন্দর কুইক-সহ জন্ম। কচ্ছপের উৎসে, বন রিসার্চের বিদ্যুৎপ্রায় প্রজাতির কচ্ছপের সাথে উপস্থাপনা করা হয়েছে। ২০২২ সালে ২৪ মে প্রথম সুন্দরবনের সড়কসংলগ্নে আয়োজিত আন্তর্জাতিক কচ্ছপ দিবসে একটি বিশেষ কর্মসূচি অনুষ্ঠিত হয়।

সেখানে লুপ্তপ্রায় এই কচ্ছপের সংরক্ষণ নিয়ে বিদ্যুৎপ্রায় প্রজাতির কচ্ছপের সাথে উপস্থাপনা করা হয়েছে।



বিশুপ্রায় বাটাগুড় বাস্কা

৬ বছর বয়সের বাটাগুড় বাস্কা ২০২২-এর ২৪ মে আবার জেলে নেওয়া হয় নদীতে। এই টিউবের লুপ্তপ্রায় কচ্ছপের সাথে উপস্থাপনা করা হয়েছে। ২০২২ সালে ২৪ মে প্রথম সুন্দরবনের সড়কসংলগ্নে আয়োজিত আন্তর্জাতিক কচ্ছপ দিবসে একটি বিশেষ কর্মসূচি অনুষ্ঠিত হয়।

অন্যদিকে টিউবের লুপ্তপ্রায় কচ্ছপের সাথে উপস্থাপনা করা হয়েছে। ২০২২ সালে ২৪ মে প্রথম সুন্দরবনের সড়কসংলগ্নে আয়োজিত আন্তর্জাতিক কচ্ছপ দিবসে একটি বিশেষ কর্মসূচি অনুষ্ঠিত হয়।

সুন্দরবনের নদীতে সে বাটাগুড় বাস্কা বা সেলোব্যাটা কচ্ছপের সাথে উপস্থাপনা করা হয়েছে।

কচ্ছপের সাথে উপস্থাপনা করা হয়েছে। ২০২২ সালে ২৪ মে প্রথম সুন্দরবনের সড়কসংলগ্নে আয়োজিত আন্তর্জাতিক কচ্ছপ দিবসে একটি বিশেষ কর্মসূচি অনুষ্ঠিত হয়।

