ACTION HISTORY OF RTI REQUEST No.WLIOI/R/E/20/00069

Applicant Name		Ishan						
Text of Application		Kindly provide the following information under section 6 of the RTI act: 1. Copy of the GIB Conservation Action Plan created by the Wildlife Institute of India for the Ministry of Environment, Forest and Climate Change as ordered by the National Green Tribunal.						
Reply of Application		,	kindly see the attached cover letter. Annexure mentioned in attached document are being sent separately in part files through email					
SN.	Action Taken	Date of Action	Action Taken By	Remarks				
1	RTI REQUEST RECEIVED	24/12/2020	Nodal Officer					
2	REQUEST FORWARDED TO CPIO	28/12/2020	Nodal Officer	Forwarded to CPIO(s): (1) P.K.Aggarwal				
3	REQUEST DISPOSED OF	05/01/2021	P.K.Aggarwal- (CPIO)					
			Print					

1 of 1 05-01-2021, 12:15 pm

Letter :: Request Disposed Off

Print

Government of India Wildlife Institute of India, Dehradun Wildlife Institute of India P.O.Box-18, Chandrabani, Dehradun, Uttarakhand,

Dated: 05/01/2021

То

Shri Ishan 370, Top Floor, Sant Nagar, Delhi 110065

Registration Number: WLIOI/R/E/20/00069

Dear Sir/Madam

I am to refer to your Request for Information under RTI Act 2005, received vide letter dated 24/12/2020 and to say that kindly see the attached cover letter. Annexure mentioned in attached document are being sent separately in part files through email.

In case, you want to go for an appeal in connection with the information provided, you may appeal to the Appellate Authority indicated below within *thirty days* from the date of receipt of this letter.

Director, WII

FAA & Director

Address: Wildlife Institute of IndiaChandrabaniDehradun

Phone No.: 01352646101

Yours faithfully

(P.K.Aggarwal) CPIO & Deputy Registrar Phone No.: 01352646110 Email : pka@wii.gov.in

1 of 1 05-01-2021, 12:14 pm



No. WII/RTI/CPIO/2020-21 (Qtr-IV)/79

Date: 5 January, 2021

To,

Mr. Ishan 370, Top Floor,

Sant Nagar, Dehli-110065 Email: ikukreti@gmail.com

Mob.: 08447270352

Sub.: Information under RTI Act, 2005-reg.

Ref.: Your Online RTI No. WLIOI/R/E/20/00069 dated 24/12/2020

Dear Sir,

Please refer to your application cited above under RTI Act, 2005. In this context, the point-wise response to your queries is given below:

S.No.	Information Sought under RTI	Reply under RTI
1.	Copy of the GIB Conservation Action Plan created by the Wildlife Institute of India for the Ministry of Environment, Forest and Climate Change as ordered by the National Green Tribunal.	Please see the attached Appendix-1 . Annexures mentioned in attached document are being sent separately in part files through email.

In case, you are not satisfied with the information provided above, you may file an appeal to the First Appellate Authority indicated below within thirty days from the date of receipt of this letter.

Director, WII FAA & Director

Address: Wildlife Institute of India, Chandrabani, Dehradun

Phone No.: 01352640910

Thanking you,

Yours faithfully,

NO & CPIO (RTI)

Draft Action Plan of mitigation measures for protection of Great Indian Bustard

As ordered by the Hon. National Green Tribunal Principal Bench, New Delhi O.A. 385/2019 regarding Great Indian Bustard Conservation, the draft action plan on recommendations given in the order is as follows

Point 4.2. Mitigate all power transmission lines passing through priority bustard habitats identified by WII (Please refer Annexure 10) by undergrounding cables (where technically/technologically feasible) or installing bird diverters to make them prominent to birds. The priority areas where this intervention is required has been mapped by the Wildlife Institute of India and a technical-cum-financial proposal has been submitted to RVPNL for necessary approvals from Rajasthan Energy Department for mitigation. This action must be expeditiously implemented in the short-term (1-3 years), as power-line mortality is currently the biggest threat to the species.

Action taken: The WII has identified existing transmission lines passing in the Great Indian Bustard (GIB) priority area of Rajasthan, and has recommended undergrounding 104 km of 33 kV lines and installing diverters on 1238 km lines (enclosed as Annexure 4.2.1). The Central Electricity Authority, Government of India has issued advisory vide letter no. CEI/1/4/2019 dated 01 May 2020, suggesting that identified existing ≤ 33 kV lines passing through GIB priority area (GIB Arc) may be undergrounded, and that of ≥ 132 kV may be provided with bird diverters in a time bound manner by the owner utility of the line (enclosed as Annexure 4.2.2). The Rajasthan Government has issued minutes vide letter no. F.NO 10()/Forest/2020 dated 04 September 2020 for the meeting held on 02 September 2020 under the chairpersonship of Principal Secretary (Forests) with Principal Secretary (Energy), that all existing power-lines passing through identified GIB habitat should have bird diverters installed (enclosed as Annexure 4.2.3). Also, in the above meeting, it was concluded that undergrounding of overhead transmission lines for the ongoing projects was not economically viable and the decision of the Government of Rajasthan (GoR) is being communicated to Ministry of Power, Government of India, whereas, the installation of Bird Diverters is to be implemented by Energy Department of Rajasthan.

For GIB habitat in Abdasa Kachchh, Gujarat, priority power lines for undergrounding (283 km) and for installation of bird diverters (600 km) has been mapped (enclosed as Annexure 4.2.4) and provided to CWLW Gujarat.

Action proposed: To save the only viable population (128± 19SE) of Critically Endangered GIB, Rajasthan Energy Department will ensure that the following time bound actions are implemented by the owner utility of powerlines:

Action	Owner agency for implementing	Line length (km)	Timeline
	Wind world	21	Timelines will be
	Jodhpur Discom	45	determined as per time
Undergrounding of identified 33 kV lines in priority GIB area	Suzlon	38	required for procuring "right of passage". This is to be specified by the Department of Energy Rajasthan by January 2021. Meanwhile diverters will be fitted on these priority lines by May 2021.
 Installing diverters on identified ≥ 33 kV lines 	Rajasthan Vidyut Prasaran Nigam Ltd (RVPNL)	500	261 km by May 2021, 125 km by Dec 2021, 114 km by Mar 2022

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in GIB priority area for the life of the Project*	Suzlon	624	43 km by May 2021, 117 km by Dec 2021, 464 km by Mar 2022
	Jodhpur Discom	70	70 km by Dec 2021
	Greenko	40	40 km by Mar 2021
	Gamesa	4	4 km by Mar 2022

Since bird diverters reduce and do not eliminate mortality, as and when undergrounding higher voltage power lines i.e. > 33 kV becomes technologically/economically feasible, undergrounding these power lines in GIB priority areas for effective mitigation of this crucial threat, as a permanent solution in the long-run (5-15 years) should be considered and acted upon by the Rajasthan Government to ensure long term survival of the State Bird of Rajasthan. As proposed by MNRE the undergrounding is kept to a bare minimum (limited to lines that cause maximum mortality, 104 km that are technically feasible), while installation of diverters is to be done on all other existing power lines in the GIB priority area as well as on all new overhead power lines within the GIB potential area (which are intermittently used by GIB. The GIB priority and potential area maps of Rajasthan and Gujarat is enclosed as Annexure 4.2.5.

Specifications for standardizing bird diverters are being prepared by Central Electricity Authority in consultation with WII, and shall be shared with all power companies for deployment on all conductors and earth wires.

Point 4.3. Disallow new wind turbines, solar farms (photovoltaic power stations) from priority GIB habitats and remove existing ones that are in the critical areas. The priority areas where this intervention is required has been mapped by Wildlife Institute of India (Please refer Annexure 10). This action needs to be implemented in the long-term spanning 5-10 years from present.

Action taken: The Hon. NGT(CZ), in O.A. 63 & 64/2016, has ordered status quo in Jaisalmer with regards to establishment and operation of wind turbines (Order dated 06 September 2016 is enclosed as Annexure 4.3.1), and stated that "wind mills cannot be allowed to be established in the areas where it can cause harm to the GIBs which are critically endangered species and other species found in that area" (Order dated 10 October 2017 is enclosed as Annexure 4.3.2). In response to DCF(WL) Jaisalmer's letter no. 3541 dated 23 September 2016 (enclosed as Annexure 4.3.3), District Collector Jaisalmer instructed district Sub-Divisional Magistrates to ensure compliance of Hon. Courts' Order vide letter no. 6775-82 dated 27 October 2016 and again by letter no. 7919-20 dated 29 December 2016 (enclosed as Annexure 4.3.4). The enclosure with CWLW Rajasthan letter no F8(201) Legal/CWLW/2019/748 dated 20.11.2020 has already mentioned that a status quo has been maintained in Jaisalmer with regards to establishment and operation of windmills in compliance of the order (enclosed as Annexure 4.3.5).

Action proposed: New wind turbines proposed after the Hon. NGT (CZ) Order dated 06 September 2016 may be disallowed in the GIB priority area, in accordance to the MoEF&CC's letter no. F. No. 1-16/2019 WL dated 11 July 2019 to Hon. NGT-Principal Bench (enclosed as Annexure 4.3.6).

As per the WII's ongoing research, appropriate mitigation of power-lines associated with existing wind turbines and solar plants, can largely negate their direct impacts on GIB. Removal of existing wind turbines and solar plants from 'critical areas' may not be as essential as mitigating power-lines associated with them. Therefore, considering the costs/benefit ratio and legalities of decommissioning existing wind and solar projects, these installations may be retained provided their overhead power-lines are undergrounded (where and whenever technically/ technologically feasible as a permanent solution in the long-run in 5-15 years) and installing bird diverters in the meantime to make





them prominent to birds, and future expansion is not allowed in GIB priority area. The CWLW Rajasthan in his letter dated 20.11.2020 (enclosed as Annexure 4.3.5) has also opined against the removal of existing wind and solar farms owing to them being sources of green energy. WII will take up further research on mitigation measures to reduce bird mortality from existing wind turbines and their power lines.

Point 4.4. Develop predator-proof enclosures of 5-10 sq km area in known breeding sites in and around DNP to improve GIB recruitment, and keep away nest predators by routinely translocating dogs, pigs, foxes, mongoose and other species outside the enclosures using professional trappers. Number of water guzzlers inside the enclosures need to be reduced to curtail availability of surface water that attracts non-native nest/chick predators such as dogs, foxes, pigs and mongooses. Also establish such enclosures in the larger Thar (Jaisalmer) landscape, as identified by joint surveys of WII and RFD. These enclosures need to be developed and will serve as breeding sites and stepping stones for movement across the larger landscape.

Action taken:

As per the letter from CWLW Rajasthan dated 20.11.2020 (Annexure 4.3.5) the Forest Department has prioritized predator-proofing of important enclosures (six enclosures in first phase and some of these enclosures are prime breeding sites for GIB) out of the 73 enclosures established earlier in and around Desert National Park (DNP) WLS, with a combined area of 33.15 sq km and perimeter of about 48 km, following the recommended design of the WII. Of these, 18 satellite enclosures such as Ramdevra, Rasla, Chacha in important GIB areas were created earlier by Rajasthan Forest Department in important GIB areas outside DNP. Funds for predator proofing 10.5 km length of the fencing have been obtained by DCF (WL) Jaisalmer, which is underway, and DCF has further requested for funds to complete predator proofing work of the remaining 37 km fencing from CWLW, Rajasthan (enclosed as Annexure 4.4.1). The Rajasthan Forest Department has requested funds from MoEFCC, GOI for completing predator proofing work of the remaining ~37 km fencing of important enclosures during Phase 1 and ~88 km in Phase 2 under the Centrally Sponsored Scheme of Development of Wildlife Habitats vide letter no. F.11. (395) Dev-II/GIB/CWLW/2020-21/211 dated 12 November 2020 (enclosed as Annexure 4.4.2), as per the details given in the letter of DCF(WL) Jaisalmer (enclosed as Annexure 4.4.1). As per CWLW Rajasthan, one 200 ha closure has been made predator proof with 4 inch chain link.

Permissions were issued to DCF(WL) and WII for removal of nest predators from enclosures (enclosed as Annexure 4.4.3), and the WII and Rajasthan Forest Department translocated some predators (fox, monitor lizards and dogs) this year.

Water availability in the guzzlers is being strategically managed by Rajasthan Forest Department, based on the location, abundance and density of preferred and that of unwanted species, leaving guzzlers dry for discouraging unwanted species like dogs and pigs.

Action proposed: Process is underway to make 10.5 km length of the fencing as predator proof, as per current availability of funds with Rajasthan Forest Department. The funds for further predator proofing have been requested by CWLW Rajasthan from MoEF&CC and Phase 1 work would be completed within one year of receipt of required budget (enclosed as Annexure 4.3.5).

Even if enclosures are predator-proofed, predators (dogs, pigs, foxes, mongoose and others) that are already inside them need to be managed, to reduce GIB egg/chick predation. However, this exercise will be fruitful only after the enclosures are made predator-proof and monitored / repaired regularly for breakages, as communicated from the WII to CWLW Rajasthan vide letter no. F. No. WII/TMP/CAMPA-GIB Project/2016/13 dated 30 August 2019 (enclosed as Annexure 4.4.4). The permission to remove nest predators would be extended by Rajasthan Forest Department as and when required to continue implementing this exercise.

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Rajasthan Forest Department would strategically manage water guzzlers by drying out all but up to one guzzler per consolidated enclosure, for discouraging nest/chick predators like dogs and pigs.

The activity of creating enclosures outside DNP in the larger Thar landscape identified by joint surveys of the WII and Rajasthan Forest Department would be continued with funding obtained from Rajasthan State Govt. and Centrally Sponsored Scheme of Integrated Development of Wildlife Habitats, and the proposal for fund request would be prepared and sent by the DCF (Jaisalmer) as and when required on a case by case basis, provided Rajasthan Forest Department gets access to land, as Forest Department hardly own any land in these areas (enclosed as Annexure 4.3.5). Any such measures should keep in mind local community concerns and involvement before implementation.

Point 4.5. Create an inviolate area of 200 sq km (WII proposal- 500 sq km) in northern DNP as a National Park through voluntary and incentivized relocation of local people (if needed) with the mandate of conserving GIB.

Action taken: Rajasthan Forest Department has proposed an inviolate area in the form of National park of around 200 sg km. State government has issued directions to the District Collector Jaisalmer vide letter no. F.NO10()/Forest/2020 dated 04 September 2020 (enclosed as Annexure 4.5.1), and the DCF(WL) Jaisalmer has submitted the required details to District Collector, Jaisalmer vide letter no. 8073 dated 24 September 2020 (enclosed as Annexure 4.5.2).

Action proposed: Voluntary relocation of people from Desert National Park (DNP) WLS may be taken up only if necessary. In the past, public antagonism arising from legislative restrictions on land use/transactions in some Protected Areas has led to the persecution and local extirpation of GIB. Delineation of the proposed inviolate area would be revised to avoid existing settlements and privately owned lands as much as possible. Any proposed relocation program would be through incentivized relocation without any coercion, and with subsequent handholding that is implemented under flexible time frames. Action plan for relocation showing the boundaries of proposed inviolate area by Rajasthan Forest Department is enclosed as Annexure 4.3.5. Relocation plan will be submitted after finalization of relocation package.

Point 4.6. Delineate priority GIB habitats outside DNP as Eco Sensitive Zones where agro-pastoral practices are regulated to low-intensity through Zonal Management Plans and detrimental infrastructure such as wind turbines and overhead transmission lines are curtailed. This action needs to be implemented in the short-term (1-2 years).

Action taken: The GIB priority area outside DNP identified by WII (Available at wii.gov.in/gib_powerline_maps and enclosed as Annexure 4.2.5) can serve as 'shock absorber' to wildlife outside Protected Area, facilitate GIB movements between two populations - Desert National Park and Pokhran Field Firing Range, and regulate activities that are detrimental to GIB conservation such as expansion of transmission lines. A fresh proposal of declaring this area as Eco Sensitive Zone has been communicated by the DCF(WL) Jaisalmer to the District Collector Jaisalmer vide letter no. F () Misc/DCFWLJsm/2020-21/2849 dated 10 September 2020 (enclosed as Annexure 4.6.1) for consideration in the committee formed under District Magistrate by the State Government for this purpose vide Order no F56(4)/AR/GR-3/2007 date 03 July 2012. The meeting of the aforesaid committee could not be convened due to Code of Conduct being in application for Panchayati Raj and local bodies election.

Action proposed:

The meeting of the committee formed under District Magistrate by the State Government for this purpose will be convened as soon as the election process is over and based on the decision taken, the proposation be forwarded with appropriate comments. The Rajasthan Forest Department in association with other State Departments will process these proposals at the earliest as penthe Guidelines of Declaration of Eco Sensitive Zone by MoEF&CC (enclosed as

Annexure 4.6.2). After declaration of the ESZ, the zonal master plans would incorporate incentivised agro-pastoral practices that are sensitive to GIB conservation.

Point 4.7. Engage with local communities to promote bustard-friendly practices such as stall-feeding of livestock during monsoon — GIB chick-rearing and grass growing season — and cultivating food crops preferred by GIB during monsoon such as gram, ground nut and millets while leaving the fields fallow for the remaining period. These land-uses can be promoted by Rajasthan Forest Department in conjunction with other State Departments, through appropriate financial and other incentive schemes, such as provisioning of fodder for stall feeding or compensatory payments to foregone production cost by opting for low intensity farming. This action needs to be implemented in the longer scale (4–8 years).

Action taken:

Currently, the Rajasthan State government has been organizing 'Chara-depots' in Jaisalmer during summer, to promote stall feeding of livestock. The District Collector, Jaisalmer during the meeting held on 10 November 2020, on the request of DCF (WL), Jaisalmer ordered continuation of 'Chara-depots' camps inside DNP, specifically around key breeding enclosures of DNP (Sudasari, RKVY, Chowani and Ramdevra) until the end of monsoon from 2021 and a proposal to be sent to State Government in this regard (enclosed as Annexure 4.7.1). This has been done to promote stall feeding of cattle inside DNP, so that grazing pressure is reduced during GIB breeding season.

Action proposed: Efforts would be made to organise 'Chara-depots' camps inside DNP, specifically around key breeding enclosures of DNP (Sudasari, RKVY, Chowani and Ramdevra) into a regular activity from 2021 onward. Consultation on promotion of bustard friendly agro-pastoral practices with the agriculture and animal husbandry departments, other agencies working in the area and local villagers facilitated by Rajasthan Forest Department would be initiated to examine the feasibility and develop strategies if conducive for implementation in one or two villages in GIB priority area on pilot basis. Pastures would be developed near settlements in an attempt to reduce livestock grazing in wilderness areas.

Point 4.8. Reduce poaching of GIB and other wildlife in the Thar landscape by improving protection enforcement through training of Forest Department frontline staff in smart patrolling tools with the help of conservation organizations such as WII and WWF, provisioning of better patrolling equipment, enrolling frontline staff from non-wildlife divisions of Forest Department and local volunteers in this activity, and ensuring trials of convicts. Further, it is to bring to the notice that areas controlled by Armed forces in Jaisalmer District harbor about 50% of the GIB population found in Rajasthan. This secure zone under the control of Army where human activities are minimal is a blessing for the bird on the verge of extinction. Thus, continued cooperation of Army, Air Force and Border Security Force to conserve the GIB and control the incidents of poaching could play a vital role as well.

Action taken: WII team and Rajasthan Forest Department staff have been regularly interacting with the Indian Army personnel in Pokhran Field Firing Range on issues relating to GIB conservation. For formal involvement of Indian Armed and Paramilitary forces in GIB conservation, a letter no. D.O. 15-7/2015-WL-Pt-2 dated 10 July 2020 was communicated by Additional Director General of Forest, MoEF&CC to General Officer Commanding-in-Chief, Southern Command of Indian Army (enclosed as Annexure 4.8.1).

A training workshop for the field staff of DNP on Desert biodiversity and conservation techniques was conducted jointly by Rajasthan Forest Department and the WII on 12 November 2020. Request for funds for equipment to implement smart patrolling and training in DNP during 2020-21 under GIB Conservation Programme was communicated by CWLW





Rajasthan to MoEF&CC vide letter no. F.11. (395) Dev-II/GIB/CWLW/2020-21/210 dated 12 November 2020 (enclosed as Annexure 4.8.2)

Action proposed: A technology aided patrolling framework with frontline staff and local wildlife enthusiasts (if needed) on the lines of MSTrIPES- Monitoring System for Tigers - Intensive Protection and Ecological Status implemented by National Tiger Conservation Authority (NTCA) would improve protection enforcement. The WII would provide technical support in developing tools and training of frontline staff.

Workshops and other outreach to sensitize Indian Armed and Paramilitary Forces on GIB conservation would be organized. The MoEF&CC would pursue for support of Indian Army and Border Security Force in the conservation and breeding programme of GIB at Ministerial level, as decided in the GIB Steering Committee Meeting on 21 July 2019 (enclosed as Annexure 4.8.3). The following timely actions would be implemented by the concerned agencies.

Action	Task	Timeline
Capacity building of DNP frontline staff in wildlife monitoring & conservation enforcement	Training by Rajasthan Forest Department (Forest Training Institute, Jaipur) in association with the WII and inputs from Wildlife Crime Control Bureau	One workshop by June 2021, followed by subsequent refresher trainings at least twice a year for new recruits
2. Development of MSTRIPES tool	WII	By September 2021
Implementation of MSTRIPES tool	Rajasthan Forest Department with technical help of WII	Commencement by December 2021
Workshop with Indian Armed and Paramilitary Forces	Formal request by MoEF&CC for support from Indian Armed and Paramilitary Forces in GIB conservation	June 2021 (before the onset of next GIB breeding season)
INFORMATION PROVI	Outreach by WII and Rajasthan Forest Department	One workshop by Dec 2021

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Point 4.9. Implement the conservation breeding programme by creating an offshore insurance population (if needed) by shipping a batch of about 10 GIB eggs to a state-of-the-art international breeding center such as IFHC houbara breeding center at Abu Dhabi that produces up to 30,000 houbara chicks every year (short-term solution 3–5 years), and meanwhile, establish a national breeding center by training staff, developing a state of the art center at Sorsan (main facility) and Ramdevra (satellite facility), where eggs collected from wild can be artificially incubated, hatched, reared and captive bred to create an insurance population that can be reintroduced into the wild.

Action taken: The GIB conservation breeding program is being implemented by WII under the Project- Habitat Improvement and Conservation of Great Indian Bustard with funding support of MoEF&CC (National CAMPA) and collaboration of Rajasthan Forest Department and International Fund for Houbara Conservation, Abu Dhabi (IFHC), one of the best agencies in the world for breeding bustards. Based on consultation between WII scientists and IFHC, the latter agreed to collaborate and assist in conservation breeding of GIB within India, instead of supplying eggs to Abu Dhabi. A state of the art pilot facility has been developed in Sam, Jaisalmer where 16 Great Indian Bustard chicks of 2-16 months age are being reared from wild collected artificially hatched eggs by a team of scientists and technicians from WII, with the assistance and training by IFHC. Therefore, the need to export eggs to Abu Dhabi no longer exists.

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Action proposed: The Conservation Breeding Facility at Ramdevra is almost complete and will be functional in by March 2021 where GIB will be reared for the long-run starting from the next breeding season in monsoon 2021. After the operationalization of Ramdevra facility, work on setting up of Sorsan facility will be initiated.

For successfully reintroducing captive bred birds into the wild, the programme needs to be run by WII for long-term (35 years) with appropriate financial support from MoEF&CC on a regular basis, as per the approved MoA between MoEF&CC, Rajasthan Government and the WII (enclosed as Annexure 4.9.1) for continuation of Project activities by the WII in collaboration with Rajasthan Forest Department and International Fund for Houbara Conservation. Efforts will be made to procure eggs/birds from surviving GIB populations in other range states (Gujarat, Karnataka, Andhra Pradesh and Maharashtra) for representation in the Founder Population of GIB for conservation breeding.

Other range states (Gujarat, Madhya Pradesh, Maharashtra, Andhra Pradesh, Telangana, and Karnataka) should identify and manage grassland/savanna habitat patches (~ 200 km² each) without hostile infrastructure for Bustards as per the MoEFCC's Bustard recovery Guidelines (Annexure 4.9.2) for augmentation and reintroduction of captive bred birds. WII will provide the technical assistance required for identification, management and reintroduction.

Point 4.10. To continue with targeted research on GIB to characterize threats spatio-temporally, understand landscape use patterns using satellite telemetry, and objective monitoring of their population status by involving research organizations, understanding of species biology, behavior, reproduction, genetics, ecology and management in wild and captivity of GIB, and collection of biological samples for species identification from carcasses, for disease screening for better understanding of threats, develop disease prevention protocol, and forensic examination of mortalities.

Action taken: Researchers and Scientists have worked on ecological and conservation aspects of GIB in the past. Further, significant progress has been made in ecological and conservation research of the GIB under the WII's Project-Habitat Improvement and Conservation Breeding of Great Indian Bustard, funded by MoEF&CC (National CAMPA), and implemented in collaboration with State Forest Departments and NGO partners. The Project is ongoing since 2016 with due permissions (enclosed as Annexure 4.10.1), and has generated comprehensive understanding of a) threats such as power-lines through surveys and free-ranging dogs through radio-tracking, b) species' biology, habitat use and ranging patterns based on telemetry of five female GIB in Thar and two female GIB in Kachchh, c) numbers and distribution of GIB population in Thar landscape through surveys during 2016, 2017-18, and d) ecology, behavior, and genetics of GIB population and the project reports have been regularly submitted to MoEF&CC.

Action proposed: Additional 12-15 birds need to be captured and tagged for robust inference of ecology and space use, efforts to achieve this data and use it for conservation management of GIB will be done in all earnest. Identification of areas which are intensively used by GIB for breeding or foraging and are extremely important for their continued survival, need further refined research based on long-term (3-5 years) telemetry and observational data. This information is being generated by the WII Project- Habitat Improvement and Conservation Breeding of Great Indian Bustard, and maps of intensively used areas as well as GIB habitats in other bustard range states will be developed by 2025. Research would be continued for better understanding of species ecology and breeding biology. Biological samples would also be continuously obtained of captive and wild individuals with requisite permissions for genetic analysis, disease monitoring and physiological studies. Funding support for this research plan and necessary research permissions inclusive of telemetry, biological sample collection to WII would require facilitation by MoEF&CC, Rajasthan and other State Forest Departments.

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Annexures

- 4.2.1. Power-line mitigation proposal submitted by WII to RVPNL & RFD.
- 4.2.2. Advisory issued by Central Electrical Authority (CEA) dated 01 May 2020.
- 4.2.3. Minutes of the Meeting of Rajasthan Forest Department on power-line mitigation dated 04 September 2020.
- 4.2.4. Details of power-lines proposed for mitigation in Great Indian Bustard habitats of Kutch, Gujarat
- 4.2.5. Maps of Great Indian Bustard priority and potential areas in Thar, Rajasthan and Kutch, Gujarat
- 4.3.1. Hon. NGT(CZ) Order dated 06 September 2016 in O.A. 64/2016 Mahendra Borawat vs UOI.
- 4.3.2. Hon. NGT(CZ) Order dated 10 October 2017 in the O.A. 63/2016 Mahendra Borawat vs UOI.
- 4.3.3 Letter from DFO(WL) Jaisalmer regarding Hon. NGT(CZ) O.A. 64/2016 dated 23 September 2016.
- 4.3.4. Letter from District Collector Jaisalmer regarding Hon. NGT(CZ) O.A. 64/2016 29 December 2016.
- 4.3.5. Letter from CWLW Rajasthan to Director, WII, Dehradun F8(201)Legal/CWLW/2019/748 dated 20.11.2020
- 4.3.6. Letter from DIG(WL) to Hon. NGT regarding factual report on GIB dated 11 July 2019.
- 4.4.1. Letters from DCF(WL) Jaisalmer for predator-proofing of enclosures.
- 4.4.2. Letter from CWLW Rajasthan to MoEF&CC for funds to construct predator proof fences dated 12 November 2020.
- 4.4.3. Permission letters from CWLW Rajasthan for predator removal in DNP.
- 4.4.4. Letter from WII regarding predator removal exercise to CWLW Rajasthan dated 30 August 2019.
- 4.5.1. Minutes of the Meeting on land related issues of DNP dated 04 September 2020.
- 4.5.2. Letters from DCF(WL) Jaisalmer to District Collector Jaisalmer.
- 4.6.1. Letter from DCF(WL) Jaisalmer to the District Collector Jaisalmer on Eco-Sensitive Zone dated 10 September 2020
- 4.6.2. Guidelines for declaration of Eco-Sensitive Zone issued by MoEF&CC.
- 4.7.1. Minutes of the Meeting regarding stall feeding of livestock in and around DNP dated 10 November 2020.
- 4.8.1. D.O. letter from ADG, MoEF&CC to GOC, Southern Command, Indian Army dated 10 July 2020.
- 4.8.2. Letter from CWLW Rajasthan to MoEFCC for funds for Smart Patrolling in DNP dated 12 November 2020.
- 4.8.3. Minutes of the Meeting of GIB Steering Committee held on 21 July 2019.
- 4.9.1. Approved Tripartite MoA between MoEFCC, Rajasthan Government and WII on GIB and LF Conservation Breeding.
- 4.9.2. MoEFCC's Guidelines for State Action Plan for Resident Bustards' Recovery Programme
- 4.10.1. Project permissions from CWLW Rajasthan for GIB telemetry, GIB egg collection and wildlife carcass sampling in Jaisalmer.

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Action and budget proposal

Mitigation plan for high-tension power lines in Great Indian Bustard habitat of Thar Desert, Jaisalmer

Background: Power lines, especially high-voltage transmission lines with multiple overhead wires, is the most important current threat to the critically endangered Great Indian Bustard (GIB). Research shows that the poor frontal vision and heavy flight of bustards make them highly vulnerable to fatal collision with power-lines (Martin and Shaw 2010). Research on GIB carried out by Wildlife Institute of India (WII) shows that power-lines across their habitats in Thar are contributing to an unsustainably high mortality rate (mortality of ~15% of population and 5 deaths detected in 2017-18). Besides bustard, power-lines are causing mortality of ~1 lakh birds of over 49 species annually in ~4000 sqkm in/around Desert National Park (WII 2018). There is an urgent need of mitigating this threat by undergrounding high-risk powerlines and marking medium-risk power-lines with diverters. Without this immediate intervention, the GIB is likely to go extinct in the near future (WII 2018). Rajasthan Forest Department (RFD) and WII carried out joint sensitization meetings with power agencies (2016-18) to implement these mitigation measures, wherein prototype diverters procured by WII were pilot installed by power agencies for testing. A meeting held on 20th December 2018 under the chairmanship of Principal Secretary Energy, Govt. of Rajasthan that was attended by RFD and WII representatives decided that the mitigation measures should be urgently implemented, and directed the power agencies to place proposals with cost-estimation for this action.

Mapping activity: To mitigate this threat, WII had mapped power-lines across ~20,000 sqkm Thar landscape through digitisation of very high resolution Google Earth imagery in the first phase. Power-lines within the priority GIB habitat (GIB Arc or Ecozone), as identified by longterm collaborative surveys of WII and RFD (Dutta et al 2016) were then ground validated (2016–17). Since the chance of missing power-lines is high because of the vastness of GIB landscape, it was decided in the meeting that the available information on power lines should be verified by power line companies for preparing the project proposal on mitigation, and the same should be submitted by Superintendent Engineer (SE) Rajasthan Vidyut Prasaran Nigam Limited (RVPNL) within a month's time. A follow up meeting was called by SE RVPNL Jaisalmer on 31st December 2018 in Jaisalmer that was attended by representatives from WII and power line companies including RVPNL, SUZLON, Innercon, Jodhpur Discom, Today Green Energy Private Ltd, Siemens Gamesa and Greenko. The SE RVPNL Jaisalmer asked all power line authorities to submit details of power lines (name, length, GPS coordinates of powerlines) inside the GIB Ecozone to the Project staff of WII. WII team followed up with every power line company operating in this area and obtained available data by 15th January 2019. Whenever this data was non-existent, WII team digitised the risky power lines on ground and cross verified this information with the SE RVPNL Jaisalmer on 19th January 2019.

Cost calculation: Based on this information, cost of undergrounding power lines and installing bird diverters were separately calculated to aide in deciding the optimal mitigation strategy. Cost of undergrounding cables was computed based on information shared by the SE RVPNL Jaisalmer for medium voltage (33–66 kV) lines. However, the cost or technology of undergrouding high voltage lines (≥132 kV) were not available locally and could not be calculated. The cost of diverters were calculated at 10,000 INR/piece (inclusive of production and shipping costs), which is a liberal estimate, based on procurement of small numbers of high-quality devices by WII. Cost of installing diverters and undergrounding of cables is provided below.

Diverter installation	Undergrounding
Diverter cost calculated at 10000 INR/pc and number of diverters calculated as one at every 15 m on the earthwire and on conductors in a staggered design, i.e., 67 diverters/km wire, such that there is at least one diverter every 5 m on the powerline as whole. No. of diverters is calculated for 70% of the total length of power lines to leave pylons and their vicinity. The installation cost is 20% of diverter cost. However, diverter cost can be reduced to 40% of existing cost with the development of more economic local diverters	Undergrounding cable available for 33kV power lines cost ~ 21 lakh/km with the 40% installation cost of total power line cost

In total, 1342 km of power lines have been prioritised for mitigation by undergrounding 104 km of 33 kV lines in areas that are most intensively used by GIB and installing diverters on remaining 1238 km of overhead cables. The total cost of this implementation has been estimated at 287.16 Cr INR. However, this cost could be reduced to approx. 150 Cr INR by opting for economic but quality diverters.

The details of power lines with cost calculation and total costs of diverters and undergrounding are provided below (Annexure I), along with the priority map of mitigation (Annexure II), and image of a prototype diverter / reflector (Annexure III).

References:

Martin, G.R. and Shaw, J.M., 2010. Bird collisions with power lines: failing to see the way ahead?. Biological Conservation, 143(11), pp.2695-2702.

WII, 2018. Power-line mitigation to conserve bustards. Wildlife Institute of India, pp 8.

Dutta, S., Bipin C.M., Bhardwaj, G.S., Anoop, K.R., Jhala, Y.V. 2016. Status of Great Indian Bustard and Associated Wildlife in Thar. Wildlife Institute of India, Dehradun and Rajasthan Forest Department, Jaipur.

Annexure I
List of power-lines prioritised for bird diverter installation and undergrounding in Thar, Jaisalmer.

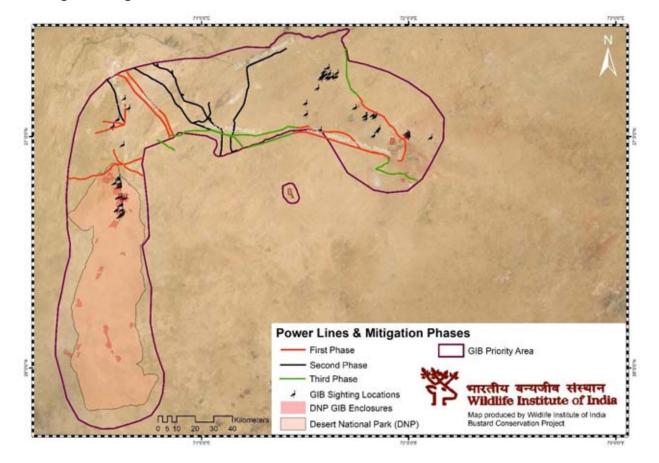
Phase	Power-line Company	Power in KV	Name of Line	No. of Wires	Length (km)	No. of Diverters	Cost of Diverter/ Undergrounding	Cost of Installation	Total Cost
					Uı	ndergrounding			
	Wind World/ Innercon	33	Kanoi – Salkha	13(7)	21	6895	20,41,400/km (4 Cables) 17,14,77,600 (Undergrounding)	40% of cost of wire 6,85,91,040 (Undergrounding)	24,00,68,640 (Undergrounding)
							10000/Diverter 6,89,50,000 (Diverter)	20% of Diverter Cost 1,37,90,000	8,27,40,000 (Diverter)
	Jodhpur Discom	33	Sam – Dhanana	4(3)	45	6332	20,41,400/km (1 Cables) 9,18,63,000 (Undergrounding)	40% of cost of wire 3,67,45,200 (Undergrounding)	12,86,08,200 (Undergrounding)
	Disconi						6,33,20,000 (Diverter)	1,26,64,000	7,59,84,000 (Diverter)
1		33	Tejuva-Kuchri	7(4)	17	3190	20,41,400/km (2 Cables) 6,94,07,600 (Undergrounding)	40% of cost of wire 2,77,63,040 (Undergrounding)	9,71,70,640 (Undergrounding)
'	Suzlon						3,19,00,000 (Diverter)	63,80,000	3,82,80,000 (Diverter)
	Suzion	33	Khuchri horizontal - parallel	6(3)	3) 21	2955	20,41,400/km (2 Cables) 8,57,38,800 (Undergrounding)	40% of cost of wire 3,42,95,520 (Undergrounding)	12,00,34,320 (Undergrounding)
							2,95,50,000 (Diverter)	59,10,000	3,54,60,000 (Diverter)
	Tot	al (unde	ergrounding)		104	19,372	41,84,87,000 (Undergrounding)	16,73,94,800	58,58,81,800 (Undergrounding)
						19,37,20,000 (Diverter)	3,87,44,000	23,24,64,000 (Diverter) ++	
					Div	erter installatior)		
I		132	132kv Jaisalmer – Ramgarh – 1	4(3)	40	5628	10,000/Diverter 5,62,80,000	20% of Diverter Cost 1,12,56,000	6,75,36,000
I		132	132kv Jaisalmer – Ramgarh – 2	4(3)	40	5628	10,000/Diverter 5,62,80,000	20% of Diverter Cost 1,12,56,000	6,75,36,000
I		132	132kv Askandra (Pokran to Askandra)	4(3)	30	4421	10,000/Diverter 4,42,10,000	20% of Diverter Cost 88,42,000	5,30,52,000
II	Rajasthan Vidyut	132	132kv Askandra (Pokran to Askandra)	4(3)	20	2814	10,000/Diverter 2,81,40,000	20% of Diverter Cost 56,28,000	3,37,68,000
-	Prasaran Nigam Limited	220	220kv Amarsagar – Ramgarh	4(3)	40	5628	10,000/Diverter 5,62,80,000	20% of Diverter Cost 1,12,56,000	6,75,36,000
I	(RVPNL)	220	220kv Amarsagar – Lilo	7(4)	8	1501	10,000/Diverter 1,50,10,000	20% of Diverter Cost 30,02,000	1,80,12,000
I		220	220kv Amarsagar – Phalodi	4(3)	54	7598	10,000/Diverter 7,59,80,000	20% of Diverter Cost 1,51,96,000	9,11,76,000

III		220	220kv Amarsagar – Phalodi	4(3)	71	9990	10,000/Diverter 9,99,00,000	20% of Diverter Cost 1,99,80,000	11,98,80,000
ı		220	220kv Ramgarh Dechu	7(4)	49	9193	10,000/Diverter 9,19,30,000	20% of Diverter Cost 1,83,86,000	11,03,16,000
III		220	220kv Ramgarh Dechu	7(4)	43	8067	10,000/Diverter 8,06,70,000	20% of Diverter Cost 1,61,34,000	9,68,04,000
II		220	220kv Ramgarh Dechu	7(4)	50	9380	10,000/Diverter 9,38,00,000	20% of Diverter Cost 1,87,60,000	11,25,60,000
II		400	400kv Akai – Ramgarh	8(4)	55	10,318	10,000/Diverter 10,31,80,000	20% of Diverter Cost 2,06,36,000	12,38,16,000
S	sub-total		500		I	80,166	80,16,60,000	16,03,32,000	96,19,92,000
III		33	Tejuva – Kuchadi	7(4)	138	25889	10,000/Diverter 25,88,90,000	20% of Diverter Cost 5,17,78,000	31,06,68,000
II		33	Kaladongar	4(3)	70	9849	10,000/Diverter 9,84,90,000	20% of Diverter Cost 1,96,98,000	11,81,88,000
III		33	Mokla – Habur – Sanu	4(3)	301	42,350	10,000/Diverter 42,35,00,000	20% of Diverter Cost 8,47,00,000	50,82,00,000
III	Suzlon	132	Tejuva – Kuchadi	4(3)	25	3518	10,000/Diverter 3,51,80,000	20% of Diverter Cost 70,36,000	4,22,16,000
II		132/22 0	Kaladongar	4(3)	47	6613	10,000/Diverter 6,61,30,000	20% of Diverter Cost 1,32,26,000	7,93,56,000
I		132/22 0	Mokla – Habur – Sanu	4(3)	43	6051	10,000/Diverter 6,05,10,000	20% of Diverter Cost 1,21,02,000	7,26,12,000
S	Sub-total		624		•	94,270	94,27,00,000	18,85,40,000	113,12,40,000
II	Jodhpur Discom	33	Chandan Via Bhagu ka Gaon to Mohangarh	4(3)	70	9849	10,000/Diverter 9,84,90,000	20% of Diverter Cost 1,96,98,000	11,81,88,000
S	Sub-total		70			9849	9,84,90,000	1,96,98,000	11,81,88,000
	Greenko	220	Amarsagar – Ramgarh	4(3)	40	5628	10,000/Diverter 5,62,80,000	20% of Diverter Cost 1,12,56,000	6,75,36,000
S	Sub-total		40			5628	5,62,80,000	1,12,56,000	6,75,36,000
III	Gamesa	33	Amarsagar – Ludarva	4(3)	4	563	10,000/Diverter 56,30,000	20% of Diverter Cost 11,26,000	67,56,000
S	sub-total		4			563	56,30,000	11,26,000	67,56,000
		1238 KI	Ms of Power line for Div	erters		1,90,476			228,57,12,000 228.57 Cr
	Total		s of 33 kV lines (for Dive	ters)		19,372			23,24,64,000 23.25 Cr ++
		104 KM	s for Undergrounding	Gra	nd-total				58,58,81,800 58.58 Cr 287,15,93,800 (287.16 Cr)

- * Diverter cost can be reduced to 40% of existing cost i.e. 91.43Cr with the development of more economic local diverters authenticated by Wildlife Institute of India and Rajasthan Forest Department. Expected time for producing these diverters is 6 months.
- ++ For 33 kV lines prioritized for undergrounding, cost of diverters have also been indicated.

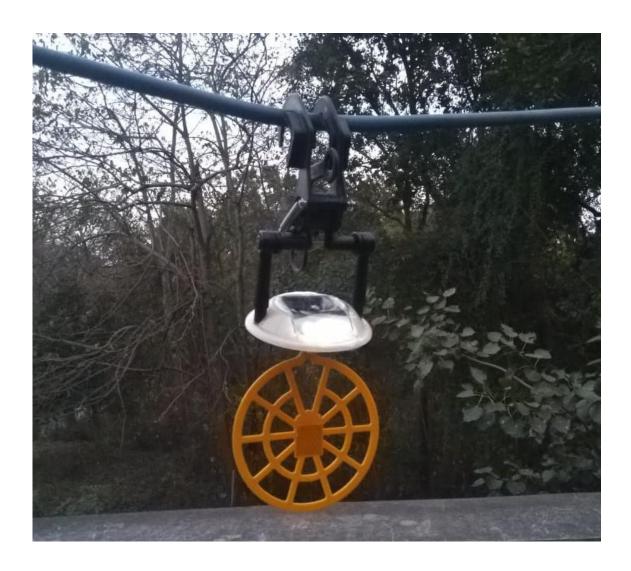
Annexure II

Map showing high tension (\geq 33 kV) power-lines divided into three phases for undergrounding and bird diverter installation.



Annexure III

Photograph of a model Bird Diverter / Reflector with rotating, reflecting and night blinking properties that has been pilot installed and field tested by Wildlife Institute of India with the assistance of power agencies in Jaisalmer.







भारत सरकार
Government of India
विवयत मंत्रासय
Ministry of Power
केन्रीय विवयत प्राधिकरण
Central Electricity Authority
मुख्य विवयत मिरीक्षणासय प्रभाग
Chief Electrical Inspectorate Division

Subject: Meeting to discuss on plans for protection and conservation of Great Indian Bustard in the country - regarding.

Reference is invited to Ministry of Power's e-mail dated 30-04-2020 on the above subject attaching agenda for the video conference meeting on 05-05-20202. The inputs of CEA on the agenda point no. 5 "Views of Ministry of Power, Ministry of New & Renewable Energy, Power Grid, Wind and Solar power energy agencies on GIB Arc", which pertains to Ministry of Power / CEA, are given below:

GIBs are low and heavy fliers and lack frontal vision. Thus GIBs have high risk of fatal collision with power lines. To prevent deaths of GIBs due to collision with power lines, following is suggested:

- Identified existing lines of 33 kV and below voltage level passing through GIB Arc may be made underground in a time bound manner by the owner utility of the line.
- ii) New / proposed lines of 33 kV and below voltage level passing through GIB Arc may be laid as underground cable.
- iii) Identified existing lines of 132 kV and above voltage level passing through GIB Arc may be provided with bird diverters in a time bound manner by the owner utility of the line.
- iv) Route alignment of new / proposed lines of 132 kV and above voltage level should avoid passing through GIB Arc. Wherever, it is not possible to avoid GIB Arc, such lines should provide bird diverters.

(Ravinder Gupta) Chief Engineer

Director Chans. Ministry of Power, Shram Shakti Bhawan, New Delhi

No. CELILAZO 91

dated: 01.05.2020

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18-A, Shaheed Joet Singh Mary, Katwaria Sarai, New Delhi-110016- Telefax-011-26565183 Email: con eldivision@gmail.com
Webrite: www.cos.nic.in

Annexure 4.2.3

GOVERNMENT OF RAJASTHAN

FOREST DEPARTMENT

F.NO 10()/Forest/2020

Dated: 04-09-2020

Minutes of the Meeting

A meeting was held on 02-09-2020 at 12:30 PM in Room No: 8145, SSO Building, Government Secretariat, Jaipur under the Chairmanship of Principal Secretary, Forest and Environment, Rajasthan regarding implementation of various court orders in the matter of conserving GIB habitat. District authorities joined the meeting virtually. The list of participants is given at Annexure.

At the outset, DCF(Wildlife), Jaisalmer briefed participants regarding implementation status of various court orders, in the matter of conserving GIB habitat. After discussions, the following decisions were taken:-

- In reference to the Hon'ble Supreme Court order in C.W.P 838/2019, Energy department opined that undergrounding of electricity cables is not economically viable for the ongoing projects. AAG may be accordingly intimated. (Action: Concerned OIC)
- As the GIB ARC concept developed by Wildlife Institute of India has
 no regulatory legal framework as yet, hence there is need to intimate
 all the stakeholders departments involved in sanctioning land/projects
 while examining project proposals in the area that an ESZ is proposed
 for the area. (Action: Forest Department)
- Necessary action may be taken to allow completion of ongoing projects related to transmission lines by installing technically approved bird diverters in GIB ARC. (Action: Energy Department)
- Similarly, it may be ensured that all the existing power lines passing through identified bustard habitats should have technically approved bird divertors. (Action: Energy Department)

Meeting ended with thanks to the Chair.

