

MINUTES OF THE SIXTH MEETING OF STEERING COMMITTEE ON CONSERVATION & DEVELOPMENT R&D SCHEME TO CONSIDER 06 NEW R&D PROJECTS HELD ON 16TH AUGUST, 2019 AT NARMADA CONFERENCE ROOM, INDIRA PARYAVARAN BHAWAN, NEW DELHI.

The sixth meeting of the Steering Committee on R&D Scheme for Conservation & Development was held on 16th August, 2019 at Indira Paryavaran Bhawan, Jor Bagh, New Delhi to consider 6 projects received online under the new R&D Scheme for Conservation & Development, Dehradun. The list of participants is at Annexure-1.

2. Confirmation of Minutes of 5th Meeting of Steering Committee:

The minutes of the fifth Meeting of Steering Committee held on 29th November, 2018 were circulated to the Committee members and no comments had been received and were confirmed.

3. Consideration of Proposals

Dr. T. Chandini, Advisor welcomed the members of the Steering Committee and the Experts and representative of Wildlife Division of the MoEFCC specially invited to the meeting to consider the six new projects listed at Annexure-2. It was informed that these are the first set of projects which are being considered under the new revamped Scheme on R&D for Conservation and Development.

The projects were considered in the meetings of Technical and Financial Appraisal Committee (TFAC) and the R&D Scheme on Conservation & Development and recommended for consideration by Steering Committee and thereafter for funding by the Ministry.

3.1: 244/ 2018/ RE: Assessing fine scale distribution pattern, population and habitat status of Northern Swamp deer (*Rucervus duvauceli*) across upper Gangetic Plains of North India. PI: Dr.Samrat Mondol, Scientist D, and Co-PI :Dr. Bivash Pandav Wildlife Institute of India, PO Box 18, Chandrabani, Dehradun 248001 (Uttarakhand).

Details of the Project: Swamp deer is an endangered species with only 50-60 deer found in the natural habitats of Jhilmil Jheel and Hastinapur WLS in the State of Uttar Pradesh and found only in grasslands and hence conservation of their habitats is critical to conserving its populations in the two habitats. The Swamp Deer (*Rucervus duvauceli*) is a highly endangered species in the agriculture-forest landscape of the country and urgent measures are required for its conservation otherwise the species may disappear altogether. Specific conservation plans are required to be prepared and implemented by the concerned State Governments on priority. The project proposal is for 'Assessing fine scale distribution pattern, population and habitat status of Northern Swamp deer (*Rucervus duvauceli*) across upper Gangetic Plains of North India.' Geographical location of the project is in the States of Uttar Pradesh and Uttarakhand. The project is for a period of 3 years.

Objectives of the project:

- i. Assessing fine-scale distribution of swamp deer across its habitat in Uttarakhand and Uttar Pradesh through intensive ecological surveys.
- ii. Mapping the distribution of grassland patches with swamp deer evidence along

upper Ganga and its tributaries, along with evaluation of extent of grassland usage by wildlife and identify suitable sites for grassland restoration.

- iii. Study of the grassland and other plant species that are mainly essential part of swamp deer diet and their distribution and habitat.
- iv. Understanding swamp deer movement patterns by radio collaring selected male and female animals in the Jhilmil Jheel Conservation Reserve and Banganga wetland area.
- v. Genetic analysis of Fecal Pellets.
- vi. Integrating all the information to develop long-term management plan for Barasingha populations across north India

Expected outputs of the project:

- i. Fine-scale data of swamp deer occurrences.
- ii. Detailed mapping and selection of critical habitats for restoration.
- iii. Information on swamp deer behavior and habitat use.

Expected outcome of the project:

- i. Major outcome will be the most detailed information on northern Swamp deer distribution, habitat use and threats.
- ii. Identification of critical grassland patches for restoration.
- iii. Selecting individuals from populations for reintroduction in suitable areas, whenever required.

The project was reconsidered in the 1st meeting of TFAC held on 15th March 2019, 3rd TFAC meeting held on 17.05.2019 and 6th Meeting of TFAC held on 17th July 2019. The Committee had recommended the proposal with a condition that the State Government should be consulted and their views/recommendation be attached with the project and project cost should be reduced and details of revised cost submitted for funding.

Revised Budget:

Project cost which was originally estimated as Rs 63,78,760 was revised to Rs. 52,91,240. Component-Wise break- up of revised cost of project is given below:

Budget Head	Original cost	Project Revised Project cost	Cost Difference
Manpower	2253760	2166240	87520
Equipment	700000	700000	Same
Consumables	1025000	925000	100000
Travel Cost	1100000	800000	300000
Any Other	800000	400000	400000
Contingency	500000	300000	200000
Total Budget	6378760	5291240	1087520

Table with Details of Cost of Project (Revised)

COMPONENT	Year 1 (In Rs.)	Year 2 (In Rs.)	Year 3 (In Rs.)	Total Cost (In Rs.)
1)Salary	431520	431520	487200	1350240
JRF 1) @31000 and HRA @ 16% for first two years and @35000 and HRA @16% for third year b) Field Assistant (2) @ Rs	240000	288000		816000

10000/month for one year and 12000/month for two years			288000	
2) Permanent Equipment – Four GPS radio collars @175000/- per collar	700000	0.00	0.00	700000
3) Expendables	375000	325000	225000	925000
4) Travel Travel budget for first two years =300000/- per year Number of persons involved in field work= 3 Number of trips in a year= 10 months continuously outdoor Car and POL – 25000/month * 10 months= 250000/- Tractor/ Boat hire- 300/day * 100 days= 30000/- Car maintenance = 20000/- for a year Travel budget for third year =200000/- Number of persons involved in field work= 3 Number of trips in a year= 6 months continuously outdoor Car and POL – 25000/ month * 6 months= 150000/- Tractor/ Boat hire- 300/ day* 100 days= 30000/- Car maintenance = 20000/- for 6 months	300000	300000	200000	800000
5) Other Project Cost (Any other)- Satellite and data acquisition for radio collaring	400000	0	0	400000
6) Dissemination of Research Work	0.00	0.00	0.00	0.00
7)Contingency	100000	100000	100000	300000
8) institutional Charges	0.00	0.00	0.00	0.00
Grand Total	2546520	1444520	1300200	5291240