Figure 12: World Turtle Day Event Covered by Local Newspaper

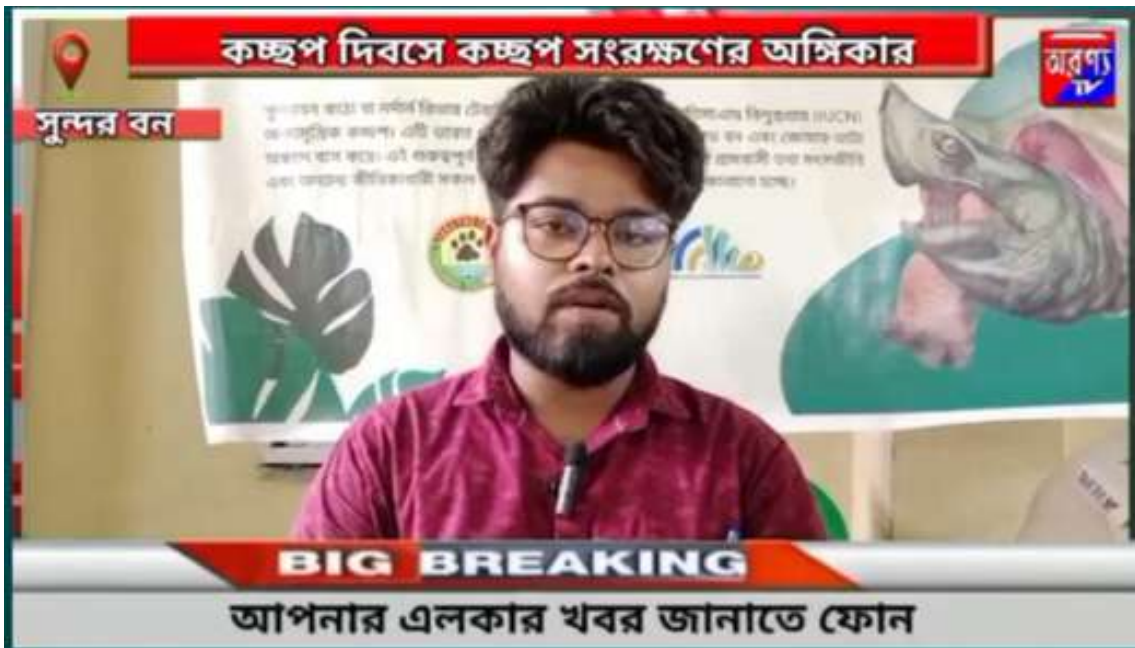


Figure 13: World Turtle Day Event Covered by Local News Channel



# ANNEXURES

## ANNEXURE II: MEDIA COVERAGE



Figure 14: The hatching success of Batagur baska in 2025, covered by big Bengali Newspaper house



Figure 15: The hatching success of Batagur baska in 2025, covered by The Telegraph



# ANNEXURES

## ANNEXURE II: MEDIA COVERAGE



বন বিভাগ, পশ্চিমবঙ্গ সরকার



**Egiye Bangla**



27 মে, 2025 · 🌐

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Figure 16: The Batagur baska Recovery Project at STR, appreciated by Forest Department, Government of West Bengal



# ANNEXURES

## ANNEXURE III: WORLD WILDLIFE WEEK, STUDENT'S LIST

| SL. No. | Participant      | School                              |
|---------|------------------|-------------------------------------|
| 1       | Jayashree Halder | Gosaba RR Govt. Spon Institution    |
| 2       | Ruma Mondal      | Gosaba RR Govt. Spon Institution    |
| 3       | Tanushree Mondal | Gosaba RR Govt. Spon Institution    |
| 4       | Ujan Giri        | Rangabelia High School              |
| 5       | Aahana Mandal    | Rangabelia High School              |
| 6       | Ranadip Das      | Bali Dhanamani Model High School    |
| 7       | Aindrila Mridha  | Bali Dhanamani Model High School    |
| 8       | Agamani Jana     | Bijoynagar Adarsha Vidyamandir (HS) |
| 9       | Priyanka Mondal  | Bijoynagar Adarsha Vidyamandir (HS) |
| 10      | Gouranga Sardar  | Mongal Chandra Vidyapith            |
| 11      | Kushal Sardar    | Mongal Chandra Vidyapith            |
| 12      | Sujoy Sarkar     | Gobindapur High School              |
| 13      | Jyotinmoy Mondal | Santighachi High School             |
| 14      | Pushpita Mistry  | Dayapur PC Sen High School          |



# ANNEXURES

## ANNEXURE III: WORLD WILDLIFE WEEK, STUDENT'S LIST

| SL. No. | Participant      | School                              |
|---------|------------------|-------------------------------------|
| 15      | Aritra Dutta     | Gosaba RR Govt. Spon Institution    |
| 16      | Subhashree Dutta | Gosaba RR Govt. Spon Institution    |
| 17      | Anuska Ghosh     | Gosaba RR Govt. Spon Institution    |
| 18      | Titli Maity      | Gosaba RR Govt. Spon Institution    |
| 19      | Sujata Panigrahi | Gosaba RR Govt. Spon Institution    |
| 20      | Anannya Paul     | Rangabelia High School              |
| 21      | Sneha Hazra      | Bali Dhanamani Model High School    |
| 22      | Aparna Nath      | Bali Dhanamani Model High School    |
| 23      | Sonali Halder    | Bali Dhanamani Model High School    |
| 24      | Swagata Mistry   | Bali Dhanamani Model High School    |
| 25      | Srijani Mondal   | Bijoynagar Adarsha Vidyamandir (HS) |
| 26      | Sayan Mondal     | Bijoynagar Adarsha Vidyamandir (HS) |
| 27      | Soumili Maikap   | Bijoynagar Adarsha Vidyamandir (HS) |
| 28      | Jayashree Ghorai | Bijoynagar Adarsha Vidyamandir (HS) |
| 29      | Sathi Mondal     | Dayapur PC Sen High School          |