B. Praveen

(Secretary, Forest)

Copy to the following for information and necessary action:

- PS to Principal Secretary, Forest and Environment Department, Rajasthan, Jaipur
- 2. PS to Principal Secretary, Energy Department, Rajasthan, Jaipur
- 3. Principal Chief Conservator of Forest (HoFF), Rajasthan, Jaipur
- Additional Principal Chief Conservator of Forest & Chief Wildlife Warden, Rajasthan, Jaipur
- 5. District Collector, Jaisalmer
- 6. Deputy Conservator of Forest, Wildlife, Jaisalmer

Shubham Jain (OSD Forest)



List of Participants

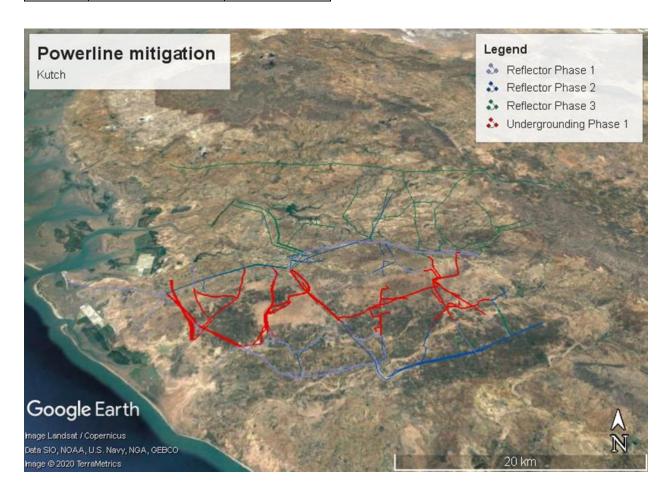
VC to discuss the implementation status of various court orders in the matter of conserving GIB habitat

Date 02.09.2020

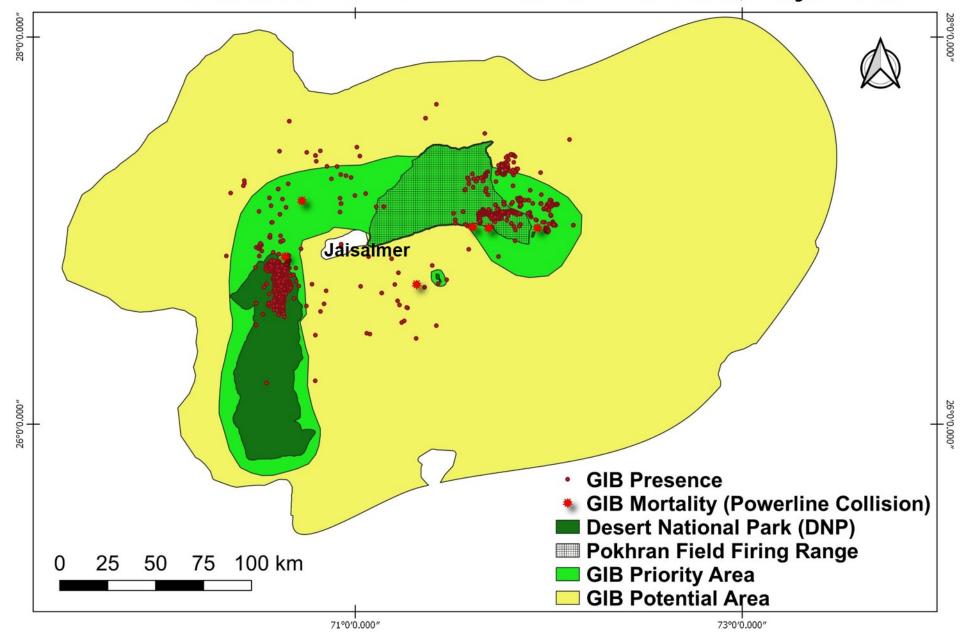
S. No	Name of Officer	Designation	Department
1	Smt. Sreya Guha	Principal Secretary	Forest
2	Sh. Ajitabh Sharma	Principal Secretary	Energy
3	Sh. B. Praveen	Secretary	Forest
4	Sh. Vikram Kesari Pradhan	DCF(WL) Plan	Forest
5	Sh. Kapil Chandrawal	Deputy Conservator of Forest, Wildlife, DNP, Jaisalmer	Forest
6	Sh. Om Prakash Bishnoi	Additional District Magistrate,Jaisalmer	Revenue
7	Sh. Shubham Jain	OSD	Forest

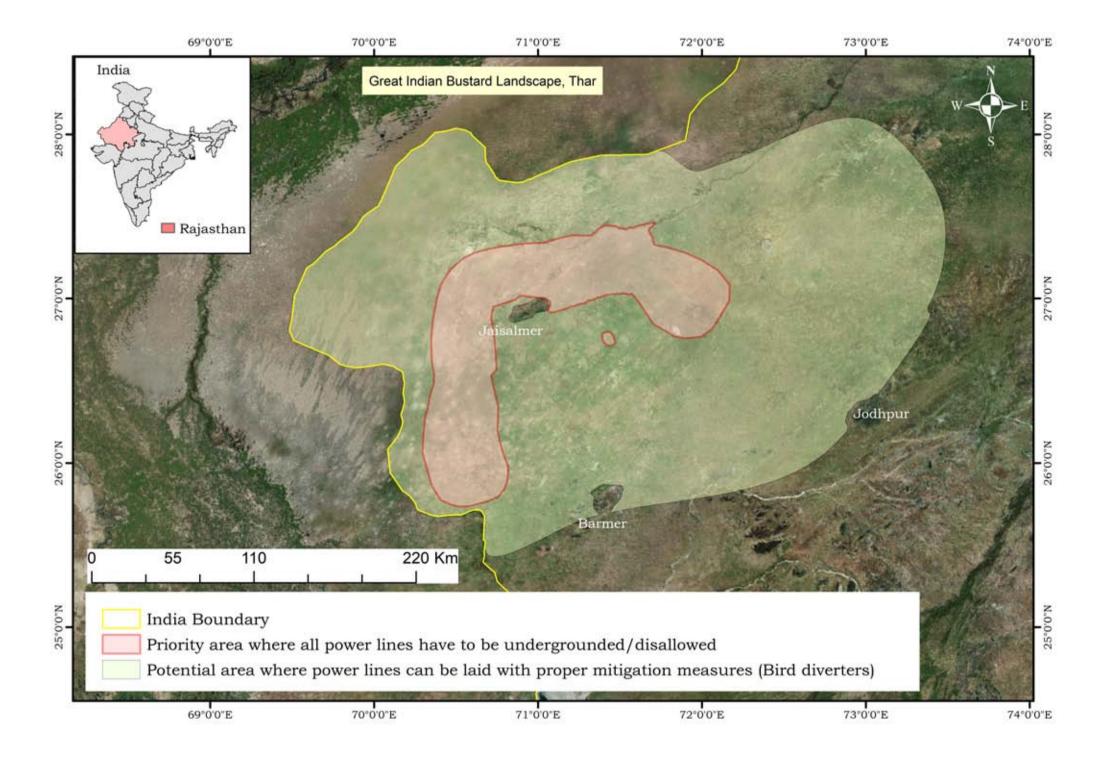
Annexure 4.2.4. Details of power-lines proposed for mitigation in Great Indian Bustard habitats of Kutch, Gujarat

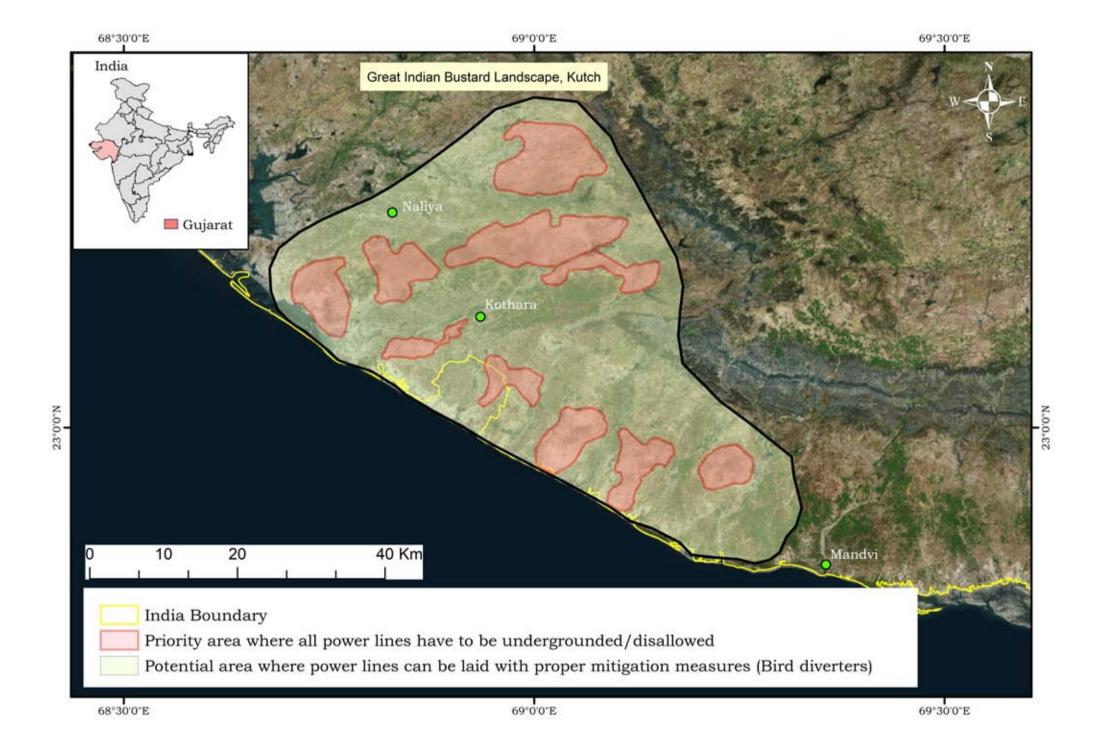
Phase	Mitigation	Line length (km)
1	Undergrounding	283
1	Diverter/Reflector	177
2	Diverter/Reflector	163
3	Diverter/Reflector	260



Great Indian Bustard Occurrence in Thar, Rajasthan







BEFORE THE NATIONAL GREEN TRIBUNAL, CENTRAL ZONAL BENCH, BHOPAL

Original Application No. 64/2016 (CZ) Mahendra Singh Borawat & 3 Ors. Vs. State of Rajasthan & 4 Ors.

CORAM: HON'BLE MR. JUSTICE DALIP SINGH, JUDICIAL MEMBER HON'BLE Dr. SATYAWAN SINGH GARBYAL, EXPERT MEMBER

PRESENT : Applicant : Dr. M.S. Kachhawa, Adv.

State of Raj. & RSPCB: Shri Om Shankar Shrivastav, Adv.

BEFORE THE NATIONAL GREEN TRIBUNAL, CENTRAL ZONAL BENCH, **BHOPAL**

Original Application No. 63/2016 (CZ) Mahendra Singh Borawat & 3 Ors. Union of India & 4 Ors.

and

M.A. No. 38/2017 &116/2017

in

Original Application No. 64/2016 (CZ)

Mahendra Singh Borawat & 3 Ors. Vs. State of Rajasthan & 4 Ors.

CORAM: HON'BLE MR. JUSTICE DALIP SINGH, JUDICIAL MEMBER

HON'BLE Dr. SATYAWAN SINGH GARBYAL, EXPERT MEMBER

PRESENT: Applicant: Shri Zubia Sajid, Advocate for

Dr. M.S. Kachchawa, Advocate

Rajasthan State: Shri Sandeep Singh, Adv. Respondent / MoEF:

Shri Aakash Ambedkar, Adv. for

Shri Om. Shankar Shrivastav, Adv

Shri Vivek Choudhary, Adv. **Intervener:**

Date and Remarks	Order of the Tribunal
Remarks Order No. 15 10 th October, 2017	Additional Chief Secretary (ACS), Environment and Forest, Govt. of Rajasthan, Chief Wildlife Warden, Govt. of Rajasthan and Director, Desert National Park (DNP) and the Learned Counsel for the State of Rajasthan are present. The officers from the National Board of Wildlife have not come. The ACS has submitted before us that the proposal of rationalisation of the boundary of DNP has now been dropped and the final notification for the DNP is likely to be issued shortly. The Chief Wildlife Warden submitted that the objections and suggestions regarding the DNP had been decided by the Collector in accordance with the Wildlife Protection Act, 1972 way back in 1997. It has further been informed that the ACS and the Chief Wildlife Warden had visited the area and the villagers who are living within and around the DNP are favourable to the DNP and the Management plan for the DNP is also going to be finalised soon.

The status of the occurrence of Great Indian Buster (GIB) in diagrammatic form was placed before us for our perusal. It was explained that the occurrence of the GIB has been found to be confined within an arc between the Pokhran Field firing range and the northern portion of the DNP. It has been informed that there are large number of wind mills which are existing in this an arc and there has also been accidents where the GIBs were found to have been killed because of transmission line running in these areas. The photograph to that effect was also shown to us. It was suggested to the ACS that State of Rajasthan should identify the appropriate areas or the locations where wind mills can be safely established without causing any harm to the GIB or any other endangered species or to the environment in general. It was made clear that the wind mills can not be allowed to be established in the areas where it can cause harm to the GIBs which are critically endangered species and other species found in that area. It may be made clear that out of approximately 200 GIBs found in India around 150 GIBs were found only in and around the DNP.

Certain issues like illegal cropping of guar beyond their own fields within DNP and the Khatedari Rights after final notification of the DNP were also raised. Learned Counsel for the State is directed to file a detailed submission made on behalf of the ACS, Environment and Forest, State of Rajasthan and the Chief Wildlife Warden, State of Rajasthan before the next date of hearing. It was inter-alia informed that in and around existing wind mills lot of plastics, packaging materials were being burnt photographs to that effect was also shown. The Director, DNP and the RSPCB are directed to take immediate action against such illegal disposal of the waste material by the wind mills in accordance with law. The Learned Counsel for the Respondent No. 4 i.e. M/s Vish Wind

Infrastructure also desired to make their submission regarding proposed wind mills and their likely impact if any on the endangered species of the area. They may do so before the next date of hearing. Let these matters be listed on 14th November, 2017.í í í í í í í í ..,JM (DALIP SINGH)í .í í í í í ..í í ..,EM (Dr. S.S.GARBYAL)

Annexure 4.3.3

Forest Department

Office of the Dy. Conservator of Forests Wildlife, Jaisalmer

No.: F()Misc(Court)/DCFWLJSM/2015-16/

Date: 23/9/16

To.

District Collector Jaisalmer

Subject: Regarding compliance of the interim order of the National Green Tribunal Central Zonal Bench, Bhopal-regarding stoppage of ongoing installation of Wind Mills in Jaisalmer district.

Sir.

Kind attention is invited to the subject matter above. In the original application no. 64 of 2016 Shri Mahendra Singh Borawat V/s. Govt. of Rajasthan was filed in the National Green Tribunal Central Zonal Bench, Bhopal. A copy of the application is being attached for reference. The applicant had prayed before the Tribunal that "The Hon'ble Tribunal may be pleased to direct the respondents to take appropriate action in the matter for shifting all the Wind Mills which were installed illegally against the directions of the Hon'ble Supreme Court and in violation of directions issued by State Govt. and Govt. of India in the matter and further stop to install such illegal Wind Mills against the law and rules and to make payment of appropriate compensation as determine by the experts towards loss caused to the Wild Animals and other species and man, in the state fund and issue necessary direction to the respondents for take appropriate steps for conservation of Great Indian Bustard, the state bird of Rajasthan".

On 6th September 2016 the National Green Tribunal has ordered that "The *status-quo* shall be maintained till such time as the notification with regard to ESZ is not issued. Learned Counsel for the applicant shall serve copy of this order to the Learned Counsel for the respondents" (copy enclosed).

In this regard it is requested that the Wind Mill companies operating in Jaisalmer may kindly be directed to stop the installation of Wind Mills immediately as further installation of units will amount to contempt of the order of the Tribunal.

Encl.: As above.

Yours faithfully

Anoop K.R. (I.F.S.)

Dy. Conservator of Forests

Wildlife, Jaisalmer

No.: F()Misc(Court)/DCFWLJSM/2015-16/ 3542-45

Date: 23/9/16

Copy to:
1. Superintendent of Police, Jaisalmer for information and necessary action.

2. S.D.O. Jaisalmer/Pokaran for compliance.

3. Adv. Sandeep Singh, Govt. Counsel for Rajasthan NGT Bhopal.

Anoop K.R. (I.F.S.)

Dy. Conservator of Forests

Wildlife, Jaisalmer

Municercoad Inicolmer (Dai) Tolofov 02002 252490 E-mail-defiel iclm forest@reinethen dow in

Annexure 4.3.4

आवश्यक / आज ही जारी हो।

राजस्थान सरकार

।। कार्यालय जिला कटान्टर जैसलमेर ।।

क्रमांक : राजस्व / 2016 /

दिनांक : .12.2016

प्रेषिति :

उपखण्ड अधिकारी जैसलमेर / पोकरण / फतेहगढ / भणियाणा

तहसीलदार, जैसलमेर / पोकरण / फतेहगढ / भणियाणा

विषय : नेशनल ग्रीन ट्रिब्यूनल, सेंट्रल जीन, भोपाल द्वारा प्रार्थना पत्र संख्या 64 / 2016 में पारित आदेश दिनांक 6.09.2016 के संबंध में ।

सन्दर्भ : इस कार्यालय के पत्राक राजस्व / 2016 / 6775-82 दिनांक 27.10.2016 महोदय,

विषयान्तर्गत आपका ध्यान सन्दर्भित पत्र की ओर आकृष्ट कर लेख हे कि जिससे उपवन सरंक्षक वन्य जीव, जैसलमेर के पत्रांक एफ () मिस कोर्ट/डीसीएफ डब्ल्यू एलजेएसएम/ 2015-16/3541 दिनांक 23.09.2016 से प्राप्त प्रार्थना पत्र संख्या 64/2016 (सीजेड) महेन्द्रसिंह बोरावट व अन्य बनाम राजस्थान सरकार व अन्य पर माननीय नेशनल ग्रीन ट्रिब्यूनल, सेंट्रल जोन, भोपाल द्वारा पारित आदेश दिनांक 6.9.2016 की छाया प्रतियाँ प्रेषित कर उसमें वर्णित अनुसार क्षेत्र में चल रहे पवन उर्जा संयत्रों को बन्द करने व अग्रेत्तर पवन उर्जा संयत्र स्थापित नहीं करने का अनुतोष चाहे जाने पर नेशनल ग्रीन ट्रिब्यूनल, सेंट्रल जोन, भोपाल के उक्त आदेश दिनांक 6.9.2016 द्वारा आदेशित ईएसजेड की अधिसूचना जारी होने तक प्रकरण में यथास्थिति बनाई रखी जाकर पालना अपेक्षित की गई थी, जो आज दिनांक तक प्राप्त नही हुई है ।

अतः आप निजी ध्यान देकर नेशनल ग्रीन ट्रिब्यूनल, सेंट्रल जोन, भोपाल के उक्त आदेश दिनांक 6.9.2016 द्वारा आदेशित ईएसजेड की अधिसूचना जारी होने तक प्रकरण में यथास्थिति बनाई रखी जाना सुनिश्चित करें तथा इस संबंध में की गई कार्ववाही से इस कार्यालय को तत्काल अवगत करना सुनिश्चित करें। इसे अति आवश्यक समझें।

ससम्म : उपरेष्टतानुसार्

(मातादीन शर्मा) जिला कलक्टर जैसलमेर दिनांक :29 .12.2016

क्रमांक : राजस्व / 2016 / 7919 - 20 प्रतिलिपि निम्नुंकित को सूचनार्थ एवं आवश्यक कार्यवाडी हेतु प्रेषित है :-

र्रपवन सरंक्षक वन्य जीव, जैसलमेर।

02. प्रभारी अधिकारी, न्यायिक अनुभाग, कार्यालये हाजा।

जैसलमेर

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fice of the Principal Chief Conservator of Forests & Chief Wildlife Warden Rajasthan, Jaipur

Annexure 4.3.5.

Wildlife Headquarter, Aranya Bhawan, Jhalana, Jaipur Email-cwlw.raj@gmail.com, Fax & Phone 01412700151

No: F8(201)Legal/CWLW/2019/748

Date 20.11.2020

Dr. Dhananjai Mohan,

Director, Wildlife Institute of India

Sub. :-Meeting to review and discuss on plans for protection and conservation on Great Indian Bustard in the country-reg.

With reference to the subject above, a meeting was held under the Chairmanship of Director General (Forest), MoEf&CC, online on November 3rd,2020 at 3 pm. Ministry has asked to provide an action plan in compliance of Hon'ble NGT order dated 04.09.2019 in O.A. 385/2019 Centre for Wildlife and Environment Litigation Versus Union of India & Ors. A draft action plan is attached for your kind perusal.

Yours Faithfully,

(- W) (M.L. Meena)

Principal Chief Conservation of Forest & Chief Wildlife Warden, Rajasthan Jaipur.

Copy:- Deputy Inspector General of Forest (Wildlife), MoEF&CC, New Delhi F.No: F8(201)Legal/CWLW/2019/ for nessasary action.

Principal Chief Conservation of Forest & Chief Wildlife Warden, Rajasthan Jaipur.

Draft Action Plan for Implementation of WII Guidelies

Background:

A committee was constituted to make a time bound Action Plan for implementation of WII recommendations, as narrated and in compliance of Hon'ble NGT Delhi order dated 04.9.2019 in the matter of Original Application No. 385/2019 Centre for Wildlife and Environment Litigation Versus Union of India & Ors. The main prayer in which, was to mitigate the threat overhead transmission lines and windmills pose to GIBs.

Draft action plan with respect to the recommendations is as follows:

Recommendation 4.2: Mitigate all power transmission lines passing through priority bustard habitats identified by WII by undergrounding cables (where technically/technologically feasible) or installing bird diverters to make them prominent to birds. The priority areas where this intervention is required has been mapped by the Wildlife Institute of India and a technical-cum-financial proposal has been submitted to RVPNL for necessary approvals from Rajasthan Energy Department for mitigation. This action must be expeditiously implemented in the short-term (1-3 years), as power-line mortality is currently the biggest threat to the species.

Government of Rajasthan has already taken a decision , as per a meeting held on 02.09.2020,under Chairpersonship of Principal Secretary (Forest), Govt. of Rajasthan(GoR) with Principal Secretary (Energy), GoR and others, to put Bird Diverters on all existing overhead transmission lines passing through the identified Bustard habitats. Also , in the above meeting, it was concluded that undergrounding of overhead transmission lines for ongoing projects was not economically viable. Minutes of the Meeting for the above meeting were issued by letter F.NO 10()/Forest/2020 dated 04.09.2020 for the meeting mentioned above. (Annexure AP1). The decision of GoR is being communicated to Ministry of Power, Government of India . The installation of Bird Diverters is to be implemented by Energy Department.

Recommendation 4.3: Disallow new wind turbines, solar farms (photovoltaic power stations) from priority GIB habitats and remove existing ones that are in the critical areas. The priority areas where this intervention is required has been mapped by Wildlife Institute of India. This action needs to be implemented in the long-term spanning 5-10 years from present.

Action to be taken by WII for mapping the GIB critical areas. MNRE has to take a decision regarding allowing of new Wind or Solar farms in the priority GIB habitats. Removing the existing one's, which produce green energy and reduce our dependence on fossil fuels and help prevent pollution, does not seem to be a justified option. Already, a status quo has been maintained in Jaisalmer with regards to establishment and operation of windmills in compliance of Hon'ble NGT Bhopal order dated 06.09.2016 (Annexure AP2) in O.A. 64/2016 Mahendra Singh Borawat and 3 ors v/s Union of India. In response to DCF wildlife Jaisalmer's letter no. 3541 dated 23.09.16 (Annexure AP2.1), District Collector Jaisalmer instructed SDMs of the district to ensure compliance of Courts order vide his letter no. 6775-82 dated 27 10.16 and again by after 7919-20 dated 29.12 16 (Annexure AP2.2)

Recorr mendation 4.4: Develop predator-proof enclosures of 5-10 sq km area in known breeding sites ir and around DNP to improve GIB recruitment, and keep away nest predators by routinely translocating dogs, pigs, foxes, mongoose and other species outside the enclosures using professional trappers. Number of water guzzlers inside the enclosures need to be reduced to curtail availability of surface water that attracts non-native nest/chick predators such as dogs, foxes, pigs and mongooses. Also establish such enclosures in the larger Thar (Jaisalmer) landscape, as identified by joint surveys of WII and RFD. These enclosures need to be developed and will serve as breeding sites and stepping stones for movement across the larger landscape.

73 Enclosures have already been made in and around Desert National Park Wildlife Sanctuary by the Forest Department. One 200 ha closure has been made predator proof (with 4 sq inch chain link). For making the fencing Predator proof of important closures, in a phased manner, currently 6 enclosures, with a combined area of 33.15 sq. km. have been prioritized in the first phase with a total perimeter of about 48 km. Out of which process is underway to make 10.5 km length of the fencing as predator proof, as per current availability of funds. Budget has been demanded from MoEF&CC for completion of predator proof fencing as described above. The aforesaid fencing would be completed within one year of receipt of required budget.

Species like dogs, pigs, foxes, mongoose and others have to be translocated by WII outside the enclosures and efforts have already begun with some success in translocating dogs and varanus. This activity will be continued and necessary permissions have been issued by Chief Wildlife Warden Rajasthan to WII for doing the same vide letters dated 24.04.2019,30.05.2019, 20.09.2019 (Annexure AP3).



Water availability in the guzzlers is already being strategically managed, based on location and density and abundance of preferred species and that of unwanted species, leaving guzzlers dry for discouraging unwanted species like dogs and pigs.

Out of the 73 enclosures mentioned above, 18 have been established in important GIB area outside DNP only, in Jaisalmer district. Further efforts will be continued to establish more enclosures in important GIB habitat areas outside DNP, provided forest department gets access to land, as forest department hardly owns any land in these areas.

Recommendation 4.5: Create an inviolate area of 200 sq km (WII proposal- 500 sq km) in northern DNP as a National Park through voluntary and incentivized relocation of local people (if needed) with the mandate of conserving GIB.

The Action Plan for relocation, showing the boundaries of proposed inviolate area is attached at **Annexure AP4**. Relocation Plan will be submitted after finalization of relocation package.

Recommendation 4.6: Delineate priority GIB habitats outside DNP as Eco Sensitive Zones where agro-pastoral practices are regulated to low intensity through Zonal Management Plans and detrimental infrastructure such as wind turbines and overhead transmission lines are curtailed. This action needs to be implemented in the short-term (1–2 years).

Proposal for declaration of priority GIB Habitats outside DNP (GIB Arc) as Eco Sensitive Zone has been drafted and sent to District Collector vide DCF (WL) Jaisalmer office's letter no. 2849 dated 10.09.2020 (Annexure AP5) for consideration in the committee formed under District Magistrate by the state government for this purpose vide order no. F6(54)/AR/Gr-3/2007 date 03.07.2012. The meeting of the aforesaid committee could not be convened due to Code of Conduct being in application and local bodies election. The meeting will be convened as soon as election process is over and based on the decision taken, the proposal will be forwarded with appropriate comments.

Recommendation 4.7: Engage with local communities to promote bustard-friendly practices such as stall-feeding of livestock during monsoon – GIB chick-rearing and grass growing season – and cultivating food crops preferred by GIB during monsoon such as

gram, ground nut and millets while leaving the fields fallow for the remaining period. These land-uses can be promoted by Rajasthan Forest Department in conjunction with other State Departments, through appropriate financial and other incentive schemes, such as provisioning of fodder for stall feeding or compensatory payments to foregone production cost by opting for low intensity farming. This action needs to be implemented in the longer scale (4–8 years).

A meeting was convened on 10.11.2020 under Chairmanship of District Jaisalmer and it was decided in the meeting that to promote stall-feeding of cattle inside DNP, so that grazing pressure is reduced during GIB breeding season, 'Chara-depots' being currently organized by district administration for the drought period should be extended to end of Monsoon, and a proposal to this end should be sent to State Government. Minutes of the meeting are attached at **Annexure AP6.** Accordingly the state will consider extending chara-depots inside DNP till the end of monsoons from 2021.

Recommendation 4.8: Reduce poaching of GIB and other wildlife in the Thar landscape by improving protection enforcement through training of Forest Department frontline staff in smart patrolling tools with the help of conservation organizations such as WII and WWF, provisioning of better patrolling equipment, enrolling frontline staff from non-wildlife divisions of Forest Department and local volunteers in this activity, and ensuring trials of convicts. Further, it is to bring to the notice that areas controlled by Armed forces in Jaisalmer District harbor about 50% of the GIB population found in Rajasthan. This secure zone under the control of Army where human activities are minimal is a blessing for the bird on the verge of extinction. Thus, continued cooperation of Army, Air Force and Border Security Force to conserve the GIB and control the incidents of poaching could play a vital role as well.

A capacity Building training of field staff with collaboration of WII was conducted on 12.11.2020. A demand for required budget for necessary equipments has been raised. Subsequent and refresher trainings are proposed at least twice a year with involvement of BSF and Armed forces.

Recommendation 4.9: Implement the conservation breeding programme by creating an offshore insurance population (if needed) by shipping a batch of about 10 GIB eggs to a state-of-the-art international breeding center such as IFHC houbara breeding center at

Abu Dhabi that produces up to 30,000 houbara chicks every year (short-term solution 3–5 years), and meanwhile, establish a national breeding center by training staff, developing a state of the art center at Sorsan (main facility) and Ramdevra (satellite facility), where eggs collected from wild can be artificially incubated, hatched, reared and captive bred to create an insurance population that can be reintroduced into the wild.

An offshore insurance population is not required as Rajasthan Forest Department (RFD) has established, with technical support of WII, a temporary Conservation Breeding Centre at Sam Jaisalmer, with Incubation, hatchery and chick rearing facilities along with in house live feed facilities, in which, 16 GIB chicks have been born (till October 2020) from the eggs collected from the wild. Conservation Breeding Centre at Ramdevra, Jaisalmer is being constructed by WII through CPWD. 5 GIB's have been tagged with GPS tags till October 2020. A Tripartite Memorandum of Agreement has been signed between RFD, WII and MoEF&CC for the above purpose and the activities will continue in the years to come.

Recommendation 4.10: To continue with targeted research on GIB to characterize threats spatio-temporally, understand landscape use patterns using satellite telemetry, and objective monitoring of their population status by involving research organizations, understanding of species biology, behavior, reproduction, genetics, ecology and management in wild and captivity of GIB, and collection of biological samples for species identification from carcasses, for disease screening for better understanding of threats, develop disease prevention protocol, and forensic examination of mortalities."

Permission to tag GIBs have been issued by CWLW Rajasthan vide letters dated 06.02.2019 and 13.12.2019 (Annexure AP 7) for carrying on targeted research about understanding landscape use pattern of GIB among other things. So far, 5 GIBs have been tagged successfully with GPS tags. This activity will be continued with technical support from WI:

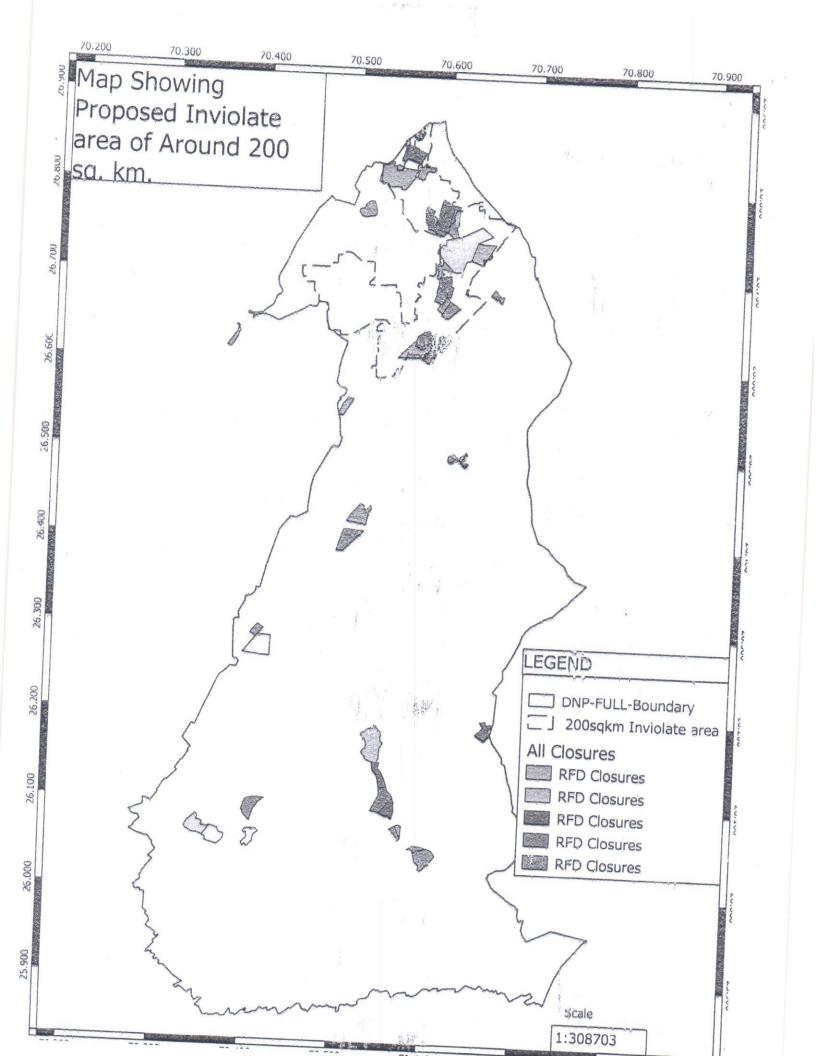
Action Plan for Village Relocation for creation of ~200 sq km inviolate area in Desert National Park

Great Indian Bustard(GIB), a critically endangered bird and also the state bird of Rajasthan, with a global population of less than 200 is a species that needs immediate attention to prevent it from extinction. Its sizeable chunk of last remaining population resides in the Desert National Park Wildlife Sanctuary (DNP). GIB is a slow breeding bird with laying only one egg per year, most often ,in the wild. The egg is laid on the ground without making any protective nest, and hence is very vulnerable to various threats. GIB has been known to have a strong affiliation to its traditional breeding grounds, and hence to ensure survival of its population in the wild , it is extremely necessary to preserve its breeding grounds. The most important GIB Breeding sites of GIB are situated in the northern part of the DNP.

To preserve its breeding grounds and habitat at least around 200 sq km inviolate area is proposed for making it absolute disturbance free zone . This land would comprise area of 11 villages. This selected area would mostly misses the *Abadi Khasras* and only would require to have the *Khatedari* Lands . The details of the land proposed for making the inviolate area is attached.

(Kapil chandrawal, IFS)

DCF WL Jaisalmer



कार्यालय उप वन् संरक्षक वन्यजीव जैसलमेर

प्रस्तावित कोर एरिया में शामिल 11 गांवों की भूमि का विवरण

				11	10	9	8	7	(D)	5	4	w	2	-		⊕ ∰
क्षेत्रफल वर्ग किमी में	क्षेत्रफल हैक्टर में	क्षेत्रफल बीघा बिस्वा में		बीदा	जामडा	महबूब का पार	निम्बा	कताई	गांगा -	सम	्रभुलिया	हटार मय चौहानी	फलेडी	कोरिया		ग्राम का नाम
203.07	20306.95	125436	125433	7701	35549	7216	2601	9257	28751	2518	6008	14329	9889	1614	बीघा	गिरदावरी रिपोर्ट के अनुसार कोर एरिया का कुल क्षेत्रफल
			57	0	=	0	0	00	000	15	0	15	10	0	बिस्वा	पोर्ट के एरिया त्रफल
6.55	654.52	4043	4038	237	606	72	66	597	797	83	1131	383	66	0	बीघा	खातेदारी भूमि
			101	5	6	2	3	9	13	18	14	. 61	12	0	बिस्वा	भूमि
6.74	673.79	4162	4158	156	192	0	34	464	189	486	0	2241	316	80	बीघा	गैर खातेदारी भूमि
			71	0	5	0	10	0	15	Ξ	0	15	15	0	बिस्वा	री भूमि
0.51	51.00	315	311	0	10	29	19	114	0	0	16	37	86	0	बीघा	जन उपयोगी भूमि
			70	0	0	14	4	16	0	0	18	14	4	0	हिस्वा	र्ग भूमि
13.28	1328.31	8205	8196	353	758	72	100	1051	986	569	1131	2624	382	80	बीचा	येग खातेदारी, गेंर खातेदारी
			172	5	=	2	13	9	28	29	14	34	27	0	बिस्वा	गतेदारी,

नोटः कोर क्षेत्र में आने वाले खातेदारी, गैर खातेदारी एवं जन उपयोगी भूमि का कुल क्षेत्रफल 13.79 टर्ग किमी.

प्रस्तावित एरिया के अंतर्गत आनेवाले भूमियों का विवरण ग्राम बीदा

क.सं.	खसरा नं.	क्षेत्रप	कल	A ~	
3.11.	जसरा न.	बीघा	बिस्व	मूमि वर्गीकरण	खालेदार का नाम
1	414	23	हर्नेव	Khatedari	चन्दनसिंह, हमीरसिंह पी, केसरसिंह 1/2 हि. नखतसिंह पुत्र महादानसिंह 1/2 हि. कॉम राजपूत, सा. देह खानेद्वार।
2	336	17	0	Khatedari	देवीदान सिंह पुत्र मलसिंह राजपूत दे खालेदार
3	336 / 611	18	0	Khatedari	पारू पत्नी कल्याणसिंह, कल्याणसिंह, केसरसिंह, देरावरसिंह, पि. कल्याणसिंह कॉम राजपूत सा.देह खातेदार रहन जै स.भूमि बैंक जैसल्बेर
4	336 / 607	.18	0	Khatedari	पारूकंवर पत्नी भंवरशिंह, खेतिशिंह, लखिंह, जीतूसिंह, कानसिंह पि भंवरसिंह, कौंम राजपूत सा.देह खातेदा रहन बैंक ऑफ बडोदा शाखा खुहडी
5	525	43	10	Khatedari	फातमा पत्नी तयब खां होत अमर, आचार पि. तयब खां कौम मुसलमान,स निम्बा खातेदार
6	391	42	5	Khatedari	मूलाराम, खेवराज्ञीम, रिडमलराम पि. होतूराम जाति नाई सा.वेह खातेद्वार
7	394 / 559	75	# 10 1	Khatedari	मूलाराम पुत्रं होतूराम कौम नाई सा.देह खातेदार
8	337 / 568	46	15	Gair Khatedari	मुगर पुत्र जलाल कॉम मुसलमान, सा. फलेडी गैर खातेदार
9	340	28	5	Gair Khatedari	मुगर पुत्र जलाल कॉम मुसलमान, सा. फलेडी गैर खातेदार
10	376/571	8	0	Gair Khatedari	सिगरती देवी पत्नी उदाराम, चेलनशम, कालूराम, नारायणशम, अणवाराम, पि. उदाराम, बतली, लोढी, पुत्रियान उदाराम कॉम मेघवाल, सा. देह गैर खातेदार
11	389 / 574	67	0	Gair Khatedari	सिगरती देवी पत्नी उदाराम, चेतनराम, कालूराम, नारायणराम, अणदाराम, पि. उदाराम, बतली, सोढी, पुत्रियान उदाराम कॉम मेघवाल, सा. देह गैर खातेदार
12	330 / 561	6	0	Gair Khatedari	हमीए, कमिया पि, बंगा, क्षौम भुसलमान सा.देह फलेडी, गैर खालेदार
13	324	156	5 [Barani	
14	325	156	-	Barani	राज सरकार
5	326	156		Barani	राज सरकार
6	327	156		Barani	राज सरकार
7	328	152	-	Barani	राज सरकार

क.सं.	Janes -	क्षैत्रफल	न		
Ф. Ч .	खसरा नं.	बीघा	बिस्वा	भूमि वर्गीकरण	खातेदार का नाम
18	328 / 550	10	0	Barani	राज सरकार
19	329	150	5	Barani	राज सरकार
20	330	24	0	Barani	राज सरकार
21	331	112	10	Barani	राज सरकार
22	332	20	15	Barani	राज सरकार
23	333	91	10	Barani	राज सरकार
24	334	151	10	Barani	राज सरकार
25	335	118	10	Barani	राज सरकार
26	337	83	0	Barani	राज सरकार
27	338	38	10	Barani	राज सरकार
28	339	11	5	Barani	राज सरकार
29	341	151	0	Barani	राज सरकार
30	342	155	5	Barani	राज सरकार
31	343	156	5	Barani	राज सरकार
32	344	156	5	Barani	राज सरकार
33	356	78	2	Barani	राज सरकार
34	357	78	3	Barani	राज सरकार
35	358	78	3	Barani	राज सरकार
36	375	63	10	Barani	
37	376		10	Barani	राज सरकार
38	389	71	10	Barani	राज सरकार
39	390	116	0	Barani	राज सरकार
40	392	1	0	Barani	राज सरकार
41	393	95	15	Barani	राज सरकार
42	394	81	5	Barani	राज सरकार
43	395	156	5	Barani	राज सरकार
44	396	156	-	Barani	राज सरकार
45	397	118		Barani	राज सरकार
46	411	156		Barani	राज सरकार
47	412	156		Barani	राज सरकार
48	413	145		Barani	
49	415	143		Barani	राज सरकार
50	416	141		Barani	राज सरकार
51	446	154		Barani	राज सरकार
52	447	156		Barani	
53	521	47		Barani	राज सरकार
54	522	20		Barani	राज सरकार
55	523	3		Barani	
6	523 / 557	4		Barani	राज सरकार
7	524	8		Barani	राज सरकार
8	526	123	-	Barani	राज सरकार

क.सं.	खसरा नं	क्षेत्रप	গল	0 ~	
	G(() 1.	बीघा	ब्रिस्वा	भूमि वर्गीकरण	खातेदार का नाम
59	527	156	5	Barani	
60	528	156	5	Barani	राज सरकार
61	529	99	5	Barani	राज सरकार
62	530	47	0	Barani	राज सरकार
63	531	45	0	Barani	राज सरकार
64	532	154	5		राज सरकार
65	533	203	-	Barani	राज सरकार
66	534	154	5	Barani	राज सरकार
67	535	118	C	GM Magra	राज सरकार
68	536		5	Barani	राज सरकार
69	537	81	10	Barani	राज सरकार
70	538	53	0	Barani	राज सरकार
71	539	33	0	Barani	राज सरकार
72		38	0	Barani	राज सरकार
73	540	78	3	Barani	राज सरकार
74	541	156	5	Barani	राज सरकार
	542	137	0	Barani	राज सरकार
75	543	250		Barani	
76	544	156		Barani	राज सरकार
77	545	151	- Comments	Barani	राज सरकार
78	546	144		Barani	राज सरकार
79	547	59		Barani	राज सरकार
30	548	155	The second second	Barani	राज सरकार राज सरकार

खातेदारी	237	# 1 go #
गैर खातेदारी	150	5
जनोपयोगी	130	1
राज सरकार	0	0
TIST CITABLE	7307	11
	7700	17

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प्रस्तावित एरिया के अंतर्गत आनेवाले भूमियों का विवरण ग्राम फलेडी

		क्षेत्र	फल ,	2 70	
क.सं.	खसरा नं.	बीघा	बिस्वा	भूमि वर्गीकरण	खातेदार का नाम
1	805	33	13	Nada	जन उपयोगी
2	822	3	2	GM Nadi	जन उपयोगी
3	816	3	7	GM Kabristan	जन उपयोगी
4	802	18	12	GM Rasta	जन उपयोगी
5	825	26	14	GM Rasta	जन उपयोगी
6	90	0	4	GM Dhani	जन उपयोगी
7	803	0	2	GM Bera	जन उपयोगी
8	804	0	15	GM Saran	जन उपयोगी
9	26	156	5	Banjad	राज. सरकार
10	27	163	16	Banjad	राज. सरकार
11	28	180	15	Banjad	राज. सरकार
12	29	182	-5	Banjad	राज. सरकार
13	30	32	12	Banjad	राज. सरकार
14	31	124	.9	Banjad	राज. सरकार
15	32	156	5	Banjad	राज. सरकार
16	33	39	3	Banjad	राज. सरकार
17	34	125	2	Banjad	राज. सरकार
18	35	156	5	Banjad	राज. सरकार
19	36	156	5	Banjad	राज. सरकार
20	37	156	5	Banjad	राज. सरकार
21	38	156	5	Banjad	राज. सरकार
22	39	156	5	Banjad	राज. सरकार
23	45	156	5	Banjad	राज. सरकार
24	46	156	5	Banjad	राज. सरकार
25	47	156	5	Banjad	राज. सरकार
26	48	135	18	Banjad	राज. सरकार
27	49	98	11	Banjad	राज. सरकार
28	50	51	3	Banjad	राज. सरकार
29	51	95	15	Banjad	राज. सरकार
30	.52	80	18	Banjad	राज. सरकार
31	-53	55	14	Banjad	राज. सरकार
32	54	129	3	Banjad	राज. सरकार
33	55	156	5	Banjad	राज सरकार
34	56	156	5	Banjad	राज. सरकार
35	57	156	5	Banjad	राज. सरकार
36	58	156	5	Banjad	राज. सरकार
37	59	136	5	Banjad	राज. सरकार
38	60	156	5	Banjad	राज. सरकार
39	63	155	18	Banjad	राज. सरकार
40	64	86	15	Banjad	राज. सरकार

Faledi core area

क.स	खसरा नं.		क्षेत्रफल		
	GUU 4.	बीघ	विस्वा	भूमि वर्गीकरण	खातेदार का नाम
41	65	156	5	Banjad	
42	66	156	5	Banjad	राज. सरकार
43	67	156	5	Banjad	राज. सरकार
44	68	156	5	Banjad	राज. सरकार
45	69	47	2	Banjad	राज. सरकार
46	70	124	13	Banjad	राज. सरकार
47	71	150	12		राज. सरकार
48	72	156	5	Banjad	राज. सरकार
49	73	105	18	Banjad	राज. सरकार
50	74	31	4	Banjad	रोज. सरकार
51	75	0	5	GM Agor	राज. सरकार
52	76	2	4	GM Dhani	जन उपयोगी
53	77	31	13	GM Khadin	राज. सरकार
54	78	0	5	GM Agor	राज. सरकार
55	79	28	19	GM Dhani	जन उपयोगी
56	81	4	1	GM Agor	राज. सरकार
57	82	87	16	Banjad	राज. सरकार
58	83	74	9	Banjad	राज. सरकार
59	84	159	-	Banjad	राज. सरकार
60	85	134	18	Banjad	राज. सरकार
61	86	156	-	Banjad	राज. सरकार
62	87	. 49	5	Banjad	राज. सरकार
63	88	113	13	Barani	राज. सरकार
64	89	39	19	Banjad	राज. सरकार
65	91	110	6	Banjad	राज. सरकार
66	92	. 156	18	Banjad	राज. सरकार
67	784	42	5	Banjad	राज, सरकार
68	785	131	12	Banjad	राज. संरकार
69	786	29	19	Banjad	राज. सरकार
70	787	151	10	Banjad	राज. सरकार
71	788	116	8	Banjad	राज. सरकार
72	789	30	. 18	Banjad	राज. सरकार
73	790	156	5	Banjad	राज. सरकार
74	791	156	5	Banjad	राज. सरकार
75	792	75	13	Banjad	राज. सरकार
76	793	137	3	Banjad	राज. सरकार
77	794	156		Banjad	राज. सरकार
78	795	109	6	Banjad	राज. सरकार
79	796	26	3	Banjad	राज. सरकार
30	797	121		Banjad	राज. सरकार
1	798	29	11 2	Banjad	राज. सरकार
2	799	87	6	Barani	राज, सरकार
	,		The same of the sa	Barani edi corg si ea	राज. सरकार

व	र.सं. खसरा नं		क्षैत्रफल		
-	944	बीध		भूमि वर्गीकरण	ग खातेदार का नाम
	83 801	36			
-8	806	45		Banjad	राज. सरकार
8	85 807	89		Banjad	राज. सरकार
8	86 809	151		Banjad	राज. सरकार
8	7 810	92		Banjad	राज. सरकार
8	8 811	11	16	Banjad	राज. सरकार
89	9 812	24	15	Banjad	राज. सरकार
90	813	150		Banjad	राज. सरकार
91	814	25	13	Banjad	राज. सरकार
92	815	69	12	Banjad	राज. सरकार
93	819	15	17	Banjad	राज. सरकार
94	820	149		Barani	राज. सरकार
95	821	138	0	Banjad	राज. सरकार
96	823	93	19	Banjad	राज. सरकार
97		28	18	Banjad	राज. सरकार
98	826	13	13	Banjad	राज. सरकार
99	827	_	10 - 1	Banjad	राज. सरकार
100		110	16 .	Banjad	राज. सरकार
101	80	3	17	Banjad	राज. सरकार
	- 00	31	15	Gair Khatedar	राणा पुत्र रतन
102	800	61	9	Khatedar	माना पत्नी गाजी, कायम खां, खुदाबक्श, रफीक् खां, मोहम्मद खां, फैज मोहम्मद पि. गाजी खा, नाबालिग वली माता, माना पत्नी गाजी खां कौ मुसलमान सा.देह खातेदार
103	808	5	3	Khatedar	सुहागी पत्नी शेरखां, फतेखां, फेज मोहम्मद शेखे खां पि. शेरखां कमाल खां, जमाल खां पि. अजीज सभागा पुत्र खण्डू रहीम सभा पि. बबरा कौम मुसलमान सा.देह खातेदार
04	818	15	14	Gair Khatedar	रवदावराम पान अनीन न्य
05	821 / 1162	13	6	Gair Khatedar	खुदाबक्स पुत्र अलीम कौम मुसलमान सा. धुरिया गैर खातेदार
06	823 / 1163	46	0	Gair Khatedar	
07	815 / 1161	33	12	Gair Khatedar	गुलशेर खां, लखाने खां, दरिया खां, काबूल खां, पि बली, मोहम्मद खां कौम मुसलमान सा. युलिया गैर खातेदार
8	817	41	8	Gair Khatedar	अराजा गर खातदीर
9	798 / 1208	60	0	Gair Khatedar	सिया पुत्र नाहरा कौम मुसलमान सा.देह गैर वातेदार

a 71	mana si	क्षेत्रफल		भूमि वर्गीकरण	क्याचेत्रात का जाग	
西,村.	खसरा न	बीघा	विस्वा	नूनि वनाकरण	खातेदार का नाम	
110	59 / 1155	20	0	Gair Khatedar	मुबा पुत्र राणा कौम मुसलमान सा. देह गैर खातेदार	
111	64 / 1156	55	0 ,	Gair Khatedar		