PI made presentation before the Steering Committee. It was informed that Swamp Deer (*Rucervus duaucei*) is endemic to grasslands of India and Nepal. As per IUCN it falls in Vulnerable Category and listed under Schedule-I under the Wildlife Protection Act, 1972. Total estimated population of Swamp Deer is about 3000 in the world of which about 2000 are found in Nepal and about 1000 in India. The species cannot survive without grasslands and hence conservation of grasslands is an important aspect of the conservation of the Swamp Deer. It was informed that very limited information of swamp deer in the upper Gangetic plains. Presently found in extremely patchy distribution in Uttar Pradesh. Major threats are habitat loss and poaching. WII has carried out research on northern swamp deer as given below:

1. The First survey carried out in **1995**: - species recorded in Jhilmil Jheel Conservation Reserve and Hastinapur Wildlife Sanctuary of a total area of 2073 sq km, which overlays Jhilmil Jheel and Hastinapur and an area of 55 sq km of their distribution has been digitized (Qureshi et al. 1995, 2004). However very few sightings. Radio-collared individuals (n=2) showed extensive use of fragmented grassland patches along Ganga and approximately 200 individuals were genetically identified. The populations are genetically homogeneous with moderate genetic variations. Signs of inbreeding in this population were not observed.

2. Ecology: Tewari et al. **2013**
3. **2017-18:** extensive survey in upper Gangetic plains -fine scale presence of species done with State Forest dept. A new population has been reported in marshy areas of Uttar Pradesh close to Ramganga in poaching cases (Paul et al. 2018).
4. Their presence has been recorded in Farrukhabad near Kanpur, as per sporadic reports of stray dogs killings of some deer.

However, no study has been carried out on their actual area of distribution covering an area of about 1300-1500 sqkm (480km x 5-8 km wide). Swamp deer are found in fragmented grassland patches for breeding and rearing their young ones. The grass species dominant in grassland patches are *Typha* sp., *Cynodon* sp. and *Phragmites* sp. Extensive survey for swamp deer presence along Ganga block and Sharda block will be carried out under the proposed study. The Committee was informed that for reducing inbreeding, genetic study would be an important aspect of the study. It was stated that Dr. Navendu page is an expert in Botany and will be involved in the study of grassland species which are essential part of the swamp deer habitat.

Swamp deer evidence will be collected by direct siting and indirect evidence and on that basis distribution and habitat map for swamp deer will be generated. Four swamp deer will be radio collared in the proposed study and their home range, movement and habitat use pattern will be assessed. State Forest Department has sought for a Management Plan for implementation under the proposed study. In this context it was stated that the State Government is also mulling introduction of Rhinos in these habitats which are also suitable for Rhinos. The State Forest Department is attempting to make a contiguous grassland habitat to host a small Rhino population. Thus, both species will benefit from this study.

The proposed study will also be in compliance with the National Wildlife Action Plan:

1. Strengthening and Promoting the integrated management of wildlife and their habitats will be done by strengthening and improving the protected area network, Landscape level approach for wildlife conservation, Conservation of threatened species, Control of poaching and illegal trade in wildlife.
2. Strengthening Wildlife Research and Monitoring and Development of Human Resources in Wildlife Conservation would be done by development of human resources, Strengthening Research and Monitoring.
3. Achieving Aichi biodiversity target.
4. To reduce direct pressure on biodiversity and promote sustainable use: Reduce the rate of natural habitat loss + forest loss by at least 50% and Safeguard ecosystems, species and genetic diversity: Prevent extinction of threatened species.

The Committee observed that the expected outcome of the study would cover all the areas where the Swamp Deer is found in the States of both Uttar Pradesh and Uttarakhand, which would lead to identifying critical grassland patches with a view to restoring their habitats, delineate the boundary of their habitats for better conservation of the species. Grassland studies need to be done in the area although samples were collected earlier. It was suggested that the study should also undertake the distribution of grass and other species of plants which form their main diet. Local community may also be involved in the study due to presence of human habitation in and around project area. PI accepted the suggestion that a more humane approach such as 'Tranquilization' instead of Drive net approach will be adopted for capturing the swamp deer. The action plans formulated based

on the studies in the project must be taken up with the concerned State Forest and Agriculture Department for implementation. A letter from State Forest has been obtained that the studies to be carried out will be incorporated in Wild Life Management Plant of the State Forest Dept. The concurrence of Wildlife Division of the Ministry is also required (for studying a Schedule-I species) before commencement of the project. In case more radio collars are required, Wildlife Division of the MoEFCC could meet the cost from their budget.

The Committee after deliberations recommended the project for funding.

3.2: 265/2018/RE: **“Assessment of Disease Prevalence in Ungulates in Protected Areas in Mizoram”**. Dr. S. Sathyakumar, Scientist G, Co-PIs Prof. Qamar Qureshi, Dr. Vishnupriya Kolipakkam, Dr. T.K. Dutta. Post Box no 18, Wildlife Institute of India, Chandrabani, Dehradun, 248001

Details of the Project:

There are very few studies especially in NE region on the extent of diseases relating to wild animals, their transmission and area of disease prevalence and this study would form baseline on the diseases relating to ungulates in the region. Status surveys have been done but population surveys have not been carried out. The geographical location of the project covers 3 States of NE India - Mizoram, Sikkim and Arunachal Pradesh. The ungulates mainly proposed to be studied are Serow, Ghoral, sheep and goat.

Duration of project: 2 years 6 Months

Objectives:

- i) To assess the prevalence of infectious diseases in selected areas of Mizoram with special reference to pathogens (virus, bacteria and other pathogens) that cause mortality of wild Ungulates in the recent past.
- ii) To assess the prevalence of transmissible diseases in domestic counterparts in and around the PAs. Wide range of diseases recorded however, emphasis should be on diseases which cause mass mortality as from recent data/episodes.

Expected Outputs

- i) Baseline disease prevalence data on diseases in wild ungulates of Mizoram.
- ii) Identification of pathogens (virus, bacteria and other pathogens) from domestic animals and identify the diseases that are at higher risk of being introduced/reintroduced in the wild.
- iii) Health Management Plan and SOPs for surveillance and monitoring of wildlife diseases in PAs.