# ANNEXURES

## *ANNEXURE III: WORLD WILDLIFE WEEK, STUDENT'S LIST*

| SL. No. | Participant     | School                              |
|---------|-----------------|-------------------------------------|
| 30      | Srishti Mistry  | Gosaba RR Govt. Spon Institution    |
| 31      | Rakhi Halder    | Gosaba RR Govt. Spon Institution    |
| 32      | Riya Mandal     | Rangabelia High School              |
| 33      | Nondita Das     | Rangabelia High School              |
| 34      | Anushree Jana   | Bali Dhanamani Model High School    |
| 35      | Dipanwita Dinda | Bali Dhanamani Model High School    |
| 36      | Manisha Das     | Bijoynagar Adarsha Vidyamandir (HS) |
| 37      | Supriya Mondal  | Bijoynagar Adarsha Vidyamandir (HS) |
| 38      | Disha Sarkar    | Dayapur PC Sen High School          |



# ANNEXURES

## ANNEXURE III: WORLD WILDLIFE WEEK, STUDENT'S LIST

| SL. No. | Participant      | School                              |
|---------|------------------|-------------------------------------|
| 39      | Anubhab Adhikari | Gosaba RR Govt. Spon Institution    |
| 40      | Sagarika Naskar  | Gosaba RR Govt. Spon Institution    |
| 41      | Soham Ray        | Gosaba RR Govt. Spon Institution    |
| 42      | Ahan Pradhan     | Gosaba RR Govt. Spon Institution    |
| 43      | Abir Debnath     | Gosaba RR Govt. Spon Institution    |
| 44      | Aniruddha Das    | Gosaba RR Govt. Spon Institution    |
| 45      | Sumon Prodhan    | Rangabelia High School              |
| 46      | Soumadip Prodhan | Rangabelia High School              |
| 47      | Priti Manna      | Bijoynagar Adarsha Vidyamandir (HS) |
| 48      | Triparna Manna   | Bijoynagar Adarsha Vidyamandir (HS) |
| 49      | Sayan Sarkar     | Santighachi High School             |
| 50      | Bikash Mistry    | Santighachi High School             |
| 51      | Animesh Raptan   | Dayapur PC Sen High School          |



