

REPORT OF REFURBISHMENT OF ENCLOSURE III AT KACHUA PUNARVAAS KENDRA, SARNATH

ACTIVITY UNDER COMPONENT IV (RESCUE AND
REHABILITATION) OF THE WII-NMCG PROJECT TITLED:
BIODIVERSITY CONSERVATION AND GANGA REJUVENATION



November 2019

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GANGE**



भारतीय वन्यजीव संस्थान
Wildlife Institute of India

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Project Investigators

Dr. S. A. Hussain, Scientist G
Dr. Parag Nigam, Scientist F
Dr. P. K. Malik, Scientist G

Subject Matter Specialist

Dr. Anupam Srivastav

Project Research Team

Dr. Animesh Talukdar
Mr. Akshay Bajaj
Mr. Debaprasad Sengupta
Mr. Ashish Panda

Field Assistants

Mr. Brijesh Kumar Maurya
Mr. Ishu Verma
Mr. Pyarelal

Photographs: Project team

WII – NMCG (2019) Report of refurbishment of enclosure iii at Kachua Punarvaas Kendra, Sarnath.
An activity undertaken under Component IV of the project:
Biodiversity Conservation and Ganga Rejuvenation

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A Turtle Breeding Facility: Kachua Punarvas Kendra at Sarnath, Varanasi, established and operated by the Uttar Pradesh Forest Department was brought under the aegis of the WII- NMCG Biodiversity Conservation and Ganga Rejuvenation project in 2017. During the period 2017 – 2019 enclosure I and II of the centre were made operational and used for housing rescued turtles and hatchlings obtained from rescued eggs. A perusal of table 1 below suggests that there has been an increment in the number of turtles being received and managed at the centre.

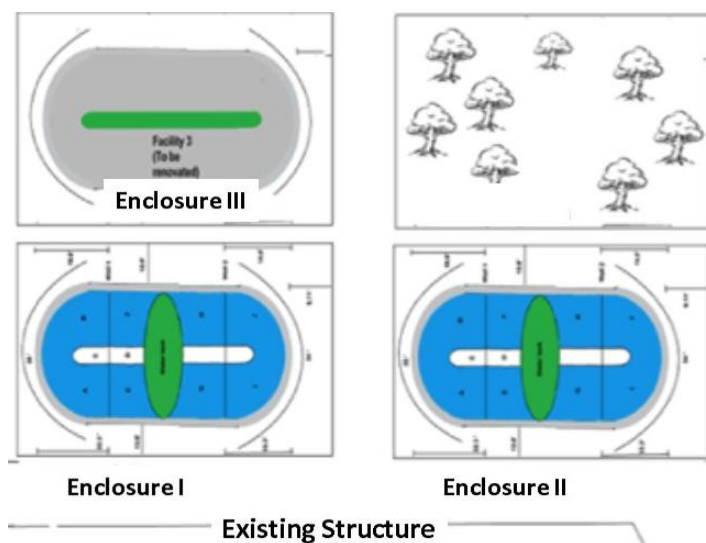


Table 1: Rescued animals received since 2017-2018 at KPK, Sarnath

Year	Species	Rescued	Status
2017-18	<i>Lissemys sp.</i>	704	Released
	<i>Batagur kachuga</i> (eggs)	28	Hatched and housed in KPK
	<i>Pangshura tentoria</i>	530	Released
2018-19	<i>Lissemys sp.</i>	1184	Released
	<i>Pangshura tentoria</i>	1	Released
	<i>Nilssonina gangetica</i>	9	Released
	<i>Batagur dhongoka</i> (eggs)	202	Hatched and housed in KPK

Current status of enclosures

- Enclosure 1: The enclosure is used to house critically endangered *Batagur dhongoka* and *B. kachuga* including the juveniles from 2019 batch (202) that have hatched at the centre.
- Enclosure 2: The enclosure is used for housing confiscated turtles that are often of multiple species; however, poor water retention due to seepage limits its effective use. The same has been made functional by carrying out minor repair works; however, further repairs are required to meet future emergencies.



- Enclosure 3: The enclosure is in a dilapidated state and needs major repair works. It had been used for temporarily housing confiscated *Nilssonina gangetica* after carrying out minor repairs during 2018-2019. Enclosure III has a total length of 152 feet and a width of 51 feet while the depth is 5 feet. The modifications carried out during 2018 were:



- 1) Cleaning and covering enclosure 3 with green shade cloth from all 4 sides except the roof.
- 2) Two temporary walls were built for separate the existed water body into two part and one part were made ready to retain water by temporary covering the cracks with cement.
- 3) Water supply to ensure consistent water level.
- 4) Enclosure enrichment which includes basking spots.

Considering a great number of rescue calls, Enclosure 3, with renovation will be suited for use as another enclosure for rehabilitation. It can house large turtle species like *Nilssonina Gangetica* and the ponds can be further partitioned should size separation be needed.

An assessment of enclosure III was carried out during visits to KPK, Sarnath and the enclosure III was observed to be in a poor state with the water body filled up with sand, water seeping through the various cracks and crevices in the structure caused by roots of vegetation and lack of maintenance and the enclosure was overgrown with weeds. It was also observed that the water body had a steep gradient for providing access to basking areas/ land.



State of enclosure III before beginning refurbishment work

Refurbishment work carried out

Approval for carrying out the required tasks were obtained from authorities concerned and work was initiated. The first task was to clear the area of weeds.



Enclosure III cleared of weeds

The task of emptying the water-body of sand was then initiated and carried out over a period of three days.



Enclosure III being cleared of sand

Sand removed from the water-body

After clearing the water-body of all weeds and sand it was inspected for cracks by the project team members and the surface scrubbed clean of all moss and debris.