Expected Outcome

- i) The data generated from this study would help formulate better management plan for each Protected Area. (NWAP chapter 1, 2)
- ii) The information gathered from molecular epidemiology would help formulate Strategies for prevention and management of transmission of shared diseases between domestic and wild Ungulates. (NWAP chapters 2, 5 9)
- iii) Formulation of appropriate control measures and implementation of strategies When an outbreak occurs. (NWAP chapter-S).
- iv) Material and protocols generated would help strengthen field staff and veterinarians through training and workshops for local veterinarians and SFDs (NWAP chapter-1)

The project was earlier considered in 1st meeting of TFAC held on 15th March 2019, 4th TFAC meeting held on 29th May 2019 and 6th TFAC meeting held on 17th July 2019. The Committee had recommended the project for funding with reduced budget and that an expert specialized in animal pathology be engaged. Budget has been reduced from ₹105,39,538.00/ (Original Cost for covering States of Arunachal Pradesh, Mizoram and Sikkim = Rs.105,39,538/-) to ₹ 77,68,463/- (for State of Mizoram). Study site changed from 3 states Arunachal Pradesh, Sikkim, Mizoram to one state only, viz, Mizoram. Consultations of State Animal Husbandry Department and State Forest Department have done and they have strongly recommended the study and endorsed with recommendation letters. It was noted that the PI -Dr. S. Sathyakumar is an expert on mountain Ungulates and Co-PI: Dr. Lallianpui Kawlni is a veterinarian specialised in microbiology and disease pathology. Other team members — Dr. Vishnupriya Kolipakam is a conservation geneticist and Prof. Qamar Qureshi is an ecologist. Hence the relevant expertise for undertaking the project is available. It was stated while the emphasis of the study will be on pathogens causing mass mortality in ungulates, however, samples of other pathogens involved in deaths would also be collected and analysed under the study.

Revised Location of Project: District Mamit, Sub-District — West Phaileng, Mizoram

Revised Cost of Project: Rs. 77,68,463/-

Tenure	1st Year (in Rs.)	2nd Year (in Rs.)	3rd Year (6 months) (in Rs.)	Total Budget (in Rs. lakhs)
2 years 6 Months	40,20,350	32,04,350	5,43,763	77,68,463

The component-wise break-up of cost of the project is given below (in Rs lakhs.):

COMPONENT	Year 1 (In Rs.)	Year 2 (In Rs.)	Year 3 (6 Months) (In Rs.)	Total Cost (In Rs.)	Cost of original proposal
Salary	9,50,520	890520	383100	22,24,140	25,10,880
Equipment	5,20,000	-	-	5,20,000	5,90,000
Consumables	12,85,000	1185000		24,70,000	32,20,000
Travel Cost	9,46,000	946000	50000	19,42,000	32,52,000
Contingency	78,830	62830	10663	1,52,323	2,06,658
Institutional Charges					7,60,000
Any Other	2,40,000	120000	100000	4,60,000	-
Total Budget	40,20,350	32,04,350	5,43,763	77,68,463	1,05,39,538

Additional Manpower Requirement:

Research Fellows (JRF/SRF) (1)
 Research Assistant (1)
 Field Assistant (3)
 Daily Wage Labour (2)

Additional Equipment (reqd) (Not available with Institution)

S. N.	Name	No of Unit	In original proposal
1	Freezer	1	1
2	Capture Equipment(Drop nets etc)	2	2
3	Surgical Instruments	2	2
4	GPS	2	2
5	Binocular	1	1
6	Camera	1	1

PI did not attend the meeting and the Co-PI - Dr. Lallianpuii Kawlni made presentation before the Steering Committee. It was informed that the project area is within **Mizoram (Dampa Tiger Reserve)**. A total of 116 Serow carcasses recorded from May 2015 to October 2016 were examined for an earlier study which confirmed the presence of Goat pox virus. No studies have been carried on viral diseases on wild Ungulates in India. The study will be carried out because of increased incidences of diseases among ungulates in Protected Areas (PA) in Mizoram. Limited information is available on wildlife health & diseases, increase in emerging and re-emerging diseases, pathogen spillover between domestic & wildlife, population declines, managing diseases at the livestock-wildlife interface and strategies for better management of diseases. Field sampling will be done from domestic animals, Wild ungulates and opportunistic samples from kills and trophies. Laboratory analysis will be done for targeted surveillance with special reference to goat pox and other common livestock diseases. General surveillance will be done by using metagenomics as a tool. Studies will be carried out in collaboration with State Veterinary Department and state veterinary officer will be Co-PI in project. The sample will be sent to college of Veterinary Sciences and Animal Husbandry, Selesih, Zuangtui to Selesih, Selesih, Aizawl, Mizoram for analysis and obtained permission for same. PI has collaboration with District Veterinary Officer for reports of animal deaths.

The Committee after deliberations recommended the project for funding.

3.3: 246/ 2018/ RE: Ecology and Recovery of critically endangered Vulture species in Pong Dam Protected Area (PA) and its Eco Sensitive Zone (ESZ) in district Kangra, Himachal Pradesh. PI: Dr. Gautam Talukdar, Scientist-E, Wildlife Institute of India, Chandrabani, Dehradun-248001.

Project Details:

The present study is to study the wild populations of vultures in their natural nesting sites in Kangra District of Himachal Pradesh. One such is the Pong Dam Protected Area and its eco-sensitive zone (ESZ) in Kangra Distreict in Himachal Pradesh, wherein vulture populations have been found to occur naturally, in addition to already documented sites, new sites are being identified where vultures are being spotted and require more in-depth study for reintroduction of ex-situ individual vultures. The success of this can be upscaled to other similar sites also.

(Revised) Objectives:

- i) Ecological monitoring by extensive field survey and satellite telemetry of the vultures.
- ii) Extensive and systematic field surveys, habitat feature and ecological niche modelling will be carried out for the identification of vulture s feeding ground, nesting and roosting sites. Ecological Niche Modelling of vultures
- iii) In addition, the local pharmacy will be surveyed to determine to supply of Diclofenac drug in the pharmacies of the area. Vultures will be fitted with PTT satellite transmitters which will aid in remotely monitoring the movement pattern of the vultures. Movement ecology will determine the ranging/behavioural pattern.
- iv) Samples from the carcasses of the deceased vultures/livestock will be brought to the laboratory for Eco-toxicological assessment.
- v) Capacity building of H.P State Forest Department and raising awareness of local communities for long-term conservation of vultures.