# ANNEXURES

## ANNEXURE III: EMBROIDERY TRAINING PROGRAMME, PARTICIPANT LIST

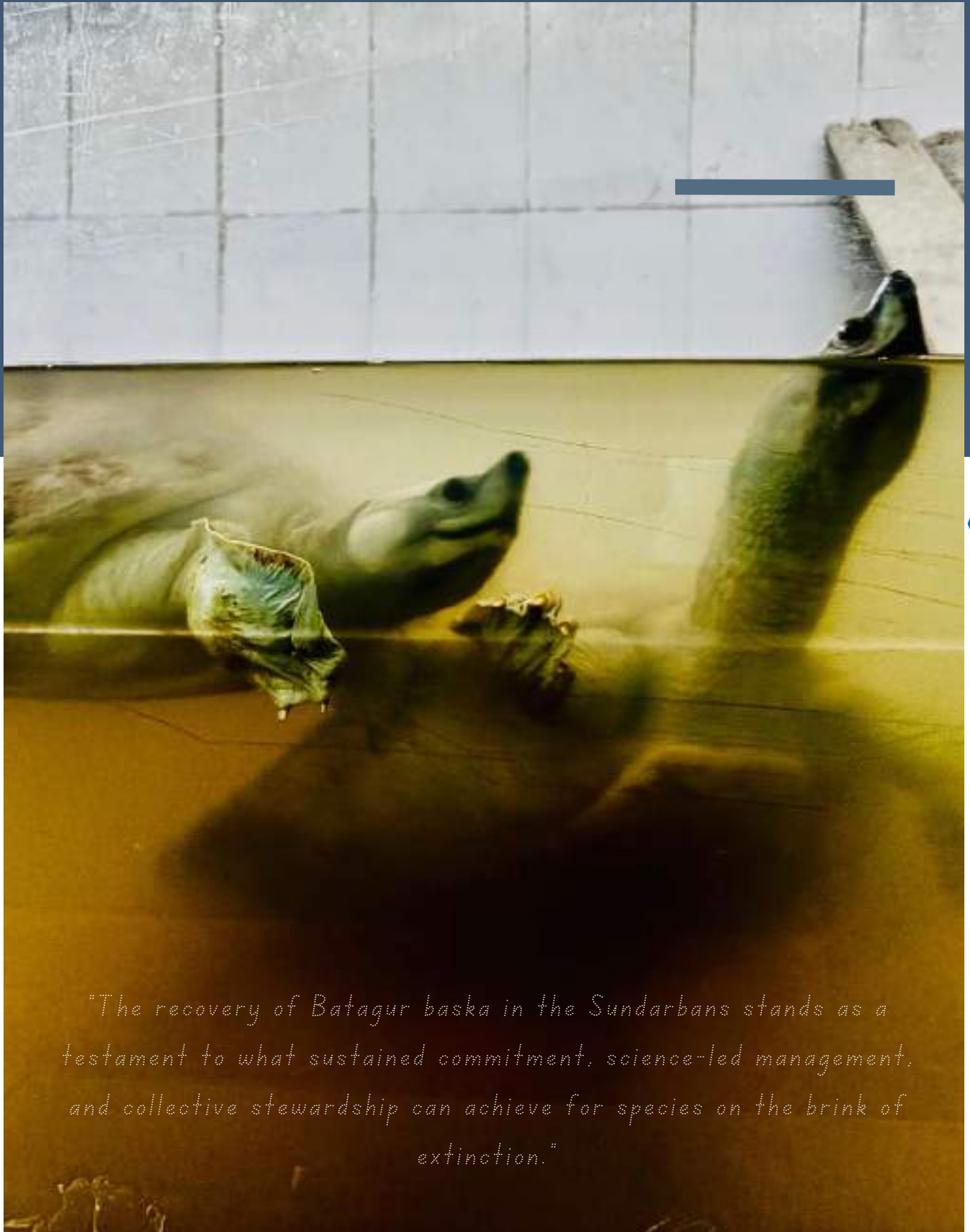
| <u>Embroidery Training Programme 19-22nd Dec. 2025</u> |                          |                        |
|--------------------------------------------------------|--------------------------|------------------------|
| <u>Sl. No.</u>                                         | <u>Name</u>              | <u>Contact No.</u>     |
| 1.                                                     | Shobali Mandal           | 98609967817            |
| 2.                                                     | Puja Sardar              | 988396026 (Submitted)  |
| 3.                                                     | Moumita Ghosh            | 9907352335 (Submitted) |
| 4.                                                     | Smritikona Mridha Mandal | 8768766563             |
| 5.                                                     | Madhusree Das            | 9088556119             |
| 6.                                                     | Chandana Majhi           | 7818923544 (Submitted) |
| 7.                                                     | Gulipra Das              | 9932411510             |
| 8.                                                     | Bisali Biswas            | 8250893319 (Submitted) |
| 9.                                                     | Nitya Mondal             |                        |
| 10.                                                    | Susama Mandal            | 7699981611             |
| 11.                                                    | Paromita Ghosh           | 9679728394             |
| 12.                                                    | Purnima Halder           | 7548979018 (Submitted) |
| 13.                                                    | Asihma Mandal            | 9134686693             |
| 14.                                                    | Jamuna Mandal            | 8389971389             |
| 15.                                                    | Suparna Ghosh            | 7863923113             |
| 16.                                                    | Nandini Paul             | 8670694035 (Submitted) |