ग्राम फलेडी	बीधा	बिस्वा
खातेदारी	66	12
गैर खातेदारी	316	15
जनोपयोगी	86	4
राज सरकार	9419	11
	9887	42
	9889.10	



प्रस्तावित एरिया के अंतर्गत आनेवाले भ्मियों का विवरण ग्राम गांगा

क.सं.	खसरा नम्बर	रकबा (बी	घों में)		खातेदार का नाम
		बीघा	बिस्वा	्रकिस्म भूमि	3.0.47.47.47.
1	154	6	5	Khatedari	आचार पुत्र कमाल कौम मुसलमान सा दे
2	158	9	15	Khatedari	- खातेदार
3	227	23	5	Khatedari	उभायो वल्द पीराणा कौम मुसलमान सा.
4	239	22	15	Khatedari	खातेदार
5	342	9	10	Khatedari	कायम वल्द जोगा कौम मुसलमान सा. वे खातेदार
6	270	6	5	Khatedari	खमीशा पुत्र बरीयम कौम मुसलमान सा.वे
7	273	5	14	Khatedari	खातेदार
8	3	15	3	Khatedari	गोपीदेवी पत्नि जीतमल, दीनदयाल, बद्रीनारायण, सत्यनारायण पि. जीतमल, जाति महाजन, सा.देह खातेदार
9	180 / 407	23	0	Khatedari	बदजीया पुत्र मखण कौम मुसलमान सा.दे खातेदार
10	214	60	12	Khatedari	मलूका पुत्र कामल कौम मुसलमान सा.देह खातेदार
11	240	11	0.10	Khatedari	हमीर पुत्र पीराणा कौम मुसलमान सा.देह
12	241	12	0	Khatedari	खातेदार
13	266	40	15	Khatedari	मोहम्मद हनीफ जिन्दा, रहीम पि. जखरिय कौम मुसलमान सा.देह खातेदार
14	146	23	0	Khatedari	रमदान पुत्र ओभाया कौम मुसलमान सा.दे
15	275	29	0	Khatedari	रमदान, हाजी, रसीद पि. अलारख जीया पत्नी रामतला कौम मुसलमान सा.देह
.6	276	19	5	Khatedari	खातेदार
7	190	24	5	Khatedari	सबडा. मिठा पि. मीरखां कौम मुसलमान र देह खातेदार
8	319	21	9	Khatedari	रमदान पुत्र हमल कौम मुसलमान सा.देह खातेदार
9	10	25	12	Khatedari	रमदान, अमरदीन, जायफल, लाडू पि. हमल
0	191	33	5	Khatedari	कौम मुसलमान सा.देह खातेदार
1	188	28	15	Khatedari	सांवण पुत्र जमाल कौम मुसलमान सा.देह खातेदार

क.स	खसरा नम्बर	रकवा (बी	घों में)		खातेदार का नाम
		बीघा	बिस्वा	किरम भूमि	जातपर का नाम
22	290	40	0%	Khatedar	
23	291	44	14	Khatedar	
24	292	14	19		
25	293	11	11	Khatedar	, बया पत्नी कामल रमहाह हाती जारीन
26	296	22	17	Khatedar Khatedar	जिखराया उभाया, हमीर वि वीराणा जनके
27	297	14	19	Khatedari	राजखा, पि. खरदीन, खमीशा पत्र बरिशाम
28	298	24	0	Khatedari	सिविण पि. जमल गागेखा जमान्यता नि
29	299	26	18	Khatedari	इब्राहीम, भायती पत्नी इब्राहीम रमदाद,
30	300	6	0		2777
31	301	5	14	Khatedari Khatedari	प्रभार, मुराद पि. पाधी अज्यीन कारियोच्या
32	303	7	2		
33	305	4	4	Khatedari	सा.देह खातेदार
34	306	22	18	Khatedari	
35	312	43	0	Khatedari	
36	313	17	12	Khatedari	
37	240		12	Khatedari	1,8 90
-	219	17	5	Khatedari	सुमार पुत्र आडत कीम मुसलमान सा.देह खातेदार
38	255	23	0	Khatodari	हाजी पुत्र रमदान कौम मुसलमान सा.देह खातेदार
39	180 / 418	34	15	Gair Khatedar	ं अमरदीन पुत्र हमल कौम मुसलमान सा.देह
40	278 / 458	52	0	Gair Khatedar	
41	155 / 422	20	0	Gair Khatedar	
42	156 / 423	3	0	Gair Khatedar	3-11 (1/14) (3)
43	157 / 424	4	10		
44	159 / 425	47	10	Gair Khatedar	
45	196 / 461	28	0	Gair Khatedari Gair Khatedari	
46	1	147	0		मुसलमान सा.देह गैर खातेदार
47	2	60	8.	Banjar	राज सरकार
48	. 4	126	5	Banjar	राज सरकार
49	5	20	0	Banjar	राज सरकार
50	6	156	0	Banjar	राज सरकार
51	7		5	Banjar	राज सरकार
52	8	147	5	Banjar	राज सरकार
3	9	123	0	Banjar	राज सरकार
4	11	91	10	Banjar	राज सरकार
5	12	80	5	Banjar	राज सरकार
6	13	156	5	Banjar	राज सरकार
7		32	5	Barani	राज सरकार
8	14	124	5 .		राज सरकार
9	15	156	0		राज सरकार
	16	82	10	-	राज सरकार

क.सं.	खसरा नम्बर	रकबा (बीध	ों में)		खातेदार का नाम
- 151	जगा नन्बर	बीघा	बिस्वा	किस्म भूमि	ज्यातार वर्ग गाव
60	17	154	5	Banjar	राज सरकार
61	18	156	5	Banjar	राज सरकार
62	19	43	- 3	Banjar	राज सरकार
63	20	10	12	Banjar	राज सरकार
64	143	156	5	Banjar	राज सरकार
65	144	156	5	Banjar	राज सरकार
66	145	138	0	Banjar	राज सरकार
67	147	152	0	Banjar	राज सरकार
68	148	156	5	Banjar	राज सरकार
69	149	156	5	Banjar	राज सरकार
70	150	156	5	Banjar	राज सरकार
71	151	91	15	Banjar	राज सरकार
72	152	57	10	Banjar	राज सरकार
73	153	48	0	Banjar	राज सरकार
74	155	69	O	Banjar	राज सरकार
75	156	153	5	Banjar	राज सरकार
76	157	151	15	Banjar	राज सरकार
77	159	36	10	Banjar	राज सरकार
78	160	43	0	Banjar	राज सरकार
79	161	51	10	Banjar	राज सरकार
80	162	89	5	Banjar	राज सरकार
81	163	156	5	Banjar	राज सरकार
82	164	156	5	Banjar	राज सरकार
83	165	156	5	Banjar	राजं सरकार
84	166	156	5	Banjar	राज सरकार
35	167	156	5	Banjar	राज सरकार
36	168	156	5	Banjar	राज सरकार
37	169	156	5	Banjar	राज सरकार
38	170	156	5	Banjar	राज सरकार
19	171	156	5	Banjar	राज सरकार
0	172	156	5	Banjar	राज सरकार
1	173	156	5	Banjar	राज सरकार
2	174	156	5	Banjar	राज सरकार
3	175	156	5	Banjar	राज सरकार
4	176	156	5	Banjar	राज सरकार
5	177	156	5	Banjar	राज सरकार
5	178	156	5	Banjar	राज सरकार
7	179	156	5	Banjar	राज सरकार
3	180	98	10	Banjar	राज सरकार
	181	156	5	Banjar	राज सरकार
0	182	156	5	Banjar	राज सरकार

क सं			(बीघों में)		खातेदार का नाम	
	GIII III	बीघा	बिरुजा	क्रिस् भूमि	जातदार का नाम	
101	186	150	15	Banjar		
102	187	120	0	Banjar	राज सरकार	
103	188 / 410	8	10	1	राज सरकार	
104	189	12	5	Barani	राज सरकार	
105	192	19	0	Barani	राज सरकार	
106	193	72	0	Barani	राज सरकार	
107	194	45	0	Banjar	राज सरकार	
108	195	119	0	Barani	राज सरकार	
109	196	128	5	Banjar	राज सरकार	
110	197	156	5	Banjar	राज सरकार	
111	198	156	5	Banjar	राज सरकार	
112	199	156	5	Banjar	राज सरकार	
113	200	156	5	Banjar	राज सरकार	
114	201	141		Banjar	राज सरकार	
115	202	22	0	Banjar	राज सरकार	
116	203	139	9	Barani	राज सरकार	
117	204	156	0	Banjar	राज सरकार	
118	205	134	5	Banjar	राज सरकार	
119	206	35	5	Banjar	राज सरकार	
120	207	95	10	Barani	राज सरकार	
121	208	156	0	Banjar	राज सरकार	
122	209	133	5	Banjar	राज सरकार	
123	210	33	0	Banjar	राज सरकार	
124	211	13	0	Banjar	राज सरकार	
125	212	144	1	Barani	राज सरकार	
126	213	110	10	Barani	राज सरकार	
127	215 / 401	39	0	Barani	राज सरकार	
128	216	. 8	5.	Barani	राज सरकार	
129	217	143	5	Barani	राज सरकार	
130	218	147		Banjar	राज सरकार	
131	220	141	10	Banjar	राज सरकार	
132	221	95	5.	Banjar	राज सरकार	
33	222	5	15	Banjar	राज सरकार	
.34	223	145	15	Banjar	राज सरकार	
35	224	46	0	Banjar	राज सरकार	
36	225	80	0	Banjar	राज सरकार	
37	226	8	0	Banjar	राज सरकार	
38	228	137	5	Barani	राज सरकार	
39	229	147	5	Banjar	राज सरकार	
40	230	88	12	Banjar	राज सरकार	
41	231	131	13		राज सरकार	



क.सं.	खसरा नम्बर	रकबा (बीध	यों में)	0 0	खातेदार का नाम
	GUU 1194	बीघा	बिस्वा	किरम भूमि	
142	232	25	0	Barani	राज सरकार
143	234	126	0	Banjar	राज सरकार
144	235	37	10	Barani	राज सरकार
145	236	148	- O	Banjar	राज सरकार
146	237	125	0	Banjar	राज सरकार
147	238	13	12	Barani	राज सरकार
148	242	31	13	Barani	राज सरकार
149	243	50	0	Barani	राज सरकार
150	244	93	10	Banjar	राज सरकार
151	245	149	0	Banjar	राज सरकार
152	246	19	10	Barani	राज सरकार
153	247	123	5	Banjar	राज सरकार
154	248	154	5	Banjar	राज सरकार
155	249	25	0	Barani	राज सरकार
156	250	22	10	Barani	राज सरकार
157	251	157	5	Banjar	राज सरकार
158	252	139	5	Banjar	राज सरकार
159	253	156	5	Banjar	राज सरकार
160	254	155	0	Banjar	राज सरकार
161	255 / 411	7	7	Barani	राज सरकार
162	256	127	0	Banjar	राज सरकार
163	257	156	5	Banjar	राज सरकार
164	257 / 398	156	5	Banjar	राज सरकार
165	258	156	5	Banjar	राज सरकार
166	258 / 399	156	5	Banjar	राज सरकार
167	259	5	5	Barani	राज सरकार
168	260	151	0	Banjar	राज सरकार
169	261	156	5	Banjar	राज सरकार
170	262	156	5	Banjar	राज सरकार
171	263	130	5	Banjar	राज सरकार
172	264	25	5	Barani	राज सरकार
173	265	3	0	Banjar	राज सरकार
174	267	27	5	Barani	राज सरकार
175	268	117	5	Banjar	राज सरकार
176	269	156	0	Banjar	राज सरकार
177	271	3	0	Banjar	राज सरकार
.78	272	26	10	Barani	राज सरकार
79	274	52	0	Banjar	राज सरकार
.80	277	17	8	Banjar	राज सरकार
81	279	131	5	Banjar	राज सरकार
82	280	31	8	Barani	राज सरकार

क.र	नं. खसरा नम्बर	रकबा (बी	घों में)		771
	GILL LINGS	बीघा	बिस्वा	किरम् भूमि	खातेदार का नाम
183	281	149	5	-	
184	282	21	5	Banjar	राज सरकार
185	283	140	10	Barani	राज सरकार
186	284	151	5	Banjar	राज सरकार
187	285	156	5	Banjar	राज सरकार
188	286	156	5 .	Banjar	राज सरकार
189	287	156	5	Banjar	राज सरकार
190	288	156	5	Banjar	राज सरकार
191	289	73		Banjar	राज सरकार
192	294	20	11	Banjar	राज सरकार
193	295	36	13	खड़ीन	राज सरकार
194	302	94	5	Banjar	राज सरकार
195	304	10	. 8	Banjar	राज सरकार
196	307	145	2	खड़ीन	राज सरकार
197	308	26	15	Banjar	राज सरकार
198	309		15	Banjar	राज सरकार
199	310	73	5	Banjar	राज सरकार
200	311	86	5	Banjar	राज सरकार
201	314	46	0	Banjar	राज सरकार
202	315	31	5	खड़ीन	राज सरकार
203	316	23	5	Banjar	राज सरकार
204	317	32	5	Banjar	राज सरकार
205		116	0	Banjar	राज सरकार
206	317 / 396	206	5	Banjar	राज सरकार
207	320	142	5	Banjar	राज सरकार
208		150	15	Banjar	राज सरकार
209	320 / 402	131	0.	Banjar	राज सरकार
210	322	151	.5	Banjar	राज सरकार
211	323	155	5	Banjar	राज सरकार
212	324	151	5	Banjar	राज सरकार
213	325	156	5	Banjar	राज सरकार
14	326	181	0 1 4	Banjar	राज सरकार
15	327	4	15	Barani	राज सरकार
16	328	7	0	Barani	राज सरकार
17	329	130	0	Banjar	राज सरकार
18	330	114	5	Banjar	राज सरकार
19	331	25	5	Banjar	राज सरकार
20	332	93	0	Banjar	राज सरकार
21	0.00	156	5	Banjar	राज सरकार
22	204	149	0	Banjar	राज सरकार
23	225	147	5		राज सरकार
	335	156	5		राज सरकार



क.सं.	खसरा नम्बर	रकबा (बीघ	ों में)	C -	खातेदार का नाम
7.11.	जत्तरा नम्बर	बीघा	बिस्वा	किस्म भूमि	
224	336	89	5	Banjar	राज सरकार
225	337	156	5	Banjar	राज सरकार
226	338	156	5	Banjar	राज सरकार
227	339	147	3		राज सरकार
228	340	16	10	Banjar	राज सरकार
229	341	136	5	Banjar	राज सरकार
230	343	153	5	Banjar	राज सरकार
231	344	156	5	Banjar	राज सरकार
232	345	42	5	Banjar	राज सरकार
233	346	123	5	Banjar	राज सरकार
234	346 / 415	8	4		राज सरकार
235	347	156	5	Banjar	राज सरकार
236	348	156	5	Banjar	राज सरकार
237	349	20	5	Banjar	राज सरकार
238	350	139	5	Barani	राज सरकार
239	351	153	10	Banjar	
240	352	156	5	Banjar	राज सरकार
241	353	86	5	Banjar	राज सरकार
242	354	70	0	Banjar	राज सरकार
243	355	156	5	Barani	राज सरकार
244	356	156	5	Banjar	राज सरकार
245	357	156	5	Banjar	राज सरकार
246	358	156	5	Banjar	राज सरकार
247	359	156	5	Banjar	राज सरकार
248	360	94	15	Banjar	राज सरकार
249	361	64	10	Banjar	राज सरकार
250	362	153	5	Barani	राज सरकार
251	363	156	5	Banjar	राज सरकार
.52	364	156	5	Banjar	राज सरकार
253	365	156	5	Banjar	राज सरकार
54	366	156	5	Banjar	राज सरकार
55	367	156	5	Banjar	राज सरकार
56	368	156	5	Banjar	राज सरकार
57	369	156	5	Banjar	राज सरकार
58	370	156	5	Banjar	राज सरकार
59	371	156	-5	Banjar	राज सरकार
50	372	156	5	Banjar	राज सरकार
31	373	23	15	Banjar	राज सरकार
52	374	52	0	Banjar	राज सरकार
33	375	69	5	Banjar	राज सरकार
4	376	101	5	Banjar Banjar	राज सरकार

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कसं	खसरा नम्बर	रकवा (बीघों में)		-		
		बीघा	बिस्वा	किरम भूमि	खातेदार का नाम	
265	377	137	5	D	7787	
266	378	156	5	Banjar	राज सरकार	
267	379	156	5	Banjar	राज सरकार	
268	380	156	5	Banjar	राज सरकार	
269	381	156	5	Banjar	राज सरकार	
270	382	156	5	Banjar	राज सरकार	
271	383	156	5	Banjar	राज सरकार	
272	384	24	0	Banjar	राज सरकार	
273	385	49	5	Banjar	राज सरकार	
274	386	75	15	Banjar	राज सरकार	
275	387	100	0	Banjar	राज सरकार	
276	388	125	0	Banjar	राज सरकार	
277	389	148	0	Banjar	राज सरकार	
278	389 / 414	1604	10 13	Banjar	राज सरकार	
279	390	156	0	Banjar	राज सरकार	
280	391	19	10	Banjar	राज सरकार	
281	391 / 413	111	0	Banjar	राज सरकार	
282	392	46	10	Banjar	राज सरकार	
283	393	156	5	Banjar	राज सरकार	
284	394	17	3	Banjar	राज सरकार	
285	395	17	0	Banjar	राज सरकार	
86	233	123	5	Banjar	राज सरकार	
87	278	104	5	Banjar	राज सरकार	
				Banjar	राज सरकार	

ग्राम गांगा	बीचा	A
खातेदारी		बिस्वा
गैर खातेदारी	797	1,3
जनोपयोगी	189	15
7	0	0
राज सरकार	27764	
	28750	28
	28751.40	

प्रस्तावित एरिया के अंतर्गत आनेवाले भूमियों का विवरण ग्राम घुरिया

क.सं.	खसरा नं.	क्षेत्रप	ਜ ਲ	भूमि	
	GUU I.	बीघा	बिस्वा		खातेदार का नाम
1	2	15	18	GM Nadi	राज. सरकार
2	1	513	12	Banjad	राज. सरकार
3	3	360	0	Banjad	राज. सरकार
4	4	230	15	Banjad	राज. सरकार
5	5	391	10	Banjad	राज. सरकार
6	6	81	5	Banjad	राज. सरकार
7	7	4	5	Banjad	राज. सरकार
8	07/381	51	10	Sivay chak	राज. सरकार
9	07/383	31	0	Sivay chak	राज. सरकार
10	07/384	23	0	Sivay chak	राज. सरकार
11	07/385	21	7	Sivay chak	राज. सरकार
12	8	156	2	Banjad	राज. सरकार
13	8/392	30	0	Sivay chak	राज. सरकार
14	9	150	16	Banjad	राज. सरकार
15	10	261	0	Banjad	राज. सरकार
16	11	169	0	Banjad	राज. सरकार
17	13	115	10	Banjad	राज. सरकार
18	13 / 386	25	0	Sivay chak	राज. सरकार
19	14	220	18	Banjad	राज, सरकार
20	15	156	5	Banjad	राज. सरकार
21	16	156	5	Banjad	राजः सरकार
22	17	83	17	Banjad	राज. सरकार
23	18	133	5	Banjad	राज. सरकार
24	19	124	17	Banjad	राज. सरकार
25	22	59	17	Banjad	राज. सरकार
26	24	27	14	Banjad	राज. सरकार
27	24 / 402	15	0	Banjad	राज. सरकार
28	25 / 403	60	0	Banjad	राज. सरकार
9	26	21	3	Banjad	राज. सरकार
10	30	4	6	Banjad	राज. सरकार
1	32	2	1	Sivay chak	राज. सरकार
2	34	23	0	Banjad	राज. सरकार
3	35	38	15	Banjad	राज. सरकार
4	36	2	14	Banjad	राज. सरकार
5	37	89	0	Banjad	राज. सरकार
6	38	107	1	Banjad	राज. सरकार
7	39	128	10	Banjad	राज. सरकार
В	39 / 392	34	10	Sivay chak	राज. सरकार
9	41	18	2	Banjad	राज. सरकार
)	43	124	0	Banjad	राजः सरकार
1	44	69	5	Banjad	राज. सरकार

क.स.	खसरा न.	क्षेत्रप	न ल	भूमि	
	STATE OF	बीघा	बिस्वा	वर्गीकरण	खातेदार का नाम
42	45	81	5	Banjad	राज. सरकार
43	47	129	10	Banjad	राज. सरकार
44	47 / 380	17	0	Sivay chak	
45	51	199	0	Banjad	राजं. सरकार
46	51 / 377	50	0	Sivay chak	
47	51/378	50	0	Sivay chak	
48	51/379	17	0	Sivay chak	
49	12	75	0	Barani	करीमत पत्नी रोजे खां, जोकी खां, जमाल खां, बेरसी खां, साव खां पि. रोजे खां कौम मुसलमान सा.देह खातेदार रहन बैंक ऑ बडोदा, शाखा खुहडी
50	20	18	0	Barani	
51	21	26	3	Barani	खुदाबक्श पुत्र अलीम खां, कौम मुसलमान सा.देह खाहेदार रहन
52	22 / 409	30	17	Banjad	चेंक ऑफ बडोदा शाखा खुहडी
53	23	61	1	Banjad ·	दायम ख्रां पुत्र जाने खां कॉम मुसलमान सा.देह खातेदार
54	. 31	6	8	Banjad	जिल्ला का का का वा साम नुसलमान सा.वह खातदार
55	32 / 440	7	11	Banjad	
56	25	49	5	Banjad	राणी पत्नी खेरदीन सहबेक, सहबीर, रूस्ताक, मुनेश, सनीफ, नजीरा, पि. खेरदीन कौम मुसलमान सा. देह खातेदार रहन बैंक ऑफ बडोदा शाखा खुहडी
57	26 / 434	25	15	Banjad	300
58	27	2	0	Banjad	इनाम खां पुत्र सबरे खां कौम मुसलमान सा. देह खातेदार एहन
59	28	4	0	Banjad	बैंक ऑफ बडोदा शाखा खुहडी
60	29	3	14	Banjad	
61	24 / 419	7	10	Banjad	
62	25 / 420	7	16	Banjad	*
63	33	9	15	Banjad	सुजावल पुत्र ठाकरा कौम मुसलमान आदेह खातेदार रहन बैंक
64	23 / 423	42	5	Banjad	ऑफ बडोदा शाखा खुहडी
35	18 / 422	23	0	Banjad	
66	42	25	0	Banjad	जमना पुत्र ताहिर कौम मुसलमान, सा.देह खातेदार रहन बैंक ऑ
67	43 / 400	50	0	Banjad	बंडीता शाखा जैसलमेर
88	61 / 446	64	10	Panied	बच्ची पत्नी मार खां गुलाम खां हिंगोर खां, पि. मार खां अमिया
69	19 / 401	75	0	B : 1	भागे खा पत्र ताहिर खां कीम मुसलमान सा देह, खातेदार रहन गुलाम खां
0	22 / 407	45	0		जवर्तुर बार प्रामाण बक आफ कनाइ के पक्ष में। जमाली पत्नी माणक, सतार महार प्रि. माणक कीम माणक है।
1	23 / 408	30	0	Banjad	खातेदार रहन बैंक ऑफ बडोदा शाखा खुहड़ी
2	25 / 453	25	0		अलाबराई पत्नी बरियाम खां, हाकिम, हयाती, बखती, सावणी पि. बरियाम खां नावालिग जरिये वली माता अलाबराई पत्नी बरियाम खां कौम मुसलमान देह खातेदार
3	25 / 454	7	4	Banjad a	त्सीब खां पुत्र सबरे खां कौम मुसलमान सा.देह खातेदार रहन कि ऑफ बडोदा शाखा खुहडी

क.सं.	खसरा नं.	क्षेत्रप	^क ल	भूमि	
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74	26/430	35	0	Banjad	सांजा पत्नी सहदे खां खैर मोहम्मद खान के
75	4/428	75	0	-	उपरामा सा दह खातहार
76	44 / 406	75	0	Banjad	दीनू खां पुत्र रूपे खां कौम मुसलमान सा.देह खातेदार
77	45 / 439	75	0	Banjad Banjad	लखनदीन पुत्र वली मोहम्मद कौम मुसलमान सा.देह खातेदार मेहराण खां, कुतब खा पि. रहीम खां, नियामत, इनी, रजीना, पुत्रिया रहीम खां, कॉम मुसलमान, सा.देह खातेदार रहन बैंक ऑ बडोदा शाखा खुहडी
78	6/418	75	0	Banjad	नूरी पत्नी अलाबराये खां, गागन खां, एजाज खां पि. अलाबराये खां, इमामत, दादली पुत्रियां अलाबराये खां कौम मुसलमान ख.देह खातेदार
79	83 / 444	30	0	Banjad	धाई पत्नी सिधल खां नाजे खां हमल खां पि. सिधल, करीमत पत्नी हारून सायबा, जरीना, इतिया पुत्री हारून नाबालिंग वली माता करीमत मीरा पत्नी हनीफ युनूस पि. हनीफ नाबालिंग वली माता मीरा, इसमत पत्नी अलायना, असफाक अयातुला गनी
30	84 / 445	45	0	Banjad	शाहनियाज कुरानी, जेती पि. अलायना कौम मुसलमान सा. देह
31	85 / 448	1	0	GM Abadi	गैर मुमकीन आबादी

	T	
खातेदारी	1131	14
गैर खातेदारी	0	0
जनोपयोगी	16	18
सरकारी भूमि	4859	12
	6006	44
	6008.20	

पस्तावित

1	खसरा न			भूमि वर्गीकरण	विवरण ग्राम हटार चौहानी खातेदार का नाम
-	-	116	10	Banjad	राज सरकार
2	2	30	7	Banjad	राज सरकार
3	3	271	10	Khatedar	नखती पत्नी तखतसिंह भीमसिंह, प्रेमसिंह, पुत्र तखतसिंह, किशनोकंवर, ताजूकंवर पुत्री तखतसिंह कमला पत्नी मुल्तानसिंह, दीपसिंह, विजयसिंह, जीतेन्द्रसिंह पुत्र मुल्तानसिंह, सतीकंवर, गुडीकंवर पुत्री मुल्तानसिंह कौम राजपूत सा.देह गैर खातेदार
4	4	52	15	Barani	राज सरकार
5	5	83	10	Khatedar	उगसिंह, मंगलसिंह, संगतसिंह, गिरधारीसिंह, पि. ईश्वरसिंह, कवरांकवर पत्नी रावतसिंह, करनसिंह, मोकमसिंह, मेहलाब बिंह गि
6	123	113	17	Khatedar	रावतिसंह, कवरांकवर पत्नी उगसिंह, चुतरसिंह शैतानसिंह, दीपसिंह, पि. उगसिंह, कमला पत्नी जोधसिंह, करनसिंह पुत्र जोधसिंह कौम राजपूर ब.हि.ब. खातेदार
7	6	0	2	Banjad	राज सरकार
8	7	0	3	Banjad	राज सरकार
9	8	62	12	Gair Khatedar	गेमरसिंह पुत्र तखतसिंह कौम राजपूत बृहि ब
10	14/1150	12	8	Gair Khatedar	गैर खातेदार
11	9	25	14	Khatedar	बख्तावरसिंह पुत्र जवारसिंह कौम राजपूत ब. हि.ब. खातेदार
12	10	14	17	Banjad	राज सरकार
13	11	7	15	Banjad	राज सरकार
14	12	46	0	Banjad	राज सरकार
15	13	153	19	Banjad	राज सरकार
16	14	112	12	Banjad	राज सरकार
17	15	93	14	Banjad	राज सरकार
18	16	155	8	Banjad	राज सरकार
19	17	92	5	Banjad	राज सरकार
20	18	129	0	Banjad	राज सरकार
21	19	45	7	Banjad	राज सरकार
22	20	8	7	Banjad	राज सरकार
23	21	67	7	Barani	राज सरकार
24	22	69	1	Banjad	राज सरकार
25	23	25	0	Banjad	राज सरकार
26	24	114	17	Banjad	राज सरकार
27	25	2	17	Banjad	राज सरकार
28	26	124	13	Barani	राज सरकार
29	27	3	4	Banjad	राज सरकार
1	28	145	8	Banjad	राज सरकार
1	29	49	10	Banjad	राज सरकार

क.सं.	खसरा नं.	क्षेत्र	प्रफल	भूमि वृगीकरण	खातेदार का नाम
32	30	158	14	Banjad	राज सरकार
33	31	156	5	Banjad	राज सरकार
31	32	121	7 .	Banjad	राज सरकार
35	33	65	10	Banjad	राज सरकार
36	34	65	10	Banjad	राज सरकार
37	35	3	15	Banjad	राज सरकार
38	36	59	11	Barani	राज सरकार
39	37	105	11	Banjad	राज सरकार
40	38	56	0	Banjad	राज सरकार
41	39	115	6	Banjad	राज सरकार
42	40	39	17	Gair Khatedar	कंवराकवर पत्नी रावतसिंह, करनसिंह, मोकमसिंह, मेहताबसिंह पि. रावतसिंह कौम राजपूत सा.देह गैर खातेदार
43	41	120	10	Banjad	राज रारकार
44	42	94	15	GM Gochar	राज सरकार
45	43	30	6	Khatedar	सवाईसिंह जसवन्तसिंह सांवलसिंह पि. गोरधनसिंह, जमनाकंवर, टीपूकंवर, कुन्ताकंवर लीलाकंवर, गंडडीकंवर, पि. गोरधनसिंह कौम राजपूत सा. देह खातेदार जैसलमेर प्रा. सहकारी भूमि विकास बैंक लि. जैसलमेर
46	44	8	6	Gair Khatedar	सवाईसिंह जसवन्तसिंह सांवलसिंह पि. गोरधनसिंह कौम राजपूत ब.हि.ब. गैर खातेदा
47	45	64	15	Magra	राज सरकार
48	46	74	17	Magra	राज सरकार
49	47	32	18	GM Nadi	राज सरकार
50	48	3	6	Pal	राज सरकार
51	49	118	18	Magra	राज सरकार
52	50	28	6	Magra	राज सरकार
53	51	152	17	Banjad	राज सरकार
54	52	70	3	Magra	राज सरकार
55	53	5	6	Banjad	राज सरकार
66	54	114	16	Banjad	राज सरकार
57	55	4	15	Banjad	राज सरकार
8	56	41	15	Gair Khatedar	अर्जुनसिंह पुत्र बखतसिंह कौम राजपूत ब.हि.ब गैर खातेदार
9	57	93	10	Banjad	राज सरकार
0	58	156	5	GM Gochar	राज सरकार
1	59	81	5	Banjad	राज सरकार
2	60	110	13	Banjad	राज सरकार
3	61	3	9	Banjad	राज सरकार
4	62	90	4	Banjad	राज सरकार
5	63	6	13	Barani	राज सरकार

क.सं.	खसरा नं.	क्षेत्र	प्रफल	भूमि वर्गीकरण	खातेदार का नाम
66	64	101	7	Banjad	राज सरकार
67	65	2	12	Banjad	राज सरकार
68	66	16	12	Banjad	राज सरकार
69	67	33	7	Banjad	राज सरकार
70	68	40	6	Banjad	राज सरकार
71	69	1	2	Banjad	राज सरकार
72	70	1	10	mandir	राज सरकार
73	71	100	2	GM Oran	राज सरकार
74	72	7	18	GM Oran	राज सरकार
75	73	47	2	Baran	राज सरकार
76	74	106	13	Barani	राज सरकार
77	75	47	0		
78	76	152	0	magra Banjad	राज सरकार
79	77	109	3	Banjad	राज सरकार
80	78	79	8		राज सरकार
0.1			0	Banjad	राज सरकार
81	79	31	7	Gair Khatedar	सुजानसिंह पुत्र हेमसिंह कौम राजपूत ब.हि. गैर खातेदार
82	80	144	7	Banjad	राज सरकार
83	81	53	2	Banjad	राज सरकार
84	82	37	5	Gair Khatedar	बागसिंह पुत्र प्रागसिंह पि. पीरदानसिंह की राजपूत ब.हि.ब. गैर खातेदार
85	83	60	0	Barani	राज सरकार
86	84	29	14	Banjad	राज सरकार
87	85	133	7	Banjad	राज सरकार
88	86	88	17	Banjad	राज सरकार
89	87	1	12	Banjad	राज सरकार
90	88	94	4	Banjad	राज सरकार
91	89	4	5	Banjad	राज सरकार
92	90	46	11	Gair Khatedar	सादुलसिंह, भीखसिंह, धनसिंह पि. खुशालसि कौम राजपूत सा.देह गैर खातेदार
93	91	6	10	Banjad	राज सरकार
94	92	26	3	Khatedar	
95	93	33	6	Khatedar	पोकरसिंह पुत्र महादानसिंह कौम राजपूत सा देह खातेदार
6	94	15	12	Khatedar	
7	95	19	16	Banjad	राज सरकार
8	96	78	12	Banjad	राज सरकार
9	97	96	4	Banjad	
00	98	121	7	Banjad	राज सरकार
01	99	53	15		राज सरकार
)2	100	41	17	Gair Khatedar	स्यरूपकवर पत्नी किशनसिंह, भाखरसिंह पि.
3	101	40	1	Gair Khatedar	भंवरसिंह, पपू पुत्री भंवरसिंह सीता पत्नी भंवरसिंह कौम राजपूत सा.देह गैर खातेदार
4	102	65	5	Gair Khatedar Gair Khatedar	- या द्वातवार

क.सं.	खसरा नं	18	वात्रफल		
105	103	78	9	भूमि वर्गीकरण	खातेदार का नाम
106	104	46	13	Gair Khatedar	
107	105	33	0	Gair Khatedar	
	106		-	Gair Khatedar	
108	100	51	3	Gair Khatedar	उगसिंह पुत्र बेरीसालसिंह, कौम राजपूत सा.दे
109	107	5	15	Khatedar	सुजानसिंह पुत्र हेमसिंह कौम राजपूत सा देह
110	122	30	5	Bahjad	राज सरकार
111	108	108	11	Banjad	राज सरकार
112	109	10	4	Banjad	राज सरकार
113	110	34	5	Barani	राज सरकार
114	111	115	2	Banjad	राज सरकार
115	112	156	5	Banjad	राज सरकार
116	113	151	0	Banjad	राज सरकार
117	114	155	12	Banjad	राज सरकार
118	115	133	17	Banjad	राज सरकार
119	116	67	7	Banjad	राज सरकार
120	117	18	0	Banjad	राज सरकार
121	118	51	9	Gair Khatedar	जोधसिंह पुत्र ईसरसिंह कौम राजपत या देह
122	119	116	0	Banjad	गर खातदार
123	120	137	4	Banjad	राज सरकार
124	121	32	18	Banjad	राज सरकार
125	124	131	0	Banjad	राज सरकार
126	125	42	6	Banjad	राज सरकार
127	126	153	11	Banjad	राज सरकार
128	127	54	15	Banjad	राज सरकार
129	128	132	5	Banjad	राज सरकार
130	129	9	12	Barani ,	राज सरकार
131	130	73	16	Gair Khatedar	लालाराम पुत्र चतराराम कौमी मेहावणी उप
132	131	99	10	Banjad	धाणेली गैर खातेदार
133	132	62	18	Banjad	राज सरकार
134	133	122	9	Banjad	राज सरकार
135	134	114	12	Banjad	राज सरकार
136	135	156	5	Banjad	राज सरकार
137	136	156	5	Banjad	राज सरकार
.38	137	71	15		राज सरकार
.39	138	2	15	3,1,1,1	राज सरकार
40	139	131	16	Banjad	राज सरकार
41	140	2	2	Banjad	राज सरकार
42	141	2	6	Banjad	राज सरकार
43	142	1	16	Barani	राज सरकार

कर	त. खसरा नं.	क्षे	त्रफल	भूमि' वर्गीकरण	
144	143	7	17	Barani	खातेदार का नाम
145	144	147	17	Banjad	राज सरकार
146	145	156	5	Banjad	
147	146	146 156		Banjad	राज सरकार
148	147	150	16	Banjad	राज सरकार
149	The same of the sa		15	Banjad	राज सरकार
150	149	81	10	Banjad	राज सरकार
151	150	51	6	Barani	राज सरकार
152	151	13	18	The state of the s	राज सरकार
153	152	3	6	Banjad	राज सरकार
154	153	16	6	Banjad	राज सरकार
155	154	140	18	Banjad	राज सरकार
156	155	7	13	Magra	राज सरकार
157	156	55	7	Magra	राज सरकार
158	157	112	-	Banjad	राज सरकार
159	158	129	0	Banjad	राज सरकार
160	159	156	13	Magra	राज सरकार
161	160	100	4	Magra	राज सरकार
		128	6	Barani	राज सरकार
162	161	24	3	Khatedar	बागसिंह, पिरागसिंह पि. पीरदानसिंह 1/2, नगसिंह पुत्र तखतसिंह 1/2 कौम राजपूत र देह खातेदार
163	162	64	18	Banjad	राज सरकार
164	163	156	5	Banjad	राज सरकार
165	164	156	5	Banjad	राज सरकार
166	165	84	15	Banjad	राज सरकार
167	166	80	19	Banjad	राज सरकार
168	167	76	5	Banjad	राज सरकार
169	168	34	7	Barani	राज सरकार
170 171	169	69	0	Gair Khatedar	गोरधनराम पुत्र लालराम कौम मेगवंशी सा. धाणेली गैर खालेदार
1/1	170	82	0	Banjad	राज सरकार
172	171	67	17	Gair Khatedar	विसना पुत्र तिलोका कौम मेघवंशी साधाणेली
173	172	69	0	Gair Khatedar	धर्माराम हरचन्दराम पि. सुमराराम तुलछी पत्नपी सुमराराम कौम मेगवंशी सा टेड गैर
174	173	88	1	Magra	खातदार
175	174	156	5	Magra	राज सरकार
76	175	152	5	Magra	राज सरकार
.77	176	11	4	Magra	राज सरकार
78	177	19	7	Banjad	राज सरकार
70	178	66	6	Banjad	राज सरकार
79		0.00	0	Baniad	राज सरकार



क.स	. खसरा नं	क्षेत्र	प्रफल	भूमि वर्गीकरण	खातेदार का नाम
181	240	79	13	Banjad	राज सरकार
182	241	31	15	Banjad	राज सरकार
183	242	27	0	Gair Khatedar	सुमरा पुत्र रूपाराम कौम मेगवंशी सा देह गैर खातेदार
184	243	10	17	Banjad	राज सरकार
185	261	98	5	Banjad	राज सरकार
186	262	30	15	Banjad	राज सरकार
187	129 / 1127	75	0	Gair Khatedar	लालाराम पुत्र सरदाराराम कौम मेगवंशी सा. धाणेली गैर खातेदार
188	102 / 1151	75	0	Gair Khatedar	दाखो पत्नी शेरसिंह माणकसिंह, जोधसिंह, बाबूसिंह पि. शेरसिंह, माणकसिंह, जोधसिंह, बाबूसिंह, नाबालिंग समस्त माता दाखों पत्नी शेरसिंह कौम राजपूत सा.देह गैर खातेदार
189	140 / 1148	25	0	Gair Khatedar	सुहागी पत्नी शेरू खां फतेह खां, फेंजमोहम्मद
190	141 / 1149	5	0	Gair Khatedar	शेखे खां पि. शेरू कौम मुसलमान सा.फलेडी
191	160 / 1131	75	0	Gair Khatedar	उतमसिंह पुत्र खानूसिंह कौम राजपूत सा.देह
192	160 / 1138	75	0	Gair Khatedar	भूरसिंह पुत्र मूलसिंह केंकू रेखा, हुवा, ईन्नू पुत्री मूलसिंह कौम राजपूत सा.देह गैर खातेदार
193	162 / 1129	75	5	Gair Khatedar	हरखा पुत्र तिलोकाराम कौम मेघवंशी सा. धाणेली गैर खातेदार
194	240 / 1120	75	0	Gair Khatedar	पदमाराम पुत्र प्रभुराम कौम मेगवंशी सा.हटार गैर खातेदार
195	243 / 1108	57	10	Gair Khatedar	भागूराम पुत्र सुमारराम कौम मेगवंशी सा.देह गैर खातेदार
196	261 / 1109	57	10	Gair Khatedar	चानणाराम पुत्र सुमराराम कौम मेगवंशी सा देह गैर खातेदार
197	37 / 1124	67	0	Gair Khatedar	जोरसिंह पुत्र मानसिंह कौम राजपूत सा.देह गैर खातेदार
198	4/1140	75	0	Gair Khatedar	जेवूसिंह पुत्र गंगासिंह कौम राजपूत सा देह गैर खातेदार रहन जैसलमेर प्रा. सहकारी भूमि विकास बैंक लि. जैसलमेर
199	43 / 1089	30	7	Gair Khatedar	सुरतानसिंह पुत्र गंगासिंह कौम राजपूत सा देह गैर खातेदार
200	43 / 1090	30	7	Gair Khatedar	शिवदानसिंह पुत्र गंगासिंह कौम राजपूत सा.देह गैर खातेदार जैसलमेर प्रा. सहकारी भूमि विकास बैंक लि. जैसलमेर
201	44 / 1091	30	0	Gair Khatedar	गुमानसिंह पुत्र गंगासिंह कौम राजपूत सा.देह गैर खातेदार
202	44 / 1161	8	6	Gair Khatedar	सुल्तानसिंह पुत्र गंगासिंह कौम राजपूत सा देह गैर खातेदार
203	44 / 1162	3	6	Gair Khatedar	शिवदानसिंह पुत्र गंगासिंह कौम राजपूत सा.देह गैर खातेदार
04	44 / 1163	8	5	Gair Khatedar	गुमानसिंह पुत्र गंगासिंह कौम राजपूत सा देह गैर खातेदार

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क.सं.	खसरा नं.	क्षेत्र	प्रफल	भूगि वर्गीकरण	खातेदार का नाम
205	44 / 1164	44 / 1164 8		Gair Khatedar	कंवराजसिंह पुत्र गंगासिंह कौम राजपूत सा.देह गैर खातेदार
206	44 / 1165	8	5	Gair Khatedar	जेंबूसिंह पुत्र गंगासिंह कौम राजपूत सा.देह गै खातेदार रहन जैसलमेर प्रा. सहकारी भूमि विकास बैंक लि. जैसलमेर
207	44 / 1166	8	5	Gair Khatedar	द्वारकासिंह पुत्र गंगासिंह कौम राजपूत सा.देह गैर खातेदार
208	57 / 1115	21	15	Gair Khatedar	अर्जुनसिंह धुत्र बखतिसंह कौम राजपूत सी.देह गैर खातेदार
209	6/1092	66	5	Gair Khatedar	जोधसिंह पुत्र ईसरसिंह कौम राजपूत सा.देह गैर खातेदार
210	6/1096	75	0	Gair Khatedar	कंवराकंवर पत्नी रावतसिंह, करनसिंह, मोकमसिंह, मेहताबसिंह पि. रावतसिंह कौम राजपूत सा.देह गैर खातेदार
211	63 / 1147	7 60 15 Gair Khatedar		Gair Khatedar	चूनाराम पुत्र मगाराम कौम मेघवशी सा.देह कीर खातेदार
212	69 / 1146	75	0	Sair Khateder	जगमालसिंह सादुलसिंह, गेनसिंह, प्रोकरसिंह पि. राणसिंह कौम राजपूत सा.देह गैर खातेदार
213	77 / 1119	28	3	Gair Khatedar	सुजानसिंह पुत्र हेमसिंह कौम राजपूत सा.देह
214	78 / 1118	15	10	Gair Khatedar	गैर खातेदार
215	37 / 1123	57	15	Gair Khatedar	अर्जुनसिंह, गोरधनसिंह नाथुसिंह कौम राजपूत सा.तेजसी गैर खातेदार
216	17 / 1122	63	10	Gair Khatedar	कलाराम पुत्र बीदाराम कौम मेगवंशी सा.देह गैर खातेदार
217	57 / 1115	21	15	Gair Khatedar	अर्जुनसिंह पुत्र बखतसिंह कौम राजपूत सा.र्वह गैर खातेदार
218	59 / 1116	75	0	Gair Khatedar	कल्याणसिंह पुत्र बखतसिंह कौम राजपूत सा. देह गैर खातेदार
219	9/543	25	13	Khatedar	दईदानसिंह पुत्र जवारसिंह कौम राजपूत सा. देह खातेदार

ग्राम हटार म	य चौहानी		
खातेवारी	383	19	
गैर खातेदारी	2241	15	
जनोपयोगी	37	14	
राज सरकार	11665	15	
	14326	63	
	14329.15		



प्रस्तावित एरिया के अंतर्गत आनेवाले भूमियों का विवरण ग्राम जामडा

क.सं. खसरा नं. वीघा बिरवा भूमि वर्गीकरण काश्तकार का 1 2 130 0 GM Gochar राज सरका 2 3 6 15 Banjad राज सरका 3 4 100 12 Banjad राज सरका 4 5 63 10 Banjad राज सरका 5 6 156 5 Banjad राज सरका 6 7 156 5 Banjad राज सरका 7 8 156 5 Banjad राज सरका 9 10 156 5 Banjad राज सरका 10 11 156 5 Banjad राज सरका 11 14 156 5 Banjad राज सरकार	र र र र
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5 156 5 Banjad राज सरका 6 7 156 5 Banjad राज सरका 7 8 156 5 Banjad राज सरका 8 9 156 5 Banjad राज सरका 9 10 156 5 Banjad राज सरका 10 11 156 5 Banjad राज सरका 11 14 156 5 Banjad राज सरका	र
7 156 5 Banjad राज सरकार 8 9 156 5 Banjad राज सरकार 9 10 156 5 Banjad राज सरकार 10 11 156 5 Banjad राज सरकार 11 156 5 Banjad राज सरकार	
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8 9 156 5 Banjad राज सरकार 9 10 156 5 Banjad राज सरकार 10 11 156 5 Banjad राज सरकार	7
9 10 156 5 Banjad राज सरकार 10 11 156 5 Banjad राज सरकार	
10 11 156 5 Banjad राज सरकार	
11 14 150	
12 15 156 5 Pagind	
13 102 136 8 GM Acco	
14 103 43 18 GM Agor	
15 104 22 0 Paried राज सरकार	
16 105 152 11 Panied राज सरकार	
17 106 153 0 CMM	
18 107 156 5 8	
19 108 156 5 Paried राज सरकार	C. C.
20 109 87 0 Parid राज सरकार	
21 110 10 19 CMM	
22 111 128 8 Parist	
23 112 14 10 Paried राज सरकार	
24 112 जिंदावित राज सरकार	
राज सरकार	
र ११६ ।	
राज सरकार	
8 117 राज सरकार	
9 118 15 Banjad राज सरकार 9 118 15 9 Khatedari किशनसिंह, मालसिंह पि. द्वारकासिंह कौम राज कै ऑफ बडोदा शाखा खुहडी	जपूत सा.देह खातेदार र
0 119 55 15 D	
1 120 154 8 Baniad	
2 121 129 15 Paried राज सरकार	
3 122 140 5 Paried राज सरकार	
राज सरकार 123 9 13 GM Noti	
5 124 146 12 GM Agor	
125 156 5 Paried राज सरकार	
126 156 5 Paried राज सरकार	
127 156 5 Paried राज सरकार	
राज सरकार	
128 156 5 Banjad राज सरकार	

3.