Expected Outputs:

- i) Current population trend of vultures within the study site.
- ii) Detailed behavioural, dietary pattern, nesting and roosting site information and movement pattern of the vultures.

Expected Outcome:

- i) The project is a baseline for potential reintroduction of vultures in beyond PAs.
- ii) A road-map for long-term conservation and monitoring of vultures of Himachal Pradesh. Guidelines for Vulture conservation to be included in Zonal Management Plan (ZMP) of Eco-Sensitive Zone of Pong Dam Protected Area in Kangra District, Himachal Pradesh for implementation by the State Forest Department.

The project was earlier considered in 1st TFAC meeting held on 15th March 2019, 4th TFAC meeting held on 29th May 2019 and in 6th TFAC meeting held on 17th July 2019. PI has submitted a Letter of support from PPCF, Government of Himachal Pradesh Shimla letter No. WLM/Vulture/1793 Dated 24.5.2019. The P1 had informed that 5 satellite PTTs will be procured and the remaining will be procured in second year. Cost for Field vehicle and food assistant wages were moved to contingency head as suggested by the TFAC. The TFAC had desired that the comments of the Chief Wild Life Warden (CWLW), Govt. of Himachal Pradesh must be obtained and sent to Ministry and this may be included as a condition in Sanction letter. The TFAC recommendable the project for funding, initially for one year and will be extended for another two years only after the progress of work done during first year is assessed by TFAC.

Revised Budget (in Rs):

Component	Details	Year 1	Year 2	Year 3	Total
Salary	1 JRF and 1 Research Assistant	696000	696000	751200	2143200
Equipment	Field Gear (Tent, sleeping bags, winter wear, backpack, Binoculars, GPS). Cost of ten satellite PTT @Rs200000/PTT	1200000	1000000	0	2200000
Consumables	i) Geo-spatial database,	300000	400000	100000	800000

	software and hardware ii) Caracas Analysis to know the presence of NSAIDs				
Travel Cost	i) Travel of PI to field sites ii) Travel of field personnel to field site	160000	160000	160000	480000
Contingency	i) Base camp running charges Other Operation Costs, Field Assistant etc ii) Vehicle hiring iii) Miscellaneous, publications, etc	530000	540000	580000	1650000
Any other	Cost of satellite location data (Lumpsum)	250000	500000	500000	1250000
Per-year Total		31,36,000	32,96,000	20,91,200	
Grand total					85,23,200

PI made a presentation before the Steering Committee. Vultures are primary carrion remover in Asia and Africa, scavenging on animal carcasses and helps to keep the environment clean, also helps to control livestock diseases, such as brucellosis, tuberculosis, and anthrax by disposing of infected carcasses. Vulture populations were decimated due to kidney failure in vulture populations within a short time of feeding on the carcasses of dead animal treated with Diclofenac. It was informed that of the 9 species of vultures found in India, 8 are found in Himachal Pradesh, wherein many PAs support good vulture populations. However, vultures range very widely up to 10,000 square kilometres for foraging. Thus, the landscape around Protected Areas (PAs) need to be made safe for vultures and especially devoid of diclofenac. Ecosensitive Zones (ESZs) of (PAs) play an important role as they form a buffer to the PAs where ecological and environmental safeguards can be implemented without disturbing the traditional livelihood rights, through formulation of Zonal Management Plans. Population monitoring & tagging of birds will be done by Satellite Telemetry of vultures using PTT Transmitter for their feeding behaviour, nesting pattern, habitat requirements. Home range/migration will also be assessed. Eco-toxicological assessment will be done by assessment of carcass of livestock/vultures.

The Committee noted that Ecological Niche modelling study is proposed as suggested by TFAC. Eco-toxicological study on vulture deaths in the study area due to Diclofenac is also proposed. Zonal Ecological Management Plan for vulture will be prepared.

The Committee after deliberations recommended the project for funding.

3.4: 242/2018/RE: Securing habitats for threatened mountain ungulates in Arunachal Pradesh through robust population assessment and conservation planning. PI: Dr. Vishnupriya Kolipakam, Scientist-C, Animal Ecology and Conservation Biology, Co -PI Co-Investigators: Prof. Qamar Qureshi, Dr. S. Sathyakumar, Dr. Sutirtha Dutta, Dr. Lallianpui Kawlani and Dr. Amit Kumar, Wildlife Institute of India, Chandrabani, Dehradun-248001.

Details of the Project: The project is for population assessment and conservation planning of threatened mountain ungulates – Serow and Ghoral in the geographical locations of one State of NE India - Arunachal Pradesh. The project period is of 2 Years 6 Months. There are very few studies especially in NE region on the extent of diseases relating to wild animals, their transmission and area of disease prevalence and this study would form baseline on the diseases relating to ungulates in the region. Status surveys have been done but population surveys have not been carried out.

Objectives of the project:

1. To assess the population status of mountain ungulate community – Serow and Ghoral in representative sub-tropical and temperate Himalaya of Arunachal Pradesh
2. To understand the abundance, habitat relationship and health status of threatened mountain ungulates of Serow and Ghoral.
3. To develop conservation action plan for mountain ungulates through securing habitats and conservation prioritization of populations

Expected Outputs:

1. Monitoring protocol for mountain ungulates – Serow and Ghoral
2. Trained manpower, where forest department will be able to monitor ungulates self sustainably
3. Baseline information on the current population status and distribution of mountain ungulate populations in temperate and sub-tropical forests of Arunachal Pradesh
4. Identification of the specific habitat needs and optimum habitats of mountain ungulates, especially for Serow, and Goral - Habitat quality in correlation with ungulate abundance, Vegetation map using hybrid classifiers and knowledge based classification procedures, and identification of critical habitats.
5. Health status and risk assessment of mountain ungulates populations in terms of prevalence of pathogens (parasites only will be studied).
6. Capacity building of State Forest Department will be able to monitor ungulates self sustainably etc.

Expected Outcome of the project

1. The output of developing a monitoring protocol for mountain ungulates will address the objectives of the scheme and the ministry in generating baseline information of threatened fauna, or little known and indicator species, developing an institutional mechanism to monitor the populations of endangered species and their habitats in all biogeographic regions.
2. Capacity building of State Forest departments and local DFOs to sustainably monitor wildlife, and in that contribute to the MoEFCC's objective of institutionalizing capacity building programmes that would cater to the specific needs of the species, ecosystems (NWAP 3).
3. Conservation Action Plan for Serow, and Ghoral in Arunachal Pradesh.