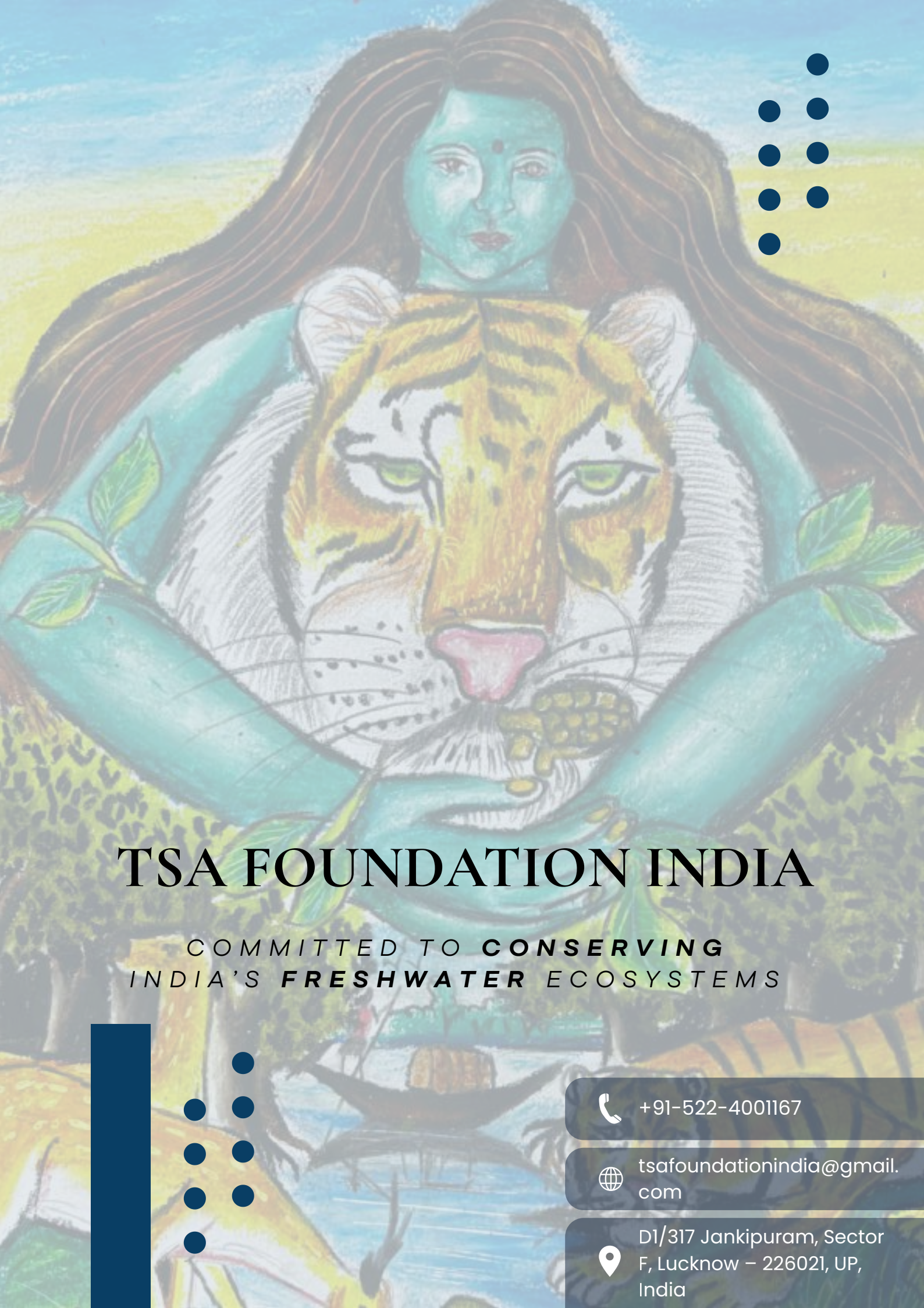
# ANNEXURES

## ANNEXURE IV: PHOTO PLATE





*"The recovery of Batagur baska in the Sundarbans stands as a testament to what sustained commitment, science-led management, and collective stewardship can achieve for species on the brink of extinction."*



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