क.स. खर	खसरा नं	क्षेत्र	क्षेत्रफल	-0 "	
3 . (1,	91111 1.	बीघा	बिस्वा	भूमि वर्गीकरण	काश्तकार को नाम
40	129	156	5	Banjad	राज सरकार
41	130	156	5	Banjad	राज सरकार
42	131	156	5	Banjad	
43	132	156	5	Banjad	राज सरकार
44	133	156	5	Banjad	राज सरकार
45	134	156	5	Banjad	राज सरवार
46	135	156	5	Banjad	राज सरकार
47	136	156	5	Banjad	राज सरकार
48	137	156	5	Banjad	राज सरकार
49	138	156	5	Banjad	राज सरकार
50	139	156	5	Banjad	राज सरकार
51	140	156	5		राज सरकार
52	141	156	5	Banjad	राज सरकार
53	142	156	5	GM Gochar	राज सरकार
54	143	156		GM Gochar	राज सरकार
55	144	156	5	GM Gochar	राज सरकार
56	145		5	GM Gochar	राज सरकार
57	146	156	5	GM Gochar	राज सरकार
58	147	113	. 10	Banjad	राज सरकार
		16	7 .	Khatedari	राणैदानसिंह सुजानसिंह पि. महादानसिंह कौम राजपूत सा देह खातेदा
59	378	11	12	Khatedari	विभावनाति की हिस्सी रहने बके आफ बड़ीदा शाखा खुहड़ी हि. बरार
60	148	155	0	Banjad	राज सरकार
61	149	3	4	Banjad	
62	150	30	3	Barani	राज सरकार
63	151	150	7	Banjad	राज सरकार
64	152	152	10	Banjad	राज सरकार
65	153	37	16	GM Magra	राज सरकार
36	154	134	0	Banjad	राज सरकार
37	155	6	0	Banjad	राज सरकार
	156	83	5	Banjad	राज सरकार
88	157	92	5	Banjad	राज सरकार
88	157				राज सरकार
	158	145	5	Banjad	
39		145	5	Banjad Banjad	राज सरकार
0	158			Banjad	राज सरकार राज सरकार
70 71 72	158 159	156	5	Banjad Banjad	राज सरकार राज सरकार राज सरकार
0	158 159 160	156 156	5	Banjad Banjad Banjad	राज सरकार राज सरकार राज सरकार
39 70 71 72	158 159 160 161	156 156 156	5 5 5	Banjad Banjad Banjad Banjad	राज सरकार राज सरकार राज सरकार राज सरकार राज सरकार
69 CO	158 159 160 161 162	156 156 156 156	5 5 5 5	Banjad Banjad Banjad Banjad Banjad	राज सरकार राज सरकार राज सरकार राज सरकार राज सरकार
69 70 71 72 33 44 55	158 159 160 161 162 163	156 156 156 156	5 5 5 5 5	Banjad Banjad Banjad Banjad Banjad Banjad	राज सरकार राज सरकार राज सरकार राज सरकार राज सरकार राज सरकार
70	158 159 160 161 162 163 164	156 156 156 156 156 156	5 5 5 5	Banjad Banjad Banjad Banjad Banjad Banjad Banjad	राज सरकार राज सरकार
70 1 2 3 3 4 4 5 6 6 7 7	158 159 160 161 162 163 164 165	156 156 156 156 156 156	5 5 5 5 5 5 5	Banjad Banjad Banjad Banjad Banjad Banjad	राज सरकार राज सरकार राज सरकार राज सरकार राज सरकार राज सरकार

क.सं. ख	खसरा नं.	खसरा नं	क्षे	त्रफल	0 ~	
	GUU 1,	बीघा	बिस्वा	भूमि वर्गीकरण	काश्तकार का नाम	
81	169	156	5	Banjad		
82	170	156	5	Banjad	राज सरकार	
83	171	154	0	Banjad	राज रारकार	
84	172	30	0	Banjad	राज सरकार	
85	173	124	0	GM Magra	राज सरकार	
86	174	0	10	GM Magra	राज सरकार	
87	175	156	5		राज सरकार	
88	176	45	0	Banjad	राज सरकार	
89	177	134	0	Banjad	राज सरकार	
90	178	5	4	Banjad	राज सरकार	
91	179	73	15	Banjad	राज सरकार	
92	180	156		Banjad	राज सरकार	
93	181	156	5	Banjad	. राज सरकार	
94	182	131	5	Banjad	राज सरकार	
95	183	10	0	Banjad	राज सरकार	
96	184	103	0	Banjad	राज सरकार	
97	185		0	Barani	राज सरकार	
98	186	78	5	Banjad	राज सरकार	
99	187	156	5	Banjad	राज सरकार	
100	188	156	5	Banjad	राज सरकार	
101		156	5	Banjad	राज सरकार	
102	189	156	5	Banjad	राज सरकार	
103	190	156	5	Banjad	. राज सरकार	
103	191	156	5	Banjad	राज सरकार	
	192	133	0	Banjad	राज सरकार	
105	193	5	0	Banjad	राज सरकार	
106	194	26	19	Khatedari	पन्नेसिंह पुत्र सुखसिंह कौम राजपूत सा देह खातेदार (न्यायालय द्वार निरस्त किया गया)	
107	195	170	15	Barani		
108	196	0	4	Banjad	राज सरकार	
109	197	117	10	Banjad	राज सरकार	
110	198	62	9	Banjad	राज सरकार	
111	199	138	3	Banjad	राज सरकार	
112	200	9	18	Banjad	राज सरकार	
113	201	57	5	GM Magra	राज सरकार	
114	202	143	15	Banjad	राज सरकार	
115	203	14	0	Banjad	राज सरकार	
116	204	105	19	Banjad	राज सरकार	
117	205	156	5	Banjad	राज सरकार	
118	206	156	5	Banjad	राज सरकार	
119	207	135	10	Banjad	राज सरकार	
120	208	39	16		राज सरकार इंदानसिंह पुत्र पीरदानसिंह कौम राजपूत सा देह ऐलोटी गैर खातेदार	
21	209	1			and the same of th	

क.सं.	खसरा नं	A. Property and the same of th	प्रफल	notes on	
		बीधा	बिस्वा	भूमि वर्गीकरण	काश्तकार का नाम
122	210	145	0	Banjad	राज सरकार
123	211	156	5	Banjad	राज सरकार
124	212	124	19	Banjad	राज सरकार
125	213	98	10	Banjad	राज सरकार
126	214	3	2	Barani	राज सरकार
127	215	145	0	Banjad	राज सरकार
128	216	27	0	Barani	राज सरकार
129	217	23	11	Khatedari	तुलछी पत्नी पिरदानसिंह तर्नरावसिंह देवीसिंह खीमसिंह भेरूसिंह सेउसिंह गोरधनसिंह अधूकवर, गीता मनू पि पीरदानसिंह कौम राजपूत सा देह खातेदार
130	218	36	0	Barani	
131	219	2	0	Banjad	राज सरकार
132	220	140	10	Baniad	राज सरकार
133	221	156	0	Banjad	राज सरकार
134	222	136	10	Banjad	राज सरकार
135	223	13	13	Barani	राज सरकार
136	224	6	0	Khatedari	राज सरकार दईदानसिंह अर्नुनसिंह चूनसिंह सांवलसिंह अखसिंह लीला पत्नी अखसिंह कौम राजपूत सा देह खातेदार ब.हि. बराबर
137	225	1	11	Banjad	
138	226	141	8	Banjad	राज सरकार
139	227	156	5	Banjad	राज सरकार
140	228	156	5	Banjad	राज सरकार
141	229	156	5	Banjad	राज सरकार
142	230	156	5	Banjad	राज सरकार
143	231	156	5	Banjad	राज सरकार
144	232	156	5	Banjad	राज सरकार
145	233	156	5	Banjad	राज सरकार
146	234	156	5	Banjad	राज सरकार
147	235	156	5	Banjad	राज सरकार
148	236	156	5	Banjad	राज सरकार
49	237	156	5	Banjad	राज सरकार
50	238	156	5	Banjad	राज सरकार
51	239	156	5	Banjad	राज सरकार
52	240	156	5	Banjad	राज सरकार
53	241	156	5	Banjad	राज सरकार
54	242	8	0	Banjad	राज सरकार
55	243	137	0	Banjad	राज सरकार
56	244	40	18	Banjad	राज सरकार
57	245	156	0	Banjad	राज सरकार
58	246	97	19	Banjad	राज सरकार
59	247	10	0	Banjad	राज सरकार
30	248	140	0	Banjad	राज सरकार
31	249	156	5	Banjad	राज सरकार
	<u> </u>			Jamara cor	



क.स	. खसरा नं.		त्रफल	2167 -a	
		बीघा	बिस्वा	भूमि वर्गीकरण	काश्तकार का नाम
162	250	156	5	Banjad	राज सरकार
163	251	156	5	Banjad	राज सरकार
164	252	156	5	Banjad	
165	253	156	5	Banjad	राज सरकार
166	254	27	0	Banjad	राज सरकार
167	255	145	0	Banjad	राज सरकार
168	256	152	5	Banjad	राज सरकार
169	257	19	17	Barani	राज सरकार
170	258	12	19	Khatedari	राज सरकार चन्दनसिंह पुत्र डूंगरसिंह, भवानीसिंह देरावरसिंह पि. शोभसिंह कौम राजपूत सा.पिथला खातेदार
171	259	31	15	Banjad	
172	260	17	14	Barani	राज सरकार
173	261	113	8	Banjad	राज सरकार
174	262	91	0	Banjad	राज सरकार
175	263	20	15	Banjad	राज सरकार
176	264	155	0	Banjad	राज सरकार
177	265	156	5	Banjad	राज सरकार
178	266	156	5	Banjad	राज सरकार
179	267	41	18	Banjad	राज सरकार
180	268	90	3	Banjad	राज सरकार
181	269	156	5	Banjad	राज सरकार
82	270	156	5	Banjad	राज सरकार
83	271	107	5	Banjad	राज सरकार
84	272	35	5	Banjad	राज सरकार
85	273	156	5	Banjad	राज सरकार
86	274	135	0	Banjad	राज सरकार
87	275	100	0	Banjad	राज सरकार
88	276	31	18	Banjad	राज सरकार
39	277	28	0	Banjad	राज सरकार
90	278	156	5	Banjad	राज सरकार
91	279	111	5	Banjad	राज सरकार
92	280	126	5	Banjad	राज सरकार
93	281	147	18	Banjad Banjad	राज सरकार
94	282	13	0	Banjad	राज सरकार
95	283	143	0	Banjad	राज सरकार
6	284	6	9	Khatada	राज सरकार पन्नेसिंह पुत्र सुखसिंह कौम राजपूत सा देह खातेदार रहन बैंक ऑफ बडोदा शाखा खुहडी
7	285	89	0	Barani	
8	286	135	15	Barani	राज सरकार
9	287	12	0	Vhotada: 3	राज सरकार आईदानसिंह, बखतसिंह, मगसिंह पि. पीरदानसिंह, हमतू पत्नी गेरदानसिंह कौम राजपूत सा. देह खातेदार
Ö	288	24	10	Banjad	
1	289	154	12	Banjad	राज सरकार

1 42	सं. खसरा न	8	त्रफल			
_	Guer 4.	बीघा	बिस्वा	- भूमि वर्गीकरण	काश्तकार का नाम	
20	290	156	5	Banjad	T. Alex	
20	3 291	150	18	Banjad	राज सरकार	
20	4 292	132	5	Banjad	राज सरकार	
20	5 293	88	16		राज सरकार	
20	6 294	156	5	Banjad	राज सरकार	
207	7 295	100	0	Banjad	राज सरकार	
208	3 296	156	5	Banjad	राज सरकार	
209	297	154	0	Banjad	राज सरकार	
210	298	7	0	Banjad	राज् सरकार	
211	299	51	15	Banjad	राज सरकार	
212	200		10	Barani	राज सरकार	
213	-	41	7	Khatedari	तगिसह पुत्र हरलालसिंह कौम राजपूत सा देह खातेदार रहन बँक ऑ बंडोदा शाखा खुहडी	
214		78	0	Banjad	राज सरकार	
-	302	144	5	Banjad		
215	303	151	10	Banjad	राज सरकार	
216	304	18	14	Khatodari	राणीदानसिंह सुजानसिंह पि. महादानसिंह दईदानसिंह अर्जुनसिंह दूनसिंह सांवलसिंह पि. अखसिंह लीला पत्नी अखसिंह अलसीसिंह पुत्र अजनारें कौम राजपूत सा देह खातेदार रहन बैंक ऑफ बडोदा शार खुहडी	
217	305	37	12	Barani		
218	306	65	0	Banjad	राज सरकार	
219	307	51	5	Banjad	राज सरकार	
220	308	123	0		VI H JUGGET	
-			8	Banjad	राज सरकार	
221	309	78	2	Banjad Banjad	राज सरकार	
222	310			Banjad	राज सरकार राज सरकार	
222 223	310 311	78	2	Banjad Banjad	राज सरकार राज सरकार	
222 223 224	310	78 24	2 12	Banjad Banjad Banjad	राज सरकार राज सरकार राज सरकार राज सरकार	
222 223 224 225	310 311 312 313	78 24 78	12 3	Banjad Banjad Banjad Banjad	राज सरकार राज सरकार राज सरकार राज सरकार	
222 223 224 225 226	310 311 312 313 314	78 24 78 156	2 12 3 5	Banjad Banjad Banjad Banjad Banjad	राज सरकार राज सरकार राज सरकार राज सरकार राज सरकार	
222 223 224 225 226 227	310 311 312 313 314 315	78 24 78 156 91	2 12 3 5 15	Banjad Banjad Banjad Banjad	राज सरकार राज सरकार राज सरकार राज सरकार राज सरकार राज सरकार	
222 223 224 225 226 227 228	310 311 312 313 314 315 316	78 24 78 156 91 156	2 12 3 5 15 5	Banjad Banjad Banjad Banjad Banjad Banjad	राज सरकार	
222 223 224 225 226 227 228 229	310 311 312 313 314 315 316 317	78 24 78 156 91 156 156	2 12 3 5 15 5 5 5	Banjad Banjad Banjad Banjad Banjad Banjad Banjad Banjad	राज सरकार	
222 223 224 225 226 227 228 229 230	310 311 312 313 314 315 316 317 318	78 24 78 156 91 156 156 156	2 12 3 5 15 5 5	Banjad Banjad Banjad Banjad Banjad Banjad Banjad Banjad Banjad	राज सरकार	
222 223 224 225 226 227 228 229 230	310 311 312 313 314 315 316 317	78 24 78 156 91 156 156 156 156	2 12 3 5 15 5 5 5	Banjad	राज सरकार	
222 223 224 225 226 227 228 229 230 231	310 311 312 313 314 315 316 317 318 319	78 24 78 156 91 156 156 156 156	2 12 3 5 15 5 5 5 0	Banjad	राज सरकार	
222 223 224 225 226 227 228 229 230 231	310 311 312 313 314 315 316 317 318 319 320	78 24 78 156 91 156 156 156 156 10 73	2 12 3 5 15 5 5 5 0 0	Banjad	राज सरकार	
222 223 224 225 226 227 228 229 230 231 32	310 311 312 313 314 315 316 317 318 319 320	78 24 78 156 91 156 156 156 156 173	2 12 3 5 15 5 5 5 0 0	Banjad	राज सरकार	
222 223 224 225 226 227 228 229 230 231	310 311 312 313 314 315 316 317 318 319 320 321 322 323	78 24 78 156 91 156 156 156 156 173 9	2 12 3 5 15 5 5 0 0 0 13 10 15	Banjad	राज सरकार	
222 223 224 225 226 227 228 229 230 231 232 33 34 35	310 311 312 313 314 315 316 317 318 319 320 321 322 323 324	78 24 78 156 91 156 156 156 156 10 73 9	2 12 3 5 15 5 5 0 0 0 13 10 15 19	Banjad	राज सरकार	
222	310 311 312 313 314 315 316 317 318 319 320 321 322 323	78 24 78 156 91 156 156 156 156 173 9 73 86 134	2 12 3 5 15 5 5 0 0 0 13 10 15 19 0	Banjad	राज सरकार	



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	GIII	1.	बीघा	बिस्वा	भूमि वर्गीकरा	काश्तकार का नाम
	239 32	7	143	10	Banjad	The state of the s
	240 328	3	156	5	Banjad	राज सरकार
	241 329	9	156	5		राज सरकार
1	242 330		156	5	Banjad	राज सरकार
2	243 331		156	5	Banjad	राज सरकार
2	244 332		150	5	Banjad	राज सरकार
2	245 333		154	14	Banjad	राज सरकार
2	334		2	19	Banjad	राज सरकार
2	47 335		75	0	Banjad	राज सरकार खेतसिंह छगनसिंह पि. प्रतापसिंह सीतादेवी पत्नी प्रतापसिंह कौम
2	48 336		6	40		राजपूत सा.देह ऐलोटी गैर खातेदारी
2				18	Barani	राज सरकार
24	49 337		11	10	Khatedari	भवरसिंह भगवानसिंह पि. जेठमालसिंह कौम राजपूत सा देह खातेदार
25			12	7	Khatedari	किरानसिंह, मालसिंह पि. द्वारकासिंह कौम राजपूत सा.देह खातेदार रह बैंक ऑफ बडोदा शाखा खुहडी
25	000	2	23	15	Barani	जाना बुल्डा
25	040	2	24	11	Barani	राज सरकार
25	011	1	9	0	Khatedari	राज सरकार
254	000	1	1	17	Khatedari	राणीदानसिंह सुजानसिंह पि. महादानसिंह दईदानसिंह अर्जुनसिंह यूनसिंह सांवलसिंह पि. अखसिंह लीला पत्नी अखसिंह अलसीसिह पुत्र
255	707	2	9	16	Khatedari	अचलसिंह कौम राजपूत सा देह खातेदार रहन बैंक ऑफ बडोदा शार खुहडी
256	720	2	9	19	Khatedari	बुहडा
257	042	0		5	GM Beriya	2.
258	043	2		9	GM Magra	राज सरकार
259	044	10	6	8	Banjad	राज सरकार
260	040	40		10	Banjad	राज सरकार
261	346	0		5	GM Mandir	राज सरकार
262	347	509	9	10	GM Oran	राज सरकार
263	348	115	5	5	Banjad	राज सरकार
264	349	63		13	Banjad	राज सरकार
65	350	3		7	Banjad	राज संरकार
66	351	25		13	Rarani	राज सरकार किशनसिंह, मालसिंह पि. द्वारकासिंह कौम राजपूत सा.देह खातेदार रहन बैंक ऑफ बडोदा शाखा खटनी
67	352	40		5	Banjad	बैंक ऑफ बडोदा शाखा खुहडी
88	353	10		15		राज सरकार
39	354	0		10	Banjad	राज सरकार
0	355	94	_	5	Banjad	राज सरकार
1	356	24		8	Banjad	राज सरकार
2	357	30	_	3	Banjad	राज सरकार
3	358	111	_	0	Banjad	राज सरकार
4	359	38			Barani	राज सरकार
5	360	3	1		Banjad	राज सरकार
6	361	118	3		M Magra	राज सरकार
7	362	156			Banjad	राज सरकार
-		-100	5		Banjad	राज सरकार

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40.0	जसरा न.	बीघा	बिस्वा	भूमि वर्गीकरा	ण काश्तकार का नाम
278	363	156	5	Banjad	
279	364	156	5	Banjad	राज सरकार
280	365	7 .	5		राज सरकार
281	366	71	5	Banjad	राज सरकार
282	367	156	5	Banjad	राज सरकः,र
283	368	156	0	Banjad	राज सरकार
284	369	156	5	Banjad	राज सरकार
285	370	156	5	Banjad	राज सरकार
286	371	143	-	Banjad	राज सरकार
287	372	156	19	Banjad	राज सरकार
288	373		5	Banjad	राज सरकार
289	374	156	5	Banjad	राज सरकार
290	375	156	5	Banjad	राज सरकार
291	376	156	5	Banjad	राज सरकार
292	377	156	5	Banjad	राज सरकार
293	379	150	15	Banjad	राज सरकार
294	380	11	10	Barani	राज सरकार
295	381	115	10	Banjad	राज सरकार
296		43	18	Barani	राज सरकार
297	382	70	, 8	Banjad	राज सरकार
298	383	114	15	Banjad	राज सरकार
299	384	149	18	Banjad	राज सरकार
300	385	96	2	Banjad	राज सरकार
301	386	14	2	Banjad	राज सरकार
301	387	158	1	Barani	JULY TOWN
302	388	11	17	Khatedari	भंवरसिंह भगवानसिंह पि. जेठमालसिंह 1/2 तुलछी पत्नी पीरदानसिंह तनेरावसिंह देवीसिंह खीमसिंह भेरूसिंह सेउसिंह गोरधनसिंह अधूकंवर गीता मनू पि. पीरदानसिंह 1/2 कौम राजपूत सा देह खातेदार रहन बैंक ऑफ बंडोदा शाखा खुहडी
103	389	95	12	Barani	
04	390	71	13	GM Magra	राज सरकार
05	391	12	1	GM Magra	राज सरकार
06	392	36	19	GM Magra	राज सरकार
07	393	59	19	GM Magra	राज सरकार
08	394	154	18	GM Magra	राज सरकार
09	395	31	17	Barani	राज सरकार
10	397	10	9	GM Magra	राज सरकार
1	398	9	0	GM Magra	राज सरकार
2	399	151	5	GM Magra	राज सरकार
3	400	23	19	Khatedari	राज सरकार वन्नेसिंह पुत्र ईश्वरसिंह 1/2 अलसीसिंह तगसिंह पि. हरलाल 1/2 कौम राजपूत सा देह खातेदार पन्नेसिंह ईश्वरसिंह का 1/2 हि. रहन
4	401	6	0	Banjad	
6	402	94	0	Banjad	राज सरकार

.सं. खसरा - 16 403 17 404 8 405	बीघ 156	। बिस्वा	भूमि वर्गीकर		
7 404	156		राग पंगापार	काश्तकार का नाम	
404	_	5	Banjad		
8 405.	156	5	Banjad	राज सरकार	
	82	0	Banjad	राज सरकार	
9 406	54	5	Banjad	राज सरकार	
0 408	5	17	Banjad	राज सरकार	
1 409	88	11		राज सरकार	
2 410	82	5		राज सरकार	
411	10	18		राज सरकार	
412	54	0		राज सरकार	
413	153	0		राज सरकार	
414	156	5		राज सरकार	
415	99	10		राज सरकार	
416	145	0		राज सरकार	
417	1	19		राज सरकार	
418	1			राज सरकार	
419	33			राज सरकार	
420	88			राज सरकार	
421	9			राज सरकार	
422	141	-	The same of the sa	राज सरकार	
423	42			राज सरकार	
424				राज सरकार	
425				राज सरकार	
426				राज सरकार	
427				राज सरकार	
		-		राज सरकार	
429	114	15	Khatedari	अलसीसिंह, तगसिंह पि. हरलालसिंह पन्नेसिंह पुत्र ईश्वरसिंह. पन्नेसिंह पुत्र अलसीसिंह, उजलालसिंह राणीवानसिंह, सुजानसिंह पुत्र अचलसिंह, राणीवानसिंह, सुजानसिंह पुत्र अचलसिंह, राणीवानसिंह, सुजानसिंह पुत्र अहावानसिंह, वईदानसिंह, अर्जुनसिंह, द्युनसिंह सांवलसिंह पि. अखसिंह लीला पत्नी अखसिंह भंवरसिंह, भगवानसिंह पि. जेठूसिंह खीमसिंह भेरूसिंह सेउसिंह गोरधनसिंह अधूकंवर, गीता मनू पि पीरवानसिंह किसनसिंह मालसिंह पि. द्वारकारिंह कौम राजपूत सा देह खातेवार रहन बैंक ऑफ बडोदा शाखा खुहडी पन्नेसिंह पुत्र सुखसिंह पन्नेसिंह पुत्र ईश्वरसिंह का हिस्सा रहन किशनसिंह मालसिंह पि. द्वारकारिंह का हिस्सा रहन।	
430	14	2	Ranie 1		
431	115		The state of the s	राज सरकार	
432	416	9		राज सरकार	
433	7			राज सरकार	
434	14		-	राज सरकार	
435	98			राज सरकार	
436	53			राज सरकार	
437	21			राज सरकार	
438	0			राज सरकार	
439				राज सरकार	
3	410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 429 430 431 432 433 434 435 436 437 438	410 82 411 10 412 54 413 153 414 156 415 99 416 145 417 1 418 1 419 33 420 88 421 9 422 141 423 42 424 132 425 50 426 0 427 150 429 114 430 14 431 115 432 416 433 7 434 14 435 98 436 53 437 21 438 0	2 410 82 5 3 411 10 18 4 412 54 0 4 413 153 0 414 156 5 415 99 10 416 145 0 417 1 19 418 1 10 419 33 16 420 88 15 421 9 0 422 141 16 423 42 0 424 132 5 425 50 9 426 0 5 427 150 7 430 14 2 431 115 54 432 416 9 433 7 0 434 14 0 435 98 10 436 53 15 437 21 5 438 0	2 410 82 5 Banjad 3 411 10 18 Banjad 4 412 54 0 Banjad 4 413 153 0 Banjad 4 415 99 10 Banjad 4 16 145 0 Banjad 4 17 1 19 GM Gochar 4 18 1 10 Banjad 4 19 33 16 Banjad 4 19 33 16 GM Gochar 4 20 88 15 GM Gochar 4 21 9 0 Eanjad 4 22 141 16 GM Gochar 4 23 42 0 Banjad 4 24 132 5 GM Gochar 4 25 50 9 Banjad 4 26 0 5 GM Beriya 4 27 150 7 GM Gochar 4 29 114 15 Khatedari 4 33 7 0 Banjad 4 33 7 0 Banjad 4 33 7 0 Banjad 4 34 14 0 Banjad 4 35 98 10 Banjad 4 36 53 15 Banjad 4 37 21 5 Banjad 4 38 0 5 Banjad	

कस	खसरा नं	क्षेत्रफल		- Q - Q		
4. (1.	CACICI 1.	बीघा	बिस्वा	भूमि वर्गीकरण	काश्तकार का नाम	
351	440	12	2	Banjad	राज सरकार	
352	212 / 460	13	17	Gair Khatedari	ऑईबानसिंह पुत्र पीरदानसिंह कौम राजपूत सा देह ऐलोटी गैर खातेदार	
353	313 / 459	60	0	Gair Khatedari	जोरसिंह पुत्र अचलसिंह कौम राजपूत सा.देह ऐलोटी गैर खातेदारी	
354	441/407	13	0	Sivay chak	राज सरकार	
355	443 / 216	25	0	Gair Khatedari	יייי בייייי אווייייי אוויייייי אוויייייייייי	
356	444 / 335	11	16	Sivay chak	राज सरकार	
357	445 / 308	75	0	Barani	राज सरकार	
358	446 / 306	19	0	Sivay chak	राज सरकार	
359	336 / 461	33	8	Gair Khatedari	भंवरसिंह भगवानसिंह पि. जेठमालसिंह कौम राजपूत सा.देह ऐलोटी गैर खातेदारी	
360	345 / 458	60	0	Gair Khatedari	तुलछसिंह पुत्र जवारसिंह कौम राजपूत सा.देह ऐलोटी गैर खातेदार्ग	

	बीघा	बिरवा
खातेदारी	571	3
गैर खातेदारी	192	5
जनोपयोगी	10	0
सरकारी भूमि	34740	12
	35513	20
	35549	



प्रस्तावित एरिया के अंतर्गत आनेवाले भूमियों का विवरण ग्राम कनोई

Ф.₹	ं. खसरा न		क्षेत्रफत	न i	भूमि वर्गीकर	रण खातेदार का नाम			
1	198		00	15	Banjad				
2	199	4	12	15	Banjad	राज. सरकार			
3	200		02	5	GM gocha	राज. सरकार			
4	201		36	3					
5	202			-	GM gocha				
6		1		5	Barani	गंगाकवर पत्नी गोरधनसिंह, शैतानसिंह पुत्र गोरधनसिंह जाति राजपूत देह खातेदार			
7	203	1	6	10	GM gochar				
8	204	14	7	3	GM gochar	राज. सरकार			
9	205	31	1	0	GM gochar	राज. सरकार			
10	210	11	6	17	GM gochar	राजा. सरकार			
11	215	5		0	Barani	राजा. सरकार			
_	216	56		9	Barani	राज. सरकार			
12	217	85	-	18	GM gochar	राजः सरकार			
13	218	34	1	9	Barani	राज. सरकार			
14	219	85	1	9	GM gochar	राज सरकार			
15	220	25		5	Barani	राज. सरकार			
16	218 / 1367	36	8	3	Barani	जगमालसिंह, शेरसिंह पि. केशरसिंह, जडकवर पत्नी केशरसिंह राजपूत स देह गैर खातेदार			
17	221	13	7	,	Barani				
18	222	69	5		GM gochar				
19	223	144	10		GM gochar	राज. सरकार			
20	224	156	3		GM gochar	राज. सरकार			
21	225	156	5		The same of the sa	राज. सरकार			
22	226	71	8	_	GM gochar	राज. सरकार			
23	227	68	15		M gochar	राज. सरकार			
4	228	107	15		M gochar	राज. सरकार			
5	229	27	_	+	M gochar	राज. सरकार			
6	230	12	11	-	Barani	घोराशाम पुत्र मंगलाराम कौम मेघवंशी सा देह खातेदार रहन थार आंचलिक प्रामीण बैंक कनोई			
7		12	9	-	Barani				
	291	30	5		Barani	अमोलख राम पुत्र मारूराम सा.देह खातेदार रहन जयपुर थार ग्रामीण बैंक कनोई			
+	232	121	18	G	M gochar	राज. सरकार			
+	233	167	17	G	M gochar	राजः सरकार			
+	234	29	16		Barani	राज सरकार			
-	235	80	13	GI	M gochar				
-	236	117	16		M gochar	राज सरकार			
-	237	18	5			राज. सरकार अर्जुनसिंह पुत्र जीवराजसिंह कौम राजपूत सा.देह खातेदार			
	238	35	6		3	पुरतिसंह पि. सोहनसिंह, केंकू पत्नी बलवन्तसिंह भूरसिंह पुत्र बलवन्तसिंह, गिसिंह खेतसिंह, दानसिंह पि. तगसिंह कौम राजपूत सा.देह खातेदार रहन गिर आंचलिक ग्रामीण बैंक कनोई भगसिंह, खेतसिंह का हिस्सा रहन			
	239	144	12	GM	gochar	23.111.561			
	240	139	14			राज. सरकार			
	241	153	5	_	anjad	राज. सरकार			
	242	156	5	The same and since	anjad	राज सरकार			
	243	56	17		anjad	राज. सरकार			
-			11	-13	anjad	राज सरकार			

1.	खसरा न.	क्षेत्रफल		भूमि वर्गीकरण	faic	दार का नाम राज, सरकार
0	244	70	2	Banjad		राज. सरकार
1	245	84	18	Banjad		राज सरकार
2	246	38	10	Barani		ाराम, उदाराम पि. पीथाराम केंकू पत्नी पीथाराम समदा, देती पुत्री
3	247	21	12	Barani		
44	248	17	3	Bareni		भाराम पुत्र सुरताराम कौम मेघवशी सा सम खातेदार रहन थार आंचलिक सील बेंड कनोई
45			19	Barani	स	ज़शी पंजी माणकाराम रणजीताराम रामूराम ज्वाराराम पि. माणकराम कान
46	249	13		Barani	12	धवाल सा.सम खातवार खूराम पुत्र रूपाराम कौम मेगवंशी सा.देह खातेदार रहन थार आंचलिक तमीण बैंक कनोई
40	250	23	2		-	राज. सरकार
47	251	31	1	Barani		रिखों पुत्री सांगाराम कौम मेगवंशी सा.सम खातेदार रहन जैसलमेर प्राथमिक
48	252	40	16	Barani	1-	ति पुत्री सीनारित वेक लि. जैसलमेर सहकारी भूमि विकास बैंक लि. जैसलमेर गोविन्दा पुत्र बाकीयाराम कौम मेगवंशी सा.संभ गैर खातेदार
49	253	35	0	Barani	7	राज सरकार
50	254	33	10	Barani		राज. सरकार
51	255	135	13	Barani		राज. सरकार
52	256	156	5	Banjad		राज. सरकार
53	257	156	5	Banjad		राज. सरकार
54	258	156	5	Banjad	- 1	राज. सरकार
55	-	156	5	Banjad	27	राज. सरकार
56		34	10	Banjac		अर्जुनराम पुत्र खुशालाराम कौम मेगवंशी सा.सम गैर खातेदार
57		74	16	Baran		अर्जुनराम पुत्र खुशालाराम काम मगवशा सारास पर अर्थाराम पनाशम, गैनाराम, दसराम, पि. हसणाराम, सूजों पत्नी हसणाराम कौम
58		29	0	Barun	i	केन्वर जा सम गैर खातेदारी
59	263	23	3	Barar	i	गुमानाराम् पुत्र भवरूराम कौम मेघवाल सा.सम गैर खातेदार
6		49	1	9 Barar	ni	चूनिया पुत्र रिङगल कौग गेघवंशी सा.सम खातेदार रहन थार आंचलिक ग्रामीण बैंक कनोई
6	1 265	6	-	GM Ra	sta	राज, सरकार
- Canada	2 266	9		6 Banja	id	राज. सरकार
-	267	13		5 Bara	ni	राज. सरकार
-	34 268	14	4	2 Banj	ad	राज. सरकार
-	35 269	77	7	11 Banj	ad	राजः सरकार
	66 270	44	4	18 Banj	ad	राज. सरकार
	67 271	6	5	12 Banj	ad	राज. सरकार
-	68 272	11	17	5 Ban		राज. सरकार
	69 273	6	0	19 Ban	-	राज. सरकार
-	70 274	8	8	9 Ban		राज. सरकार
	71 275	2	23	14. Ban		राज. सरकार
-	72 276		8	13 Bar		चान सरकार
	73 277		0	15 GM	-	
	74 278		80		ijad	राज. सरकार
	75 279	1	142		ijad	राज. सरकार
	76 280)	6		njad	राज. सरकार
	77 28		32	18 Ba	njad	शेरसिंह पुत्र भवरलाल जाति जैन नि. राखेचा पाड़ा खातेदार तनसिंह
	78 283		29	2 Ba	rani	बागसिंह

क	.सं. खसरा न	Ť. 8	शैत्रफल	भूमि वर्गीकर	एप खातेदार का नाम
7	79 283				जारदार का नाम
8	30 284			Julijad	राज. सरकार
8	285	12		- mijad	राज, सरकार
8	2 286	8		7 GM nad	. राज. सरकार
8				- July lad	े राज. सरकार
84		15		- July and	राज. सरकार
85	-	15		Danjad	राज. सरकार
86		29		- anjud	राज. सरकार
87		24		- Trusta	राजः सरकार
88		74		- Janjaca	राज. सरकार
89		18		Barani	सुमान पुत्र फता कौम मेरासी सा.देह खातेदार
90	300	66		Banjad	राज. सरकार
91	301	73	0	Banjad	राज. सरकार
92	302	2	14	GM nadi	राज सरकार
93	303	85	6	Banjad	राज, सरकार
	315	52	5	Banjad	राज, सरकार
94	800	17	14	Banjad	राज. सरकार
95	801	17	6	Barani	नखतों पत्नी जीवराज सिंह प्रयागसिंह, चनणसिंह पुनमसिंह पि. जीवराजसिं रहन थार आंचलिक ग्रामीण बैंक कनोई चनणसिंह पूनमसिंह का हिस्सा रहन मुक्त
	802	17	11	Barani	ध्डीकंवर पत्नी भंवरसिंह, शिवदानसिंह, मूलसिंह, शोभसिंह, मानसिंह, अभुयुसिंह, पि. भंवरसिंह कौम राजपूत सा.देह खातेदार रहन थार आंचलिक ग्रामीं ग बैंक शाखा कनोई मानसिंह अभयसिंह धूडीकंवर का हिस्सा रहन शैदानसिंह मूलसिंह व शोभसिंह का हिस्सा रहन
97	803	42	5	Banjad	
98	817	136	8	Banjad	राज. सरकार
99	812	8	2	Banjad	राज. सरकार
100	813	26	17	Banjad	राज. सरकार
101	814	1	17	GM Rasta	राज सरकार
102	815	75	13	Banjad	राज. सरकार
103	816	32	14	Banjad	राज. सरकार
104	817	0	10	GM Rasta	राज. सरकार
105	818	37	6		राज. सरकार
106	819	152	13	Banjad	राज. सरकार
107	820	201	10	Banjad	राज. सरकार
08	821	223	14	Banjad	राज. सरकार
09	198 / 1394	13		Banjad	राज. सरकार
10	199 / 1393	16	10	GM road	राज. सरकार
11	201 / 1421	2	0	GM road	राज. सरकार
12	202 / 1371	1	10	GM road	राजः सरकार
13	203 / 1420		12	GM road	राज. सरकार
14	204 / 1419	12	10	GM road	राज. सरकार
5	205 / 1418	4	12	GM road	राज. सरकार
6	205/1418	17	0	GM road	राज संरकार
	222 / 1287	75	0		तिलोकाराम पुनमाराम, राणाराम गोरधनराम पिता उतमाराम माजू पत्नी उदाराम कबीराराम, रमेशकुमार अमोलखराम पि उदाराम, लक्ष्मी बबरी पूरी सुगनों जेठी पुत्रियान कौम भील सा.देह गैर खातेदार
7	222 / 1288		-		उ अन्या प्राप्त भारत सिंदिह गाउँ उमार्ककल

क.स.	खसरा न	क्षेत्र	फल	भूमि वर्गीकरण	खातेदार का नाम
118	230 / 1248	13	17	Barani	राज. सरकार
119	249 / 1219	26	1	Barani	
120	249 / 1220	16	2	Barani	भोजा पुत्र निराउ कौम मेगवंशी सा.देह खातेदार रहन आचलिक ग्रामीण बैंव शाखा कनोई सम्पर्ण खाता रहन
121	250 / 1221	1/	5	Barani	लेखुराम पुत्र रूपाराम कौम मेगवंशी सा देह खातेवार रहन थार आंचलिक ग्रामीण बैंक कनोई
122	253 / 1261	11	12	Barani	राज. सरकार
123	254 / 1428	75	0	Barani	भूराराम पुत्र रिंडमलराम कौम मेगवशी सा.सम गैर खातेदार
124	255 / 1225	39	2	Barani	पासराम पुत्र बरसर कौम मेघवंशी सा.सम खातेदार रहन थार आंचलिक ग्रामीण बैंक कनोई
125	260 / 1313	46	4	Banjad	राज सरकार
126	260 / 1314	75	0	Banjad	राज. सरकार
127	262 / 1260	5	15	Barani	राज सरकार
128	263 / 1223	24	3	Barani	गुमानाराय पुत्र भवरूराम कौम मेघवाल सा.सम गैर खालेदार
129	264 / 1222	43	3	Barani	प्रामारम पुत्र टीलाराम कौम मेघवंशी सा.सम खातेदार रहन पंजाब नेशनल बैंक सम पूर्ण खाता
130	267 / 1224	20	3	Barani	राज. सरकार
131	278 / 1292	28	10	Barani	राज, सरकार
132	283 / 1290	92	0	Barani	राज. सरकार
133	283 / 1291	52	17	Banjad	राज. सरकार
134	286 / 1351	30	10	Banjad	आतम पुत्र दीला कीम मेंशसी सा.देह गैर खातेदार
135	299 / 1500	18	16	Barani	चतुर्भुज पुत्र स्वरूपाराम कौम प्रजापत सा.देह खातेदार
136	301 / 1289	25	0	Barani	लाखुराम, ऑकारराम देदूराम पि. लुणाराम मीरा, इसू पुत्रियान लूणाराम कौम मेघवंशी सा.देह गैर खातेदार
137	316 / 1395	1	6	GM road	
138	813 / 1293	396	6	Barani	राज, सरकार
130	1025	4	4	Banjad	राज. सरकार
140	1025	4	4	GM Dnani	राजः सरकार
141	1026	106	9	Banjad	राज. सरकार
142	1027	4	13	GM Dhani	
143	1031	129	4	Banjad	राज. सरकार्थ
144	1032	47	8	Banjad	राज. सरकार
145	1034	114	18	Banjad	राज. सरकार
146	1035	160	2	Banjad	राज. सरकार
147	1039	45	2	Barani	चांदाराम पुत्र रामाराम कौम कुम्हार, सा.देह खातेदार रहन जैसलमेर प्रा. सहकारी भूमि विका वैंक लि. जैसलमेर

ग्राम कनोई			
खातेदारी	597	9	
गैर खातेदारी	464	0	
जनोपयोगी	114	16	
डी.एन.पी.	8081	2	
	9256	27	
	9257.35		

प्रस्तावित एरिया के अंतर्गत आनेवाले भूमियों का विवरण ग्राम कोरिया

.क.सं.	काश्तकार का नाम	खसरा नं.	क्षेत्रप	क ल	0 %	
	373,770,7 40, 3101	वसरा न.	बीघां	बिस्वा	भूमि वर्गीकरण	काश्तकार का नाम
1	राज. सरकार	77	55	15	Banjad	राज सरकार
2	राज. सरकार	78	42	2	Banjad	राज सरकार
3	राज. सरकार	79	121	17	Banjad	राज सरकार
4	राज. सरकार	80	1	5	Banjad	राज सरकार
5	राज. सरकार	81 / 224	40	2	Banjad	राज संरकार
6	राज. सरकार	82	10	10	Banjad	राज सरकार
7	राज. सरकार	83	63	10	Banjad	राज सरकार
8	राज. सरकार	84	102	13	Banjad	राज सरकार
9	राज. सरकार	85	156	5	Banjad	राज सरकार
10	राज. रारकार	86	105	1	Banjad	राज सरकार
11	राज. सरकार	87	155	5	Banjad	
12	राज. सरकार	118	54	3	Banjad	राज सरकार
13	राज. सरकार	119	147	0	Banjad	राज सरकार
14	राज. सरकार	177	156	5	Banjad	Control Control Control Control
15	राज. सरकार	180	167	12	Banjad	राज सरकार
16	राज. सरकार	182	154	17	Banjad	राज सरकार
17	गैर खातेदार	81	80	10	Barani	मलुका पत्नी मुहलाबक्ष रहीश, रमेश, रईसा, रोशना पि. मोहलाबक्श चारों नाबालिंग जरिये वली माता मलूका पत्नी मोहलाबक्श कोम मुसलमान सा. देह गैर खातेदार

खातेदारी		0
गैर खातेदारी	80	- 0
जनोपयोगी	80	10
राज सरकार	0	0
	1534	2
डी.एन.पी. की भूमि	1614	0
डि. ९न.पा. का मूाम	1614.00	

Ф. स.	खसरा न	क्षे	त्रफल	भूमि वर्गीकरण	में भूमियों का विवरण ग्राम मेहबूब का पार
1	59	154	10	GM aagor	खातेदार का नाम राज सरकार
2	60	89	5	GM aagor	राज सरकार
3	62	129	0	GM aagor	राज सरकार
4	63	54	1	GM aagor	राज सरकार
5	65	20	6	GM aagor	राज सरकार
6	68	155	14	GM aagor	राज सरकार
7	71	150	10	GM aagor	राज सरकार
8	73	151	19	GM aagor	राज सरकार
9	75	151	19	GM aagor	राज सरकार
10	77	154	10	GM aagor	राज सरकार
11	78	25	19	GM aagor	
12	96	3	13	GMb rasta	राज सरकार
13	98	3	6	GMb rasta	राज सरकार
14	54	27	7	barani	राज सरकार
15	55	156	3	-	राज सरकार
16	67	135	-	barani	राज सरकार
17	79	52	14	banjad	ः राज सरकार
18	80	156	4	banjad	राज सरकार
19	81	-	5	banjad	राज सरकार
20	93	156	5	banjad	राज सरकार
21	93	120	0	barani	राज सरकार
22		152	7	barani	राज सरकार
23	95	51	5	Banjad	राज सरकार
24	97	14	3	banjad	राज सरकार
25	99	3	5	barani	राज सरकार
26	100	30	2	barani	राज सरकार
7	101	156	5	banjad	राज सरकार
8	102	153	5	banjad	राज सरकार
-	104	133	8	banjad	राज सरकार
9	105	144	7	banjad	राज सरकार
0	108	117	11	banjad	राज सरकार
1	109	103	4	banjad	राज सरकार
2	110	46	7	banjad	राज सरकार
3	111	46	8	banjad	राज सरकार
1	112	156	5	banjad	
5	113	156	5	banjad	राज सरकार
	114	156	5	banjad	राज सरकार
	115	147	6	banjad	राज सरकेंगर
	116	7		The state of the s	राज सरकार
	117	134	16		राज सरकार
_	118	17	-	barani	राज सरकार
	119	9	6	barani	राज सरकार
+	120		3	barani	राज सरकार
+	121	145	1 .	barani	राज सरकार
-		156	5	barani	राज सरकार
retermination	122	156	5	barani	राज सरकार



क्र.सं. 29	खसरा नम्बर	रकबा		0 0		
	9111 191	बीघा	बिस्वा	भूमि वर्गीकरण	खातेदार का नाम	
	486	51	10	Barani	राज सरकार	

खातेदारी	66	
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जनोपयोगी	19	10
राजकीय भूमि		4
राजपगय नूनि	2481	6
	2601	3
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प्रस्तावित एरिया के अंतर्गत आनेवाले भूमियों का विवरण ग्राम सम

क.सं	. खसरा नं.	क्षेत्र	फल	भूमि वर्गीकरण	ग काश्तकार का नाभ
1	212	103	5	Banjad	राज सरकार
2	212 / 593	53	0	Banjad	राज सरकार
3	214	36	7	Baran	राज सरकार
4	217	31	7	Barani	राज सरकार
5	219 / 446	8	14	Barani	राज सरकार
6	220	42	8	Banjad	राज सरकार
7	221	11	6	Banjad	
8	222	149	7	Banjad	राज सरकार
9	223	135	12	Banjad	राज सरकार
10	224	29	9	Banjad	राज सरकार
11	225	97	10	Banjad	राज सरकार
12	226	53	8	Banjad	राज सरकार
13	227	21	5	Banjad	राज सरकार
14	228	156	0	Banjad	राज सरकार
15	229	85	14	Banjad	राज सरकार
16	230	156	5	Banjad	राज सरकार
17	231	122	5	Banjad -	राज सरकार
18	232	114	15	Banjad	राज सरकार
19	199 / 589	29	0	Banjad	पनाराम, गैनाराम पि. हसणराम, प्रीतम, नन्दू हपाराम बालम पि. दरूराम, नेनू पत्नी दरूराम, सूजा पत्नी हसण जाति मेघवाल सा. देह खातेदार
20	218	23	0	Barani .	मूलचन्द, सत्यनारायण पि. आईदान, मोतिया, रायकंवर, शान्ति, मीना पुत्रियान आईदान 1/3 लूणी देवी पत्नी आशाराम 1/3 डूंगरदास पुत्र चानणमल1/3 कौम महाजन सा.देह खातेदार
21	216	31	18	Barani	हरिदास, दामोदरदास पि. माणकचन्द जाति महाजन सा.देह
22	227 / 591	25	0	Banjad	आचार पुत्र बहादूर जाति मुसलमान सा. सगरों की बस्ती गैर खातेदार
23	220 / 638	75	0_	Banjad	धनराज, नारायणदास पि. मुल्तानचन्द जाति सोनी, सा.देह हाल जैसलमेर गैर खातेदार
24	231 / 597	33	10		भीखचन्द पुत्र राधाकिशन जाति खत्री सा.देह गैर खातेदार
25	232 / 598	41	10	Banjad	41
26	212 / 674	49	17	Banjad [‡]	नगना पुत्र सोना, कौम मेघवाल, सा.देह गैर खातेदार
27	225 / 560	54	10	Danied	नठार पुत्र बहादूर जाति मुसलमान सा. सगरों की बस्ती गैर बातेदार

क.सं.	खसरा नं	क्षेत्र	फल	भूमि वर्गीकरण	1.7
28			T	रीन वनाकर्ग	वर्गरतिकार का नाम
	207 / 540	32	0	Banjad	मूलचन्द, सत्यनारायण पि. आईदान, मोतिया, रायकंवर, शान्ति, मीना पुत्रियान आईदान जाति महाजन सा.देह गैर खातेदार
29	209 / 541	43	0	Banjad	and it dilly
30	211/630	49	17	Banjad	रावताराम पुत्र देराजराम जाति मेघवाल सा.देह गैर खातेदार
31	211/614	75	0		
32			+-	Banjad	लेखूराम पुत्र गुलाबाराम जाति मेघवाल सा.देह गैर खातेदार
	229 / 566	7	7	Banjad	सालिया पुत्र अलीया, जाति मुसलमान सा देह गैर खातेदार
33	200	75	2	GM Magra	
34	213	156	5		राज सरकार
35	215			Banjad	राज सरकार
36		127	17	Banjad	राज सरकार
	219 / 577	156	5	Banjad	
37	206 / 653	25	0	GM Maidan	राज सरकार

ग्रामः सम	I	
खातेदारी	83	18
गैर खातेदारी	486	11
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सरकारी भूमि	1948	6
	2517	35
	2518.75	

उपाबंध राष्ट्रीय मरू उद्यान का सीमा वर्णन

क.सं	. निम्नलिखित गांव	Proposed Inviolate एरिया सीमा वर्णन विशिष्ठयां
1	2	
1.	कनोई	3
		सम-जैसलमेर सड़क मार्ग पर कनोई गांव के खसरा नं. 198 को लेते हुए सम सड़क मार्ग के साथ-साथ खसरा नं. 202,206,209,213 को बाहर खते हुए खसरा नं. 199,201,203,204,205,212,208,207 को शामिल करते हुए खसरा नं. 212 की उतरी पश्चिमी सीमा के साथ गांव कनोई व सम की सीमा के सहारे पुनः सम सड़क मार्ग से खसरा नं. 183 व 184 के शामिल करते हुए खसरा नं. 184 दक्षिणी पश्चिमी छोर से पूर्व की ओर कनोई-सम गांव की सरहद के साथ-साथ कनोई गांव के खसरा नं. 243,244,245, 246,247,248,249,269 को शामिल करते हुए खसरा नं. 269 के दक्षिणी पश्चिमी छोर से सम गांव में प्रवेश। सम, गांगा, कनोई के तिसिये के पास।
2.	सम	गाम यम के व्या
		ग्राम सम के खसरा नं. 220 के उतरी पूर्वी छोर से सम में प्रवेश। खसरा नं. 215,200,212 को सम्मिलित करते हुए खसरा 212 उतरी—पश्चिमी छोर से दक्षिण की ओर खसरा नं. 233,230,228,227,226 को शामिल करते हुए खसरा नं. 228 के दक्षिणी पश्चिमी छोर से खसरा नं. 226 को शामिल करते हुए गांगा में प्रवेश।
3.	गांगा	भारत हुए गांगा न प्रविश्वा
4.	निम्बा	गांव गांगा के खसरा नं. 8 से गांव में प्रवेश खसरा नं. 9,14,16,19,21,22,23,141,140,139,209,210,211,221,222,223 को शामिल करते हुए सम गांगा—निम्बा ट्रेक के साथ—साथ निम्बा गांव की सरहद के साथ गांव गांगा की सीमा में रखते हुए खसरा नं. 375 के दक्षिणी पश्चिमी कोने से निम्बा की सरहद में प्रवेश। ग्राम निम्बा के खसरा नं. 450 को शामिल करते हुए सरहद में प्रवेश। खसरा नं. 451,452,453,453/500,465,466, 482, 485,423,421,418,417 को शामिल करते हुए। खसरा नं. 413,416 को शामिल करते हुए।
5.	4	को शामिल करते हुए। खसरा नं. 413,416 को बाहर रखते हुए ग्राम बीदा में प्रवेश उक्त वर्णित खसरा से पूर्वी सम्पूर्ण हिस्सा शामिल। निम्बा बीदा
		गाव बीदा के खसरा नं. 521 के उत्तरी पश्चिमी कोने से सीमा में प्रवेश एवं खसरा नं. 527,528,532,533,475,476, 397,375,376,389,390,358,356,543,544,545,321,318,323,326, 327,334,335,344,411,412,416,446,447,285,282,275,159,158, 170,166,207,206,213,238,239,240,235,234,233,232,231,230, 229,6,5 को शामिल करते हुए गांव निम्बा की सरहद के साथ—साथ मनुओं की बस्ती, बीदा, महबूब का पार के तिसिये तक बीदा की सीमा में एवं वर्णित खसरों परिचमी कोने के महन्तर सम्पूर्ण शामिल करते हुए खसरा नं. 5 के उत्तरी
	गर ग	पश्चिमी कोने से महबूब का पार में प्रवेश। गांव महबूब का पार के खसरा नं. 55 के उतरी पूर्वी कोने से सीमा में प्रवेश खसरा नं. 53 को बाहर रखते हुए खसरा नं. 58,59,71,73,75,81,93,98,100,101,102,122,121,135,136,138,

		(67)
क.सं.	निम्नलिखित गांव	विशिष्ठयां
1	2	3
a		141,140,114,172,171,170 को शामिल करते हुए उक्त वर्णित खसराओं का सम्पूर्ण दक्षिणी पूर्वी भाग शामिल है। खसरा नं. 170 के दक्षिणी पूर्वी छोर से फलेड़ी गांव में प्रवेश।
7.	फलेड़ी	गांव फलेड़ी के खसरा नं. 27 के उतरी पश्चिमी छोर से फलेड़ी गांव में प्रवेश खसरा नं. 19,20 को बाहर रखते हुए खसरा नं. 27,26,39,38,37,36,45,60,63 को शामिल करते हुए इन खसरों से पूर्व का हिस्सा शामिल खसरा नं. 82 के उतर पश्चिमी कोने से फलेड़ी जाने वाले रास्ते के साथ—साथ गांव की ओर खसरा नं. 83,84,85,86,92,90,91,784,785,786,787, 792,793,823,814 को शामिल करते हुए इन खसरों से उतरी हिस्सा शामिल खसरा नं. 785 से लीलोई की तरफ जाने वाले ट्रेक के साथ—साथ खसरा नं. 813 व 827 व 828 को शामिल करते हुए खसरा नं. 829 को बाहर रखते हुए खसरा नं. 832,833,834,835,893,918,927,926,925,924 को शामिल करते हुए वर्णित खसरों से पूर्वी तरफ का क्षेत्र शामिल व गांव कोरिया में खसरा नं. 924
8.	कोरिया	के दक्षिण पश्चिम छोर से प्रवेश। ग्राम कोरिया के खसरा नं. 77 के उतरी पश्चिमी कोने से गांव में प्रवेश। व खसरा नं. 77,78,79,87,88,177,182 व 180 को शामिल करते हुए इसके पूर्वी व उतरी हिस्सा शामिल तथा खसरा नं. 180 के दक्षिणी पूर्वी छोर से गांव हटार की सीमा में प्रवेश।
S.	हटार	गांव हटार के खसरा नं. 262 के दक्षिणी पश्चिमी कोने से गांव हटार की सीमा में प्रवेश खसरा नं. 262,261,243,242, 240,179,178,176 को शामिल करते हुए इसका पश्चिमी क्षेत्र शामिल है। खसरा नं. 157,158,160,170,164,165 को शामिल करते हुए वर्णित खसरों से उतरी हिस्सा शामिल करते हुए गांव बरण से लगती सीमा के साथ—साथ उतर—पूर्व की तरफ गांव सिपला, बरना, हटार के तिसिये तक खसरा नं. 52,51,50,46,45 को शामिल करते हुए सरहद के साथ—साथ गांव हटार सिपला व घुरिया के तिसिये तक खसरा नं. 45 को शामिल करते हुए इसके दक्षिण व पश्चिम का सम्पूर्ण हिस्सा शामिल है। खसरा नं. 45 के उतरी पश्चिमी छोर से घुरिया, जामड़ा व हटार के तिसिये से जामड़ा की सरहद में प्रवेश।
10.	जामड़ा	घुरिया, जामड़ा व हटार के तिसिये से गांव जामड़ा की सीमा में खसरा नं. 276 के दक्षिणी पूर्वी कोने से एवं घुरिया की सरहद के साथ—साथ खसरा नं. 255 के दक्षिणी पूर्वी कोने तक खसरा नं. 254,248 व 247 को बाहर रखते हुए खसरा नं. 246 व 249 को शामिल करते हुए पुनः घुरिया की सरहद के साथ—साथ खसरा नं. 103 के उतरी पूर्वी कोने तक एवं खसरा नं. 102,106,15,14,11,9 व खसरा नं. 2 की सीमा को शामिल करते हुए घुरिया में प्रवेश।
11.	घुरिया	गांव घुरिया के खसरा नं. 43 के दक्षिणी—पूर्वी सीमा से घुरिया गांव में प्रवेश, खसरा नं. 45,47,47 / 380,51 / 377 व 51 को शामिल करते हुए खसरा नं. 46,48,50,52 को बाहर रखते हुए कनोई की सीमा तक उपरोक्त वर्णित खसरों से पश्चिम व दक्षिण का हिस्सा शामिल करते हुए खसरा नं.