Details of Break-up of Revised cost (in Rs) of Project:

Budget Head	Revised Cost	Original Cost	Difference	Remarks
Salary	19,92,240	29,00,880	-9,08,640	1 Research assistant reduced, and reduced field assistants from 4 to 1 as suggested, and Salary shifted to Contingency
Equipment	9,60,000	17,40,000	-7,80,000	Camera traps reduced from 75 to 40, and freezer removed, other associated costs of sleeping bags and tent reduced from 6 to 4
Consumable	17,55,000	23,15,000	-5,60,000	Samples reduced from 300 per year and 3 species to 200 samples and 2 species
Travel	6,25,000	32,52,000	-26,27,000	Vehicle hiring and fuel shifted to Contingency. Travel of field personnel reduced.
Others	3,60,000	4,60,000	-1,00,000	Publication cost reduced by 1 lakh
Contingency	17,46,700	2,13,000	15,33,700	Increase is partly due to shifting of vehicle hire and field assistant and casual labour to contingency.
Total	74,38,940	1,08,81,780	-34,42,840	A total reduction of 34,42,840

Break –up of revised budget is given below:

HEAD	Details	1 st year	2 nd year	6 th months	Total
Salary	JRF (1), Research assistant (1), Interns (1)	431520	431520	243600	1992240
Equipment	Camera traps (50), Field Gear (Tents, etc), Other Equipment (Binoculars, GPS, etc)	960000	-	-	960000
Consumables	Chemicals for DNA extraction, PCR & Genotyping, primers, Diseases profiling, Chemicals, Batteries (1000), memory cards	620000	600000	50000	1755000
Travel		300000	300000	25000	625000
Others	Base camp Establishment & Running, Publications,	140000	120000	100000	360000
Contingency	Unforeseen/ Other expenses-Contingency (2% of project cost), Field Assistant Wages/Casual labour (1), POL & Fuel for field work	878700	856000	12000	1746700
	Total	40,11,460	28,33,760	5,93,720	74,38,940

The TFAC Committee after consideration of the project in its 1st, 4th and 6th meetings had recommended the project for funding. TFAC had desired that only one State, namely Arunachal Pradesh be studied under the project. Study on Tahr has been dropped by PI as it is found in Sikkim and not in Arunachal Pradesh.

The PI made presentation before the Steering Committee. Of total ungulates - 23 genera and 39 species in the world, mountain ungulates in Himalayas area cover 12% of 3.3 million sq. km with 19 species of ungulates (50%). Mountain ungulates are a critical link in mountain ecosystems. They form an important prey species for carnivores and regulate habitat, ecosystem services and cascade effects. It was informed that no credible information at large scales available for mountain ungulates such as Serows (2 species), Ghoral, Hog Deer, Sambar, Blue Sheep, etc. There is no scientifically robust monitoring system in place. No information on diversity or population trends available. As per IUCN, most mountain ungulates “Declining trend” and information on genetic diversity not available so far.

Population monitoring will be done in two-phase adaptive sampling by randomly placed cameras, sign surveys, distance sampling for density, abundance and richness. For genetic studies, DNA extraction from dung pellets will be carried out. Indices of diversity, distribution, evolutionary distinctiveness, effective population sizes, inbreeding coefficients, genetic connectivity and gene flow, would be studied based on which, conservation priorities would be assessed. For Habitat Study to assess critical habitats, habitat quality in correlation with ungulate abundance, habitat parameter sampling at camera trap sites and sign surveys, vegetation map using hybrid classifiers and knowledge based classification procedures, terrain complexity, topog Model species distribution graphic features would be taken up. On health status of ungulate population, studies will be carried out of pathogens (parasites only). Microscopic identification of parasites and eggs using fecal flotation, sedimentation, molecular confirmation will be undertaken to determine parasite load. It was informed that Random Encounter Model developed by Oxford and WII for Central Plains will be used for this study. Test model has already been developed for Cheetah in Madhya Pradesh (in the plains). Mathematics of the model is the same but requires being tested in mountain ecosystem/terrain also.

The Committee agreed to the testing of the Model on species distribution in mountain terrain under the project. The State Forest Department personnel should also be trained and be involved in project.

The Committee after deliberations recommended the project for funding.

3.5: 245/2018/RE: An integrated approach for conservation of Takin (*Budorcas taxicolor*) in North East India: Linking species ecology and traditional ecological knowledge. P1: Dr. Gopi, G.V, Scientist E, Department of Endangered Species Management, Co-PI: Dr. S. Sathyakumar, Scientist G, Dr. K. Sivakumar, Scientist F, Dr. Parag Nigam, Scientist F, Wildlife Institute of India, P.O. Box 18, Chandrabani Dehra Dun 248001.

Details of the Project:

Takin, also called Cattle Chamois or Gnu Goat, is a goat-antelope found in the eastern Himalayas. The four subspecies are: *B. t. taxicolor*, the Mishmi Takin; *B. t. bedfordi*, the Shaanxi Takin or Golden Takin; *B. t. tibetana*, the Tibetan or Sichuan Takin; and *B. t. whitei*, the Bhutan Takin. It was stated that the conservation of Takin (*Budorcas taxicolor*) is extremely vital as only one Genus exists in the country today and in this region. Takin is a natural prey for tigers in the region which follow the Takin in the regions where they are distributed. Only two studies and that too of a very limited duration have been carried out in Arunachal Pradesh. The project is for a period of 3 years. The geographical location of the project is Anini, Dibang Valley in the State of Arunachal Pradesh.

Objectives of the project

1. Assessment of distribution and status of Takin in Arunachal Pradesh.
2. Understand the local and transboundary movement pattern of Takin in the landscape.
3. Identify threats including evaluation of traditional ecological knowledge (human dependence and use) on Takins.
4. Develop a Conservation Action Plan for Takin in Arunachal Pradesh.

Expected Outputs of the project:

- i) Results of this study are expected to lead to the identification of key areas which form conservation sites for Takin.
- ii) This survey is the first step towards establishing a long term research and conservation program on Takin in Arunachal Pradesh.

Expected Outcome of the project

1. Generating knowledge of ecology of Takins and identification of critical habitats/areas of Takin population in Arunachal Pradesh.
2. Conservation Plan for Takins in Arunachal Pradesh.

