

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

LOK SABHA
UNSTARRED QUESTION NO. 473
TO BE ANSWERED ON 06.02.2023

Genetic Inbreeding in Tiger Sub-Populations

473. SHRI BIDYUT BARAN MAHATO:
SHRI DUSHYANT SINGH:
SHRI SHRIRANG APPA BARNE:
SHRI DHAIRYASHEEL SAMBHAJIRAO MANE:
SHRI SUDHEER GUPTA:
SHRI PRATAPRAO JADHAV:
SHRI SANJAY SADASHIVRAO MANDLIK:

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

- (a) whether it is a fact that genetic inbreeding has been observed in tiger sub-populations in different reserves in the country and if so, the details thereof, State-wise/district-wise, especially in Ranthambore and Mukundra Tiger Reserve;
- (b) the details of adverse effects of inbreeding and studies, if any, conducted on genetic variants caused due to inbreeding;
- (c) the steps taken/proposed to be taken to ensure inter-reserve mobility of tigers to dissuade inbreeding borne from isolation;
- (d) the States where Project Tiger is being implemented at present, State-wise;
- (e) the details of budgetary allocation and funds released under the said project during each of the last three years, State-wise;
- (f) the measures taken to prevent the increasing man-tiger conflict and to protect the tigers from unnatural deaths; and
- (g) the data regarding number, location, status and functionality of corridors between Ranthambore National Park, Kuno National Park, Madhav National Park and Mukundra Tiger Reserve and number of tigers utilizing afore-mentioned corridors, quarter-wise?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(SHRI ASHWINI KUMAR CHOUBEY)

- (a) & (b) Inbreeding is not unnatural in small wild populations of large carnivores when they are isolated for generations. However, recent studies showed that the vital rates and reproductive parameters of Ranthambore tiger population are comparable with other tiger populations of India and do not show any signs of inbreeding depression. There are no reports of detrimental effects of inbreeding depression in the wild tigers in India.
- (c) The Government of India has taken following steps to ensure movements of tigers and other animals through corridors:

- (i) The National Tiger Conservation Authority (NTCA) along with the Wildlife Institute of India has published a document “Eco-Friendly measures to mitigate impacts of Linear infrastructure on wildlife”, in letter and spirit of section 38 O (1) (g) of the Wildlife (Protection) Act, 1972 to safeguard wildlife and tigers from road /rail accidents in interlinking / corridor areas.
 - (ii) The NTCA along with the Wildlife Institute of India, in letter and spirit of section 38 O (1) (g) of the Wildlife (Protection) Act, 1972 have identified 32 major tiger corridors in the country and published them in a document titled “**Connecting Tiger Populations for Long-term Conservation**”, which are operationalized through prescriptions of a Tiger Conservation Plan mandated under section 38V of the said Act.
 - (iii) The NTCA alongwith the Wildlife Institute of India has conducted sensitization workshops for agencies involved in linear infrastructure development which *inter-alia* include Indian Railway Traffic Service Probationers, National Highways Authority of India personnel, Indian Railway Engineers, transmission line agencies.
 - (iv) Funding support through the ongoing Centrally Sponsored Scheme of Project Tiger, is provided to tiger reserves for management of core and buffer areas including corridors, to deal with tigers dispersing out of source areas.
- (d) The Project Tiger is being implemented in 18 tiger range States, and the details are at **Annexure-I**.
- (e) The details of budgetary allocation to the ongoing Centrally Sponsored Scheme of Project Tiger, during the last three years are as under:

(Rs. in crore)

Year	Budget Allocation
2019-20	282.57
2020-21	195.00
2021-22	220.00

The details of funds released to the State Governments under the ongoing Centrally Sponsored Scheme of Project Tiger during the last three years is at **Annexure-II**.

- (f) The Government of India, through the National Tiger Conservation Authority, has advocated a three pronged strategy to manage human-tiger negative interactions as follows:-
- (i) **Material and logistical support:** Funding support through the ongoing Centrally Sponsored Scheme of Project Tiger, is provided to tiger reserves for acquiring capacity in terms of infrastructure and material, to deal with tigers dispersing out of source areas. These are solicited by tiger reserves through an Annual Plan of Operation (APO) every year which stems out from an overarching Tiger Conservation Plan (TCP), mandated under Section 38 V of the Wildlife (Protection) Act, 1972. *Inter alia*, activities such as payment of ex-gratia and compensation, periodic awareness campaigns to sensitize, guide and advise the general populace on man-animal conflict, dissemination of information through various forms of media, procurement of immobilization equipment, drugs, training and capacity building of forest staff to deal with conflict events are generally solicited.
 - (ii) **Restricting habitat interventions:** Based on the carrying capacity of tigers in a tiger reserve, habitat interventions are restricted through an overarching TCP. In

case tiger numbers are at carrying capacity levels, it is advised that habitat interventions should be limited so that there is no excessive spill over of wildlife including tigers thereby minimizing man-animal conflict. Further, in buffer areas around tiger reserves, habitat interventions are restricted such that they are sub-optimal vis-à-vis the core/critical tiger habitat areas, judicious enough to facilitate dispersal to other rich habitat areas only.