क.सं.	निम्नलिखित गांव	विशिष्टयां
1	2	3
		51 से कनोई से लगती साथ-साथ कनोई गांगा व घुरिया के तिसिये तक खसरा नं. 1 के उतरी पूर्वी छोर से कनोई में प्रवेश।
12.	कनोई	कनोई गांगा सरहद्द के साथ-साथ खसरा नं. 1035 के दक्षिणी पूर्वी कोने से सीमा में प्रवेश खसरा नं. 1044,1045, 1042,1036,1046,1047,1048 को बाहर रखते हुए खसरा नं. 1035,1031,1025,1026,1018,1015 को शामिल करते हुए खसरा नं. 825, 825/1304 को बाहर रखते हुए गांगा की सरहद के साथ-साथ पुनः खसरा नं. 821 के दक्षिणी पूर्वी कोने से गांव की सीमा में प्रवेश। 821,820,819,811,803,800 को शामिल करते हुए सभी वर्णित खसरों से पश्चिम का हिस्सा गांगा की सरहद तक शामिल खसरा नं. 795,291,299,300,301,303,315,316 को शामिल करते हुए खसरा नं. 301/1289 को बाहर रखते हुए सम जैसलमेर सड़क तक। इन वर्णित खसरों से पश्चिम का सम्पूर्ण रकबा शामिल।

F. No. 1-16/2019 WL

Government of India
Ministry of Environment, Forests and Climate Change
(Wildlife Division)

Indira Paryavaran Bhawan Vayu Wing, Jor Bagh Road, Aliganj New Delhi-110003 Date: 11 July, 2019

The Registrar,
National Green Tribunal,
Principal Bench
New Delhi-110001.

Sub: Order dated 04/04/2019 in O.A. No. 385 /2019 in the matter of Centre for Wildlife and Environment Litigation (CWEL) Vs. Union of India & Ors. before the Hon'ble National Green Tribunal, New Delhi-reg.

Sir,

Kind reference is invited to the order dated 04/04/2019 in the above cited case, wherein the Hon'ble NGT has directed the Ministry to furnish a factual report on the deaths of Great Indian Bustard within 2 months.

Therefore, in compliance of the aforesaid order, the undersigned is directed to enclose the "Factual Report on the Great Indian Bustard" for the kind perusal of this Hon'ble Tribunal.

Yours faithfully,

(V.L.Roui Kullai)

Deputy Inspector General (Wildlife)

Telefax: +91-11-24695246 Email: roul.kullai @nic.in

Encl. As above

FACTUAL REPORT ON THE GREAT INDIAN BUSTARD RECOVERY PROGRAM

1. INTRODUCTION

As directed by the Hon'ble National Green Tribunal Principal Bench regarding the conservation of the Great Indian Bustard on 04.04.2019, this factual report on the "Habitat improvement and Conservation Breeding of the Great Indian Bustard- An integrated approach" project carried out by Wildlife Institute of India (WII) is submitted on behalf of the Ministry of Environment, Forest and Climate Change (MoEFCC).

1.1. GREAT INDIAN BUSTARD (GIB)

1.1.1. STATUS AND DISTRIBUTION

The Great Indian Bustard (GIB) is a critically endangered bird with less than 150 individuals left in India/World and in urgent need of conservation actions. These numbers are based on surveys conducted by the Wildlife Institute of India (WII) research team in Rajasthan in 2017-18, Maharashtra in 2017 (Please refer Appendices 3 & 5 in Annexure 1). and information collation by Collar et al in 2018 (Please refer Annexure 2). A copy of the WII's report titled "Habitat improvement and Conservation Breeding of the Great Indian Bustard- An integrated approach-Annual Progress Report II- 2017-18" and research paper by Collar et al. in 2018 titled "Averting the extinction of bustards in Asia" is annexed herewith and marked as Annexure 1 and Annexure 2 respectively. Long term surveys (2014-18) conducted by the WII and the Rajasthan Forest Department show that the majority of this population is found in Jaisalmer district within and around the Desert National Park, and the Indian Army controlled Field Firing Range near Pokhran. A copy of the survey report titled "Status assessment of Great Indian Bustard, associated fauna and habitat of Thar - 2016" is annexed herewith and marked as Annexure 3. Other populations are very small and less than 10 individuals each, found in Abdasa tehsil, Kutch district, Gujarat, Nagpur, Amravati and Solapur districts of Maharashtra, Bellary and Koppal districts in Karnataka, and Kurnool district in Andhra Pradesh. These surveys indicate that the species' numbers have reduced by 75% in last 30 years (Please refer Annexure 4). A copy of research paper Dutta et al. in 2010 titled "Running out of time? The Great Indian Bustard Ardeotis nigriceps- status, viability, and conservation strategies" is annexed herewith and marked as Annexure 4. Historically, GIB was distributed throughout the western half of India. Currently, the species' range has reduced to 10% of the historical range according to Dr. Asad Rahmani, former director of Bombay Natural History Society and GIB expert from India in the report titled- "The Great Indian Bustard. Final Report in the study of ecology of certain endangered species of wildlife and their habitats-1989". The species is listed as Critically Endangered (International Union for Conservation of Nature, 2011) and Schedule-I that accords it the highest level of legal protection under Wildlife (Protection) Act, 1972.

1.1.2. ECOLOGY

The Great Indian Bustard (GIB) is one of the heaviest flying birds' endemic to the Indian subcontinent. They are primarily terrestrial birds with adult males as tall as 122 cm and 11-15 kg and adult females reach up to 92 cm and 4-7 kg. The plumage is predominantly brown and white, and adult males are characterised by thicker and whiter neck with black eyebrow. The Great Indian Bustard is an omnivorous bird primarily feeding on insects, fruits and harvested crops. They live in dry, open landscapes comprising of short grasslands, scrub and rain-fed agriculture. Sexual maturity is attained at the age of 4-5 years in males and 3-4 years for females. They are traditional to their breeding grounds, where, males display in open, well-grazed grasslands to attract females who prefer moderately tall and less-grazed grassland for nesting. Thus, a mosaic of short and tall vegetation with little disturbance is ideal for breeding. Existing research on GIB and related species shows that large heterogeneous agro-grassland patches have highest conservation value and GIB conservation is compatible with traditional, low- intensity land uses. As evidence of this, a copy of the PhD dissertion of Dr. Sutirtha Dutta and research paper by Dutta and Jhala in 2014 titled "A Planning agriculture based on landuse responses of threatened semiarid grassland species in India" are annexed herewith and marked as Annexure 5 a & b, respectively.

1.1.3. THREATS

Research conducted by Rahmani (1989) and Dutta *et al.* (2010) show that GIB is a long-lived species with very slow reproductive rate – it lays one egg every 1-2 years, and the success rate of these eggs under ideal situation is around 60-70%. However, the current nesting habitats have high density of predators such as fox and dogs because of availability of more surface water that has reduced the nest success rate to 40-50% based on dummy nest experiment conducted in GIB habitat (Dutta, *unpublished data*). Because of such slow reproductive rate and specific habitat requirements, the species is inherently vulnerable and cannot sustain any added nest predation.

For such long-lived and slow reproducing species, adult mortality is the most decisive parameter for population persistence. Historically, this bird was hunted as game and their population was reduced because of this threat. After the implementation of Wildlife (Protection) Act 1972, their hunting has been reduced but not eliminated. However, adult mortality is still very high due to collisions with power-lines that criss-cross their flypaths. All bustard species in the world are prone to collision with power-lines due to their poor frontal vision and inability to see power-lines from a distance, along with their large size and heavy flight that make it difficult to maneuver in the nick of the time. WII's research has shown that power-lines, particularly high-voltage (33-440 KV) transmission lines with vertical alignment are the biggest threat to GIB as of now. GIB habitats have a high density of transmission lines because of the impetus on renewable energy production in GIB habitats of Rajasthan and Gujarat. This study recorded five GIB deaths in 2017-18 in Jaisalmer district alone based on systematic surveys and anecdotal information, and calculated that ~15% of the GIB population may be dying because of this threat (Please refer Appendix 7 in Annexure 1). Since the natural death rate of large bustards is about 4-8%, the current additive mortality rate due to transmission lines is significantly higher, and if not controlled can result in extinction. Apart from GIB, many other birds also die because of collision/electrocution with these transmission lines at a rate of ~10 birds/km/month totaling nearly one lakh bird deaths annually in 4200 sq km according to this study. A copy of the study so

conducted named "Bustards, Wires, and the Flight to Extinction" is annexed herewith and marked as Annexure 6.

While these are the two most important current threats to the species, prevailing habitat loss remains an important threat to the long-term persistence of the species. GIB habitats comprising primarily of short grasslands and scrublands, which were traditionally the support system for rearing livestock have been marginalized as 'unproductive wastelands', progressively converted to other land uses since colonial times, and are not sensibly managed. Earlier, agriculture used to be monsoonal and sparse in bustard habitats and fallow periods used to be prolonged when fields were naturally regenerated. This allowed plenty of food (insects, fruits, crop residues) and grass vegetation cover for the species. But recent developments in irrigation and farming technologies have intensified agriculture and changed cropping practices from seasonal to yearround, intensive crops. Because of frequent ploughing and cropping or use of pesticides, there is lack of food and vegetation cover to meet the ecological requirements of the species. There is a need to regulate such intensive agricultural land-uses to achieve long-term GIB persistence. Moreover, development activities like mining, industries, wind turbines, and associated infrastructure growth (buildings, electricity and road networks) have caused severe habitat degradation and disturbance to birds. Furthermore, management authorities in many areas exhibit poor enforcement ability due to inadequate staff and infrastructure, lack of motivation, and inaccessibility. Ill-informed forestry practices by State Forest Departments such as plantation of exotic shrub/tree species in deserts and grasslands in the name of afforestation have also degraded the habitat of GIB, chinkara and other open habitat species that prefer visibility and openness.

1.1.4. PROPOSED CONSERVATION MEASURES

Conservationists have been discussing actions required to save the GIB since 1980s, when eight bustard Sanctuaries were established for the species' conservation. However, these sanctuaries included agro-pastoral landscapes where private land rights were not properly settled, and the ensuing legal stringency on land-uses resulted in public antagonism and the extirpation of the species from some of these Sanctuaries. GIB conservation received a fresh impetus around 2010-13, with the constitution of the Bustard Task Force and the development of the National Guidelines for Recovery of Resident Bustards through consultative meetings of conservation agencies under the umbrella of Ministry of Environment, Forest and Climate Change. A copy of the guidelines by Dutta *et al.* in 2013 titled "Guidelines for preparation of state action plan for resident bustards' recovery programme" is annexed herewith and marked as Annexure 7. The above cited action plan highlighted the need of a landscape level conservation approach which was missing from the earlier plan and the habitat around these Sanctuaries became hostile due to intensive landuses and detrimental infrastructure.

This Recovery Plan suggested:

- Prioritizing the species' landscape through surveys and telemetry, and mitigating threats such as power-lines and poaching therein
- Consolidating known breeding areas of the species by chain-link predator-proof fencing to improve the species' recruitment rate

- Promoting bustard-friendly land-uses/practices by sensitizing and incentivizing local communities
- Finally, while these actions are required on ground, the species is declining at such a rapid
 rate due to the existing threats, that recovery actions cannot fully reverse the decline in
 the wild considering the expected time delays of these actions. Hence, a conservation
 breeding programme should be undertaken to secure a captive population as an insurance
 against total extinction and to leave the possibility of reintroducing birds in the wild in
 favourable times when the habitats have been restored by effective field management
 actions.

1.2. DESERT NATIONAL PARK

Desert National Park (actually a Wildlife Sanctuary) was established in year 1980 over an area of 3162 sq km across Jaisalmer and Barmer districts, with the mandate of conserving desert biodiversity. During the time of its establishment, land rights of people residing inside the Park, then 88 settlements, were not settled. Subsequently, the population size and demand for land increased. Currently, there are 88 villages with 13,000 households in and around the Park. Forest Department controls only 5% of the Park area, in the form of enclosures that are now being managed with the mandate of GIB conservation. The remaining 95% of Park area comprises of private and Revenue lands, with the latter largely being encroached by villagers for agriculture. Earlier, the local people depended on pastoral livelihoods, and would occasionally engage in farming during good rainfall years, when they grew seasonal food crops such as gram, ground nut and millets. However, in the recent years, the market value of guar or Cluster Beans has increased dramatically due to their industrial use in hydraulic fracturing. This has led to escalated encroachment by villagers to cultivate and sell guar. Because of agricultural encroachment, pastures have depleted, and the herbaceous vegetation are currently largely restricted to Forest Department enclosures. The livestock of local settlements trespass into these enclosures for fodder that creates friction between the Forest Department and local people. This antagonism was exacerbated due to restriction on infrastructure development and in turn constructions detrimental to GIB conservation that have started cropping up haphazardly.

A proposal to rationalize the boundary of Desert National Park (DNP) to exclude the Barmer area, which has lost much of its wildlife values due to large scale agricultural conversions, annexing an equal area in Shahgarh bulge in replacement, and to create an inviolate area of 200 sq km (WII proposal- 500 sq km) in northern DNP as a National Park with the mandate of conserving GIB was prepared. This proposal was viewed by a State Committee and was later shelved. However, given the continuous growth of human demands inside the Park and the need of undisturbed areas by GIB, creating an inviolate area for their conservation through voluntary and incentivized relocation of local people has been proposed by some conservation groups as well as promoting GIB friendly infrastructure development (eg. solar electrification) in villages may be a good solution to the continuing problem of people versus Park.

1.3. WILDLIFE INSTITUTE OF INDIA

1.3.1. GENERAL INTRODUCTION

Wildlife Institute of India (WII), established in 1982, is an autonomous organization under the Ministry of Environment, Forest and Climate Change (MoEFCC), Govt of India, and the technical arm of the former body. The institute is mandated by Government of India to carry out research on various aspects on wildlife conservation, conduct training programmes for capacity building of wildlife managers, build up repository of knowledge of wildlife and provide technical and advisory services to the State and Central Governments in the country. WII's programmes are field based and seek an integration of biological, socio-economic and human aspects of large regional landscapes. As a result, wildlife conservation today means not just providing protection mainly to a few iconic species but that it be holistic and have considerations for humans living in the vicinity as well. WII's research projects being conducted in field sites across the length and breadth of the country are the primary sources of scientific information to help conservation.

WII's aims and objectives are to:

- Build up scientific knowledge on wildlife resources.
- Train personnel at various levels for conservation and management of wildlife.
- Carry out research relevant to management including the development of techniques appropriate to Indian conditions
- Provide information and advice on specific wildlife management problems
- Collaborate with international organizations on wildlife research, management and training
- Develop as a regional centre of international importance on wildlife and natural resource conservation

1.3.2. ACTION REGARDING GIB CONSERVATION BY WII

For GIB conservation, research carried out by WII during 2007 – 11 highlighted the plight of the species and the subsequent advocacy programs resulted in the formulation of the species' recovery guidelines that were used to develop State level recovery plans.

Later, in March 2016, WII launched the project "Habitat Improvement and Conservation Breeding of Great Indian Bustard: An Integrated Approach" in collaboration with MoEFCC, State Forest Departments and NGO partners, with financial support from National Compensatory Afforestation Fund Management and Planning Authority (CAMPA) Funds, and a sum of Rs. 9.95 crores was released for the project implementation, with a five year commitment of 33.85 crore INR. A national launch workshop was organized at WII, Dehradun on 16 May 2016 to appraise partner agencies on the proposed activity plans under the Project.

A) This Project has an in-situ component including

A.1. Applied research that aims at: -

- Prioritizing conservation areas for GIB and the endangered Lesser Florican (LF)
- Characterizing threats to these species

- Monitoring bustard populations and habitats
- Understanding population genetics and species' ecology to inform conservation management

A.2. Pilot habitat management to demonstrate best practices of managing GIB habitats including: -

- Pilot mitigation of critical threats
- Breeding enclosure management
- Strategizing conservation planning through delineation of lands for conservation declaration/acquisition

A.3. Capacity-building and awareness that aims at

- Improving protection and enforcement
- Sensitizing stakeholders on bustard conservation
- Raising public awareness on bustard conservation
- Encouraging local land-users to adopt bustard-friendly land-uses
- B) The Project has an *ex-situ* component that aims at developing a Conservation breeding program for the Great Indian Bustard as an insurance against extinction and potential reintroduction.

WII's Project team commenced activities on both *in-situ* and *ex-situ* components since March 2016 in collaboration with Rajasthan Forest Departments and NGO partners.

2. PRESENT STATUS OF GIB PROJECT

2.1. SUMMARY OF PROJECT ACTIVITIES CONDUCTED BY WII

Since 2016, WII Project team has conducted the following activities:

- Landscape scale surveys for the GIB in two cycles during 2016-18 and for the Lesser Florican in two cycles during 2017-18, in partnership with State Forest Departments and NGOs to monitor their population status and identify priority conservation areas and threats (Please refer to Appendix 3-5 of Annexure 1).
- Detailed assessment of threats such as power-lines, free-ranging dogs and nest predators in terms of landscape level mapping and their impacts on mortality of GIB and associated species (Appendix 6-8 and main text of Annexure 1).
- Telemetry in Kutch, Gujarat and Jaisalmer, Rajasthan to understand the species' ranging patterns, ecology and prioritize power-lines for mitigation.
- Examination of genetic composition and structure of GIB population.
- Examination of social aspects of local people residing in/around DNP.
- Pilot management measures such as pilot installation of bird diverters on power-lines for demonstration.
- Sterilization of 801 dogs in/around DNP to manage their population in partnership with Humane Society International (HSI).
- Designing predator-proof enclosures to improve GIB recruitment.
- Training of frontline Forest Department staff in wildlife surveys.
- Sensitization of Indian Army (Pokhran Field Firing Range) and power agencies on their roles in GIB conservation.
- Other awareness, training and workshop programs with various stakeholders for GIB conservation

All activities under the *in-situ* component have been initated and most of the targets/milestones have been achieved. Please refer details of the above activities in Annexure 1.

2.2. DETAILS OF KEY PROJECT ACTIVITIES

2.2.1. LANDSCAPE SCALE SURVEYS FOR THE GREAT INDIAN BUSTARD AND LESSER FLORICAN 2017-18

Since 2014, Wildlife Institute of India and Rajasthan Forest Department have been conducting joint surveys to understand the current status, distribution patterns, and local contexts of key conservation-dependent species in Thar to develop scientific management plan. Persistence of GIB critically depends on Thar, where ~75 % of the global population resides. The project team assessed the status of native and conservation-dependent species such as the GIB, chinkara and desert fox. Non-native and 'problem' species such as free-ranging dogs, wild pigs and nilgai that live alongside the habitat of the GIB, in addition to anthropogenic pressures across 19,728 sq km of potential bustard landscape in Thar spanning Jaisalmer, Jodhpur and small parts of Bikaner and Barmer districts of Rajasthan were also assessed. Systematic surveys were conducted from slow-moving vehicle along transects to record species detections, habitat characteristics in sampling plots, and secondary information on species occurrences. Great Indian bustard and other key species detection data were analysed in Occupancy and Distance Sampling framework to estimate proportion of sites occupied and density/abundance.

During the last four surveys, 38 (2014), 40 (2015), 37 (2016) and 37 (2017) great Indian bustards were detected. Their detection/non-detection in 2-km transect segments (spatial surveys) across the area showed that 6.7 ± 2.9SE % of sites were occupied in 2017. Bird density was estimated at 0.48+ 0.10SE per 100 sq km across all sites and 7.49 + 1.63SE per 100 sq km in used sites (sampling cells of 144 sq km where at least one bird was detected during 2017). Abundance was estimated at 95 + 21SE individuals in the 19,728 sq km landscape, pooling data across 2016-17. The current abundance estimate was lower than the past estimate (140 + 53SE in 2015-16); this could be partly due to inadequate intensive surveys in high-density sites within the Field Firing Range. Hence, WII's GIB project team conducted follow-up distance based line transect surveys in the subset of landscape where the species is distributed (western Thar: 4,068 sq km area, and Pokhran Field Firing Range: 5,184 sq km area) jointly with Indian Armed Forces in March-April 2018, to refine the past estimate. Based on these surveys, abundance was estimated at 128 + 19SE individuals in 9,252 sq km great Indian bustard distribution area in Thar. But, there might be a real decline in numbers, as comparison of species' encounter rate across years, keeping sampled sites constant, indicated a non-significant but declining trend between 2014-15 (1.00 ± 0.41SE per 100km) and 2016-17 (0.83 ± 0.30SE per 100km).

Our surveys showed an expansion of human artefacts across survey years, wherein the proportion of sampling plots with water source, power-lines, farm-huts and wind turbines had increased annually by 0.12, 0.09. 0.07, and 0.03, respectively, over the last four years. Correspondingly, population of free-ranging dogs showed a remarkable expansion over these years, wherein the proportion of sites occupied increased from 0.15 \pm 0.04SE (2014) to 0.61 \pm 0.09SE (2017), and their encounter rate increased from 4.32 \pm 1.77SE to 23.11 \pm 9.39SE per 100km in sites that were monitored across all years.

The survey in Maharashtra (October 2017) did not yield any GIB detection and population was estimated to be less than 8 birds.

The national lesser florican survey was jointly conducted by the project team with partner agencies in July - September 2017 that yielded a conservative estimate of 264 male territories across the range and an abundance estimate of 340 male territories; highlighting the critical status of this species.

2.2.1. POWER-LINE IMPACTS AND ADVOCACY FOR MITIGATION

Carcass surveys under power lines by WII project team in Thar (2017-18) showed mortality of five GIB, and an estimated death of ~1 lakh birds of over 49 species annually in the ~4000 sq km priority GIB habitat. Power lines across GIB habitat in Thar are causing unsustainably high mortality of 15% of their population. Power lines, especially high-voltage transmission lines with multiple overhead wires, is the most important current threat for GIB. Results of this exercise has been published and widely disseminated to sensitize power agencies, managers, decision-makers and conservation agencies. A copy of this report titled "Power line mitigation to conserve bustards" has been annexed herewith and marked as Annexure 10a.

WII GIB project team and Rajasthan Forest Department have organized several collaborative meetings to sensitize power agencies for mitigating power lines for GIB conservation. A detailed exercise was undertaken by the Project team to map GIB habitats, wind turbines, power-line networks, and priority mitigation areas/segments using very high resolution satellite imagery. Subsequently, Project team attended meeting with CWLW Rajasthan and Principal Secretary Energy Department at Jaipur (December 2018), where it was decided that power agencies must mitigate all priority lines mapped by WII in Thar, and a fund of Rs. ca. 100 crores was verbally approved for this action, although the Minutes of this meeting is yet to be issued by the Energy Department, Rajasthan. As decided in this meeting, Project team has worked with RVPNL (State Power Agency) for developing proposals with power-line agencies detailing mitigation measures and costs for various power agencies (December 2018–January 2019) so that this action can be taken up by the Government for approval and expeditious implementation. WII has developed a financial and technical proposal on power-line mitigation that involves burying (undergrounding) of high risk segments and diverter installation on medium risk segments in collaboration with power agencies that has been communicated to the Superintendent Engineer of RVPNL, Jaisalmer for necessary approvals from the Energy Department, Government of Rajasthan. A copy of the proposal titled "Action and budget proposal Mitigation plan for high-tension power lines in Great Indian Bustard habitat of Thar Desert, Jaisalmer" is annexed herewith and marked as Annexure 10b. These approvals and the follow-up actions need to be expedited to urgently remove this most pressing threat from priority GIB habitats, as decided in the 20th December 2018 meeting under the chairmanship of Principal Secretary, Energy Department, Rajasthan.

Based on the research carried out by WII (Annexure 21) and request of Director WII to ADG (WL), MoEFCC has also issued directives with supporting information to Central and State Ministries of Power and State Government Chief Secretaries, for expediting implementation of mitigation measures.

Since the High Transmission Electric Power Lines have been proven to be great threat to the GIBs and constant reason for deaths of GIBs due to collision/electrocution with power-lines, the issue was regularly discussed at the level of MoEFCC and various solutions were proposed to be implemented including the identification of critical power lines, putting up of Bird Diverters as well as undergrounding and shifting of the power lines. Samples of various bird diverters were procured from abroad and distributed to power agencies for pilot installation. The Secretary,

MoEFCC through its communication dated 07.01.2019 addressed to Chief Secretary, Government of Rajasthan; Secretary, Ministry of Power; Secretary, Ministry of New and Renewable Energy has requested to take immediate steps in this regard. A copy of communication dated 07.01.2019 is annexed herewith and marked as Annexure 8 collectively. Following this, Ministry of New & Renewable Energy has also issued directives dt. 10.03. 2019 to power agencies to initiate mitigation measures in GIB habitats in consultation with WII. A copy of communication dated 22.02.2019 is annexed herewith and marked as Annexure 9. Subsequently, two power agencies-SITAC and Tata power contacted WII regarding this and have been provided maps of potential and priority GIB habitats in Gujarat and Rajasthan which require mitigation measures.

2.2.2. CONSERVATION BREEDING ACTIVITIES

WII GIB project team held meetings with MoEFCC, State Governments, national/international agencies/experts to initiate conservation breeding program. The tripartite MoA was signed between MoEFCC, Rajasthan Govt. and WII to implement the conservation breeding program and to delineate respective roles and responsibilities (June 2018). The WII in collaboration with International Scientists working on Bustards decided the criteria for selection of the area for the Conservation breeding facility. Fourteen possible sites were reviewed for different criteria and scored. Criteria like rainfall, accessibility, proximity to wild source, habitat and topographic suitability, land ownership, local support, local ecology, water facility, electricity, transportation, temperature, size and shape of site and local community support were all scored after making field visits. Sorsan was selected as the most potential site as it has higher humidity which will allow the birds to breed more frequently (unlike Jaisalmer where droughts are frequent when birds are unlikely to breed), has good road accessibility, a suitable flat grassland habitat in which GIB and Lesser Florican were both found till recent history, land ownership with the Forest Department (FD), local support of people, sufficient water supply and electricity and sufficient area for conservation breeding. Because of these criteria, the site was recommended by national and international scientists working on Bustards, and was later visited and finalized by the Additional Director General, MoEFCC, Chief Wildlife Warden, Rajasthan, Central Zoo Authority, Civil Construction Unity and WII scientists.

Permission to use ~2 sqkm land in Ramdevra, Jaisalmer was given by Rajasthan Forest Department to WII on 5th February 2019 for developing the Satellite incubation and chick-rearing facility. Subsequently, WII has released funds for fencing of the ~2 sqkm site to Rajasthan Forest Department Jaisalmer circle on 15th February 2019. Based on the construction estimate provided by CPWD Jaisalmer, WII has released funds of ~ 92 lakh INR to CPWD Jaisalmer on 4th March 2019, to commence construction of the Satellite Breeding Facility at Ramdevra. WII GIB Project team has subsequently developed, discussed and communicated the designs for the incubation, hatchery, chick-rearing and office facility construction. CPWD Jaisalmer has hired the contractor for this construction through tendering and is in the process of commencing the construction work. Rajasthan Forest Department has also granted permission to use Forest land at Sorsan for the construction of the Main Conservation Breeding Facility. Construction of this Facility will be taken up at a later stage after the completion of the Satellite Facility since wild-collected, captive-reared

birds will be transported to Sorsan that is not possible before the next (2020) breeding season (Please refer to Annexures 16-20),

WII is entering into a collaboration with International Fund for Houbara Conservation, who are the leading expert of bustard captive breeding in the world producing ~30,000 houbara chicks from a center every year. The involvement of IFHC as the technical collaborator will be critical in training the Project staff, handholding the project and providing critical inputs along the course of implementation. The Project investigators visited Abu Dhabi during 27 February – 2 March 2019 for discussing the terms of collaboration and the draft MoU was communicated to Rajasthan Government and MoEFCC for vetting. Following this meeting, a team of IFHC scientists visited Jaisalmer to inspect the *in-situ* areas for egg collection and *ex-situ* site at Ramdevra. Based on joint consultation between IFHC, WII and Rajasthan Forest Department, it was decided that a temporary facility be constructed at Sam, Desert National Park to collect and incubate the eggs from the current breeding season (2019) till the Satellite Facility at Ramdevra is completely constructed. Based on the design inputs provided by IFHC scientists (report attached herewith as Annexure 21), the temporary facility construction process has been initiated by Rajasthan Forest Department at Sam with a deadline for completing the construction by May 2019.

Further details on the above activities are given in section 2.3.

2.2.3 AWARENESS AND OUTREACH PROGRAMS

School awareness campaigns involving >1000 students of 5-12 standards from 16 schools in 12 settlements in priority GIB habitats in Jaisalmer have been carried out during Jan-Feb 2019.

Sensitization and skill development program has been carried out for nature guides in DNP (Feb 2019).

Sensitization of local public in the Desert Festival, Jaisalmer during 17-19 February 2019.

Sensitization workshop for media and power agencies on GIB conservation in New Delhi on 21.02.19 has been conducted, and such activities will continue throughout the year, to generate awareness among local communities and important stakeholders on GIB conservation.

Informal meetings with the Commanding Officer Pokhran Field Firing Range to sensitize Army and appraise them on various conservation activities and issues are ongoing.

2.3. RECENT IMPORTANT UPDATES OF THE GIB PROJECT

 With regard to the activities WII's GIB conservation project, permission to tag up to four GIB has been issued by the Chief Wildlife Warden (CWLW), Rajasthan to WII on 06.02.2019. A copy of communication dated 06.02.2019 is annexed herewith and marked as Annexure 11.

- Subsequently, two female GIB were tagged in DNP during March-April 2019 and their daily activities are being remotely monitored closely since the breeding season will commence. This activity is important to identify their fly paths for prioritizing areas for power line mitigation, develop conservation plans, and to track birds for identifying nests and sourcing eggs for the Conservation Breeding Center.
- The Director, WII through its communication dated 01.01.2019 has requested for grant of permissions for all project activities under the Tripartite memorandum of agreement signed between MoEFCC, WII and Rajasthan Forest Department. A copy of communication dated 01.01.2019 is annexed herewith and marked as Annexure 12.
- The DIG Forest (Wildlife), MoEFCC through its communication dated 17.01.2019, has requested the PCCF & CWLW, Government of Rajasthan to grant permission for collection Eggs/Chicks/Birds of GIB and Lesser Florican for conservation. A copy of communication dated 17.01.2019 is annexed herewith and marked as Annexure 13. Subsequently, permission for collection of six GIB eggs to implement the conservation breeding program has been issued by CWLW, Government of Rajasthan to WII on 03.05.2019. A copy of communication dated 03.05.2019 annexed herewith and is marked as Annexure 15.
- The Director, WII through its communication dated 29.04.2019 has requested for grant of permissions for conducting relevant studies on the species biology, behavior, reproduction, genetics, ecology and management in wild and captivity; collection of biological samples for understanding genetics, disease prevalence as well as develop disease prevention protocol, and forensic examination of mortalities; capture and translocate predators of GIB nest/chicks such as dogs, pigs, foxes, cats and mongooses within Forest Department enclosures in Thar and Sorsan to create a safe zone for breeding and improve GIB recruitment rate. A copy of communication dated 29.04.2019 is annexed herewith and marked as Annexure 14.
- A proposal to manage dog population across Thar Landscape (Jaisalmer) is being developed in collaboration with HSI by WII project team.
- Survey to assess the impact of power-lines on birds is being carried out by WII project team across GIB habitat in Kutch, Gujarat.
- Discussions with representatives from Khetolai village near Pokhran Field Firing Range to manage ~30 sq km agriculture land conducive for GIB conservation and develop a community conservation area model is in process.
- Permission for unrestricted access and right to develop and use >2 sq km land at Ramdevra, Jaisalmer for establishing Satellite Conservation Breeding Centre (egg collection and hatching facility) has been issued by CWLW, Government of Rajasthan to WII on 05.02.2019. A copy of communication dated 05.02.2019 is annexed herewith and marked as Annexure 16. Since this land is Ooran land, Forest Department has sought a resolution from the Gram Panchayat and the latter has granted approval on the use of the

land for conservation breeding purpose. Further to this permission, Rajasthan Forest Department has expressed willingness to construct predator-proof fence around the GIB Conservation Breeding Center, and has requested for the release of 65 lakh INR towards this activity vide its communication dated 13.02.2019. A copy of communication dated 13.02.2019 annexed herewith and is marked as Annexure 17. Immediately after receiving the said request, the fund to the tune of 65 Lakh INR has been released from WII on 15.02.2019. A copy of communication dated 15.02.2019 is annexed herewith and marked as Annexure 18. It is further submitted that the construction work of predator fencing has commenced and the Satellite Conservation Breeding Centre will commence soon. Project team are corresponding with CPWD Jaisalmer for commencing construction of the incubation, hatchery, chick rearing, veterinary and staff outpost facilities within the Satellite Site. Tendering for architect hiring to design the Facilities has commenced. The basic construction of the Satellite site to a functional state will take about six months. A temporary incubation and hatching centre is being set up in existing Rajasthan Forest Department land in Sam village DNP till the facility is constructed in Ramdeora.

- Order for reservation of 3.46 Ha land at at Sorsan, Amalsara village, Baran District for establishing Main Conservation Breeding Centre has been issued by District Collector, Baran on 15.01.2019 in response to the request by Tahsildar, Anta Tehsil and Deputy Conservator of Forests, Baran. A copy of the communication dated 15.01.2019 is annexed herewith and marked as Annexure 19. Permission for use of 6.76 sq km land at Sorsan, Baran District for establishing Main Conservation Breeding Centre has been issued by PCCF & HoFF, Government of Rajasthan to WII on 06.03.2019. A copy of the order dated 06.03.2019 is annexed herewith and marked as Annexure 20.
- WII sent a team of scientists to formalize the collaboration and Memorandum of Understanding (MOU) with International Fund for Houbara Conservation (IFHC) at Abu Dhabi during 28/2/19 2/3/19, subsequent to which, IFHC team visited Jaisalmer during April- May 2019 to assist and train the project staff. IFHC is an organization of international repute specialized in Houbara bustard conservation breeding to assist and increase wild populations in its natural habitats across entire species range and is supported by the Government of Abu Dhabi. The MoU is being finalized and currently with the MoEFCC.
- WII has proposed staff training programme for the Conservation Breeding Centre and in this regard, has requested the State Forest Department to issue the annual budget (20-30 lakhs) to cover international travel for training of staff, as approved in the MoA between MoEFCC, Rajasthan Government and WII. A copy of communication dated 29.04.2019 is annexed herewith and marked as Annexure 14. Ex-situ project staff has been sent to IFHC Abu Dhabi for the initial training on incubation and chinck-rearing techniques.
- Rajasthan Forest Department conducted a workshop on 22-23 January 2019 that involved WII Project team, other field specialists, managers, decision-makers and conservationists, to develop a detailed in-situ project document for landscape-scale GIB conservation, through working group discussions/deliberations. This project document is being prepared by WII Project team, a draft of which has been shared with the Rajasthan Forest Department.

3. FINANCIAL UPDATE

Till date, an amount of Rs. 9.95 crores has been spent to implement various *in-situ* and *ex-situ* activities proposed in the project out of Rs. 9.95 Crore released by MoEFCC in the first installment. The second installment of Rs. 7.73 crores has recently been sanctioned by MoEFCC and will be sufficient to cover the proposed activities in the coming year.

4. RECOMMENDATIONS

- 4.1. Keeping the above scientifically established threats in mind, the following evidenced based actions are recommended by WII that are required to be taken up in time bound manner to achieve the species recovery.
- 4.2. Mitigate all power transmission lines passing through priority bustard habitats identified by WII (Please refer Annexure 10) by undergrounding cables (where technically/ technologically feasible) or installing bird diverters to make them prominent to birds. The priority areas where this intervention is required has been mapped by the Wildlife Institute of India and a technical-cum-financial proposal has been submitted to RVPNL for necessary approvals from Rajasthan Energy Department for mitigation. This action must be expeditiously implemented in the short-term (1-3 years), as power-line mortality is currently the biggest threat to the species.
- 4.3. Disallow new wind turbines, solar farms (photovoltaic power stations) from priority GIB habitats and remove existing ones that are in the critical areas. The priority areas where this intervention is required has been mapped by Wildlife Institute of India (Please refer Annexure 10). This action needs to be implemented in the long-term spanning 5-10 years from present.
- 4.4. Develop predator-proof enclosures of 5-10 sq km area in known breeding sites in and around DNP to improve GIB recruitment, and keep away nest predators by routinely translocating dogs, pigs, foxes, mongoose and other species outside the enclosures using professional trappers. Number of water guzzlers inside the enclosures need to be reduced to curtail availability of surface water that attracts non-native nest/chick predators such as dogs, foxes, pigs and mongooses. Also establish such enclosures in the larger Thar (Jaisalmer) landscape, as identified by joint surveys of WII and RFD. These enclosures need to be developed and will serve as breeding sites and stepping stones for movement across the larger landscape.
- 4.5. Create an inviolate area of 200 sq km (WII proposal- 500 sq km) in northern DNP as a National Park through voluntary and incentivized relocation of local people (if needed) with the mandate of conserving GIB.
- 4.6. Delineate priority GIB habitats outside DNP as Eco Sensitive Zones where agro-pastoral practices are regulated to low-intensity through Zonal Management Plans and detrimental

infrastructure such as wind turbines and overhead transmission lines are curtailed. This action needs to be implemented in the short-term (1–2 years).

- 4.7. Engage with local communities to promote bustard-friendly practices such as stall-feeding of livestock during monsoon GIB chick-rearing and grass growing season and cultivating food crops preferred by GIB during monsoon such as gram, ground nut and millets while leaving the fields fallow for the remaining period. These land-uses can be promoted by Rajasthan Forest Department in conjunction with other State Departments, through appropriate financial and other incentive schemes, such as provisioning of fodder for stall feeding or compensatory payments to foregone production cost by opting for low-intensity farming. This action needs to be implemented in the longer scale (4–8 years).
- 4.8. Reduce poaching of GIB and other wildlife in the Thar landscape by improving protection enforcement through training of Forest Department frontline staff in smart patrolling tools with the help of conservation organizations such as WII and WWF, provisioning of better patrolling equipment, enrolling frontline staff from non-wildlife divisions of Forest Department and local volunteers in this activity, and ensuring trials of convicts. Further, it is to bring to the notice that areas controlled by Armed forces in Jaisalmer District harbor about 50% of the GIB population found in Rajasthan. This secure zone under the control of Army where human activities are minimal is a blessing for the bird on the verge of extinction. Thus, continued cooperation of Army, Air Force and Border Security Force to conserve the GIB and control the incidents of poaching could play a vital role as well.
- 4.9. Implement the conservation breeding programme by creating an offshore insurance population (if needed) by shipping a batch of about 10 GIB eggs to a state-of-the-art international breeding center such as IFHC houbara breeding center at Abu Dhabi that produces up to 30,000 houbara chicks every year (short-term solution 3–5 years), and meanwhile, establish a national breeding center by training staff, developing a state-of-the art center at Sorsan (main facility) and Ramdevra (satellite facility), where eggs collected from wild can be artificially incubated, hatched, reared and captive bred to create an insurance population that can be reintroduced into the wild.
- 4.10. To continue with targeted research on GIB to characterize threats spatio-temporally, understand landscape use patterns using satellite telemetry, and objective monitoring of their population status by involving research organizations, understanding of species biology, behavior, reproduction, genetics, ecology and management in wild and captivity of GIB, and collection of biological samples for species identification from carcasses, for disease screening for better understanding of threats, develop disease prevention protocol, and forensic examination of mortalities.

It is thus submitted that the key to conserve GIB is a vital balance and combination of stringent protection measures, scientific habitat management, GIB friendly land use planning, and providing basic amenities as well as livelihood options to local people in priority conservation areas.

5. Annexures

- Annexure 1. WII-Habitat improvement and Conservation Breeding of the Great Indian Bustard-An integrated approach, Annual Progress Report II (2017-18)
- Annexure 2. Collar et al. 2017. Averting the extinction of bustards in Asia
- Annexure 3. Status assessment of Great Indian Bustard, associated fauna and habitat of Thar 2016 survey report
- Annexure 4. Dutta, Rahmani and Jhala 2010. Running out of time? The Great Indian Bustard *Ardeotis nigriceps*- status, viability, and conservation strategies
- Annexure 5a. PhD thesis on Ecology and conservation of Great Indian Bustard by 'Sutirtha Dutta
- Annexure 5b. Dutta and Jhala 2014. A Planning agriculture based in land use responses of threatened semiarid grassland species in India
- Annexure 6. Bustards, wires and flight to extinction. Conservation India. January 2018
- Annexure 7. Dutta et al. 2013. Guidelines for preparation of state action plan for resident bustards' recovery programme
- Annexure 8. Demi Letters issued by MoEFCC to Secretary, Rajasthan and Ministry of Power and Renewable Energy. dt. 07.01.2019
- Annexure 9. Circular issued by Secretary, Ministry of Power and Renewable Energy to Power agencies. dt. 22.02.2019
- Annexure 10a. Power line mitigation to conserve bustards. WII Report
- Annexure 10b. Action and budget proposal- Mitigation plan for high-tension power lines in Great Indian Bustard habitat of Thar Desert, Jaisalmer. January 2019
- Annexure 11. Permission for radio tagging Great Indian Bustard from CWLW, Rajasthan. dt. 06.02.2019
- Annexure 12. Permissions to conduct project activities as approved under the MoA for GIB conservation. dt. 01.01.2019
- Annexure 13. Letter of permission for collection of eggs/ chicks/ birds of GIB & Lesser Florican from DIG (Wildlife), MoEFCC. dt. 17.01.2019
- Annexure 14. Pending issues for undertaking GIB & LF conservation. dt. 30.04.2019

- Annexure 15. Permission to collect GIB eggs for Conservation breeding programme from CWLW, Rajasthan. dt. 03.05.2019
- Annexure 16a. Fund request for construction of predator proof fence around GIB CBC Ramdeora by CWLW, Rajasthan. dt. 13.02.2019
- Annexure 16b. 16b. Fund release by WII to CPWD Jaisalmer
- Annexure 17. Fund transfer to CWLW, Rajasthan for construction of predator proof fence around GIB CBC Ramdeora. dt.15.02.2019
- Annexure 18. Grant of permission to WII at Ramdeora for CBC by CWLW, Rajasthan. dt. 05.02.2019
- Annexure 19. Reservation of non-forest land for Sorsan CBC by District Collector Baran. dt.15.01.2019
- Annexure 20. Sorsan forest land allotment for CBC by PCCF & HoFF, Rajasthan. dt. 06.03.2019
- Annexure 21. IFHC mission report

Annexure 4.4.1

कार्यालय उप वन संरक्षक वन्यजीव, जैसलमेर

Phase-I proposal

कमांक एफ ()विकास/उवसंवजीजै/2020-21/8504-05

दिनांक ० 4 . 11 . 2020

निमित:-

प्रधान मुख्य वन संरक्षक एवं मुख्य वन्यजीव प्रतिपालक, राज. जयपुर

विषयः Predator proofing of fencing at Sudasari Enclosures हेतु बजट डिमाण्ड बाबत्।

महोदय,

उपरोक्त विषयान्तर्गत निवेदन है कि वन संरक्षक, (वन्यजीव) कार्यालय प्रधान मुख्य वन संरक्षक एवं मुख्य वन्यजीव प्रतिपालक, राज. जयपुर द्वारा DG (Forest), MoEF&CC द्वारा दिनांक 03.11.2020 को ऑन-लाईन मिटींग में दिए गए निर्देशों के संदर्भ में प्रदत्त निर्देशों के कम में Predator proof fencing लगाने हेतु सबसे महत्वपूर्ण सुदासरी क्लस्टर के 6 क्लोजरों हेतु बजट डिमाण्ड संलग्न

उल्लेखनीय है कि वर्तमान में गोडावण ब्रिडींग के लिहाज से महत्वपूर्ण सुदासरी क्षेत्र के क्लोजर्स में प्रिडेटर प्रुफ फेन्सिंग नहीं है, साथ ही वर्तमान में फेन्सिंग की चेनलिंक 4"x4" साईज की है जो कि छोटे प्रिडेटर्स जैसे मॉनिटर लिजार्ड, लोमड़ी इत्यादि को रोकने में प्रभावी सिद्ध नहीं होती। अतः गोडावण के प्रिडेटर्स को एन्क्लोजर्स में आने से रोकने के लिए सुदासरी क्षेत्र के क्लोजर्स को 1"x1" साईज की चेनलिंक तथा सीमेन्ट कंकीट कार्य द्वारा पूर्णतः प्रिडेटर प्रुफ बनाना अतिआवश्यक है।

संलग्नः

01. उपरोक्तानुसार।

भवदीय

(कपिल चन्द्रवाल) उप वन संरक्षक वन्य जीव, जैसलमेर

कमांक एफ ()विकास/उवसंवजीजै/2020-21/ 8 504-05 प्रतिलिपि सूचनार्थ एवं आवश्यक कार्यवाही हेतुः मुख्य वन संरक्षक, वन्यजीव, जोधपुर।

दिनांक 04.11. 2020

वन्य जीव, जैसलमेर

राजरथान संरक्षर

वन-विभाग

कार्यालय क्षेत्रीय वन अधिकारी, वन्य जीव, जैसलमेर तकनीकी प्राक्कलन वर्ष 2020-21

1. नाम कार्यस्थल :— Predator Proofing of fencing at Sudasari ACD closures

2. नाम वन मण्डल :- उप वन संरक्षक,वन्य जीव जैसलमेर 4. परिमाप:- 36.759 किमी.