Details of Break-up of Revised budget (in Rs):

Break up of project cost	Original Cost	Revised Total	Difference	Remarks
Salary	27,41,760	22,68,960	(-)34,72,800	The field assistants budget has been shifted to contingency head as suggested by TFAC
Equipment	26,35,000	16,35,000	10,00,000	Satellite telemetry device (2), with data acquisition charges has been dropped
Consumable	9,40,000	3,00,000	(-)6,40,000	Immobilization drugs have been revised and reduced
Travel	15,00,000	7,80,000	(-)7,20,000	Vehicle-hiring budget has been shifted to contingency head as suggested by TFAC The number of months of vehicle hiring is also reduced by 2 months for 1 st and 3 rd year.
Contingency	1,80,000	25,00,000	(+)23, 20, 000 .	Enhanced due to inclusion of vehicle hiring and field assistant wages as suggested by TFAC
Total	79,97,000	74,83,960	(-) 5, 13, 040	Over all the original budget reduced by Rs 5,13, 040

Breakup of revised budget (in Rs):

Breakup of Project Cost	Details	1st year	2nd year	3rd year	Total
Salary	1 JRF, 1 Research asst	737760	737760	793440	2268960
Equipment	Satellite telemetry device, drone with data acquisition charges (3), Bushnell laser range Finder (1), Field gear, Binoculars (2),	1135000	250000	250000	1635000
Consumables	Immobilization Drugs, Publications	260000	260000	260000	780000
Travel	Travel of PI to field sites, Travel of field personnel to field site	260000	260000	260000	780000
Contingency	Other Operation Costs, Field Assistants (4), Basecamp running charges, Vehicle hiring	820000	860000	820000	2500000
Overall Total		29,52,760	23,07,760	22,23,440	74,83,960

The project was earlier considered in the 1st, 4th and 6th meetings of TFAC meeting held on The Committee after deliberations had recommended the project for funding after the proposal was suitably revised to focus the study in Arunachal Pradesh, revise the cost of project.

PI made presentation before committee. It was informed that this study promises to expand current understanding on this species covering various aspects on natural history observations, distribution patterns, movement patterns and assess the conservation status of this rare and unique bovid. Takin as per Global/National Conservation status: CITES: Appendix II; IUCN: VU; IWPA; Schedule – I fauna.

The study involves the Reconnaissance, rapport building with local communities and stakeholders. Local assistants will be identified and trained on research methods for the survey. Survey of Takin in Mishmi hills landscape to assess their status and distribution pattern and relative abundance. It was informed that State Forest Department has not done any study on Mishmi Takin. The following activities are proposed – i) Five Takins will be satellite collared to understand the local and transboundary movement patterns of Takins; ii) Threat Assessment: Quantification of threats in the field would be documented during the survey phase, iii) Informal chats will be held with local people to understand the dynamics of the hunting threats to Takin.; iv) Predictive modelling for deciphering current distribution range and preparation of Conservation Plan. It was informed that the baseline data on Takin has already been available on the study done in 1930 by George Bailey and the present study includes the same route studied earlier. Permission and recommendation letter from PCCF, Government of Arunachal Pradesh, WL& BD), Itanagar has been obtained vide letter no. CWLG/173/2018-19/PL-VII/570-72 Dated 4th July 2019.

The PI, on the basis of SC observations that contingency is at higher side i.e. Rs. 25,00,000/- and appears disproportionate and that the funds under contingency head need to be revised and reduced, presented the following revised cost estimate:

Breakup of Project Cost (in Rs):

Breakup of Project Cost		1st year	2nd year	3rd year	Total
Salary					
Junior Research Fellow	1 @31000+ 16% HRA/month (2 years) and 35000+16% HRA(3 rd year)	431520	431520	487200	1350240
Research Assistant	1@22,000+16%HRA/month (3 rd year)	306240	306240	306240	918720
Salary Total		737760	737760	793440	2268960
Equipment					
Satellite telemetry device, drone with data acquisition charges	3 nos	1000000	250000	250000	1500000
Bushnell laser range Finder	1@25000	25000			25000
Field gear	Tent, sleeping bags, winter wear, backpack, etc.,	50000			50000
Binoculars	2 binoculars @15000rs each	30000			30000
GPS	2*15000	30000			30000
Equipment total		1135000	250000	250000	1635000
Consumables					
Immobilization Drugs	Lumpsum of 200000		200000		200000
Publications	Report publishing and other communications			100000	100000
Basecamp running charges	15000 per month for camp running, staying on field	120000	120000	120000	360000
Other Operation Costs		50000	50000	50000	150000
Consumables total		170000	370000	270000	810000
Travel					
Travel of PI to field sites	3 trips @50000 per trip	150000	150000	150000	450000
Travel of field personnel to field site	4 trips @ 15000 per trip	60000	60000	60000	180000
Travel total		210000	210000	210000	630000
Contingency					
A. Field Assistant (2 nos for Yr 1&3, 3 nos for Yr 2)	10000/month (3 years)	240000	360000	240000	840000
B. Vehicle hiring	1 vehicle @20000 per month	200000	240000	200000	640000
Contingency total		440000	600000	440000	1480000
Total		26,92,760	21,67,760	19,63,440	68,23,960

Breakup of Project Cost (in Rs):

Breakup of Project Cost	Previous total	Revised Total	Difference	Remarks
Salary	2741760	2268960	(-) 472800	The field assistants budget has been shifted to contingency head as suggested by TFAC
Equipment	2635000	1635000	(-) 1000000	2 nos of Satellite telemetry device, with data acquisition charges has been dropped
Consumables	940000	810000	(-) 130000	Immobilization drugs have been revised and reduced
Travel	1500000	630000	(-) 870000	The vehicle-hiring budget has been shifted to contingency head as suggested by TFAC. The number of months of vehicle hiring is also reduced by 2 months for 1 st and 3 rd year.
Contingency	180000	1480000	(+) 1300000	Enhanced budget is due to inclusion of vehicle hiring and filed assistant wages as suggested by TFAC. Earlier contingency budget has been now reduced to 14,80,000.
Total	7996760	6823960	(-) 1172800	Over all the original budget is reduced by Rs 11,72,800

The Committee accepted the aforesaid revisions to the cost of project. The Committee stated that the concurrence of Wildlife Division of the Ministry is also required (for studying a Schedule-I species) before commencement of the project.