Cleaning of water-body

A plastic sheet was spread across the bottom of the water-body and a three to four-inch-thick layer of concrete was evenly spread over it ensuring proper sealing of all cracks in the sides at the base. Water-proofing material was added to the concrete to ensure proper sealing of all cracks.



Laying of plastic sheet and concrete mix in the base of the water-body

The concrete base was allowed to set overnight and subsequently all cracks/ damaged portions of the water body were filled with a mixture of cement-mortar and water-proofing mixture to ensure that the water-body retains water.



Sealing cracks in the water-body

Rescued turtles of the same species are usually of are of different ages/ sizes, requiring creation of variable depth gradients for effective use of enclosure space by the animals. It also ensured that the problem of steep gradients on the sides that limits access to basking/ land for smaller turtles could be effectively addressed.



Creation of variable depth gradients in the water-body

As a further measure for ensuring that the seepage of water does not recur a double layer of waterproofing compound mixed with cement was overlaid over the entire cemented surface of the water body.



Application of a coating of waterproofing mixture

A partition was created to bifurcate enclosure III into two halves during 2018; this was further reinforced by adding a layer of bricks and overlaying it with a plaster of cement-mortar on the unused side. A gate was put-up to secure entry to the enclosure.



Reinforcing the enclosure partition and installation of gate

The water in captive facilities tends to get fouled with excreta of turtles, left-over food and debris; maintaining water-quality for aquatic animals is however, essential as captive housing facilities with poor water-quality lead to a build-up of pathogens and increase likelihood of animals falling prey to opportunistic infections. Accordingly, a small water filtration unit was set up in the enclosure.



Setting up the filtration unit

The wire-mesh protecting the enclosure from birds of prey had disintegrated with time and had to be replaced. As a cost effective measure a one-inch mesh size fishing net was spread over the top of the enclosure on the mild steel angle frame already present. The sides of the enclosure were covered with a green-mesh to act as visibility barrier and to provide shade in a part of the enclosure.



Covering the top of the enclosure

Turtles are ectothermic animals and use sun, shade and water to regulate their body temperature, they also feed on a variety of aquatic vegetation. The enclosure was appropriately planted with plants and grasses to provide a mosaic of sun and shade areas. While the water-body was filled with aquatic vegetation (duckweed: *Lemna sp.*) that occurs naturally in the area.



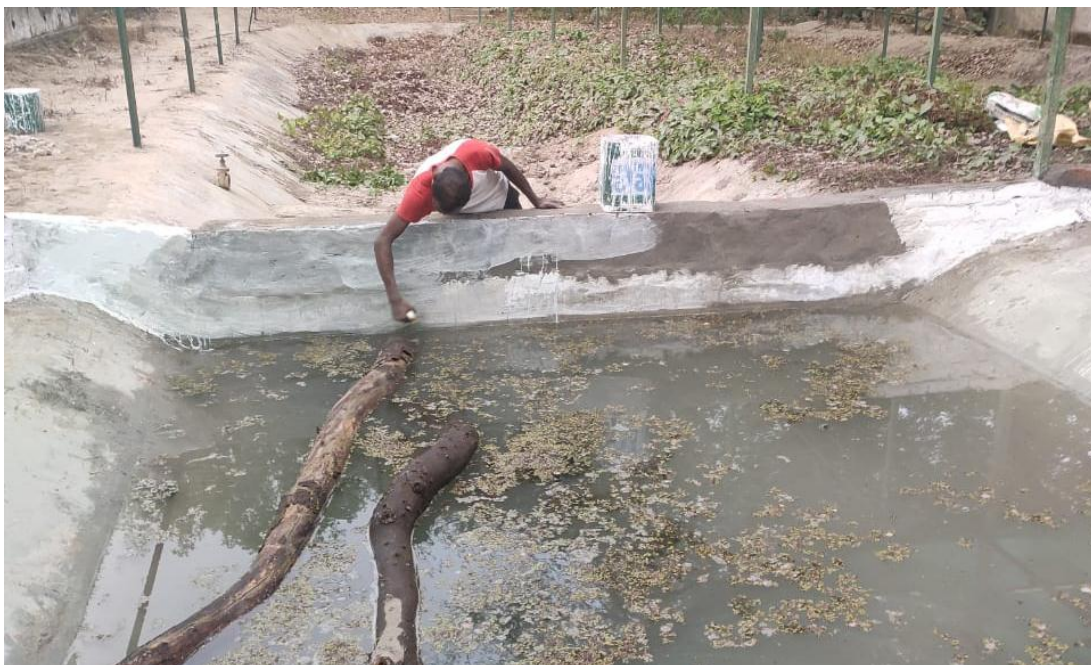
Enclosure after refurbishment

Rubber mats were placed to provide non-abrasive surface for the turtles to access the land areas of the enclosure. While a pipe with perforations was spread over the water-body to ensure aeration and maintenance of water-quality.

Required electrical fittings for illumination of the enclosure, winter management and operating the water pump for the filtration unit were put in place.

Water supply was provided to the enclosure from the existing water-mains in enclosure I of the facility.

The walls of the enclosure were whitewashed with lime paint to give an aesthetic look to the enclosure and remove moss growing on the walls.



Whitewashing the walls

Materials used for the refurbishment of enclosure III at KPK Sarnath

1. Cement
2. Cement sealant
3. Coarse sand
4. Grit (fine gravel)
5. Plastic sheet
6. Plastic tubs
7. Rubber mats
8. Water pump
9. Pipe
10. Electric wire
11. Water proofing compound (Dr. Fixit)
12. Plants
13. Bulb holders
14. Fishing net
15. Green net