वन्यजीव, जैसलमेर

Estimate per 100 Mtr. of fencing length

	क्रां0 बीएस सं0 आईट		कार्य विवरण			1		
					Qty.	Un	it Rate	Total
		P.10	ट्रेंच खोदने के लिए ले आउट एव निशानदेही करना।				(Rs)	Cost
	1		व अर्थ (अर्थ १ व निशानिदही करना ।		100	1		Con
	F A3/	P.10	खड्डे खोदने यो लिए मिशानवंही करना।	100	FUU	Mi	0.92	92.00
	2		The state of the s		21			
	Grami (2B/C	2020	नीवं, खाई, परनाला में 1.5 गहराई तक मिद्दी की खुदाई करना, तल			nos	0.92	19.32
	3		निकालना, नींव भरने के बाद खाली स्थानों को पुनः निट्टी से भरना त बची हुई मिट्टी को 50 मीटर की दूरी तक निस्तारण करना। सख्त, चिकनी कंकर मिट्टी में।	था			3	
	- suc		ट्रेंच खुदाई	_				
			कुल खुदाई = {100-(21x.45)}x.25x.60= 13.582 Cum	13.	582	Cum	133.38	1812
	(i)	आर.सी.सी. पोल रोपने हेतु खड्डा खुदाई	-				
		3	1 पोल के लिए =(0.45x0.45)x(0.60) Cum=0.122 Cum 21 पोल के लिए = 0.122x21pole= 2.562 Cum कुल खुदाई =2.562 cum	2.5	62	Cum	133.38	342
4	Gramin 2	020	RCC for foundation and plinth work in cement sand	-				
-		C	concrete 1:2:4 upto ground level, 20 mm	Ī				
	(i)	Ş	च की कुल आरसी सं। भराई 13.582 Cum					
	(ii)			13.5	8	Cum	4313.44	58585
	LS	1 2	पोल की कुल खुदाई =0.122 Cum पोल में आर.सी.सी. की कटौती =0.15x0.15x0.60=0.014 पोल की कुल आर.सी.सी. भराई =0.122-0.014=0.108 Cum l पोल की कुल आर.सी.सी. भराई =0.108x21 pole=2.268Cum.	2.26	8	Cum	4313.44	9783
	Acc.	311	रसी.सी. पोस्ट लंबाई 2.40 मी. साईज (0.10 मी.+0.15 मी.)/2 X o.		+			
5		लो कर	हे की चार सरियों (Vibrator Compacted Inclined at Top) का य करना / बनाना।	17		No	750	12750
	LS	एवं	र.सी.सी. पोस्ट (Support) लंबाई 1.8 मी. साईज (0.10 मी +0.15 मी. 2 X 0.10 मी. का सीमेंट बजरी कंकरीट 1:24 अनुपात का मसाला 4 एमएम लोहे की चार सरियों का क्य करना/बनाना।	8		No	450	3600
	Forest-BSR 2020 Pg. 14	Lo	cal Transportation of RCC Post (Upto 5 Km.).		1			
	B6.2/6.3			21	1	No	28.69	602
1	7157.5	Pur	chasing of Barbed Wire. 100m x 7strands		+			
G	Framin 2020			100	K	g.	75.00	7500
1	8.2 s per Rate		chasing of Binding Wire.	15	W		70	
•	ontract	Puro	chasing of Chainlink fence (6 Feet. Height, 12 gauge,	13	K	g.	70	1050
		1"x	I" square).	100	M	tr.	620	62000

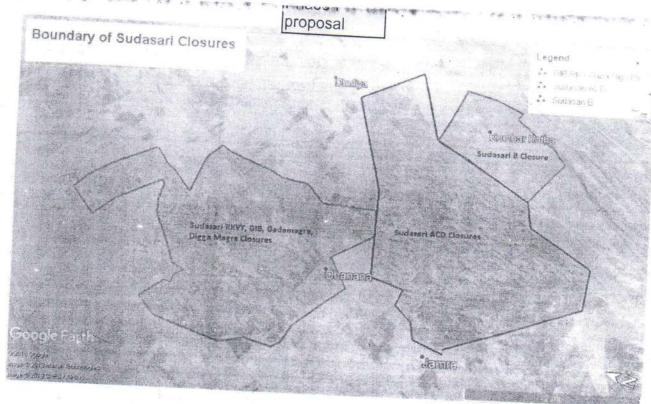
	В	36.7 Km. Predator proof fencing में 8 स्थानों पर गेट निर्माण (प्रिडेटर प्रुफ)				800000
	A	36759 Mtr. की प्रिडेटर पुफ फेन्सिंग की लागत = Rs. 171000x367.59=	367.6		171000	62857890
		T. Company	111-11-111		Say Rs	171000
		Total				170999.88
5	-		- Samuel			1827.00
		Labour Aminities, POL and misc.	-			1000.00
4	Стапыя 2020/ Ээ	सेन्टरिंग शटरिंग लगाने व हटाने का कार्य कुन सेनफल =2x20m x 0,60m =24 वर्ग मीतर	24.0	Sqm	248.74	5970
3		As per current Cement Rate, price of 1 bag is Rs 395 Additional Cost per cement bag = 395-340=Rs 55 for 52 Bags Additional Cost = 52 x 55 = Rs 2860	52,0	Bags	55	2860
		As per Gramin BSR 2020 Cement Rate is Rs 340, and No. of cement Bags required for 15.85 Cum Concrete 1:4:8 =15.85 x 3.2 Bags = 51.88 Bags				-
2	Forest-BSR 2020 Pg 14 B 7	Binding of Chainlink with Barbed Wire.	100	Mtr.	7.66	766
1	Forest-BSR 2020 Pg 13 B5.2	Unwinding of barbed wire, stretching and fastening to the pole using binding wire (100 x 7 = 700 rmt)	700	Mtr.	2.06	1442
	drivias Signa a	कार्य विवरण	Qty.	Unit	Rate	Total

प्रमाणित किया जाता है कि उक्त प्राक्कलन में दर्शाये गये कार्य, कार्यस्थल की आवश्यकता के अनुरूप है तथा प्राक्कलन में दर्शायाँ गई दरें विभागीय बीएसआर 2020 जोधपुर संभाग एवं ग्रामीण बीएसआर 2020 जैसलमेर के अनुरूप है।

> उप केन संरक्षक वन्य जीव, जैसलमेर

कुल योग

63657890



सुदासरी में प्रिडेटर प्रुफिंग के लिए प्रस्तावित क्लोजर्स:-

S. No.	Closure	Area (Ha)	Perimeter (Meter)	Amount	
1	Sudasari ACD	1515	18455	(85.)	
2	Sudasari B	350		31558050	
3	Sudasari RKVY		8199	14020290	
4	Sudasari GIB	370			
5	Sudasari Gada Magra	250 450	21105	36089550	
6	Sudasari Diga Magra	380		30003330	
	Total	300	4770		
	Budget available for 11000 meter, so budget required for total 47759-11000=36759 Mtr.		36759	81667890 62857890	
A. Carlotte and the car	Cost of making 8 Gates (Predator proof in above fencing)			800000	
	Total Budget Required	1/		Rs. 63657890	

(कपिल चन्द्रवाल) उप वन संरक्षक वन्य जीव, जैसलमेर

राजस्थान सरकार वन विभाग कार्यालय उप वन संरक्षक वन्यजीव, जैसलमेर

क्मांक एफ ()विकास/ उवसंवजीजै/ 2020-21/ 8591-92

दिनांक 10.11.2020

निमित:-

प्रधान मुख्य वन संरक्षक एवं मुख्य वन्यजीव प्रतिपालक, राज. जयपुर

विषयः Predator proofing of fencing at important enclosures of Desert National Park Phase-II हेतु बजट डिमाण्ड बाबत्।

महोदय.

उपरोक्त विषयान्तर्गत निवेदन है कि वन संरक्षक, (वन्यजीव) कार्यालय प्रधान मुख्य वन संरक्षक एवं मुख्य वन्यजीव प्रतिपालक, राज. जयपुर द्वारा DG (Forest), MoEF&CC द्वारा दिनांक 03.11.2020 को ऑन—लाईन मिटींग में दिए गए निर्देशों के संदर्भ में प्रदत्त निर्देशों के कम में Predator proof fencing लगाने हेतु राष्ट्रीय मरू उद्यान के महत्वपूर्ण एन्क्लोजर्स/क्लस्टर्स हेतु Phase-II की बजट डिमाण्ड संलग्न प्रेषित है।

उल्लेखनीय है कि वर्तमान में गोडावण ब्रिडींग के लिहाज से महत्वपूर्ण सुदासरी, चौहानी, रामदेवरा, पोकरण क्षेत्र के क्लोजर्स में प्रिडेटर प्रुफ फेन्सिग नहीं है, साथ ही वर्तमान में फेन्सिग की चेनलिंक 4"x4" साईज की है जो कि छोटे प्रिडेटर्स जैसे मॉनिटर लिजार्ड, लोमड़ी इत्यादि को रोकने में प्रभावी सिद्ध नहीं होती। अतः गोडावण के प्रिडेटर्स को एन्क्लोजर्स में आने से रोकने के लिए सुदासरी क्षेत्र के क्लोजर्स को 1"x1" साईज की चेनलिंक तथा सीमेन्ट कंकीट कार्य द्वारा पूर्णतः प्रिडेटर प्रुफ बनाना अतिआवश्यक है।

गोडावण ब्रिडींग की दृष्टि से महत्वपूर्ण कुछ क्लोजरों जैसे सुदासरी ए,सी,डी, सुदासरी आर.के.वी. वाई, सुदासरी जी.आई.बी. इत्यादि क्लोजरों में Phase-I में प्रिडेटर प्रुफ फेन्सिग के प्रस्ताव इस कार्यालय के पत्रांक 8504—05 दिनांक 04.11.2020 के द्वारा पूर्व में भिजवाए जा चुके है। संलग्नः

01. उपरोक्तानुसार।

भवदीय

(कपिल चन्द्रवाल) उप वन संरक्षक वन्य जीव, जैसलमेर

दिनांक 10.11.2020

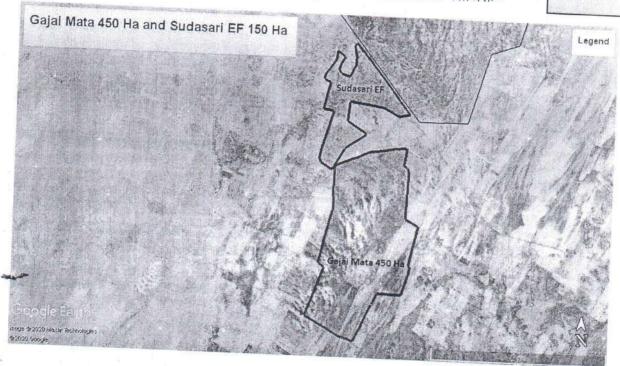
कमांक एफ ()विकास/उवसंवजीजै/2020–21/8591-92 प्रतिलिपि सूचनार्थ एवं आवश्यक कार्यवाही हेतुः मुख्य वन संरक्षक, वन्यजीव, जोधपुर।

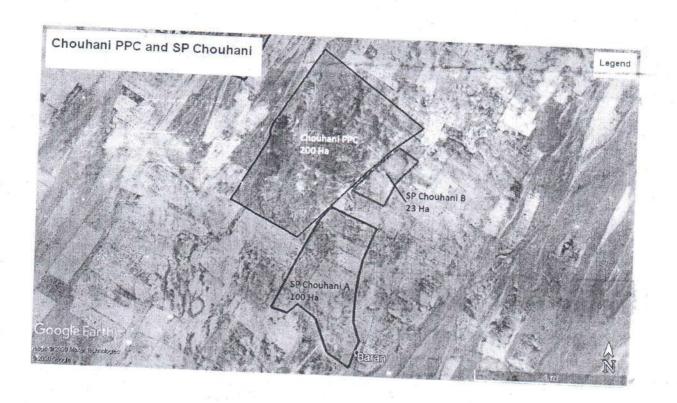
> उप वन संरक्षक वन्य जीव, जैसलमेर

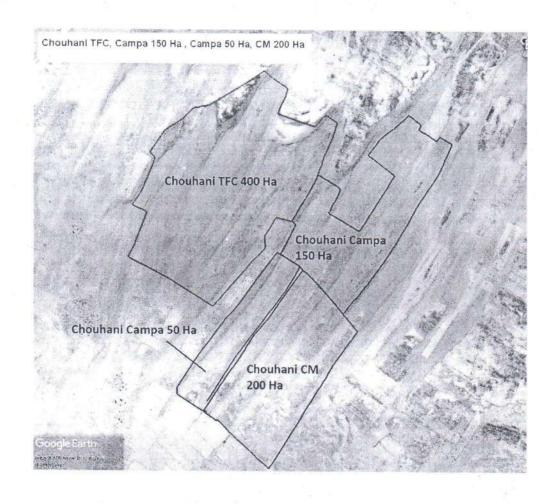
Der Ded Jazo

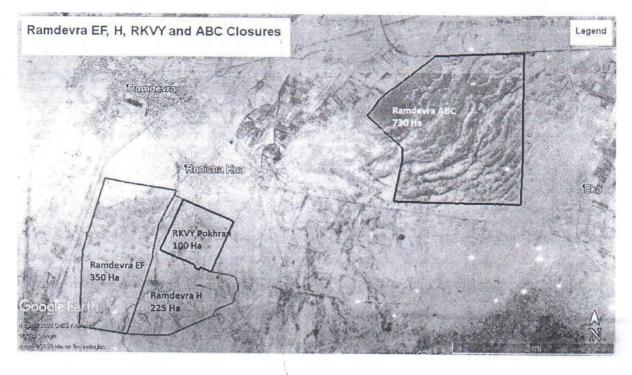
DNP Sanctuary में प्रिडेटर प्रुफिंग के लिए प्रस्तावित क्लोजर्स:-

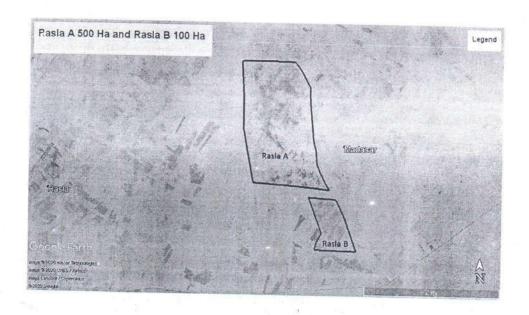
Phase-II Proposal











S. No.	Closure	Area (Ha)	Perimeter (Meter)	Amount (Rs)	
1	Gajai Mata Closure	450	10000	17100000	
2	Sudasari EF	150	9000	15390000	
3	Chouhani PPC	200	7300	12483000	
4	SP Chouhani A	100		11457000	
	SP Chouhani B	23	6700		
	Chouhani TFC	400		30780000	
5	Chouhani Campa 1	150			
3	Chouhani Campa 2	50	18000		
	Chouhani CM	200			
	Ramdevra EF	350		19665000	
6	Ramdevra H	225	11500		
	Ramdevra RKVY	100	5-million, 5-million (5-million)		
7	Ramdevra ABC	730	11500	19665000	
8	Rasla A	500	9200	15732000	
9	Rasla B	100	4300	7353000	
		Total	87500	149625000	
	Cost of making 20 (Predator proof in above			2000000	
		Budget Required	151625000		

(कपिल चन्द्रवाल) उप वन संरक्षक वन्य जीव, जैसलमेर

राजस्थान सरकार

वन-विभाग

कार्यालय क्षेत्रीय वन अधिकारी, वन्य जीव, जैसलमेर तकनीकी प्राक्कलन वर्ष 2020—21

- 1. नाम कार्यस्थल :- Predator Proof fencing of Important Closures of DNP Sanctuary
- 2. नाम वन मण्डल :- उप वन संरक्षक,वन्य जीव जैसलमेर

4. परिमाप:- 87.5 किमी.

3. रेंज :- वन्यजीव, जैसलमेर

Estimate per 100 Mtr. of fencing length

400	बीएसआर आईटम न	कार्य विवरण	Qty.	Unit	Rate	Total
HU					(Rs.)	Cost (Rs
1	F A4/ P.10	ट्रेंच खोदने के लिए ले आउट एवं निशानदेही करना।	100	Mtr.	0.92	92.00
2	F A3/ P.10	खड्डे खोदने के लिए निशानदेही करना।	21	nos.	0.92	19.32
3	Gramin 2020 - (2B/C)	नीवं, खाई, परनाला में 1.5 गहराई तक मिट्टी की खुदाई करना, तल को कुटना, पानी डालना, बगल को संवारना, खुदी मिट्टी को बाहर निकालना, नींव भरने के बाद खाली स्थानों को पुनः मिट्टी से भरना तथा बची हुई मिट्टी को 50 मीटर की दूरी तक निस्तारण करना। सख्त, चिकनी कंकर मिट्टी में।		-		8
	(i)	ट्रेंच खुदाई कुल खुदाई = {100-(21x.45)}x.25x.60=13.582 Cum	13.582	Cum	133.38	1812
	(ii)	आर.सी.सी. पोल रोपने हेतु खड़डा खुदाई 1 पोल के लिए =(0.45x0.45)x(0.60) Cum=0.122 Cum 21 पोल के लिए = 0.122x21pole= 2.562 Cum कुल खुदाई =2.562 cum	2.562	Cum	133.38	342
4	Gramin 2020 13 A	RCC for foundation and plinth work in cement sand concrete 1:2:4 upto ground level. 20 mm				
	(i)	ट्रेंच की कुल आर.सी.सी. भराई 13.582 Cum	13.582	Cum	4313.44	58585
	(ii)	1 पोल की कुल खुदाई =0.122 Cum 1 पोल में आर.सी.सी. की कटौती =0.15x0.10x0.60=0.009 1 पोल की कुल आर.सी.सी. भराई =0.122-0.009=0.113 Cum 21 पोल की कुल आर.सी.सी. भराई =0.113x21 pole=2.37Cum.	2.37	Cum	4313.44	10223
5	LS	आर.सी.सी. पोस्ट लंबाई 2.40 मी. साईज (0.10 मी.+0.15 मी.)/2 X 0. 10 मी. का सीमेंट बजरी कंकरीट 1:2:4 अनुपात का मसाला एवं 6 एमएम लोहे की चार सरियों (Vibrator Compacted Inclined at Top) का क्य करना/बनाना।	17	No	750	12750
6	LS	आर.सी.सी. पोस्ट (Support) लंबाई 1.8 मी. साईज (0.10 मी.+0.15 मी.)/2 X 0.10 मी. का सीमेंट बजरी कंकरीट 1:2:4 अनुपात का मसाला एवं 4 एमएम लोहे की चार सरियों का क्य करना/बनाना।	8	No	450	3600
7	Forest-BSR 2020 Pg. 14 B6.2/6.3	Local Transportation of RCC Post (Upto 5 Km.).	21	No	28.69	602
8	LS	Purchasing of Barbed Wire. 100m x 7strands	100	Kg.	75.00	7500
9	Gramin 2020	Purchasing of Binding Wire.	15	Kg.	70	1050
1	As per Rate	Purchasing of Chainlink fence (6 Feet. Height, 12 gauge, 1"x1" square).	100	Mtr.	620	62000

ब्र	and a	771 0				
1	Forest-BSR 2020 Pg. 13	Unwinding of barbed wire street	Qty.	Unit	Rate	Total
12	B5.2 Forest-BSR	(100 x 7 = 700 rmt)	700	Mtr.	2.06	1442
	7	As per Gramin BSR 2020 Company B	100	Mtr.	7.66	766
13		No. of cement Bags required for 15.952 Cum Concrete 1:4:8 =15.952 x 3.2 Bags = 51.046 Bags As per current Cement Rate, price of 1 bag is Rs 395 Additional Cost per cement bag = 395-340=Rs 55 for 52 Bags Additional Cost = 52 x 55 = Rs 2860	52.0	Bags	55	2860
4	Gramin 2020/ 93	सेन्टरिंग, शटरिंग लगाने व हटाने का कार्य कुल क्षेत्रफल =2x20m x 0.60m =24 वर्ग मीटर				
5		Labour Aminities, POL and misc.	24.0	Sqm	248.74	5970
-						1387.15
		Total		_		
	0	37500 May -6 0				171000.00

A	87500 Mtr. की प्रिडेटर पुफ फेन्सिंग की लागत = Rs. 171000x875=	875	171000	1.10.11
В	87.5 Km. Predator proof 6		. 171000	14962500
	निर्माण (प्रिडेटर प्रुफ)			2000000

प्रमाणित किया जाता है कि उक्त प्राक्कलन में दर्शाये गये कार्य, कार्यस्थल की आवश्यकता के अनुरूप है तथा प्राक्कलन में दर्शायी गई दरें विभागीय बीएसआर 2020 जोधपुर संभाग एवं ग्रामीण बीएसआर 2020 जैसलमेर के अनुरूप है।

> उप वन संरक्षक वन्य जीव, जैसलमेर

Annexure 4.4.2

Office of Principal Chief Conservator of Forests and Chief Wildlife Warden, Rajasthan, Jaipur

cwlw.raj@gmail.com, 0141-2700151

No. F. 11 (395) Dev - II/GIB/CWLW/2020-21/211 Dated: 12-11.2020

To,

Additional Director General (Wildlife)
Ministry of Environment, Forests & Climate Change
Govt. of India, Wildlife Wing,
6th Floor, Vayu Wing
Indira Paryavaran Bhawan
Jor Bag Road, Aliganj,
NEW DELHI-110003

Sub: - Budget demand for predator proofing of fencing at different parts in Desert National Park, under GIB Conservation Programme in 2020-21.

Ref: - Instruction by DG (Forest), MoEF&CC during the online meeting to discuss and review plans for protection and conservation of Great Indian Bustard in the Country on 03.11.2020

Sir,

With reference to the subject and as per instruction given by DG (Forest) in the referenced meeting, it is submitted that, this office has received two proposal from Deputy Conservator of Forest, Wildlife Jaisalmer regarding predator proofing of the fencing at different places at Desert National Park as below: -

Name of work	Length of Fencing	Financial outlay			
Phase – I (Predator Proofing of fencing at Sudasari ACD closures)	36.759 km	636.57890 Lakh			
Phase – II (Predator Proof fencing of Important Closures of DNP Sanctuary)	87.5 km	1516.25 Lakh			
Total	124.259 km	2152.8289 Lakh			

Please find attached the proposal for your favorable consideration. It is requested to allot additional budget for the above work so that the work can be started in this financial year.

Yours sincerely,

Enclosed – Proposal

Air 12-11-20 AND 151 2/

(Mohan Lal Mecna)

Principal Chief Conservator of Forests and Chief Wildlife Warden,

Rajasthan, Jaipur

Annexure 4.4.3

GOVT. OF RAJASTHAN OFFICE OF THE ADDITIONAL PRINCIPAL CHIEF CONSERVATOR OF FORESTS & CHIEF WILDLIFE WARDEN ARANYABHAWAN, JAIPUR ewlw.raj@gmail.com Ph-0141-2700151

No. F 19(GIB)permission/CWLW/2019-2020/ \5 \9

Dated: 24.04.2019

To

DCF (Wildlife), Desert National Park, Jaisalmer.

Subject: Removal of the animals which threaten GIB and their eggs- Reg.

Sir.

With reference to above cited subject, as per the authority vested under Section 33 (b) of Wildlife Protection Act, 1972, you are here by directed to remove the animals which threaten the security of Great Indian Bustard and their eggs inside the enclosures of Desert National Park

Yours sincerely,

(Arindam Tomar)
Chief Wildlife Warden, Rajasthan

or or jest his of the



Govt. of Rajasthan Office of the Addl. Pr. Chief Conservator of Forests and Chief Wildlife Warden, Rajasthan, Jaipur

No. F.19(GIB)/Permission/CWLW/2019/

Dated: 30.05.2019

To.

Director, Wildlife Institute of India, Dehra Dun

Sub :-Permission for management of nest predators in Great Indian Bustard(GIB) breeding enclosures of Desert National Park.

Ref:- 1. Deputy Inspector General of Forests (WL) Letter no. F.No. 1-18/2019 WL Dated 24.05.2019

2. Dr. Y.V. Jhala, WII letter no. WII/TMP/CAMPA-GIB PROJECT/2016/13 Dated 24.10.2017

Sir.

With reference above cited subject and reference, MoEF&CC, GoI has issued permission for management of nest predators in Great Indian Bustard (GIB) breeding enclosures of Desert National Park and release of Desert fox and Desert cat outside the enclosure under Section 12(b) of the Wild Life (Protection)Act, 1972

In this context, the permission under section 12 (b) & 28(1) (c) of the Wild Life (Protection) Act, 1972 for trapping, marking and release of Desert fox and Desert cat, outside the enclosure, is hereby granted subject to the following conditions:

1. The trapping, marking and releasing would be done using non-invasive method

2. The entire operation involving handling of the species would be undertaken under the supervisors of trained and skilled personnel in the presence of CCF (WL), Jodhpur

3. Utmost care would be taken so as to cause minimum damage to the animals/birds/ eggs/ hatchlings during the process.

4. In case of the mis-happening during the process, that endangers or may endanger the safety of the animals, the permission may be reviewed /revoked apart from the legal action that may be taken, if and when required

Regular information about trapping, marking and releasing of the animals shall be sent to this

office, CCF (WL) Jodhpur and DCF Wildlife, Jaisalmer simultaneously

The programme of the action is to be necessarily got approved from the DCF (WL) Jaisalmer / officer in charge, prior initiation of any activity.

The provisions, rules and regulations regarding sanctuaries and protected area should be adhered to strictly. Additionally, the program personnel shall adhere to provisions of Wildlife Protection (ct-1972, Rajasthan Forest act, 1953 and other relevant rules & regulations applicable in the area of their operation.

8. No wild animal would be disturbed or caused by any harm

9. For the purpose this program, no medicines will be allowed to be given to the wild animal and no change in their habit of eating would be allowed.

10. The instructions issued by the Officer in charge at the time of work should be followed strictly.

B 10/6/19

- 11. The movement of the vehicles in the protected area, while entering or thereafter would be under the complete control of officer in charge concerned.
- 12. If any irregularity, loss, incident of poaching or other offence is seen in the protected area or otherwise, it should be immediately communicated to the Officer in charge in writing and telephonically.
- 13. This permission has been granted for a period of one year from the issue of this letter. The permission may be extended upon request. The permission can be withdrawn in the interest of wildlife at any time without mentioning the reasons thereof.
- 14. The logbook should be maintained by project/program team and it has to be made available officer in charge regularly.
- 15. A quarterly report on the activities undertaken and progress made should be provided to this office, CCF (WL) Jodhpur and DCF (WL), Jaisalmer.
- 16. The Officer in-charge may attach a liaison officer to the project / program team based on availability of staff at his / her disposal.
- 17. Chief Conservator of Forest (Wildlife) Jodhpur will be the Nodal Officer and Deputy Conservator of Forest (Wildlife) Jaisalmer will be the Officer in-charge.
- 18. This office doesn't hold any responsibility for any accident / mishap during the project.
- 19. The SOPs and all conditions imposed by Government of India will be strictly complied with.
- 20. The animals should not be released in areas controlled by the Armed Forces.
- 21. Any other permissions collateral to the activities permitted by this letter may be separately applied for.

Yours faithfully,

(Arindam Tomar) Chief Wildlife Warden Rajasthan, Jaipur.

No. F.19(GIB)/Permission/CWLW/2019/ 1263 - 86 Copy for information and necessary action to: -

1. DIG (Wildlife), MoEF&CC, New Delhi

2. Secretary, Forest, Secretariat, Jaipur.

3. CCF, (Wildlife) Jodhpur,

DCF, (Wildlife) Jaisalmer

Dated: 30.05.2019

Chief Wildlife Warden Rajasthan, Jaipur

Govt. of Rajasthan Office of the Addl. Pr. Chief Conservator of Forests and Chief Wildlife Warden, Rajasthan, Jaipur

No. F.19(GIB)/Permission/CWLW/2019/

Dated: 20.09.2019

To.

Director, Wildlife Institute of India, Dehra Dun

Sub:-Permission for management of nest predators in Great Indian Bustard(GIB) breeding enclosures of Desert National Park.

Ref:- 1. GoR letter no. F 3(3)/Forest/2014 Part dated 19.08.2019

2. Dr. Y.V. Jhala, WII letter no. WII/TMP/CAMPA-GIB PROJECT/2016/13 Dated 24.10.2017

Sir.

With reference above cited subject and reference, Government of Rajasthan has issued permission for management of nest predators in Great Indian Bustard (GIB) breeding enclosures of Desert National Park and release of wild pig, monitor lizards and mongoose outside the enclosure under Section 12(b) of the Wild Life (Protection)Act, 1972

In this context, the permission under section 12 (b) & 28(1) (c) of the Wild Life (Protection) Act, 1972 for trapping, marking and release of wild pig, monitor lizards and mongoose, outside the enclosure, is hereby granted subject to the following conditions:

- 1. The trapping, marking and releasing would be done using non-invasive method
- 2. The entire operation involving handling of the species would be undertaken under the supervision of trained and skilled personnel in the presence of CCF (WL), Jodhpur
- 3. Utmost care would be taken so as to cause minimum damage to the animals/birds/ eggs/ hatchlings during the process.
- 4. In case of the mis-happening during the process, that endangers or may endanger the safety of the animals, the permission may be reviewed /revoked apart from the legal action that may be taken, if and when required
- 5. Regular information about trapping, marking and releasing of the animals shall be sent to this office, CCF (WL) Jodhpur and DCF Wildlife, Jaisalmer simultaneously
- 6. The programme of action is to be necessarily got approved from the DCF (WL) Jaisalmer officer in charge, prior initiation of any activity.
- 7. The provisions, rules and regulations regarding sanctuaries and protected area should be adhered to, strictly. Additionally, the program personnel shall adhere to provisions of Wildlife Protection Act 1972, Rajasthan Forest Act, 1953 and other relevant rules & regulations applicable in the area of their operation.
- 8. No wild animal would be disturbed or caused any harm.
- 9. For the purpose this program, no medicines will be allowed to be given to the wild animal and no change in their habit of eating would be allowed.
- 10. The instructions issued by the Officer in charge at the time of work should be followed strictly.



3

- 11. The movement of the vehicles in the protected area, while entering or thereafter would be under the complete control of officer in charge concerned.
- 12. If any irregularity, loss, incident of poaching or other offence is seen in the protected area or otherwise, it should be immediately communicated to the Officer in charge in writing and telephonically.
- 13. This permission has been granted for a period of one year from the issue of this letter. The permission may be extended upon request. The permission can be withdrawn in the interest of wildlife at any time without mentioning the reasons thereof.
- 14. The logbook should be maintained by project/program team and it has to be made available officer in charge regularly.
- 15. A quarterly report on the activities undertaken and progress made should be provided to this office, CCF (WL) Jodhpur and DCF (WL), Jaisalmer.
- 16. The Officer in-charge may attach a liaison officer to the project / program team based on availability of staff at his / her disposal.
- 17. Chief Conservator of Forest (Wildlife) Jodhpur will be the Nodal Officer and Deputy Conservator of Forest (Wildlife) Jaisalmer will be the Officer in-charge.
- 18. This office doesn't hold any responsibility for any accident / mishap during the project.
- 19. The SOPs and all conditions imposed by Government of India will be strictly complied with.
- 20. The animals should not be released in areas controlled by the Armed Forces.
- 21. Any other permissions collateral to the activities permitted by this letter may be separately applied for

Yours faithfully,

Dated: 20.09.2019

(Arindam Tomar) Chief Wildlife Warden Rajasthan, Jaipur.

No. F.19(GIB)/Permission/CWLW/2019/ 1 (14 – 17 Copy for information and necessary action to: -

- 1. DIG (Wildlife), MoEF&CC, New Delhi
- 2. Secretary, Forest, Secretariat, Jaipur.
- 3. QCF, (Wildlife) Jodhpur,

DCF, (Wildlife) Jaisalmer

Chief Wildlife Warden Rajasthan, Jaipur

8 0/10/101

F. No. WII/TMP/CAMPA-GIB PROJECT/2016/13

Date: 30 August 2019

To,

The Chief Wildlife Warden
Rajasthan
Aranya Bhawan, Jhalana Doongri, Jaipur- 302004
Email: cwlw.raj@gmail.com, arindam.tomar@gmail.com

Sub: Management of nest predators in Great Indian Bustard (GIB) breeding enclosures of Desert National Park- reg

Ref: (1) Letter from your office No. F.19 (GIB)/ Permission/ CWLW/ 2019/1262 dated 30.05.19

(2) Letter from Secretary (Forest), Rajasthan Forest Department No. 3(3) VAN/2014 PART dated 19.08.2019

Sir,

Many thanks for granting permission to manage nest predators in GIB breeding enclosures of Desert National Park. We would like to commence the trapping exercise of foxes, desert cat, mongoose, pigs and dogs after the GIB breeding season is over (October- November 2019 onwards). Prior to predator removal, it is crucial that fences of at least two predator proof enclosures- (i) Sudasari ACD and (ii) RKVY, are repaired. Kindly get this task addressed before the second week of October 2019. The Director, DNP may please communicate to us once fencing is repaired so that predator removal can commence soon after this has been addressed. The fencing needs to be regularly patrolled and maintained to avoid recolonization/re-establishment of nest predators after translocation. We intend to put transmitters on some of these animals to ensure that they are not re-entering the enclosures.

We will share a detailed work plan regarding nest predator management with you shortly.

Yours faithfully,

Y. V. Jhala

P.I. & Scientist 'G'

Copy: (1) Additional Director General (WL), MoEFCC, New Delhi. Email: adgwl-mef@nic.in

- (2) Deputy Conservator of Forests (WL), Jaisalmer. Email: dfowljsm@gmail.com
- (3) Chief Conservator of Forests (WL), Jodhpur. Email: ccfjodhpur@gmail.com

Post Box No. 18, Chandrabani, Dehradun - 248 001, Uttarakhand, INDIA ई.पी.ए.बी.एक्स : +91-135-2640114, 2640115, 2646100 फेक्स : 0135-2640117

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Annexure 4.5.1

GOVERNMENT OF RAJASTHAN FOREST DEPARTMENT

F.NO 10()/Forest/2020

Dated: 04-09-2020

Minutes of the Meeting

A video conference was held on 31-08-2020 at 11:30 AM in Aranya Bhawan, Jaipur under the Chairmanship of Principal Secretary, Forest and Environment Rajasthan to discuss the pending land related matters of Desert National Park. The list of participants is given at Annexure.

The pending land related matters of Desert National Park were discussed and the following decided:-

- 1. Revenue Department may examine the validity of the orders issued by the authorized officers for acquisition of rights vide separate orders dated 07.07.1999.
- 2. District Collector, Jaisalmer may review status of relocation of villagers from Desert National Park and report within 4 weeks. In particular, the cases of those persons to whom land has been allotted in IGNP area may be reviewed. District Collector may identify land suitable for resettlement and relocate people willing to do so voluntarily. (Action: District Collector Jaisalmer and DCF,WL, Jaisalmer)
- 3. The committee formed under the District Collector, Jaisalmer vide order dated 03.07,2012 may take feedback from all the stakeholders and identify the issues related to the notification of ESZ proposal under consideration within one month based on which the proposal for notification of ESZ may be forwarded to the Government (Action: District Collector, Jaisalmer and Barmer and DCF, WL, Jaisalmer)
- 4. The identification of the area in the GIB Arc beyond the DNP and declaration as ESZ to be processed at the earliest. Revenue department and District Collectors may be intimated that an ESZ is proposed in the area and

land/ projects may be sanctioned after due consultation with the Forest Department. (Action: CWLW)

- 5. The proposal of transfer of revenue lands within the boundaries of the notified sanctuary to the Forest Department may be reexamined as no fresh rights can be admitted on these lands.(Action: Revenue Department)
- 6. An approach paper for conservation of GIB and development of DNP, bringing out all the interdepartmental issues may be prepared. (Action: CWLW)

Meeting ended with thanks to the Chair.

B. Praveen (Secretary, Forest)

Copy to the following for information and necessary action:

- 1. PS to Principal Secretary, Forest and Environment Department, Rajasthan, Jaipur
- 2. PS to Principal Secretary, Revenue Department, Rajasthan, Jaipur
- 3. Principal Chief Conservator of Forest (HoFF), Rajasthan, Jaipur
- 4. Additional Principal Chief Conservator of Forest & Chief Wildlife Warden, Rajasthan, Jaipur
- 5. Chief Conservator of Forest (Wildlife), Jodhpur
- 6. District Collector, Jaisalmer
- 7. District Collector, Barmer
- 8. Deputy Conservator of Forest, Wildlife, Jaisalmer

Shubham Jain (OSD Forest)



List of Participants

Meeting to discuss the land related matters of Desert National Park Date 31.08.2020

S. No	Name of Officer	Designation	Department		
1	Smt. Sreya Guha	Principal Secretary	Forest		
2	Sh. B. Praveen	h. B. Praveen Secretary			
3	Sh. G.V Reddy	PCCF(HoFF)	Forest		
4	Sh. Arindam Tomar	APCCF&CWLW	Forest		
5	Sh. Kamlesh Abusariya				
6	Sh. Hanumana Ram	Ram Chief Conservator of Forest, Wildlife, Jodhpur			
7	Sh. Assish Modi	District Collector Jaisalmer	Revenue		
8			Forest		
9	Sh. Om Prakash Bishnoi-1	Additional District Magistrate Barmer	Revenue		
10	Sh. Shubham Jain	OSD	Forest		



राजस्थान सरकार वन विभाग कार्यालय उप वन संरक्षक वन्य जीव, जैसलमेर



क्रमांक / एफः() विविध / उवसंवजीजै / 2020-21 / 8073

दिनांक :- 24 9 2020

निमित्

जिला कलक्टर, जैसलमेर।

विषय:— प्रमुख शासन सचिव वन एवं पर्यावरण विभाग की अध्यक्षता में दिनांक 31.08.2020 की बैठक के निर्णयों की पालना के संबंध में।

प्रसंग:- Minutes of Meeting issued via order no. F.NO10()/Forest/2020 dated 04.09.2020

महोदय, .

उपरोक्त विषय एवं प्रसंगान्तर्गत निवेदन है कि Minutes of Meeting dated 31.08.2020 का बिन्दुवार कार्यवाही विवरण निम्नानुसार है:-

बिन्दु सं. 1: Revenue Department may examine the validity of the orders issued by the authorized officers for acquisition of rights vide separate orders dated 07.07.1999.

कार्यवाहीः राजस्व विभाग से संबंधित है।

ৰিল্ব দাঁ 2: District Collector, Jaisalmer may review status of relocation of villagers from Desert National Park and report within 4 weeks. In particular, the cases of those persons to whom land has been allotted in IGNP area may be reviewed, District Collector may identify land suitable for resettlement and relocate people willing to do so voluntarily. (Action: District Collector Jaisalmer and DCF, WL, Jaisalmer)

कार्यवाही: राष्ट्रीय मरू उद्यान की प्रारम्भिक अधिसूचना क्रमांक एफ 3(1)(73)रेवेन्यु / 8 / 73 दिनांक 08. 05.1981 को जारी की गई थी जिसके उपरांत जिला कलक्टर, जैसलमेर द्वारा विज्ञिप्त दिनांक 08.09. 1981 द्वारा प्रस्तावित मरू उद्यान में सम्मिलित क्षेत्र में अपने अधिकारों के संबंध में लिखित उजरदारी प्रस्तुत करने हेतु जारी की गई। तत्पश्चात् उपखण्ड अधिकारी जैसलमेर द्वारा अपने आदेश क्रमांक राजस्व / 99 / 654 दिनांक 07.07.1999 द्वारा अधिकारों का विनिश्चय किया गया। उक्त आदेश दिनांक 07.07.1999 में वर्णित है कि राज्य सरकार द्वारा विधानसभा में दिए गए आशवासन के अनुसार राष्ट्रीय मरू उद्यान का क्षेत्रफल राष्ट्रीय मरू उद्यान अभयारण्य का 1/10 किया जाकर लगभग 300 वर्गकिमी. में उद्यान की स्थापना का निर्णय लिया गया। उक्तानुसार प्रस्तावित राष्ट्रीय मरू उद्यान के क्षेत्र में कुल 9 राजस्व ग्राम आते है जिसमें से ग्राम नीम्बा, गांगा, बीदा, महबूब का पार एवं मतुओं की बस्ती पूर्ण रूप से ग्राम कनोई, सगरों की बस्ती, सम व जामड़ा का आंशिक क्षेत्र आता है। जिसमें कि वन्यजीव संरक्षण अधिनियम 1972 के तहत उद्यान क्षेत्र में भूमि अवाप्ति की कार्यवाही की अनुशंषा की गई है। अतः तदनुसार उपरोक्त 9 गांवों की अभयारण्य क्षेत्र में सिम्मिलित भूमि को ही राष्ट्रीय मरू उद्यान में सम्मिलित किया जाना प्रस्तावित है व इस हेतु स्वैच्छिक विस्थापन हेतु प्रेरित करना प्रस्तावित है। स्वैच्छिक विस्थापन हेत् उपरोक्त ९ गांवों के संबंधित परिवारों को आईजीएनपी एरिया में बसाए जाने पर विचार किया जा सकता है। उपरोक्त गांवों की भूमि संबंधी विवरण परिशिष्ठ-ए में संलग्न है। साथ ही इस कार्यालय के पत्रांक 8041 दिनांक 23.09.2020 (संलग्न-1) द्वारा अतिरिक्त आयुक्त उपनिवेशन

विभाग, जैसलमेर को इस बाबत् लिखा गया है कि उपर्युक्त वर्णित गांवों के निवासियों की नहरी क्षेत्र में कितनी सिंचित भूमि आवंटित है तथा इन गांवों के कितने भूमिहीन किसानों को उपनिवेशन क्षेत्र में सिंचित भूमि आवंटित की गई है। इसकी सूची प्राप्त होनी अपेक्षित है।

बिन्दु सं. 3: The committee formed under the District Collector, Jaisalmer vide order dated 03.07.2012 may take feedback from all the stakeholders and identify the issues related to the notification of ESZ proposal under consideration within one month based on which the proposal for notification of ESZ may be forwarded to the Government (Action: District Collector Jaisalmer and DCF, WL, Jaisalmer)

कार्यवाहीः राष्ट्रीय मरू उद्यान अभयारण्य की सीमा से बाहर ''ईको—सेन्सिटीव जोन'' घोषित किए जाने हेतु पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार ने पत्रांक 1-9/2007-WL-I/(Pt.) दिनांक 09.02.2011 द्वारा दिशा निर्देश जारी किए है। उक्त की पालना में प्रशासकीय सुधार (ग्रुप—3) विभाग, राजस्थान सरकार ने आदेश क. 6/54/AR/Gr.-3/2007 दिनांक 03.07.2012 द्वारा जिलाधीकारी जैसलमेर की अध्यक्षता में समिति का गठन किया है। जिसमें उप वन संरक्षक वन्यजीव जैसलमेर सदस्य सचिव है। इस कार्यालय द्वारा ''ईको—सेन्सिटीव जोन'' के प्रस्ताव का मसौदा इस कार्यालय के पत्रांक 1974 दिनांक 07.07.2020 (संलग्न—2) के द्वारा भिजवाया गया है। यह ''ईको—सेन्सिटीव जोन'' क्षेत्र अभयारण्य क्षेत्र के चारों ओर 1 किमी. परिधि में घोषित किया जाना प्रस्तावित किया गया है। जिस पर उक्त समिति की चर्चा उपरांत निर्णय लिया जाकर राज्य सरकार को प्रस्ताव अग्रेषित किया जाना है।

बिन्दु सं. 4: The identification of the area in the GIB Arc beyond the DNP and declaration as ESZ to be processed at the earliest. Revenue department and District Collectors may be intimated that an ESZ is proposed in the area and land/ projects may be sanctioned after due consultation with Forest Depart (Action: CWLW)

कार्यवाही: बिन्दु सं. 3 में वर्णित आदेशों की पालना में अभयारण्य क्षेत्र की उतर दिशा से गोडावण के आश्रय स्थल एवं गोडावण के फ्लाईंग कॉरिडोर जो जैसलमेर एवं जोधपुर के 5600 वर्ग किमी. के लगभग क्षेत्र में फैला हुआ है, इस क्षेत्र को भारतीय वन्जयीव संस्थान द्वारा विस्तृत सर्वे अनुसंधान उपरांत GIB Priority Habitat क्षेत्र माना है, जिसे GIB Arc के नाम से जाना जा रहा है। इस क्षेत्र को अभयारण्य का ईको—सेन्सिटीव जोन घोषित करने हेतु इस कार्यालय के पत्रांक 2849 दिनांक 10.09. 2020 (संलग्न-3) द्वारा जिला कलक्टर जैसलमेर को ईको—सेन्सिटीव जोन प्रस्ताव का एक मसौदा बिन्दु सं. 3 में वर्णित समिति में चर्चा हेतु एवं चर्चा उपरांत अंतिम स्वरूप देने हेतु भेजा गया है जिस पर कमेटी की बैठक आयोजित होना अपेक्षित है।

बिन्दु सं. 5: The proposal of transfer of revenue lands within the boundaries of the notified sanctuary to the Forest Department may be reexamined as no fresh rights can be admitted on these lands (Action: Revenue Department)

कार्यवाहीः अभयारण्य क्षेत्र में स्थित वह राजस्व भूमि जो गोडावण के आश्रय स्थल हेतु महत्वपूर्ण है उस भूमि को चिन्हित कर इस कार्यालय के पत्रांक 3344 दिनांक 31.12.2014 (संलग्न-्री) द्वारा राजस्व ग्राम जामड़ा, बीदा, हटार व चौहानी एवं बरणा की कुल 5049 हैक्टर भूमि को गोडावण हेतु महत्वपूर्ण मानते हुए वन विभाग के नाम अमलदरामद करने हेतु एक प्रस्ताव तैयार कर कार्यालय जिला कलक्टर जैसलमेर को भिजवाया गया था। उक्त प्रस्ताव के जवाब में राजस्व विभाग द्वारा अपने पत्रांक 15 विनांक 11.05.2016 से कुल 1000 बीघा भूमि के ही प्रस्ताव भिजवाने हेतु निर्देशित किया गया।

प्रासंगिक बैठक में बिन्दु सं. 5 में वर्णित किया गया है क्योंकि उक्त समस्त प्रस्तावित क्षेत्र घोषित राष्ट्रीय मरू उद्यान अभयारण्य में सम्मिलित है एवं वन संरक्षण अधिनियम 1972 की धारा 20 के अंतर्गत अभयारण्य क्षेत्र में कोई नए अधिकार सृजित नहीं किए जा सकते। अर्थात् उक्त भूमि को ना ही आवंटित किया जा सकता है ना ही उस पर किसी प्रकार का निर्माण आदि किया जा सकता है। अतः

उक्त कारणों से इस कार्यालय के उपरोक्त प्रस्ताव दिनांक 31.12.2014 पर पुनर्विचार कर उपरोक्त भूमि रिकॉर्ड में वन विभाग के नाम दर्ज किया जाना प्रस्तावित है।

बिन्दु सं. 6: An approach paper for conservation of GIB and development of DNP, bringing out all the interdepartmental issues may be prepared (Action: CWLW)

कार्यवाहीः कार्यालय अति. प्रधान मुख्य वन संरक्षक एवं मुख्य वन्यजीव प्रतिपालक, राज. जयपुर से संबंधित है।

संलग्नः उपरोक्तानुसार।

भवदीय

(कपिल चन्द्रवाल) भा.व.से. उप वन संरक्षक

उप वन संरक्षक वन्य जीव, जैसलमेर

क्रमांक / एफः() विविध / उवसंवजीजै / 2020–21 / 8074 – 76 दिनांक :- 24 | १०२० प्रतिलिपिः

- 1. अति. प्रधान मुख्य वन संरक्षक एवं मुख्य वन्यजीव प्रतिपालक, राज. जयपुर।
- 2. मुख्य वन संरक्षक, वन्यजीव, जोधपुर।
- 3. जिला कलक्टर, बाड़मेर।

उप वेग संरक्षक वन्य जीव, जैसेलमेर

राष्ट्रीय मरू उद्यान अमयारण्य की सीमाओं मे आने वाले ग्रामों की मूमि का विवरण

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राजस्थान सरकार वन विभाग कार्यालय उप वन संरक्षक वन्य जीव, जैसलमेर



क्रमांक : एफ ()/ विविध/उवसंवजीजै/2020-21/ 🛭 💇 ।

निमित:-

अति. आयुक्त उपनिवेशन विभाग जैसलमेर

विषयः राष्ट्रीय मरू उद्यान में आने वाले गांवों के किसानों को उपनिवेशन क्षेत्र में आवंटित भूमि की सूचना

देने के संबंध में।

प्रसंगः प्रमुख शासन सचिव (वन विभाग) राजस्थान जयपुर Minutes of Meeting दिनांक 31.08.2020

महोदय.