The Committee after deliberations recommended the project for funding.

3.6: Registration ID: 87/2018/RE – **“Population studies of water migratory birds and impact of climate change on migratory birds in Natural and Manmade Wetland of Shivalik foot hills (Dehradun and Haridwar) of Uttarakhand State”**. PI: Dr. Kamal Kant Joshi, Assistant Professor, Department of Environmental Science, Graphic Era Hill University, Society Area, Clement Town, Dehradun 248001

The proposal was considered in the 2nd meeting of TFAC held on 29th April, 2019 and in the 5th Meeting of TFAC held on 03.07.2019.

Duration: The project is for a period of 2 years.

The geographical location of the project: Dehradun and Haridwar in Uttarakhand

S.No	State	District	Sub District	Latitude	Longitude
1.	Uttarakhand	Dehradun	NA	30.31	78.03

Objectives of the Project:

1. To estimate the water migratory birds population status /abundance in natural and manmade wetland of some districts (Dehradun and Haridwar) of Uttarakhand. The data will be shared with Uttarakhand state Biodiversity Board and Eco-tourism

forest department.

2. To find out the climatic effects (Temperature, Rainfall) and anthropogenic activities effects on migrant phenology.
3. To identify the possible conservation methods for the long and short distance migratory birds in the proposed study area.

Revised Objective:

- To estimate the water migratory birds population status /abundance in natural and manmade wetland of some districts (Dehradun and Haridwar) of Uttarakhand.
- To find out the effects of climate (Temperature, Rainfall) and anthropogenic activities on water bird community.
- To identify the possible conservation technique/methods for the water migratory birds in the proposed study area.

Expected outputs of the project:

The output of the project will pave way for the better understanding of the migratory birds population status at present climatic condition and conservation needs of migrant species.

(Revised) Expected outcome of the Project:

1. Diversity status of Water bird / Water migratory bird species in the proposed study area
2. A baseline information for conservation plan.
3. Findings will be published in reputed scientific journals
4. A Handbook of water bird/ migratory water bird species with details will be published and submitted to the funding agency (MoEF).

Total Project Cost: Rs 20,92,400/-

The proposed cost of the project and year-wise break-up of the cost is given below:

Tenure	1 st Year (in Rs.)	2 nd Year (in Rs.)	3 rd Year (in Rs.)	Total Budget (in Rs.)
2 years	9,88,400	5,00,000	4,36,000	20,92,400

Revised Budget: Component-wise break-up of cost of the project is given below (in Rs):

Head	Unit	Year 1	Year 2	Year 3	Total
Salary					
a) JRF Project fellow@25,000 and HRA(20%) of fellowship25000	01	3,60,000	3,60,000	-	7,20,000
a) JRF Project fellow@28,000 and HRA(20%) of fellowship25000	01	-	-	3,84,000	3,84,000
b) RA-I	-	-	-	-	-
c)Project Assistant	-	-	-	-	-
c) Lab Assistant	-	-	-	-	-
Permanent Equipment with details description					

2a. Binocular Justification :All equipment are necessary for field and lab study.	01	30,000	-	-	30,000
2b. Handy digital camera (01) (Nikon, model HDR-PJ 260) Handy video camera (Sony HD) Justification: All equipment are necessary for field and lab study.	01	80,000	-	-	80,000
2c. Handy GPS (01) Germen Model e Trex Vista Handheld GPS) Justification: All equipment is necessary for field and lab study	01	55,000	-	-	55,000
2.d. Laptop computer with printer (01) Model Dell core15(HP1020) Justification: All equipment is necessary for field and lab study	01	60,000-	-	-	60,000
2.e. Magnetic Field survey meter (02) (Model ED85EXS-1MHz-8GHz RF EMF. Electromagnetic field Meter Justification: All equipment is necessary for field and lab study	02	48,000	-	-	48,000
3) Expendables	-	-	-	1,00,000	1,00,000
4)Travel Cost	-	50000	50000	-	1,00,000
5) Other project cost (any other with detailed description.	-	-	-	-	-
Dissemination of Research work	-	50,000	50,000	-	1,00,000
Contingency	-	1,00,000	1,00,000	-	2,00,000
Institutional Charges	-	2,15,400	-	-	2,15,400
Grand total	-	9,88,400	5,00,000	4,36,000	20,92,400

The proposal was considered in the 4th and 6th TFAC meetings. As recommended by the TFAC, the PI had obtained permission from the Chief Conservator of Forests (Wild life) State Forest Department, Uttarakhand vide letter no. 3999/5-6, Dehradun Dated 23.05.2019 for carrying out research study in protected forest area. Further, as desired by the Committee, Dr. Dinesh Bhatt, Head of Department, Department of Zoology and Environmental Science, Gurukul Kangri, Vishwavidyalaya, Harwar: has been appointment as co-expert in the project for studying avian biodiversity, vide letter no. HOD /TE/ 26/ 6 dated 21.05.2019. The Committee desired that a Conservation-cum-Management Plan should be prepared based on the study in consultation with State Government as part of Project. The

Committee had, recommended the project subject to budget revision of salary component, which was received from PI vide e- mail dated 05.08.2019.

PI made presentation before the Steering Committee. The Committee observed that the secondary data is to be collected from other Departments. As the data on migratory birds is already available, the study should not be repeated. Data on migratory birds are also available with WII. It was informed that water bird census is being done every year by Asian Water Fowl Bureau. Dr. Arun Kumar, Additional Director, Officer-in-Charge (Ex.), Northern Regional Station, Zoological Survey of India, Dehra Dun, has identified more than 500 species of Birds. Waterfowl data available on website. The Committee desired that the PI should revise the objective and expected outcome. It was suggested that population dynamics could be done/assessed. The project may also cover areas other than those proposed under the study for which data is not available. Time-series data can also be included as part of study. Population study, route study of resident/migratory bird also can be carried out. Impacts of the proposed Lakhwar Dam 20km and Vayasi Dam 25km upstream of the proposed study area and impacts of anthropogenic activities such as sand mining could also be studied. Botanical Survey of India (BSI), Zoological Survey of India (ZSI), WII need to be consulted of this project. Climate change should be deleted from the objective.