(iii) Standard Operating Procedure (SOPs): The National Tiger Conservation Authority has issued following three SOPs to deal with human-animal conflict, which are available in public domain:

- i. To deal with emergency arising due to straying of tigers in human dominated landscapes
- ii. To deal with tiger depredation on livestock
- iii. For active management towards rehabilitation of tigers from source areas at the landscape level.

The three SOPs *inter alia* include the issue of managing dispersing tigers, managing livestock kills so as to reduce conflict as well as relocating tigers from source areas to areas where density of tiger is low, so that conflict in rich source areas does not occur.

Also as per Tiger Conservation Plans need based and site-specific management interventions are undertaken by the tiger reserves for improving the quality of wildlife habitat and funding support for these activities is provided under the ongoing Centrally Sponsored Scheme of Project Tiger.

(g) There are three identified corridors which connect Ranthambore Tiger Reserve with Kuno National Park, Madhav National Park, and Mukundara Hills Tiger Reserve. The Government of Rajasthan has notified a new Tiger Reserve “Ramgarh Vishdhari” to ensure corridor connectivity for genetic exchange within this landscape. The details of these corridors and known tiger movements using the corridors are given below:

1. Ranthambore Tiger Reserve – Baler – Maharajpura – Kuno – Madhav National Park

T56 – Male tiger reached Datia forests of Madhya Pradesh using this corridor

T38 – Male tiger returned back to Ranthambore Tiger Reserve from Kuno National Park in 2020-21

2. Ranthambore Tiger Reserve – Sevti Chambal – Kuno – Madhav National Park

T38 – Male tiger dispersed to Kuno National Park using this corridor in 2010

3. Ranthambore Tiger Reserve – Indiragarh – Ramgarh Vishdhari Tiger Reserve – Mukundara Hills Tiger Reserve

Broken Tail, cub of Machli - Male tiger dispersed to Mukundara Hills Tiger Reserve from Ranthambore Tiger Reserve in 2003

T91 – Male tiger dispersed to Ramgarh Vishdahri Tiger Reserve in 2017-18,
later on translocated to Mukundara Hills Tiger Reserve

T98 – Male tiger from Ranthambore Tiger Reserve dispersed to Mukundara Hills
Tiger Reserve in 2019

T115 – Male tiger dispersed to Ramgarh Vishdahri Tiger Reserve in 2021

ANNEXURE REFERRED TO IN REPLY TO PART (d) OF THE LOK SABHA UNSTARRED QUESTION NO. 473 ON GENETIC INBREEDING IN TIGER SUB-POPULATIONS DUE FOR REPLY ON 06.02.2023

Details of tiger range States, where Project Tiger is being implemented

Sl. No.	State
1	Andhra Pradesh
2	Arunachal Pradesh
3	Assam
4	Bihar
5	Chhattisgarh
6	Jharkhand
7	Karnataka
8	Kerala
9	Madhya Pradesh
10	Maharashtra
11	Mizoram
12	Odisha
13	Rajasthan
14	Tamil Nadu
15	Telangana
16	Uttarakhand
17	Uttar Pradesh
18	West Bengal

Annexure-II

**ANNEXURE REFERRED TO IN REPLY TO PART (e) OF THE LOK SABHA
UNSTARRED QUESTION NO. 473 ON GENETIC INBREEDING IN TIGER SUB-
POPULATIONS DUE FOR REPLY ON 06.02.2023**

**Details of funds released to the State Governments under the ongoing Centrally Sponsored
Scheme of Project Tiger during the last three years**

(Rs. in lakhs)

Sl. No.	State	2019-20	2020-21	2021-22
1	Andhra Pradesh	114.48	266.51	292.11
2	Arunachal Pradesh	846.31	803.76	869.08
3	Assam	2198.76	2513.90	1476.75
4	Bihar	562.84	628.89	552.72
5	Chhattisgarh	358.53	471.16	355.85
6	Jharkhand	1432.07	128.45	195.06
7	Karnataka	2252.03	2118.01	2956.70
8	Kerala	607.07	402.88	868.78
9	Madhya Pradesh	3501.91	2551.26	3523.52
10	Maharashtra	7220.39	3098.03	2991.06
11	Mizoram	337.70	161.53	374.13
12	Odisha	1303.32	680.07	1056.86
13	Rajasthan	1203.19	1008.89	841.05
14	Tamil Nadu	1586.91	1336.14	1576.22
15	Telangana	359.91	351.97	543.26
16	Uttarakhand	1242.49	1671.30	1463.71
17	Uttar Pradesh	2289.18	923.29	1304.85
18	West Bengal	758.47	333.96	708.28
	TOTAL	28175.56	19450.00	21949.99