उपरोक्त विषयान्तर्गत निवेदन है कि प्रमुख शासन सचिव (वन विभाग) राजस्थान जयपुर द्वारा दिनांक 31.08.2020 को विडीयो कॉन्फ्रेसिंग के माध्यम से ली गई बैठक में राष्ट्रीय मरू उद्यान अभयारण्य क्षेत्र में स्थित भूमि से संबंधित बिन्दुओं पर चर्चा की गई। उक्त बैठक के Minutes of Meeting के बिन्दु सं. 2 में अभयारण्य क्षेत्र में स्थित राजस्व गांव कमशः सम, सगरों की बस्ती, मतुओं की बस्ती, गांगा, कनोई, निम्बा, महबूब का पार, जामड़ा, बीदा के निवासी लोगों द्वारा उपनिवेशन विभाग के अधीन आने वाली सिंचित भूमि में भूमि आवंटन करवाया है तथा इन गांवों के कितने भूमिहीन व्यक्तियों को सिंचित भूमि आवंटित की गई है। इसकी सूची भिजवाने का कष्ट करें।

संलग्नः Minutes of Meeting दिनांक 31.08.2020

उप वन संरक्षक वन्य जीव, जैसलमेर

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Govt. of Rajasthan Forest Department

Office of the Dy. Conservator of Forest, Wildlife, Jaisalmer

No. F()Misc/DCFWLJsm/2019-20/1974

Date 7/7/2020

To, The collector, District Jaisalmer, Rajasthan.

Sub. Declaration of Eco-sensitive zone(ESZ) around Desert National Park – Regarding.

Ref.: (1) Wildlife conservation strategy -2002

- (2) Hon'ble Supreme Court order dated 4/12/2006 in Goa Foundation Vs. Union of India case
- (3) Guidelines for declaration of Eco-Sensitive Zone around Critical Tiger Habitats, National Parks and Wildlife sanctuaries issued by Ministry of Environment and forests, Government of India vide letter no. 1-9/2007 WL-

I(Pt) dated 9.2.2011 and super-session of all earlier orders in this matter.

(4) Order no. 6(54)/AR/Gr-3/2007 Dated 03/07/2012 of Administrative Reforms (Group 3) Department, Government of Rajasthan

With reference to above subject and in compliance with the reference (1) and (2) Desert National Park Eco-Sensitive Zone needs to be declared. For this purpose, Ministry of Environment Forests and climate change, Government of India has issued guidelines (reference (3)) and Government of Rajasthan has constituted a committee, of which District collector, Jaisaimer is the chairman, by an order (reference(4)).

National Park is being submitted hereby for discussion and deliberation by the said committee, so that finalised proposal can be forwarded further. For this purpose you are requested to suggest suitable date and time for calling a meeting of the committee.

Enclosure: As above.

Kapil Chandrawal,

DCF (WL), Jäisalmer.

स्लिवनक -3

Govt. of Rajasthan Forest Department Office of the Dy. Conservator of Forest, Wildlife, Jaisalmer

No. F()Misc/DCFWLJsm/2020-21/ 2849

Date 10-09-2020

To,

The Collector, District Jaisalmer, Rajasthan.

Sub. Declaration of Eco-sensitive zone(ESZ) in priority GIB habitat outside DNP and along flying corridor in the form of GIB-Arc – Regarding.

Ref.: (1) Wildlife conservation strategy -2002

(2) Hon'ble Supreme Court order dated 4/12/2006 in Goa Foundation Vs. Union of India case

(3) Guidelines for declaration of Eco-Sensitive Zone around Critical Tiger Habitats, National Parks and Wildlife sanctuaries issued by Ministry of Environment and forests, Government of India vide letter no. 1-9/2007 WL-I(Pt) dated 9.2.2011 and super-session of all earlier orders in this matter.

(4) Order no. 6(54)/AR/Gr-3/2007 Dated 03/07/2012 of Administrative Reforms (Group 3) Department, Government of Rajasthan

(5)Points no. of Minutes of meeting F.No. 10()/Forest/2020 dated 04.09.2020 chaired vide a video conference by Pr. Secretary Forest dated 31.08.2020

With reference to above subject and in compliance with the reference (1) and (2) Eco-Sensitive Zone needs to be declared. For this purpose, Ministry of Environment Forests and climate change, Government of India has issued guidelines (reference (3)) and Government of Rajasthan has constituted a committee, of which District collector, Jaisalmer is the chairman, by an order (reference(4)).

In this regard a draft of the proposal for declaration of ESZ in GIB habitat and flying corridor in the form of GIB-Arc is being submitted hereby for discussion and deliberation by the said committee, so that finalised proposal can be forwarded further. For this purpose you are requested to suggest suitable date and time for calling a meeting of the committee.

Enclosure: As above.

Regards

(Kapil Chandrawal)

IFS

Dy Conservator of Forest Wildlife, Jaisalmer

de



राजस्थान सरकार वन विभाग कार्यालय उप वन संरक्षक वन्य जीव, जैसलमेर

कमांक एफ() विविध/ उवसंवजीजै / 2014-15 / 334 ५

दिनांक:-

निमित

जिला कलक्टर जैसलमेर

विषय:— गोडावण संरक्षण हेतु राष्ट्रीय मरू उद्यान के अन्तर्गत आने वाले राजस्व खसराओं को वन विभाग के नाम अमल दरामद करने के कम में।

महोदय,

उंपरोक्त विषयान्तर्गत निवेदन है कि गोडावण एक अतिसंकटापन्न प्रजाति का पक्षी है तथा इस पक्षी को राजस्थान की राज्य पक्षी का दर्जा दिया गया है। पूर्व में पाये जाने वाले कई इलाकों से विलुप्त होकर वर्तमान में गोडावण की संख्या 250 से कम हो चुकी है। गोडावण के संरक्षण हेतु राजस्थान राज्य प्रतिबद्ध है एवं इनके हेबीटाट (आश्रय स्थल) को बचाने के लिए 04 अगस्त 1980 को राष्ट्रीय मरू उद्यान को अभयारण्य के रूप में घोषित कर दी गई है।

राष्ट्रीय मरू उद्यान की कुल 3162 वर्ग किमी. क्षेत्र में से 50.76 वर्ग किमी. ही वन विभाग के नाम से अमल दरामद है। वर्तमान में गोडावण का मुख्य आश्रय स्थल रेंज जैसलमेर एवं म्याजलार के बींच में सुदासरी, जामड़ा, वीदा, हटार, चौहानी एवं वरणा गांवों के क्षेत्र में है। इस क्षेत्र में मवेशियों की संख्या अत्यधिक होने से गोडावण के विशेष संरक्षण हेतु चेनलिंक फेन्सिंग से क्लोजर बनाकर सुरक्षा सुनिश्चित किया जा रहा है। इन क्लोजरों के बाहर के इलाके में गोडावण का प्रजनन/विचरण नाम मात्र ही है। अतः इस अतिसंकटग्रस्त प्रजाति की संख्या को बढ़ावा देने के लिए नये क्लोजरों का निर्माण किया जाना अत्यन्त आवश्यक है।

इस संबंध में निवेदन है कि उपरोक्त गांवों के अंतर्गत आने वाली राजस्व भूमि में नये क्लोजरों का निर्माण करने के दौरान स्थानीय गांववासियों के विरोध का सामना करना पड़ रहा है। उक्त राजस्व भूमि पर अवैध काश्तकारों का कब्जा है जिनके द्वारा गांववासियों को माध्यम बनाकर वन विभाग में कार्यवाही में अवरोध उत्पन्न कर रहे है। इस समस्या के समाधान हेतु सुदासरी के समीपस्थ डी.एन.पी. क्षेत्र के अन्तर्गत आने वाली राजस्व भूमि में से गांव वालों की सुवासरी के लिए पर्याप्त भूमि छोड़ते हुए गोंडावण संरक्षण के क्लोजर बनाने हेतु भूमि का अमल दरामद वन विभाग के नाम करने हेतु चिन्हित कर प्रस्ताव इस पत्र के साथ भेजा जा

रहा है। कुल राजस्व भूमि प्रतिशत अमल दरामद हेत् राजस्व गांव का नाम प्रस्तावित राजर्खें भूमि (बीघा में) (बीघा में) 6197 19.75 31374 जामड़ा 1 6.36 2431 38201 बीदा 2 14255 44.81 हटार व चौहानी 31812 8312 30780 27.06 बरणा

म्याजलार रोड़, जैसलमेर-345001 (राज.) फोन एवं फैक्स-02992-252489 E-mail:dfowljsm@gmail.com

*

संलग्नक—अ,ब,स एवं द में वर्णित राजस्व खसरों का अमल दरामद वन विभाग के नाम कराने की कार्यवाही के आदेश प्रसारित कराने का कष्ट करें ताकि राजस्थान के राज्य पक्षी गोडावण का संरक्षण एवं संवर्धन हो सके एवं इसे विलुप्त होने से बचाने हेतु वन विभाग द्वारा किए जा रहे प्रयासों को बल मिल सके।

संलग्नः उपरोक्तानुसार।

भवदीय (अनूप के.आर.) भा.व.से. उप वन संरक्षक वन्य जीव, जैसलमेर

कमांक एफ() विविध / उवसंवजीजै / 2014-15 / 3345-47 प्रतिलिपि निम्न को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित हैः दिनांक:- 3/12/14

1. अति. प्रधान मुख्य वन संरक्षक एवं मुख्य वन्य जीव प्रतिपालक राजस्थान जयपुर।

2. संभागीय आयुक्त, संभाग जोधपुर।

3. मुख्य वन संरक्षक वन्य जीव, जोधपुर।

(अनूप के.आर.) भा.व.से. उप वन संरक्षक वन्य जीव, जैसलमेर

Govt. of Rajasthan Forest Department

Office of the Dy. Conservator of Forest, Wildlife, Jaisalmer

No. F()Misc/DCFWLJsm/2020-21/

2849

Date 10-09-2020

To,

The Collector, District Jaisalmer, Rajasthan.

Sub. Declaration of Eco-sensitive zone(ESZ) in priority GIB habitat outside DNP and along flying corridor in the form of GIB-Arc – Regarding.

Ref.: (1) Wildlife conservation strategy -2002

- (2) Hon'ble Supreme Court order dated 4/12/2006 in Goa Foundation Vs. Union of India case
- (3) Guidelines for declaration of Eco-Sensitive Zone around Critical Tiger Habitats, National Parks and Wildlife sanctuaries issued by Ministry of Environment and forests, Government of India vide letter no. 1-9/2007 WL-I(Pt) dated 9.2.2011 and super-session of all earlier orders in this matter.
- (4) Order no. 6(54)/AR/Gr-3/2007 Dated 03/07/2012 of Administrative Reforms (Group 3) Department, Government of Rajasthan
- (5)Points no. 4 of Minutes of meeting F.No. 10()/Forest/2020 dated 04.09.2020 chaired vide a video conference by Pr. Secretary Forest dated 31.08.2020

With reference to above subject and in compliance with the reference (1) and (2) Eco-Sensitive Zone needs to be declared. For this purpose, Ministry of Environment Forests and climate change, Government of India has issued guidelines (reference (3)) and Government of Rajasthan has constituted a committee, of which District collector, Jaisalmer is the chairman, by an order (reference(4)).

In this regard a draft of the proposal for declaration of ESZ in GIB habitat and flying corridor in the form of GIB-Arc is being submitted hereby for discussion and deliberation by the said committee, so that finalised proposal can be forwarded further. For this purpose you are requested to suggest suitable date and time for calling a meeting of the committee.

Enclosure: As above.

Regards

Kapil Chandrawal)

Dy Conservator of Forest Wildlife, Jaisalmer



Government of India Ministry of Environment and Forests (Wildlife Division)

Paryavaran Bhawan, CGO Complex, Lodi Road, New Delhi -110003.

F. No. 1-9/2007 WL-I(pt) Dated: 9th February, 2011

To, The Chief Wildlife Warden All States/Union Territories

Sub: Guidelines for Declaration of Eco-Sensitive Zones around National Parks and Wildlife Sanctuaries.

Sir

In pursuance to the decision taken by the National Board for Wildlife, all the States/Union Territory, Governments were requested for forwarding site specific proposals for declaration of Eco Sensitive Zones around National Parks and Wildlife Sanctuaries. Several reminders in this connection were also sent. Hon'ble Supreme Court had also take note of this decision had directed States/Union Territory, Governments to forward proposals this Ministry. However, only very few States have forwarded proposals in this regard.

This Ministry after careful consideration, has therefore, decided to frame guidelines to facilitate the States/Union Territory, Governments for declaration of Eco-Sensitive Zones around National Parks and Wildlife Sanctuaries. Kindly find enclosed a copy of the said Guidelines. It is requested to kindly take necessary action in this regard at the earliest

Yours faithfully,

(Prakriti Srivastava)

Deputy Inspector General (WL)

Telefax: 01-24360704 E-mail:digwl-mef@nic.in

Encl: As above

Copy to:

1. Principal Secretary (Forests), all States/Union Territories.

2. Principal Chief Conservator of Forests, all States/ Union Territories.

3. NIC Cell- with a request to upload the enclosed guidelines on the official website of MoEF.

GUIDELINES FOR DECLARATION OF ECO-SENSITIVE ZONES AROUND NATIONAL PARKS AND WILDLIFE SANCTUARIES



GOVERNMENT OF INDIA MINISTRY OF ENVIRONMENT AND FORESTS

INDEX

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GUIDELINES FOR DECLARATION OF ECO-SENSITIVE ZONES AROUND NATIONAL PARKS AND WILDLIFE SANCTUARIES

1. Background:

1.1. IBWL Decision:

- 1.1.1 During the XXI meeting of the Indian Board for Wildlife held on 21st January 2002, a 'Wildlife Conservation Strategy-2002' was adopted wherein point no.9 envisaged that "lands falling within 10 Kms of the boundaries of National Parks and Sanctuaries should be notified as eco-fragile zones under section 3 (v) of the Environment (Protection) Act and Rule 5 Sub rule (viii) & (x) of the Environment (Protection) Rules."
- 1.1.2 The Additional Director General of Forests (WL), vide letter dated 6th February 2002, had requested all the Chief Wildlife Wardens for listing out such areas within 10 Kms of the boundaries of National Parks and Sanctuaries and furnish detailed proposals for their notification as eco-sensitive areas under the Environment (Protection) Act, 1986.
- 1.1.3 In response, some of the State Governments had raised concern over applicability of the 10 Kms range from the Protected Area boundary and informed that most of the human habitation and other areas including important cities in these States would come under the purview of eco-sensitive zone and will adversely affect the development.

1.2. National Wildlife Action Plan (2002-2016)

- 1.2.1 The National Wildlife Action Plan (NWAP) 2002-2016 indicates that "Areas outside the protected area network are often vital ecological corridor links and must be protected to prevent isolation of fragments of biodiversity which will not survive in the long run. Land and water use policies will need to accept the imperative of strictly protecting ecologically fragile habitats and regulating use elsewhere."
- 1.2.2 The Action Plan also indicates that "All identified areas around Protected Areas and wildlife corridors to be declared as ecologically fragile under the Environment (Protection) Act, 1986."

1.3. Decision of National Board for Wildlife:

1.3.1 Considering the constraints communicated by the states, the proposal was re-examined by the National Board for Wildlife in its 2nd meeting held on 17th March 2005 and it was decided that the 'delineation of eco-sensitive

zones would have to be site specific and relate to regulation, rather than prohibition, of specific activities'. The decision was communicated to all the State Governments for compliance vide letter dated 27th May 2005. Thereafter, it was further communicated with subsequent reminders.

1.4. Hon'ble Supreme Court's decision:

- 1.4.1 A Public Interest Litigation was also filed by the Goa Foundation vide their Writ Petition No. 460/2004 before the Hon'ble Supreme Court regarding the issue of declaration of eco-sensitive zones.
- 1.4.2 Vide their order dated 4th December 2006, Hon'ble Supreme Court had directed the Ministry of Environment & Forests to give a final opportunity to all States/Union territories to respond to the letter dated 27.5.2005 and that the State Governments send their proposals within four weeks, to the Ministry. It was also directed that all cases where environmental clearances were granted where activities are within 10 Kms zone, be referred to Standing Committee of NBWL.

2. Statutory Provisions

- 2.1 Section 5 C(1) of the Wildlife (Protection) Act, 1972 states that it shall be the duty of the National Board for Wildlife to promote the conservation and development of Wildlife and forests by such measures as it thinks fit.
- 2.2 Section 3 of the Environment (Protection) Act 1986 (EPA) gives power to the Central Government i.e. the Union Ministry of Environment and Forests to take all measures that it feels are necessary for protecting and improving the quality of the environment and to prevent and control environmental pollution. To meet this objective, the Central Government can restrict areas in which any industries, operations or processes or class of industries, operations or processes shall not be carried out or shall be carried out subject to certain safeguards [Section 3(2)(v)]
- 2.3 Section 5(1) of the Environment (Protection) Rules, 1986 (EPR), states that the central government can prohibit or restrict the location of industries and carrying on certain operations or processes on the basis of considerations like the biological diversity of an area (clause v) maximum allowable limits of concentration of pollutants for an area (clause ii) environmentally compatible land use (clause vi) proximity to protected areas (clause viii).

3. Purpose for declaring Eco-Sensitive Zones:

The purpose of declaring Eco-sensitive Zones around National Parks and Sanctuaries is to create some kind of "Shock Absorber" for the Protected Areas. They would also act as a transition zone from areas of high protection to areas involving lesser protection. As has been decided by the National Board for Wildlife, the activities in the Eco-sensitive zones would be of a regulatory nature rather than prohibitive nature, unless and otherwise so required.

4. Extent of Eco-Sensitive Zones:

- 4.1 Many of the existing Protected Areas have already undergone tremendous development in close vicinity to their boundaries. Some of the Protected Areas actually lying in the urban setup (Eg. Guindy National Park, Tamil Nadu, Sanjay Gandhi National Park, Maharashtra, etc). Therefore, defining the extent of ecosensitive zones around Protected Areas will have to be kept flexible and Protected Area specific. The width of the Eco-sensitive Zone and type of regulations will differ from Protected Area to Protected Area. However, as a general principle the width of the Eco-sensitive Zone could go upto 10 Kms around a Protected Area as provided in the Wildlife Conservation Strategy-2002.
- **4.2** In case where sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, are even beyond 10 kms width, these should be included in the Eco-sensitive Zone.
- **4.3** Further, even in context of a particular Protected Area, the distribution of an area of Eco-sensitive Zone and the extent of regulation may not be uniform all around and it could be of variable width and extent.

5. Need for guidelines:

- **5.1** As has been indicated vide para 1.4 above, Hon'ble Supreme Court has vide their order dated 4th December 2006 directed all the State/Union Territory Governments to forward proposals for declaration of eco-sensitive zones around its Protected Areas. However, only States like Haryana, Gujarat, Mizoram, Meghalaya, Assam, Goa have forwarded proposals. However, several other States/Union Territories have not come forward, perhaps for want of guidelines in this regard.
- 5.2 In this context, it is pertinent to note here that Hon'ble Supreme Court vide their judgment dated 3rd December 2010 in the case relating to the construction of park at NOIDA near Okhla Bird Sanctuary filed by Shri Anand Arya & Anr vs. Union of India (I.A. Nos 2609-2610 of 2009) in Writ Petition (Civil) No. 202/1995, had noted that the State Government of Uttar Pradesh had not

declared Eco-sensitive zones around its Protected Areas as the Government of India had not issued any guidelines in this regard.

5.3 The Ministry of Environment & Forests had set up a committee under the Chairmanship of Shri Pronab Sen for identifying parameters for designating Ecologically Sensitive Areas in India. The said Committee had identified parameters for declaration of specific units of land/water etc as Ecologically Sensitive Zones based on parameters like richness of flora& fauna; slope; rarity & endemism of species in the area; origins of rivers etc. However, these parameters do not basically apply to the Eco-sensitive zones in the instant context, i.e around Protected Areas. In the instant case, the Eco-sensitive zones are meant to act as a "Shock absorbers"/ "transition zone" to the Protected Areas by regulating and managing the activities around such Protected Areas.

6. The procedure to be adopted:

- 6.1 As has been indicated in the forgoing paras, the basic aim is to regulate certain activities around National Park and Wildlife Sanctuary so as to minimize the negative impacts of such activities on the fragile ecosystem encompassing the Protected Area. As a first step towards achieving this goal, it is a prerequisite that an inventory of the different land use patterns and the different types of activities, types and number of industries operating around each of the Protected Area (National Parks, Sanctuaries) as well as important Corridors be made. The inventory could be done by the concerned Range Officers, who can take a stock of activities within 10 km of his range.
- **6.2** For the above purpose, a small committee comprising the concerned Wildlife Warden, an Ecologist, an official from the Local Self Government and an official of the Revenue Department of the concerned area, could be formed. The said committee could suggest the:
- (i) Extent of eco-sensitive zones for the Protected Area being considered.
- (ii) The requirement of such a zone to act as a shock absorber
- (iii) To suggest the best methods for management of the eco-sensitive zones, so suggested.
- (iv) To suggest broad based thematic activities to be included in the Master Plan for the region.
- **6.3** Based on the above, the Chief Wildlife Warden could group the activities under the following categories (an indicative list of such activities is attached as **ANNEXURE-1**):-
- (i) Prohibited
- (ii) Restricted with safeguards.
- (iii) Permissible

- 6.4 Once the proposal for Eco-sensitive zones has been finalized, the same may be forwarded to the Ministry of Environment and Forests for further processing and notification. Here, it may be noted that, the State/Union Territory Forest Department could forward the proposals to the respective authority in the State Government with copy to the Ministry of Environment and Forests, as and when the proposals(even if it is for single Protected Area) are complete. An indicative list of details that need to be submitted along with the proposals is at **ANNEXURE-2.**
- 6.5 It is to mention here that in cases where the boundary of a Protected Area abuts the boundary of another State/Union Territory where it does not form part of any Protected Area, it shall be the endeavour of both the State/Union Territory Governments to have a mutual consultation and decide upon the width of the eco-sensitive zone around the Protected Area in question.
- 6.6 The State Government should endeavour to convey a very strong message to the public that ESZ are not meant to hamper their day to day activities, but instead, is meant to protect the precious forests/Protected Areas in their locality from any negative impact, and also to refine the environment around the Protected Areas. A copy of the notification of the Sultanpur Eco-sensitive Zone issued by the Ministry is attached herewith at ANNEXURE-3 for reference and guidance.
- 7. These guidelines are indicative in nature and the State / Union Territory Governments may use these as basic framework to develop specific guidelines applicable in the context of their National Parks, Wildlife Sanctuaries, important corridors, etc. with a view to minimizing and preferably eliminating any negative impact on protected areas.

ANNEXURE-1

Identification of Activities

While some of the activities could be allowed in all the eco-sensitive areas, others will need to be regulated / prohibited. However, which activity can be regulated or prohibited and to what extent, would have to be PA specific. A broad list of activities (this may need supplementation) which could be allowed, promoted, regulated or prohibited is given in the table below:

Sl. No.	Activity	Prohibited	Regulated	Permitted	Remarks
1.	Commercial Mining	Y			Regulation will not prohibit the digging of earth for construction or repair of houses and for manufacture of country tiles or bricks for housing for personal consumption
2.	Felling of trees		·Y		With permission from appropriate authority
3.	Setting of saw mills	Y			
4.	Setting of industries causing pollution (Water, Air, Soil, Noise, etc.)	Y		S	
5.	Establishment of hotels and resorts		Y		As per approved master plan, which takes care of habitats allowing no restriction on movement of wild animals
6.	Commercial use of firewood	Y			For hotels and other business related establishment

7.	Drastic		Y		T
	change of				
	agriculture				
	systems				
8.	Commercial		Y		As per approved
	use of natural			3+	master plan, which
	water				takes care of habitats
	resources				allowing no
	including				restriction on
	ground water				movement of wild
	harvesting				animals.
9.	Establishment	Y			
	of major				
	hydroelectric				
	projects	-			
10.	Erection of		Y		Promote
	electrical				underground cabling
	cables	11 			8
11.	Ongoing			Y	However, excessive
	agriculture				expansion of some
	and			**	of these activities
	horticulture				should be regulated
	practices by				as per the master
	local				plan
	communities				
12.	Rain Water			Y	Should be actively
	harvesting			58	promoted
13.	Fencing of		Y		
	premises of				
	hotels and				
	lodges				
14.	Organic			Y	Should be actively
	farming				promoted
15.	Use of		Y	1 2 2 mm 1 2 mm	
	polythene				
	bags by				
	shopkeepers				
16.	Use of			Y	Should be actively
	renewable				promoted
	energy				
	sources				
17.	Widening of		Y		This should be done
	roads				with proper EIA

					and mitigation measures
18.	Movement of vehicular traffic at night		Y		For commercial purpose
19.	Introduction of exotic species		Y		
20.	Use or production of any hazardous substances	Y			
21.	Undertaking activities related to tourism like over-flying the National	Y			
	Park area by any aircraft, hot-air balloons		1	7	
22.	Protection of hill slopes and river banks		Y		As per the master plan
23.	Discharge of effluents and solid waste in natural water bodies or terrestrial area	Y			
24.	Air and vehicular pollution		Y		
25.	Sign boards & hoardings		Y		As per the master plan
26	Adoption of green technology for all activities			Y	Should be actively promoted.

GENERIC INFORMATIONS TO BE INCORPORATED IN THE PROPOSALS FOR DECLARATION OF ECO-SENSITIVE ZONE AROUND PROTECTED AREAS

- (i) Delineation of the physical boundaries on a topo-sheet with precise description in geographic terms together with a description of the significant features/attributes that would potentially qualify the area as eco-sensitive zone. A description of the boundaries alongwith the list of villages with exception and exemption in the delineated buffer zone area.
- (ii) An inventory of the existing legal status of rights, entitlements, privileges and obligations of the local communities.
- (iii) A description of bio-diversity values including bio-geographical representatives, endemism, species richness, geo-morphological characteristics, and unique land use practices including aesthetic and cultural values.
- (iv) A description of the resource base indicating the economic potential and livelihood implication for the people residing in and around the proposed eco-sensitive area.
- (v) An inventory of activities to be regulated and/ or prohibited in the proposed eco-sensitive zone.
- (vi) List of the protected areas for declaring eco-sensitive zone.

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असाधारण EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii) PART II—Section 3—Sub-section (ii)

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पर्यावरण एवं वन मंत्रालय

अधिसुचना

नई दिल्ली, 27 जनवरी, 2010

का.आ. 191(अ).—चूँकि सुल्तानपुर राष्ट्रीय उद्यान (गुड़गांव से लगभग 15 कि.मी. और दिल्ली से लगभग 45 कि.मी. की दूरी पर स्थित) काफी महत्वपूर्ण है और जलीय पक्षी समुदाय के लिए विख्यात है, जहां शीत ऋतु के दौरान करीब 250 प्रजातियों से संबंधित लगभग 30,000 पश्चियों को इस उद्यान में सूचीबद्ध किया गया है और इस उद्यान में आने वाले महत्वपूर्ण पश्चियों में पेलिकंस, कोरमोरेंट्स, हेरोन्स, ईग्रेट्स, स्टॉक्स, फ्लेमिंगोस, हंस, बत्तखें आदि शामिल हैं।

और चूंकि, भारतीय मूल के काफी संख्या में क्षेत्रीय पक्षी वर्ष भर यहां रहते हैं; इस उद्यान में सारस, क्रॉच (क्रेन) और दुर्लभ ब्लैक नेकेड स्टॉर्क के प्रजनन को रिकार्ड किया गया है और जहां तक इस उद्यान की जैवविविधता का प्रश्न है, इस क्षेत्र की वनस्पतिजात में इसके बाहर रिधत अर्ध-शुष्क वनस्पतियां और उत्तर भारत के मैदानों में रिधत जीलों की विशेष जलीय वनस्पतियां भी आती हैं।

और चूंकि, सुल्तानपुर राष्ट्रीय उद्यान के संरक्षित क्षेत्र की सीमा से पांच किमी. तक के क्षेत्र को पारिस्थितिकीय और पर्यावरणीय दृष्टि से पारिस्थितिक संवेदनशील जोन के रूप में संरक्षित और सुरक्षित करना आवश्यक है;

और चूंकि, पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप-धारा (2) के खंड (v) और खंड (xiv) की उपधारा (1) के अंतर्गत एक प्रारूप अधिसूचना पर्यावरण एवं वन मंत्रालय, भारत सरकार की तारीख 29 जनवरी, 2009 की अधिसूचना का.आ. सं. 364(अ) के अधीन भारत के राजपत्र, असाधारण में

प्रकाशित की गई थी, जैसांकि पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उप नियम (3) के अंतर्गत अपेक्षित था और जिसमें इससे संभावित रूप से प्रभावित होने वाले व्यक्तियों रो उस तारीख से, जिस तारीख से उक्त अधिसूचना से उक्त राजपत्र की प्रतियां जनता को उपलब्ध करा दिए जाने के पश्चात है; साठ दिन की अविध के भीतर आपित्तयां और सुझाव आमंत्रित किए गए थे;

और चूंकि, उक्त अधिसूचना से युक्त राजपत्र की प्रतियां जनता को 29 जनवरी, 2009 को उपलब्ध करा दी गई थी;

और चूंकि, उक्त प्रारूप अधिसूचना के जवाब में प्राप्त सभी आपत्तियों और सुझावों पर केन्द्रीय सरकार द्वारा राग्यक रूप से विचार किया गया है;

अत:, अब केन्द्रीय रारकार पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उप नियम (3) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की उप धारा (1) और धारा 3 की उप धारा (2) के खंड (V) और (XiV) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए हरियाणा राज्य में रिथत सुल्तानपुर राष्ट्रीय उधान के संरक्षित क्षेत्र की सीमाएं से पांच किमी. तक के क्षेत्र (जैसा कि अनुबंध के रूप में इस अधिसूचना के साथ रांलग्न मानचित्र में दर्शाया गया है)को पारिरिथतिक संवेदनशील जोन (जिसे इसके बाद पारिरिथतिक रांवेदनशील जोन कहा जाएगा), के रूप में अधिसूचित करती है, अर्थात्

- 2. पारिस्थितिक संवेदनशील जोन की सीमाएं -(1) उक्त पारिस्थितिक संवेदनशील जोन हरियाणा के गुड़गांव जिले में स्थित सुल्तानपुर राष्ट्रीय उद्यान के संरक्षित क्षेत्र की सीमाएं से पांच किमी. तक का क्षेत्र है, जोकि 28° 24' 00" से 29° 32' 00" उत्तरी अक्षांश के बीच और 76° 48' 00" से 76° 58' 00" पूर्वी अक्षांश के बीच स्थित है।
- (2) पारिस्थितिक संवेदनशील जोन का मानचित्र उपाबध 'क' पर है और पारिस्थितिक संवेदनशील जोन में सुल्तानपुर राष्ट्रीय उद्यान की सीमाएं से पांच किमी. की दूरी के बीच आने वाले गांवों की सूची निम्नलिखित है ;

मंकरौला, झांजरौला, मोहम्मदपुर, पाटली, धानावास, वजीरपुर, धानी, रामनगर, सिखावाला, गढ़ी हारसरू, तुगलकपुर, दया बिहार, कालियावास, इकबालपुर, सैदपुर, खैंतावास, हमारपुर, चांडु, ओमनगर, बिधेरा, सुल्तानपुर, हरिसंहवाली, धनी मिर्चीवाली धानी, सधराना बरमरीपुर।

(3) सुल्तानपुर राष्ट्रीय उद्यान में सभी तरह की गतिविधियों का अधिशारान वन्यजीव (संरक्षण) अधिनियम, 1972 (1972 का 53) के उपबंधों द्वारा किया जा रहा है ।

पारिस्थितिक संवेदनशील जोन के लिए जोनल मास्टर प्लान -

- (1) इस अधिसूचना के राजपत्र में प्रकाशित होने तथा पर्यावरण एवं वन मंत्रालय, भारत सरकार द्वारा इसे अनुमोदित किए जाने की तारीख से एक वर्ष की अविध के भीतर राज्य सरकार द्वारा पारिस्थितिक संवेदनशील जोन के लिए एक मास्टर प्लान तैयार किया जाएगा।
- (2) पर्यावरणीय एवं पारिस्थितिकीय निहिताथाँ को इसमें शामिल करने के लिए सभी संबंधित राज्यों के राज्य पर्यावरण, वन, शहरी विकास, पर्यटन, विभागों, नगर निगम विभाग, सिंचाई और लोक निर्माण (बी एंड आर) विभाग, राजस्व विभाग तथा हरियाणा राज्य प्रदूषण नियंत्रण बोर्ड की भागीदारी के साथ जोनल मास्टर प्लान तैयार किया आएगा।
- (3) इस जोनल मारटर प्लान में वृक्षों से रिक्त क्षेत्रों की बहाली, मौजूदा जल निकायों का संरक्षण, कैचमेंट क्षेत्रों का प्रबंधन, वाटरशेड प्रबंधन, भूमिगत जल प्रबंधन, मृदा एवं नमी संरक्षण, स्थानीय समुदायों की आवश्यकताएं तथा पारिस्थितिकी और पर्यावरण के ऐसे अन्य पहलुओं के लिए व्यवस्था की गई है, जिनकी ओर ध्यान दिए जाने की आवश्यकता है।
- (4) जोनल मास्टर प्लान के अंतर्गत सभी मौजूदा और प्रस्तावित शहरी बस्तियों, ग्रामीण बस्तियों, वनों के रवरूपों और किरमों, कृषि क्षेत्रों, उर्वरक भूमियों, हरित क्षेत्रों, बागवानी क्षेत्रों, फलोद्यानों झीलों तथा अन्य जल निकायों का सीमांकन दिन्या जाएगा ।
- (5) इसमें सभी नहरों और जल निकास कार्यों को छूट दी जाएगी ।
- (6) जोनल मास्टर प्लान के अंतर्गत हरित उपयोग जैसे फलोद्यानों, बागवानी क्षेत्रों, कृषि उद्यानों और इसी तरह के अन्य स्थानों के लिए इस्तेमाल की जा रही भूमि का उपयोग गैर-हरित उपयोगों के लिए करने की इजाजत नहीं होगी। सिवाय उन कार्यों के जिनमें बिद्यमान स्थानीय आवासियों की आवास संबंधी आवश्यकताओं को पूरा करने के लिए अत्यंत सीमित मात्रा में कृषि भूमि का उपयोग करने की इजाजत दी गई हो और साथ ही जिससे विद्यमान स्थानीय आबादी का प्राकृतिक ढ़ंग से विकास होता हो, सड़कों और पुलों संबंधी ढ़ांचों में सुधार होता हो, जन उपयोगिता वाले अथवा सामुदायिक भवनों का निर्माण होता हो। यह कार्य राज्य सरकार की पूर्व अनुमित के नहीं किया जाना चाहिए।
- (7) विकास योजनाओं में प्रस्तावित नियोजित शहरीकरण को संबंधित नियंत्रित क्षेत्रों के लिए राज्य सरकार द्वारा अनुमोदित किया जायेगा ।
- (8) राज्य स्तरीय मानीटिरिंग कमेटी द्वारा छूट देने पर विचार किए जाने के मामलों सिहत कोई भी निर्णय लेने के लिए जोनल मास्टर प्लान एक संदर्भ दस्तावेज का काम करेगी ।
- (9) जोनल मास्टर प्लान के अंतर्गत ट्रेफिक के नियंत्रण हेतु उपायों को दर्शाया जाएगा और शर्तों का विनिर्धारण किया जाएगा ।

- (10) पारिस्थितिक संवेदनशील जोन के लिए जोनल मास्टर प्लान की तैयारी तथा पर्यावरण और वन मंत्रालय द्वारा इसका अनुमोदन लंबित होने के कारण सभी नए निर्माण कार्यों को पैराग्राफ 5 में उल्लिखित मॉनीटरिंग समिति द्वारा जांच और अनुमोदित करने के पश्चात ही अनुमित दी जायेगी।
- (11) वन क्षेत्र, हरित क्षेत्र और कृषि क्षेत्र में कोई पारिमाणिक कटौती नहीं की जायेगी।
- (12) उद्देश्यों को आगे बढ़ाने और इस अधिसूचना के उपबंधों को लागू करने के लिए आवश्यक होने पर राज्य सरकार अतिरिक्त उपाय निर्धारित करेगी ।
- पारिस्थितिक संवेदनशील जोन में विनियमित अथवा प्रतिबंधित गतिविधियां -

(क) औद्योगिक इकाइयां :-

- (i) सुल्तानपुर राष्ट्रीय उद्यान की सीमा से एक किलोमीटर के अंदर किसी नये काष्ठ आधारित उद्योग की स्थापना नहीं होगी;
- (ii) सुल्तानपुर राष्ट्रीय उद्यान की सीमा से एक किलोमीटर के अंदर प्रदूषण फैलाने/अत्यधिक प्रदूषण फैलाने वाले किसी उद्योग की स्थापना नहीं होगी ।

(ख) निर्माण गतिविधियां :-

- सुल्तानपुर राष्ट्रीय उद्यान की सीमा से तीन सौ मीटर की दूरी तक एक हजार क्यूबिक इंच से अधिक
 आकार के नलकूप चैम्बर को छोड़कर, किसी प्रकार के निर्माण कार्य की अनुमित नहीं दी जाएगी;
- (ii) सुल्तानपुर राष्ट्रीय उद्यान की सीमा से तीन सौ मीटर से पांच सौ मीटर के बीच पड़ने वाले क्षेत्र में दो मंजिल (पच्चीस फीट) से अधिक किसी भवन के निर्माण की अनुमति दी जायेगी;
- (iii)सुल्तानपुर राष्ट्रीय उद्यान की सीमा से पांच सौ मीटर की दूरी तक नई हाई टेंशन ट्रांसमिशन वायर बिछाने की अनुमति नहीं दी जाएगी।

(ग) उत्खनन और खनन :-

- (i) सुल्तानपुर राष्ट्रीय उद्यान के संरक्षित क्षेत्र की सीमा से एक किलोमीटर तक खनन की अनुमित नहीं दी जाएगी;
- (ii) सुल्तानपुर राष्ट्रीय उद्यान के संरक्षित क्षेत्र की सीमा से एक किलोमीटर तक क्रशिंग गतिविधि की अनुमित नहीं दी जाएगी ।
- (घ) वृक्ष : वन और राजस्व भूमि में वृक्षों की कटाई, केन्द्रीय सरकार अथवा उस कार्य के लिए नामित प्राधिकरण द्वारा अनुमोदित प्रबंध योजना के अधीन होनी चाहिए ।

(s.) जल :

(i) प्लाट के मालिक को वास्तविक रूप से कृषि कार्य और घरेलू उपयोग के लिए ही भूजल निकालने की अनुमति दी जाएगी ;

- (ii) राज्य भूजल बोर्ड के उचित रूप से अनुमोदन के सिवाय, भूजल की बिक्री की अनुमित नहीं दी जानी चाहिए ;
- (iii)कृषि कार्य सहित पानी में किसी प्रकार के संदूषण अथवा प्रदूषण को रोकने के लिए सभी उपाय किए जाने चाहिए ।
- (च) ध्विन प्रदूषण: पर्यावरण विभाग जैसा भी मामला हो, हरियाणा सरकार का वन विभाग, पारिस्थितिक संवेदनशील जोन में शोर पर नियंत्रण रखने के लिए दिशानिदेंश और विनियम बनाने के लिए प्राधिकरण होगा।

(छ) बहि:स्रावों को बहाना :

- (i) पारिस्थितिक संवेदनशील जोन के अंदर किसी भी जलाशय में अशोधित अथवा औद्योगिक वहि:स्राव को बहाने की अनुमति नहीं दी जानी चाहिए I
- (ii)शोधित बहि:स्राव के संबंध में जल (प्रदूषण निवारण एवं नियंत्रण) अधिनियम 1974 (1974 का 6) के उपबंधों का पालन किया जाना चाहिए ।

(ज) ठोस अपशिष्ट :

- (i) ठोस अपशिष्ट का निस्तारण केन्द्र सरकार द्वारा 25 सितंबर, 2000 को जारी की गई और समय-समय पर संशोधित अधिसूचना संख्या -का. आ. 908(अ) के नगरीय ठोस अपशिष्ट (प्रबंधन और हथालन), नियम 2000 के उपबंधों के अनुसार किया जाना चाहिए।
- (ii)स्थानीय प्राधिकरण बायोडिग्रेडेबल और नॉन-बायोडिग्रेडेबल घटकों में ठोस अपशिष्टों का पृथक्करण करने के लिए योजनाएं बनाएंगे ।
- (iii)बायोडिग्रे**डेबल ठोस अपशिष्टों** को कम्पोरिटंग अथवा वर्मीकल्चर के द्वारा प्राथमिकता के आधार पर पुनर्चक्रित किया जा सकता है ।
- (iv)अकार्बनिक पदार्थ, पारिस्थितिक संवेदनशील जोन के बाहर पहचान किए गए स्थान पर पर्यावरणीय रूप से स्वीकार्य ढंग से निरतारित किए जा सकते हैं । पारिस्थितिक संवेदनशील जोन में ठोस अपशिष्टों को जलाने अथवा इनिसनरेशन की अनुमति नहीं दी जाएगी ।

मानीटरी समिति :-

- (1) पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उप धारा (3) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, केन्द्रीय सरकार इस अधिसूचना के उपबंधों के अनुपालन की मानीटरी के लिए एतद्द्वारा एक समिति का गठन करती है, जिसे मानीटरी समिति कहा जाएगा।
- (2) उप **पैरा (1) में उ**ल्लिखित मानीटरिंग समिति में दस से अधिक सदस्य नहीं होंगे । जिसमें निम्निलिखित प्रतिनिधित्व करेंगे अर्थात् :-
 - उपायुक्त, गुड़गांव अध्यक्ष

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- (ख) पर्यावरण एवं वन मंत्रालय, भारत सरकार का एक प्रतिनिधि सदस्य
- पर्यावरण (विरासत संरक्षण सहित) क्षेत्र में काम करने वाले गैर-सरकारी संगठनों का एक
 प्रतिनिधि केन्द्र सरकार द्वारा नामांकित किया जाएगा सदस्य
- (घ) क्षेत्रीय अधिकारी, हरियाणा राज्य प्रदूषण नियंत्रण बोर्ड, गुड़गांव सदस्य
- (s.) क्षेत्र का वरिष्ठ टाउन प्लानर सदस्य
- (च) जिला वन्यजीव वार्डन, गुडगांव सदस्य सचिव
- (3) मानीटरी समिति की शक्तियां और कार्य केवल इस अधिसूचना के उपबंधों के अनुपालन के अधीन होंगे ।
- (4) पूर्व अनुमितयों अथवा पर्यावरणीय मंजूरी की आवश्यकता वाले कार्यकलापों के मामले में ऐसे कार्यकलाप राज्य स्तरीय पर्यावरण प्रभाव मूल्यांकन प्राधिकरण (एसईआईएए) को भेज दिए जाएंगे जिसका गठन पर्यावरण एवं वन मंत्रालय, भारत सरकार की 14 सितंबर, 2006 अधिसूचना संख्या का.आ. 1533 (अ) के अधीन किया गया है और जो उक्त अधिसूचना के उपबंधों के अनुसार स्वीकृति देने के लिए सक्षम प्राधिकरण होगा ।
- (5) मामला दर मामला आधार पर, आवश्यकताओं के आधार पर अपने विचार विमशौं में मानीटरी समिति, संबंधित विभागों अथवा संस्थाओं के प्रतिनिधियों या विशेषज्ञों को भी आमंत्रित कर सकती है ।
- (6) मानीटरी सिमिति का अध्यक्ष अथवा सदस्य सचिव, जैसा भी मामला हो, इस अधिसूचना के उपबंधों का अनुपालन न होने पर पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 19 के अंतर्गत शिकायतें दर्ज कराने के लिए सक्षम होगा ।
- (7) मानीटरी समिति, प्रत्येक वर्ष की गई कार्रवाई की अपनी रिपोर्ट प्रत्येक वर्ष 31 मार्च को पर्यावरण एवं वन मंत्रालय को प्रस्तुत करेगी।
- (8) मानीटरी सिमिति के कर्तव्यों के प्रभावी ढंग से निर्वहन के लिए मंत्रालय समय-समय पर निर्देश देगा ।

MINISTRY OF ENVIRONMENT AND FORESTS NOTIFICATION

New Delhi, the 27th January, 2010

S.O. 191(E).— WHEREAS, the Sultanpur National Park (about 15 km from Gurgaon and about 45 km from Delhi) is important and known for aquatic avifauna where about 30,000 birds belonging to about 250 species have been listed in this park during winters and the important birds visiting this park are Pelicans, Cormorants, Herons, Egrets, Storks, Flamingoes, Geese, Ducks, etc.

AND WHEREAS, a number of territorial birds of Indian origin stay here the year round; breeding of Saras, Crane and the Rare Black Necked Stork have been recorded in this park and as regards biodiversity of this National Park, the flora of this area is represented by semi arid vegetation outside it, and a typical aquatic vegetation of the lakes in plains of North India;

AND WHEREAS, it is necessary to conserve and protect the area up to five kilometers from the boundary of the protected area of Sultanpur National Park as Eco-sensitive Zone from ecological and environmental point of view;

AND WHEREAS, a draft notification under sub-section (1) and clauses (v) and (xiv) of subsection (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) was
published in the Gazette of India, Extraordinary, vide notification of the Government of
India in the Ministry of Environment and Forests, vide number S.O. No. 364 (E), dated the
29th January 2009, as required under sub-rule (3) of rule 5 of the Environment (Protection)
Rules, 1986, inviting objections and suggestions from all persons likely to be affected
thereby, within a period of sixty days from the date on which copies of the Gazette
containing the said notification were made available to the public;

AND WHEREAS, copies of the Gazette containing the said nonfication were made available to the public on the 29th January 2009;

AND WHEREAS, all objections and suggestions received in response to the said draft notification have been duly considered by the Central Government;

NOW, THEREFORE, in exercise of the powers conferred by sub-section (1) and clauses (v) and (xiv) of sub – section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies the area up to five kilometers from the boundary of the protected area of Sultanpur National Park in the State of Haryana (as shown in the map annexed to this notification as Annexure), as the Eco-sensitive Zone (herein after called as the Eco-sensitive Zone), namely:-

- 2. Boundaries of Eco-sensitive Zone. (1) The said Eco sensitive Zone is the area up to five kilometers from the boundary of the protected area of Sultanpur National Park situated in the Gurgaon District of Haryana between 28° 24' 00" to 29° 32' 00" North latitude and between 76° 48' 00" to 76° 58' 00" East longitude.
- (2) The map of the Eco-sensitive Zone is at Annexure and the list of the villages falling within five kilometers distance of the boundary of Sultanpur National Park in the Ecosensitive Zone are as follows, namely:-

Mankraula, Jhanjraula, Mohammedpur, Patli, Dhanawas, Wazirpr, Dhani, Ramnagar. Sikhawala, Ghari Harasru, Tughlakpur, Daya Bihar, Kaliawas, Iqbalpur, Saidpur, Khaintawas, Hamarpur, Chandu, Omnagar, Bidhera, Sultanpur, Harsinghwali, Dhani Mirchiwali Dhani, Sadhrana Barmripur.