The Committee after deliberations decided that the proposal be revised and the revised proposal uploaded on the Portal which can be circulated to the Steering Committee members for their comments.

4.0 Any Other Item:

Shri Ravi Agrawal, Additional Secretary, MoEF&CC and Chairperson of the Steering Committee on R&D Scheme on Conservation & Development stated that a central digital platform should be available for accessing reports on all studies carried out in various thematic areas of the Ministry sanctioned by MoEF&CC. Chairman, SC sought the views of the Committee on this matter.

It was informed by Committee members that All the PhD thesis of students are uploaded on website of UGC on **ShodhGanga**: Reservoir of Indian Theses. The Shodhganga@INFLIBNET Centre provides a platform for research students to upload their Ph.D. theses and make it available to the entire scholarly community in open access. It was started in 2009. The Ministry of Human Resource Development (MHRD) under its National Mission on Education through Information and Communication Technology (NMEICT) has initiated the National Digital Library of India (NDL India) pilot project to develop a framework of virtual repository of learning resources with a single-window search facility. It is being developed at Indian Institute of Technology Kharagpur. The ZSI data also is being digitized by IIT, Kharagpur and uploaded.

It was also informed that a working Group/Committee has been constituted by MoEF&CC for creating a database of Biodiversity including data of Wildlife Institute of India (WII). Biodiversity Platform, launched in 2008, organises knowledge on the biodiversity of India. The main objective and originality of the India Biodiversity Portal (IBP) is to aggregate curated biodiversity data of different kinds (e.g. distribution maps, temporal distribution or life history) in an integrated platform where amateurs and experts can easily interact.

It was decided that a concept note should be prepared by Dr. Gautam Talukdar, Scientist-E, Wildlife Institute of India, Chandrabani, Dehradun and present the same to the MoEFCC.

LIST OF PARTICIPANTS OF IN THE 6th MEETING OF STEERING COMMITTEE UNDER R&D SCHEME FOR CONSERVATION & DEVELOPMENT HELD ON 16.08.2019

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|----|---|-----|-----|-----|-----|------------------|
| 1. | Shri Ravi Agrawal,
Additional Secretary, MoEFCC | ... | ... | ... | ... | Chairperson |
| 2. | Dr.Kailash Chandra,
Director, Zoological Survey of India | ... | ... | ... | ... | Member |
| 3. | Shri Manoj Srivastava, Deputy Secretary, IFD
Representing AS&FA | ... | ... | ... | ... | Member |
| 4. | Dr. Avishek Bhattacharjee, Scientist, BSI
Representing Director, BSI | ... | ... | ... | ... | Member |
| 5. | Dr.T.Chandini,
Advisor | ... | ... | ... | ... | Member-Secretary |

Special Invitee:

- | | | |
|----|---|-----|
| 6. | IGF(WL) represented by DIG(WL) –Ms VL Roui Kullai | ... |
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MoEF&CC

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| 7. | Dr.Rubab Jaffer, Joint Director, RE Division |
| 8. | Shri Naresh Jaiswal, Under Secretary (RE) |
| 9. | Mrs. Akanksha Sachan, ASO (RE) |
| 10. | Shri Goldie, Offive Assistant, NIC |

PROJECT INESTIGATORS (PIs)/Co-PIs

- | | |
|----|---|
| 1. | Dr.Samrat Mondol, Wildlife Institute of India, Dehradun |
| 2. | Prof Qamar Qureshi, Wildlife Institute of India, Dehradun |
| 3. | Dr.Lallianpuii Kawlani, Wildlife Institute of India, Dehradun |
| 4. | Dr.Gautam Talukdar, Wildlife Institute of India, Dehradun |
| 5. | Dr.Vishnupriya Kolipakam, Wildlife Institute of India, Dehradun |
| 6. | Dr.Gopi, G.V, Wildlife Institute of India, Dehradun |
| 7. | Dr.Kamal Kant Joshi, Graphic Era Hill University, Dehradun |

LIST OF PROJECTS CONSIDERED IN THE 6th MEETING OF STEERING COMMITTEE UNDER R&D SCHEME FOR CONSERVATION & DEVELOPMENT HELD ON 16.08.2019

Sl. No.	Project ID No.	Thematic Area	Title of the Project	Principal Investigator
1.	244/2018/RE	Biodiversity (Wildlife) Conservation	Assessing fine scale distribution pattern, population and habitat status of Northern Swamp deer (<i>Rucervus duvauceli</i>) across upper Gangetic Plains of North India	Dr. Samrat Mondol, Scientist D, Wildlife Institute of India, PO Box 18, Chandrabani, Dehradun 248001 Uttarakhand
2.	265/2018/RE	Biodiversity (Wildlife) Conservation	Assessment of Disease Prevalence in Ungulates in Protected Areas in Mizoram	Dr. S. Sathyakumar, Scientist G, Post Box no 18, Wildlife Institute of India, Chandrabani, Dehradun, 248001
3.	246/2018/RE	Biodiversity (Wildlife) Conservation	Ecology and Recovery of critically endangered Vulture species in Pong Dam Protected Area (PA) and its Eco Sensitive Zone (ESZ) in district Kangra, Himachal Pradesh.	Dr. Gautam Talukdar, Scientist-E, Wildlife Institute of India, Chandrabani, Dehradun-248001
4.	242/2018/RE	Biodiversity (Wildlife) Conservation	Securing habitats for threatened mountain ungulates through robust population assessment and conservation planning.	Dr. Vishnupriya Kolipakam, Scientist-C, Animal Ecology and Conservation Biology, Wildlife Institute of India, Chandrabani, Dehradun 248001
5.	245/2018/RE	Biodiversity (Wildlife) Conservation	An integrated approach for conservation of Takin (<i>Budorcas taxicolor</i>) in North East India: Linking species ecology and traditional ecological knowledge	Dr. Gopi, G.V, Scientist E, Department of Endangered Species Management, Wildlife Institute of India, P.O. Box 18, Chandrabani Dehra Dun 248001
6.	87/2018-RE	Biodiversity Conservation	Population studies of water migratory birds and impact of climate change on migratory birds in natural and manmade wetland of Shivalik foot hills (Dehradun and Haridwar)	Dr. Kamal Kant Joshi, Assistant Professor, Department of Environmental Science, Graphic Era Hill University, Society Area, Clement Town, Dehradun 248 001