(3) All activities in the Sultanpur National Park are being governed by the provisions of the Wildlife (Protection) Act, 1972 (53 of 1972).

3. Zonal Master Plan for the Eco-sensitive Zone: -

- (1) A Zonal Master Plan for the Eco-sensitive Zone shall be prepared by the State Government within a period of one year from the date of publication of this notification in the Official Gazette and approved by the Ministry of Environment and Forests, Government of India.
- (2) The Zonal Master Plan shall be prepared with the involvement of all concerned State Departments of Environment, Forest, Urban Development, Tourism, Municipal Department, Irrigation and PWD (Buildings &Roads) Department, Revenue Department and Haryana State Pollution Control Board for integrating environmental and ecological considerations into it.
- (3) The Zonal Master plan shall provide for restoration of denuded areas, conservation of existing water bodies, management of catchment areas, watershed management, groundwater management, soil and moisture conservation, needs of local community and such other aspects of the ecology and environment that need attention.
- (4) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forests, agricultural areas, fertile lands, green areas, horticultural areas, orchards, lakes and other water bodies.
- It shall exempt all canals and drainage works.
- (6) No change of land use from green uses such as orchards, horticulture areas, agriculture parks and others like places to non green uses shall be permitted in the Zonal Master Plan, except that strictly limited conversion of agricultural lands maybe permitted to meet the residential needs of the existing local residents together with natural growth of the existing local populations, improvement of roads and bridges infrastructure, construction of public utility or community buildings without the prior approval of the State Government.
- (7) The planned urbanisation proposed in the development plans shall be approved by the State Government for the respective controlled areas.
- (8) The Zonal Master Plan shall be a reference document for the State Level Monitoring Committee for any decision to be taken by them including consideration for relaxation.
- (9) The Zonal Master Plan shall indicate measures and lay down stipulations for regulation of traffic.
- (10) Pending the preparation of the Zonal Master Plan for Eco-sensitive Zone and approval thereof by the Ministry of Environment and Forests all new constructions shall be allowed only after the proposals are scrutinized and approved by the Monitoring Committee as referred in paragraph 5.
- (11) There shall be no consequential reduction in Forest area, Green area and Agricultural area.
- (12) The State Government shall prescribe additional measures, if necessary, in furtherance of the objectives and for giving effect to the provisions of this notification.
- 4. Regulated or restrictive activities in the Eco-sensitive Zone: The following activities in the Eco-sensitive Zone shall be regulated in the manner provided herein, namely:-

(a) Industrial Units

- No establishment of new wood based industry within one kilometer from the boundary of the Sultanpur National Park;
- (ii) No establishment of any new polluting or highly polluting industry within one kilometer from the boundary of the Sultanpur National Park.

(b) Construction Activities

- No construction of any kind shall be allowed from the boundary of Sultanpur National Park to a distance of three hundred meters, except tube well chamber of dimension not more than one thousand cubic inches;
- (ii) The construction of any building more than two storey (twenty five feet) shall not be allowed in the area falling between three hundred meters to five hundred meters from the boundary of Sultanpur National Park;
- (iii) The laying of new high tension transmission wires shall not be allowed from the boundary of Sultanpur National Park to a distance of five hundred meters.

(c) Quarrying and Mining

- Mining up to one kilometer shall not be allowed from the boundary of the protected area of Sultanpur National Park;
- (ii) Crushing activity up to one kilometer shall not be allowed from the boundary of the protected area of Sultanpur National Park.
- (d) Trees:- Felling of trees on forest and revenue land shall be subject to the approved management plan by the Central Government or an authority nominated for that purpose.

(e) Water:-

- (i) Extraction of ground water shall be permitted only for the bona-fide agricultural and domestic consumption of the occupier of the plot;
- (ii) No sale of ground water shall be permitted except with the prior approval of the State Ground Water Board.
- (iii) All steps shall be taken to prevent contamination or pollution of water including from agriculture.
- (f) Noise pollution:- The Environment Department or, as the case may be, State Forest Department of the Government of Haryana shall be the authority to draw up guidelines and regulations for the control of noise in the Eco-sensitive Zone.

(g) Discharge of effluents:-

- (i) No untreated or industrial effluent shall be permitted to be discharged into any water body within the Eco-sensitive Zone.
- (ii) Treated effluent must meet the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).

(h) Solid Wastes:-

- (i) The solid waste disposal shall be carried our as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 issued by the Central Government vide notification number S.O. No. 908 (E), dated the 25th September 2000 as amended from time to time.
- (ii) The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components.
- (iii) The biodegradable material may be recycled preferably through composting or vermiculture.

(iv) The inorganic material may be disposed in an environmentally acceptable manner at site identified outside the Eco-sensitive Zone. No burning or incineration of solid wastes shall be permitted in the Eco-sensitive Zone.

5. Monitoring Committee :-

- (1) In exercise of the powers conferred by sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby constitutes a committee to be called the Monitoring Committee to monitor the compliance with the provisions of this notification.
- (2) The Monitoring Committee referred to in sub-paragraph (1), shall consist of not more than ten members so as to represent the following, namely:-
 - (a) Deputy Commissioner, Gurgaon Chairman;
 - (b) A representative of the Ministry of Environment and Forests, Government of India - Member
 - (c) One representative of Non-governmental Organizations working in the field of environment (including heritage conservation) to be nominated by the Central Government - Member
 - (d) Regional Officer, Haryana State Pollution Control Board, Gurgaon Member.
 - (e) Senior Town Planner of the area Member
 - (f) District Wildlife Warden, Gurgaon Member Secretary.
- (3) The powers and functions of the Monitoring Committee shall be restricted to the monitoring of the compliance of the provisions of this notification only.
- (4) In case of activities requiring prior permission or environmental clearance, such activities shall be referred to the State Level Environment Impact Assessment Authority constituted vide notification of the Government of India in the Ministry of Environment & Forests number S. O. 1533 (E), dated September 14, 2006, which shall be the Competent Authority for grant of such clearances as per the provisions of the said notification.
- (5) The Monitoring Committee may also invite representatives or experts from the concerned Departments or associations to assist in its deliberations depending on the requirements on issue to issue basis.
- (6) The Chairman or Member-Secretary, as the case may be, of the Monitoring Committee shall be competent to file complaints under section 19 of the Environment (Protection) Act, 1986 for non-compliance of the provisions of this notification.
- (7) The Monitoring Committee shall submit its annual action taken reports by the 31" March of every year to the Ministry of Environment and Forests.
- (8) The Ministry of Environment & Forests shall give directions, from time to time, to the Monitoring Committee for effective discharge of the functions of the Monitoring Committee.



राजस्थान सरकार वन विभाग वय लय उप वन संरक्षक वन्य जीव, जैसलमेर



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बंबजीजें / 2020—21 / 8607—8611

दिनांक 10.11.2020

बैठक कार्यवाही विवरण

आज दिन हरित प्राधिकरण दिनांक 04.09.20 न्यायालय आदेश अनुसार हैं। बैठक

1 2020 को जिला कलक्टर महोदय जैसलमेर की अध्यक्षता में राष्ट्रीय ितों के प्रकरण O.A. No. 385/2019 में न्यायालय द्वारा पारित आदेश पालना में भारत सरकार स्तर पर गठित कमेटी के निर्देशानुसार उक्त जना हेतु बैठक आयोजित की गई। बैठक उपस्थिति विवरण संलग्नक–1 जिखत निर्णय लिए गए:–

क.सं.	-3-	हेतु बिन्द	कार्यवाही
1	To engag Bustard feeding (chick-rear	communities to promote practices such as Stall-suck during monsoon-GIB areass growing season.	उप वन संरक्षक, वन्यजीव, जैसलमेर द्वारा जानकारी दी गई कि वर्तमान में जिला प्रशासन द्वारा ग्रीष्म ऋतु में पशुओं की चारे की समस्या दूर करने हेतु चारा डिपो लगाए जाते है। अध्यक्ष महोदय द्वारा निर्देशित किया गया कि उक्त चारा डिपो को डी.एन.पी. क्षेत्र, विशेषकर ग्राम निम्बा, गांगा, बीदा, महबूब का पार, मतुओं की बस्ती, कनोई, सगरों की बस्ती, सम व जामड़ा आदि क्षेत्र में ग्रीष्म ऋतु से मानसून सीजन के अंत तक संचालित करने हेतु राज्य सरकार को प्रस्ताव भेजा जाए। (कार्यवाही—प्रभारी रिलीफ शाखा, जिला कलेक्ट्रेट, जैसलमेर)

(कपिल चन्द्रवाल) उप वन संरक्षक प्रवास जीव, जैसलमेर

दिनांक 10.11.2020

कमांक एफ()वि प्रतिलिपि सूचना

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संवजीजै / 2020—21 / 8607—8611

ा १थक कार्यवाही हेतुः

वन्यजीव, जोधपुर।

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ान, जिला कलक्ट्रेट, जैसलमेर।

उप वन संरक्षक वन्य जीव, जैसलमेर

जीन एवं फैक्स-02992-252489 E-Mail:dcfwl.jslm.forest@rajasthan.gov.in

Annexure 4.8.1

सौमित्र दासगुप्ता SOUMITRA DASGUPTA



अपर वन महानिदेशक भारत सरकार पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय DDITIONAL DIRECTOR GENERAL OF FORES

ADDITIONAL DIRECTOR GENERAL OF FOREST GOVERNMENT OF INDIA MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

D.O. 15-7/2015-WL-Pt-2

Date: 10th July 2020

Dear

General Mohanty

I would like to bring to your knowledge that the Ministry of Environment, Forest and Climate Change (MoEF&CC) has taken an ambitious "Great Indian Bustard (GIB) Species Recovery Programme" in the States of Rajasthan, Gujarat and Maharashtra with technical support from Wildlife Institute of India, Dehradun and other collaborating organizations. The purpose of this programme is to initiate Conservation Breeding of GIB, one of the flagship bird species of India and State Bird of Rajasthan. The global population of this bird has been reduced to less than 150 individuals.

We appreciate that Indian Army is not only protecting our borders but is also playing important role in protecting the unique biological heritage at many places in the Country.

As you may be aware, the Pokhran Field Firing Range is home to the last population of the critically endangered Great Indian Bustard (GIB). The Nation is grateful to the Army for safeguarding the only remaining habitat for the species. To study the causes of decline, understand the species ecology and long distance movements across the Thar Desert and to develop conservation strategies, some of these birds have been tagged with a transmitter. I request you in this regard not to consider these birds as hostile and inadvertently captured or harmed. We also request your facilitation to grant approval to our scientists from Wildlife Institute of India to sensitize the local officers and field personnel regarding conservation of this bird. Your kind facilitation and necessary communication on this regard will go a long way in saving this endangered species and a national heritage of India.

With regards,

Yours sincerely,

(Soumitra Dasgupta)

Lt Gen C.P. Mohanty, AVSM, SM, VSM, General Officer Commanding-in-Chief Southern Command



J-505, जल विंग, इंदिरा पर्यावरण भवन, जोर बाग रोड़, नई दिल्ली-110 003 फोन : 011-24695416, फैक्स : 011-24695417

Office of Principal Chief Conservator of Forests and Chief Wildlife Warden, Rajasthan, Jaipur

cwlw.raj@gmail.com, 0141-2700151

No. F. 11 (395) Dev - II/GIB/CWLW/2020-21/210 Dated: 1211,2920

To.

Additional Director General (Wildlife) Ministry of Environment, Forests & Climate Change Govt. of India, Wildlife Wing, 6th Floor, Vayu Wing Indira Paryavaran Bhawan Jor Bag Road, Aliganj, NEW DELHI-110003

Sub: - Budget demand for Equipment for smart patrolling and training in Desert National Park, under GIB Conservation Programme in 2020-21.

Ref: - Instruction by DG (Forest), MoEF&CC during the online meeting to discuss and review plans for protection and conservation of Great Indian Bustard in the Country on 03.11.2020

Sir,

With reference to the subject and as per instruction given by DG (Forest) in the referenced meeting, it is submitted that, this office has received proposal from Deputy Conservator of Forest, Wildlife Jaisalmer regarding Equipment for smart patrolling and training in Desert National Park, under GIB Conservation Programme having financial layout of 27.15 lakh.

Please find attached the proposal for your favorable consideration. It is requested to allot additional budget for the above work so that the work can be started in this financial year.

Enclosed - Proposal

Baix 12-11-20 21 7

Yours sincerely,

(Mohan Lal Meena)

Principal Chief Conservator of Forests and Chief Wildlife Warden, Rajasthan, Jaipur



राजस्थान सरकार वन विभाग कार्यालय उप वन संरक्षक वन्य जीव, जैसलमेर



कमांक एफ()विकास/ उवसंवजीजै / 2020-21 / 8531-32 दिनांक 05-11- 2020

निमित

प्रधान मुख्य वन संरक्षक एवं मुख्य वन्यजीव प्रतिपालक, राज. जयपुर

विषयः फिल्ड स्टाफ की स्मार्ट पेट्रोलिंग ट्रेनिंग हेतु Equipment हेतु डिमाण्ड प्रेषित करने बाबत्। प्रसंगः वन संरक्षक (वन्यजीव) मुख्यालय द्वारा प्रदत्त दूरभाष निर्देशों के कम में।

महोदय,

उपरोक्त विषयान्तर्गत निवेदन है कि दिनांक 03.11.2020 को महानिदेशक, (वन) वन पर्यावरण एवं जलवायु परिवर्तन मंत्रालय भारत सरकार द्वारा दिए गए निर्देशों के कम में वन संरक्षक (वन्यजीव) मुख्यालय द्वारा प्रदत्त दूरभाष निर्देशों के कम में फिल्ड कार्मिकों को स्मार्ट पेट्रोलिंग हेतु वांछित Equipment की डिमाण्ड निम्नानुसार है:-

S.No.	Item	Qty.	Approx. Rate (Rs.)	Amount (Lacs)
1	Mobile Phone with android 9/10, 4 GB RAM, 32 GB Memory and Camera 5 MP or more	81	15000	12.15
2	Binoculars	40	14500	5.80
3	Range Finder	10	20000	2.00
4	Long Range Torch	40	13000	5.20
5	Desktop Computer four processing, MStripes	2	100000	2.00
	Total			27.15

Ded Ded 2020

भवदीय (कपिल यन्द्रवाल) उप वन संरक्षक वन्य जीव, जैसलमेर

क्रमांक एफ()विकास / उवसंवजीजै / 2020-21 /8531-32 दिनांक 05-11- 2020 प्रतिलिपिः

मुख्य वन संरक्षक, वन्यजीव, जोधपुर।

उप वने संरक्षक वन्य जीव, जैसलमेर

Government of India Ministry of Environment, Forest and Climate Change (Wildlife Division)

6th Floor, Vayu Wing, Indira Paryawaran Bhawan Jor Bagh Road, New Delhi-110003

F. No. 15-7/2015- WL (pt-i) GIB

Date: 16th August, 2019

Sub: Summary records of the 2nd meeting of the Steering Committee under the Great Indian Bustard and Lesser Florican Conservation Breeding and Research Programme- regd.

Kindly find enclosed a copy of Summary records of the 2nd meeting of the Steering Committee under the Great Indian Bustard and Lesser Florican Conservation Breeding and Research Programme held on 21st July, 2019 at Jaisalmer, Rajasthan.

(V.L. Roui Kullai) Deputy Inspector General of Forest (Wildlife)

E-mail: vlroui1@gmail.com

Encl: as above

Distribution:

- i. Additional Director General (Wildlife), MoEF&CC,
- ii. Director, Wildlife Institute of India (WII), Dehradun
- iii. Chief Wildlife Warden, Government of Rajasthan, Jaipur
- iv. Inspector General of Forests (Wildlife), MoEF&CC,
- v. Member Secretary, Central Zoo Authority, New Delhi
- vi. Director, Desert National Park, Jaisalmer, New Delhi
- vii. Dr. Y.V. Jhala, Lead Project Scientist, Great Indian Bustard-CAMPA Project, WII, Dehradun
- viii. Dr. Asad Rahmani, Ex-Member, Bombay Natural History Society (BNHS), Mumbai
 - ix. Dr. Vibhu Prakash, Member, Bombay Natural History Society
 - x. C.E.O. & Secretary General, WWF-India, Delhi
 - xi. Dr. Suthirtha Dutta, Project Scientist (Great Indian Bustard-CAMPA Project) based at the project site Rajasthan
- xii. Mr. Frederic Lacroix from IFHC/ Reneco, Abu Dhabi
- xiii. Mr. Juan Carlos Alonso, International Bustard Scientist, University of Spain

Copy to:

- i. The PCCF & CWLW, Government of Gujarat, Gandhinagar
- ii. The PCCF & CWLW, Government of Maharashtra, Nagpur
- iii. The PCCF & CWLW, Government of Karnataka, Bengaluru

Summary Records of the second meeting of the Steering Committee under the Great Indian Bustard & Lesser Florican Conservation and Breeding Programme

The second meeting of the Steering Committee for Great Indian Bustard & Lesser Florican Conservation and Breeding Programme was convened under the Chairmanship of Shri M.S. Negi, Addl. DGF (Wildlife), MoEF&CC on 21st July, 2019 at Jaisalmer, Rajasthan. Before the meeting, a field visit to the existing GIB enclosures at *Sudashri* and temporary egg incubation and hatchery facility at *Sam* Forest Chowki, Jaisalmer was conducted on 20th July, 2019. The minutes also include the discussion held during the Visit. List of participants is at **Annexure**.

2. The Chairperson welcomed all the participants in the meeting. Then, the DIG (Wildlife), MoEF&CC and Member Secretary of the Committee initiated the meeting as per the Agenda.

Confirmation of the 1st meeting of the Steering Committee under the project: The Member Secretary informed that 1st meeting of the Steering Committee was held on 19th July, 2018 at MoEF&CC. The summary records of the meeting was shared with all the members. No comments were received and therefore, the decisions of the meeting were considered to be accepted by the members. Thereafter, discussion on Action Taken Report (ATR) of the 1st meeting of the Steering Committee procedded as per the following:

a. Land allocation at Sorsan and Jaisalmer and design of main and Satellite facilities:

Dr. Suthirtha Dutta, Co Project Investigator and faculty, WII informed that construction works at Satellite facility, Ramdevra has started with the incubation, chick-rearing and office rooms. Other rooms will be designed by WII in consultation with IFHC/ Reneco based on the learnings from the *Sam* Facility. Shri Arindam Tomar, APCCF & CWLW, Rajasthan informed that the forest land finalized for establishing/construction of the Conservation Breeding Centre (CBC) at Sorsan is yet to be handed over to WII for the construction of the centre. He informed that around 3.43 hectare of land would be required from the adjoining revenue land. The land transferring process is under process. He also informed that cattle proof fencing will be developed around the CBC once, the land is transferred. Dr. Asad Rahmani highlighted that the fencing should be such that it may not hinder the movement of the wild animals.

- **b.** Training for centre staff: Shri Arindam Tomar informed that Dr. S. Rathore, Veterinary officer from Rajasthan Forest Department has been trained along with project personnel at National Avian Research Centre, Abu Dhabi in May, 2019 and their services would be utilized in the present programme.
- **c.** Egg/ Chick/ adult collection permits: Dr. Jhala informed that the requisite permits have been obtained from the Ministry.
- **d. Permitting radio tagging:** Issue of one tagged bird not sending any signal after 24th June was discussed. WII was asked to extensively search the missing bird. Idea was floated for use of satellite tags instead of the current ones, to which WII informed about the difficulty in procurement process. It was discussed that tagging process of GIB and Lesser Florican has to be expedited. Shri Tomar asked WII to tag Lesser Floricans in Rajasthan this year only, to which WII agreed.
- **e. Loaning of eggs/ chicks to IFHC, Abu Dhabi:** Dr. Jhala informed that considering the urgency in the matter, it was decided in consultation with Rajasthan Forest Department that instead of sending the eggs to Abu Dhabhi, a temporary facility would be developed at *Sam* where the eggs could be artificially incubated and hatched. In the present breeding season, seven eggs of GIB were collected. Out of these, five of them have hatched in the temporary facility at *Sam* and two are still in incubation process.
- **f. Mitigating the effects of powerlines:** All the members opinioned that existing power lines in the GIB habitats are a major threat to the population. The Chairperson mentioned that the Ministry through Secretary, EF&CC has requested the Ministry of New & Renewable and Ministry of Power to direct the Power/ transmission Agencies to implement the mitigation measures including the undergrounding of power lines upto 33 KV and installation of bird diverters etc. Shri Tomar informed that the State Forest Department is also taking care that no new power lines are allowed to pass through GIB habitat areas.
- **g. Predator removal from enclosures:** Shri Tomar informed that the removal of predators with support from WII is under process.
- h. Construction funds transfer and agency: Dr. Dutta informed that funds for construction of the Satellite Facility at Ramdevra, Jaisalmer has been transferred to CPWD

(CCU) Jaisalmer to the tune of Rs. 92 Lakh for the first phase building (Office, incubator, Chick rearing). The construction works are under process.

i. Empowerment of Project Management Committee (PMC) for details of day to day work: Dr. Dutta informed that Rajasthan Forest Department and WII are coordinating on a regular basis to implement *ex-situ* and *in-situ* actions for GIB and Lesser Florican conservation breeding programme. He mentioned that a formal PMC would be constituted after the 2nd meeting of the Project Steering Committee.

j. Nomination of International experts: Dr. Jhala informed that Mr. Frederic Lacroix from IFHC/ Reneco and Mr. Juan Carlos Alonso, International Bustard Scientist, University of Spain have been nominated by WII as the International experts (Members) for the Steering Committee. All the members agreed to their nominations in the Steering Committee.

k. Process documentation: Dr. Jhala informed that the process of photo documentation of the project activities has been started as part of the project.

l. Timelines of activities: Dr. Jhala informed that detailed project work plan has been developed in consultation with Rajasthan Forest Department as a preliminary basis in accordance with meeting held at Jaipur during January, 2019. He also informed that detailed action plans will be developed on the basis of experimental work at CBC and since this is a learning phase for all, a flexible work plan would be required which could be refined at every step.

Decision Taken: After deliberate discussions, the Committee approved the Action Taken Report.

3. Discussion on the present status of project:

Dr. Suthirtha Dutta made a brief presentation highlighting the updates of project activities in the States of Rajasthan, Gujarat and Maharashtra. Copy of presentation is attached at **Annexure II.** Dr. Jhala, requested the Chair to allow for purchase of one vehicle under the project. Shri Tomar, CWLW Rajasthan was of the view that in order to avoid the decline in Lesser Florican, it will be appropriate that *ex-situ* breeding of Lesser Florican should be started simultaneously. Dr. Jhala, was of the view that breeding of GIB in initial stage and requires a lot of attention to bring it out of the critical stage and to ensure success, all the scientists of WII and IFHC are presently engaged in the task. Diversion of their attention towards Lesser Florican may

jeopardize the success of the GIB breeding. Thereafter, Shri Tomar, CWLW Rajasthan stated that he wishes to take up this activity independently in Jaipur with available expertise with him.

Decision Taken: It was decided that approved budget heads under the project do not require sanctions again and again. Since the provision of vehicle was already in the project activities which were approved by CAMPA, therefore, there is no separate need of approval for vehicle again. After deliberation, it was also decided that CWLW, Rajasthan can take up this *ex-situ* breeding of Lesser Florican independently of this project and in no case the arrangements made for engagement of scientists in Sam facility should be disturbed. In case the scientists are ready to facilitate the *ex-situ* breeding activities being taken up by CWLW, they should do it in spare time available with them without hampering the activities at *Sam* Facility.

4. Status of GIB *in-situ* conservation programme in the States of Gujarat, Maharashtra and Karnataka:

Shri A. Tomar, CWLW, Rajasthan informed that the project has gained momentum during the last few months and is being implemented by WII in a satisfactory manner. He informed that recently 5 chicks of GIB have been hatched in the temporary facility at *Sam*. He opined that WII should place more trained staff at the centre to look after the birds and the centre. He also informed that Forest Department is taking all necessary steps to stop the issue of "Locust" attack from entering the Desert National Park (DNP) so that the GIB are not affected due to it. He said that Forest Department is working towards the development of GIB habitats and also highlighted the increasing threats of mortality of GIB due to collisions from the power lines.

Shri Sanjay Mohan, PCCF & CWLW, Karnataka appreciated the efforts of WII in implementation of the programme. He informed that the State of Karnataka has a small population of GIB and desired that their State may also be included in the ongoing programme of GIB conservation.

Shri Ansari, Deputy Conservator of Forest, Gujarat State Forest Department informed that there are around 6 females GIBs left in the Kachchh Bustard Sanctuary. Forest Department is taking all necessary steps for their conservation and protection. He highlighted the threat of power lines to GIB and informed that the Forest Department has conducted the meeting with the power agencies and directed them to install the mitigation measure for GIBs protection. He told the

Committee that if a male GIB from Rajasthan could be released into the Kachchh Bustard Sanctuary, it would be helpful in initiating the natural breeding of the GIBs in Gujarat again.

Shri Sunil Limaye, APCCF, Maharashtra informed that during the survey held in 2018 in his State, no GIB was sighted but, as per the information received from the villagers, 2 males and 1 female GIB are sighted.

Dr. Jhala informed that the genetic biodiversity of GIBs found in Karnataka is totally different from the GIBs found in rest of the India.

All the stakeholders opined that transferring a male GIB to Gujarat in the present scenario where the population is very less and there is threat of collision with power lines would be risky and un-viable in present situation. The request for a male can only be considered after appropriate mitigation of power lines is undertaken in Kachchh. All the GIB range States including the Gujarat Forest Department should take appropriate mitigation measures to conserve and protect their existing population of GIB. The GIB birds after their 2nd-3rd generation from the CBC would be later transferred to GIB range States including Gujarat.

Decision taken: After thorough deliberations, following was decided:

- i. State Government of Karnataka should be included in the project. The State Government should prepare an *in-situ* conservation programme for GIB in consultation with WII which should be placed before the Steering Committee in its next meeting or should be submitted to the Ministry by 31st November, 2019. As per decision taken in 6th meeting of National CAMPA advisory council where this GIB recovery project was approved, funding will be considered from State plan or State CAMPA. Ministry can also consider partial funding from DWH.
- ii. For the purpose of *ex-situ* conservation of the GIB in Gujarat and Karnataka, WII in consultation with State Government of Gujarat and Karnataka should explore the possibility of and plan for
 - a. Shifting the female birds/male birds from Gujarat/ Karnataka to the current breeding facility for the purpose of captive breeding or breeding through artificial insemination, or
 - b. Establishing satellite breeding centres in these States itself

iii. WII may submit the report and suggestions about decision (ii) above after consultation with Gujarat/Karnataka by 31st November, 2019.

5. Discussion about the physical/financial status of GIB Conservation Breeding Centre works; including temporary facility for incubation of GIB:

Shri A. Tomar, CWLW, Rajasthan informed that considering the urgency of GIB's egg collection in the present breeding centre, it was discussed with WII and other partner agencies like IFHC to establish a temporary egg incubation and hatchery facility at Sam Forest Chowki, Jaisalmer till the permanent CBC and Satellite facility at Sorsan, Kota and Ramdevra in Jaisalmer are set up respectively. He informed that the construction works at Ramdevra are going on in good pace but the works at Sorasan Kota are yet to be initiated. He also informed that an additional expenditure of Rs. 56 Lakhs has been happened due to setting up of the emergency temporary facility at Sam.

Decision taken: It was decided that since the establishment of existing emergency temporary facility was not in the project plan as it was done to utilize the present breeding season to avoid further delay in recovery program and the additional expenditure on its establishment was also not pre-planned for the current financial year, hence, the amount so incurred would be adjusted from next financial year's budget. A proposal with appropriate justification for the extra expenditure be put up to CAMPA by WII & RFD. Further, in view of facility already created at Sam, WII & RFD may consider reviewing the size of the facility at Sorsan where work is yet to be started. But in no case compromise in construction quality of enclosures shall be made.

6. Discussion about status of different permissions related to the project:

Dr. Y.V. Jhala informed that with the permission of MoEF&CC and Rajasthan Forest Department, 7 eggs of GIB were collected for artificial incubation. Out of these, 5 eggs have hatched successfully. Two are still in incubation. He requested CWLW, Rajasthan to permit the collection of two more eggs during the present breeding season. He also informed that Ministry has also permitted the removal of predators from the GIB enclosures. Shri Tomar, CWLW, Rajasthan suggested that WII should also consider lifting of eggs from Ramdeora/Pokhran area.

Mr. Frederic Lacroix, in the discussions held during the visit to breeding facility, was of the view that to achieve desired success in the project in shorter time period, more eggs from the field will be required. On being enquired, he opined that it is possible to transport the eggs from longer distances but we need to take sufficient safety measures. Rajasthan FD may consider the request of WII to permit collection of two eggs of GIB.

Decision taken: With a view to make the *ex-situ* breeding programme a success, RFD and WII may consider increase in collection of eggs but collection of eggs should be from different areas and sub populations so that natural breeding does not hamper. Rajasthan Forest Department should consider the request of WII to permit collection of two eggs of GIB from the current area of egg collection. Also, WII should consider collection of eggs from Ramdeora/Pokhran areas as adviced by CWLW Rajasthan.

7. Status of training and capacity building of the officials and staff of Forest Department:

Senior Veterinary Officer from Rajasthan Forest Department and Scientists from WII were trained in IFHC, Abu Dhabi. Two Scientists from IFHC are also providing his services at temporary facility at Sam, Jaisalmer and helping the Forest Department and WII team in capacity building and monitoring of health of the birds. ADG (WL) was of the view that suitable employees Rajasthan Forest Department should be exposed to the practical training in Sam facility.

Decision taken: If required, other officials from the Forest Department would be sensitized at International Bustard centres. Further, it was also decided that two or three employees of RFD identified by CWLW should be attached to the Scientists of WII handling the egg hatching and raring of hatchlings in the Sam breeding facility so that they get first hand experience of the process involved in artificial hatching of eggs and raring of birds.

8. Formulation of guidelines for developmental projects (transmission lines/ road/solar projects etc. in GIB Arc) and conditions to be imposed on them:

Dr. S. Dutta informed that a meeting was held under the Chairmanship of Principal Secretary, Energy, Government of Rajasthan on 20.12.2018 at Jaipur, based on which a proposal

for power line mitigation in Jaisalmer was prepared and submitted by WII to Rajasthan Vidyut Prasaran Nigam Limited (RVPNL), Jaisalmer, Rajasthan. A copy of which was also shared by Rajasthan Forest Department to the MoEF&CC. The Chairperson informed that Ministry has taken the matter of deaths of GIB due to collision from transmission lines with the concerned Ministries. The matter of new transmission lines coming up in the GIB arc area was raised by CWLW Rajasthan. He said that without any legal sanctity of the GIB arc, it is difficult to stop the projects and requested the Ministry to come up with legal notification/order in this matter. He also informed that there are several agencies which are approaching the forest department for granting permissions/NOCs for implementing their projects falling within/ outside the GIB arc prepared by WII.

Decision taken: A case is pending in the NGT, Delhi on the deaths of GIBs due to collisions from high tension power lines wherein Ministry has filed a report prepared by WII on the same. The matter is sub-judice. A similar type of case has been filed in Hon'ble Supreme Court of India wherein a Committee has been constituted by the Apex court to look into the issue. The proposal of WII submitted to RVPNL would be considered in the Ministry for taking up matter with MNRE, GoI and RVPNL, Govt. of Rajasthan.

9. GIB in-situ Conservation Project submitted by Rajasthan Forest Department:

Shri A. Tomar, CWLW, Rajasthan informed that Rajasthan Forest Department has prepared an *In-situ* conservation Plan for GIB in Desert National Park for a period of 2019-20 to 2028-29 in consultation with WII. He highlighted the major components of the proposal and informed that the proposal has provision of voluntary incentivized translocation of villages from the GIB habitats.

Decision taken: The Committee 'in-principle' approved the Plan prepared by Rajasthan Forest Department and suggested that the same should be approved from the State Board for Wildlife for consideration of funding support from State plan and / or State CAMPA funds as per the decision taken in 6th meeting of National CAMPA Advisory Council where this project was approved. Ministry will also explore the possibilities of funding under CSS-DWH.

Project submitted by WCS:

This was discussed as part of the additional agenda of the meeting. Mrs. Prakriti Srivastava, Country Director, WCS-India highlighted the brief points of the project proposal. She informed that the proposal was formulated after the observations made by their team during the field visits with 'Birdlife International' to the GIB habitats at Jaisalmer. She also informed that the proposal includes the provision of relocation of villagers from the GIB habitats. She mentioned that, if the proposal of WCS is considered by the Committee, they could act as a bridge between the State Government and local people in translocation and community mobilization.

Dr. Rahmani highlighted that too much restriction on the local people/ translocation may adversely affect the population of GIB. This will be against the conservation of GIB. Shri Sunil Limaye mentioned that this type of incident happened in Nanaj bustard sanctuary, Maharashtra. He also mentioned that Bustards may share the habitats with human presence but the actual threat to their population is from the power lines.

Representatives from the RBS Foundations mentioned that if they are involved in the project, they could support the project in community outreach and mobilization.

Shri Tomar informed that the activities like village translocation, community outreach etc. are also the part of the In-situ conservation project submitted by Rajasthan Forest Department.

Decision taken: It was decided that Rajasthan Forest Department may consider the involvement/support of the NGOs such as WCS and RBS as part of the their *in-situ* conservation project.

10. Support of Indian Army in Jaisalmer (Pokhran Field Firing Range):

Dr. S. Dutta informed that some population of GIB is found in Pokhran Field Firing Range. It was informed that the population in firing range is undisturbed and efforts should be made to get support from the Army in conservation efforts for protection of GIB.

Decision taken: Ministry would seek support of Indian Army in the conservation and breeding programme of GIB at Ministerial level.

The meeting ended with a vote of thanks to the Chair.

List of Participants

<u>Second meeting of the Steering Committee under the Great Indian Bustard & Lesser Florican Conservation and Breeding Programme</u>

Date: 21st July, 2019 Venue: Jaisalmer, Rajasthan

S.				
No.	Participants	Designaton		
1	Shri M.S. Negi	ADG (WL), MoEF&CC and Chairman of the Steering Committee		
2	Shri Sanjay Mohan	PCCF & CWLW, Government of Karnataka		
3	Shri Arindam Tomar	APCCF & CWLW, Government of Rajasthan		
4	Ms. V.L. Roui Kullai	DIG (WL), MoEF&CC and Member Secretary of the Committee		
5	Shri Asari	DCF, Government of Gujarat		
6	Shri Tushar	ACF, Government of Gujarat		
7	Shri Asad Rahmani	Former Director, BNHS		
10				
	Shri Sunil Limaye	APCCF, Government of Maharashtra		
11	Shri Priya Ranjan	CCF, Jodhpur		
12	Dr. Y.V. Jhala	Scien'tist 'G', WII		
13	Dr. Sutirtha Dutta	Scientist 'D', WII		
14	Shri Federic Laceoix	IFHC		
15	Shri Lesobre Loic	IFHC		
16	Shri Bipin C.M.	WII		
17	Dr. Shravan Singh	Veterinary Officer,		
	Rathore	Rajasthan Forest Department		
18	Ms Tanya Gupta	WII		
19	Shri Kapil			
	Chandrawal	DFO, Jaisalmer		
20	Mrs. Prakriti			
	Srivastava	Country Head, WCF		
	Shri Sagar Panwar	Deputy Conservator of Forest, DNP		
21	Shri Bhanu Bansal	RBS		
22	Shri Tushar	RBS		
23	Shri Aditya Bisht	WII-MoEF&CC		
24	Shri. Ravi			
25	Shri Vijay borana			

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TRIPARTITE MEMORANDUM OF AGREEMENT BETWEEN

THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, GOVERNMENT OF INDIA,

GOVERNMENT OF RAJASTHAN AND WILDLIFE INSTITUTE OF INDIA FOR GREAT INDIAN BUSTARD CONSERVATION BREEDING AND RESEARCH PROGRAMME

The Great Indian Bustard Ardeotis nigriceps has a global population of less than 200 birds with only one viable population presently occurring in Thar Desert, Rajasthan. Ministry of Environment, Forests, and Climate Change (MoEFCC), Government of India, in consultation with concerned State Forest Departments, Wildlife Institute of India (WII), Bombay Natura! History Society (BNHS) and Worldwide Fund for Nature-India (WWF), has developed a Recovery Programme for this Critically Endangered species. An important component of this programme is to initiate Conservation Breeding as an insurance against total extinction and possible restocking of wild populations in the future. Alongside Great Indian Bustard, this Programme will be utilized to simultaneously secure a captive population of the Endangered Lesser Florican Sypheotices indicus before their numbers become critically small.

At the very onset it is acknowledged that for survival of the critically endangered species like GIB, the two conservation paradigms, in-situ and ex-situ are intricately inter-related; the ultimate goal of Conservation Breeding being reintroductions in safe restored habitats and supplementation of wild populations. Investments in the Conservation Breeding Programme should in no way result in complacency towards in-situ conservation efforts and investments. The urgency of implementing the Conservation Breeding Programme bestows on the Centre and State Governments great responsibilities, effective discharge of which is essential. This tripartite memorandum between the Ministry of Environment, Forests and Climate Change, Government of India, Rajasthan Forest Department, and Wildlife Institute of India formalizes the respective roles, responsibilities and reciprocal commitments along with the flow of funds and resources to ensure effective implementation of the Great Indian Bustard and Lesser Florican Conservation Breeding and Research Programme.

The Memorandum of Agreement is between the President of india through Inspector General of Forests (Wildlife), Ministry of Environment, Forests and Climate Change as the First Party and Governor of Rajasthan through Chief Wildlife Warden, Forest Department, Rajasthan as the Second Party and Wildlife Institute of India, Dehradun through the Director as the Third Party.

ARTICLE I: Definitions

It is hereby stated that, in this document,

- (a) "Project" refers to the Conservation Breeding and Research Programme for the Critically Endangered Great Indian Bustard and the endangered Lesser Florican; restoration of habitat, and creation of inviolate spaces for safe release of bustards;
- (b) "Facility" refers to Captive Breeding and Research Facility with functional incubation, hatchery, chick rearing and adult bird cages, food processing room, staff quarters and store room with

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appropriate infrastructure and instruments for breeding Great Indian Bustard and Lesser Florican;

- (c) "Satellite Facility" refers to incubation and hatchery facility to be developed near egg collection site;
- (d) "Action Plan" refers to Great Indian Bustard and Lesser Florican Conservation Breeding Protocol document to be prepared by the Third Party in consultation with national and international bustard breeding experts and approved by the Steering Committee of the Project; the site specific "strategic management action plan" for in situ conservation to be prepared by the second party.

ARTICLE IIa: Agreement

It is hereby acknowledged and understood that by signing this document the Parties are agreeing to implement this Project. The Parties shall hereby collaborate and cooperate closely at all stages of development and execution of all mutually agreed activities under this Project, and shall share all relevant information with each other and facilitate each other for unhindered execution of Project activities.

ARTICLE IIb: Steering Committee

(a) All parties agree to set up a Steering Committee for the Project with the following constitution:

(i)	Additional Director General (Wildlife), Ministry of Environment, Forests & Climate Change (MoEF&CC), Government of India, Delhi	Chair person
(ii)	Director, Wildlife Institute of India (WII), Dehradun	Member
(iii)	Chief Wildlife Warden, Rajasthan Jaipur	Member
(iv)	Inspector General of Forests (Wildlife), MoEF&CC, Government of India	Contract Contract
(v)	Member Secretary Central Zoo Authority, Delhi	Member
(vi)	Director, Desert National Park, Jaisalmer	Member
(vii)	One/Two representatives from International Bustard Breeding Center (to be nominated by the Wildlife Institute of India, Dehradun)	Member
(viii)	Lead Project Scientist (Great Indian Bustard), WII (to be nominated by the Wildlife Institute of India, Dehradun)	Member
(ix)	Dr. Asad Rahmani, Ex-Member, Bombay Natural History Society (BNHS), Mumbai	Member
(x)	Dr. Vibhu Prakash, Member, Bombay Natural History Society, Mumbai	Member
(xi)	CEO, Worldwide Fund for Nature-India, Delhi	Member
(xii)	Two representative from Indian Army, Western Command (to be nominated by the Commanding Officer Western Command)	Member
(xiii)	Project Scientist (Great Indian Bustard) based at the project site Rajasthan (to be nominated by the Wildlife Institute of India, Dehradun)	Member
(xiv)	Deputy Inspector General of Forests (WL) , Ministry of Environment, Forests & Climate Change (MoEF&CC), Government of India, Delhi	Member Convener

The members in serial number vii) shall be identified by Steering Committee and nominated through mutual agreement between collaborating International Bustard Breeding Centers and Chair of

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Steering Committee. In addition to the above members, upto two scientists/conservation practitioners of repute with expertise of topical relevance can be identified and invited as special invitees to Steering Committee meetings.

- (b) Steering Committee shall determine its overall responsibilities during its inaugural and ensuing meetings, but these shall include:
 - (i) Overseeing the entire programme,
 - (ii) Determining future objectives of the Project;
- (iii) Develop a detailed project proposal and approve it.
- (iv) Review the progress of Project implementation from time to time;
- (v) Issue suitable directions / advice to Project management;
- (vi) Facilitate funding for the Project;
- (vii) suggesting suitable sites for habitat restoration,
- (viii) Approve suitable research proposals under the project and
- (ix) Any other matter as required.

The Steering Committee shall meet at least once a year. The cost of travel and other expenses for attending the meeting will be charged from the fund of the Project if required.

- (c) All parties agree to the setting up of a Project Management Committee for day to day management of the project with the following constitution:
 - (i) Chief Wildlife Warden, Rajasthan as the Chairman of the Project Management Committee
 - (ii) Director Desert National Park (Deputy Conservator of Forests, Jaisalmer DNP Member Secretary)
 - One representative from International Bustard Breeding Centers (to be nominated by the Chairperson of the Steering Committee)
 - (iv) Lead Project Scientist (Great Indian Bustard), WII (to be nominated by the Chairperson of the Steering Committee)
 - (v) Deputy Conservator of Forests, Baran (Kota Circle)
 - (vi) Project Scientist (GIB) at Project Site Rajasthan

This committee will meet at least three to four times a year. The committee will supervise the field execution and timely completion of the project. The committee will examine and accord the research proposals and in-situ conservation proposals to be forwarded to Stearing committee.

ARTICLE IIIa: Finances and logistics

- (a) Financial support for developing and executing the Project shall be provided by the First Party for about 35 years, extendable as required and as decided by the Steering Committee. The First and Second Party will also explore sharing of costs and provide assistance especially for travel of International experts and training of wildlife managers and project staff abroad.
- (b) Funds for developing main Facility and Satellite Facility, outreach, habitat restoration, capacity building, securing inviolate spaces and addressing livelihood issues as estimated and mutually agreed between Parties shall be transferred to Second Party while funds for executing the

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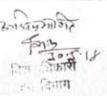


remaining activities of the project will be transferred to the Third Party. Additional funds (if required) for activities apart from the activities mentioned in the project proposal shall be provided by first party to second party.

- (c) Second Party shall provide unrestricted access and right to the third party to develop and use equal or more than two sqkm land at in Jaisalmer for establishing the egg collection and hatching Facility and in Sorsan, Kota for establishing the conservation breeding centre.
- (d) Second Party shall develop the Facility and egg hatching Satellite Facility at these sites following the design and quality recommendations by Steering Committee.
- (e) Second Party shall take responsibility of providing the Facility with adequate electricity, water, and metal road connectivity for unhindered transportation of Project personnel, equipment, eggs and birds as per the financial provision in the Project. Second party will also be responsible for developing the GIB & Lesser Florican release areas, with inviolate spaces. The first party will provide funds for habitat restoration in the landscape.
- (f) Upto two officials of the Rajasthan Forest Department not below the rank of Deputy Conservator of Forests shall be proposed by the Second Party for their training in India and/or abroad. These personnel shall be deputed to assist Project Scientist, in Project execution by the Second Party.
- (g) Funds for executing the Project shall be expended on following heads:
 - Salaries, statutory benefits, travel costs, per-diems etc. of Project personnel and consultants;
 - (ii) Appropriate training of Project personnel at National/International Institutions and Conservation Breeding Centers;
 - (iii) Proper care of infrastructure, equipment and activities at the Facilities including all egg/bird management, veterinary care and administration (communication, electricity and water supplies, professional service fees, etc.) costs;
 - (iv) Necessary construction and maintenance of Facility, including furnishing and provisioning of infrastructure, purchase and maintenance of research equipment and vehicles, etc;
 - (v) Search, collection and transport of founder eggs/birds, maintenance and monitoring of captive-bred birds prior to their release to other mutually agreed conservation breeding Facilities, and/or future release of captive-bred birds into the wild;
 - (vi) Research both at the Conservation Breeding Facility as well as on wild population that are related to species ecology and breeding biology (which includes tagging of wild and captive birds, reproductive physiology, population monitoring, and advocacy) as prescribed in Action Plan and agreed by Steering Committee, including acquisition of equipment and running costs for these activities; and
 - (vii) Dissemination of information through documentation, seminars, research workshops and publication to other parties and partner agencies.
- (h) The Third Party will assist the second party in identifying the suitable habitats for Great Indian Bustard & Lesser Florican and suggest restoration measures to be undertaken. These habitats

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have to be made viable for in-situ population and suitable for releasing captive-bred birds (having a mosaic of inviolate areas connected with bustard friendly habitat within a large landscape) in the future by mitigating all current threats that have resulted in bird declines. The first party will provide adequate funds for restoration of the habitat and the second party will be responsible for implementation.

Third party will provide institutional support for training the official/staff of second party for insitu conservation measures. Third party will also provide technical support to second party insitu conservation.

- (i) First and Second Party shall take responsibility of identifying, & restoring bustard habitats and suggesting alternate habitats for release of birds within next 15-20 years as approved by Steering Committee. Second party will also implement outreach activities in collaboration with third party.
- (j) First Party shall facilitate funding and encourage other Great Indian Bustard and Lesser Florican range states for maintaining and restoring suitable Great Indian Bustard and Lesser Florican habitats.

ARTICLE IIIb: Permissions

- (a) The First and Second Party shall permit collection / capture of Great Indian Bustard and Lesser Florican eggs, and if advised by experts, Juvenile / adult birds for the purpose of conservation breeding and research as per the provisions of the Wildlife (Protection) Act, 1972 and following appropriate protocols approved by the Steering Committee. In case, juvenile / adult birds are rescued anywhere from the species'-ranges, these may also be used for conservation breeding purpose as per the advice of the Steering committee. The First Party shall facilitate procurement of appropriate eggs / birds from other bustard range states.
- (b) As per the concept of minimum viable population in conservation biology and population viability analysis of Great Indian Bustard (Dolman et al. 2015, Dutta et al. 2011) and international guidelines (IUCN, 2013), a founder population of about 20 adult birds (15 females) is necessary to minimize the probability of extirpation of captive population and capture the genetic variability of the source population. Hence, considering 50-60 % mortality from egg to adult stage, a total of 40-55 eggs are required to build this founder population. To optimize the requirement of Conservation Breeding Programme and minimize the impact on in-situ population recovery, minimum 5 to maximum 8 eggs need to be collected every year for the first ten years. Egg collection shall be done by trained Project personnel from wild Great Indian Bustard breeding sites primarily in Rajasthan (and other States). In the case of Lesser Florican where wild populations are not as much depressed as that of Great Indian Bustard and clutch sizes are larger (2-4 eggs), a founder population of 30-40 adult birds is to be achieved. This target could be achieved in about 5-10 years with 10-20 eggs collected each year from the species range states. Wild-collected eggs shall be treated as per Action Plan, but shall include:
 - (i) Retention and incubation of eggs and, if required, their hatching and subsequent management in appropriate Facility;
 - (ii) Transportation of eggs / birds to Facility for building founder population;

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- (c) First and Second Party, in accordance with legal provisions, will provide necessary permits and facilitate in the continued development of all mutually agreed management and research activities at Facilities and in-situ conservation areas. In particular, Second Party will:
 - (i) Grant long-term permits for field research at sites under their jurisdiction (e.g., Protected Areas), use of facilities (e.g. guest houses) at concessional rates (as applicable to forest department officials) and other assistance at their disposal, to Project personnel on duty.
 - (ii) Grant permit for capture, re-capture, marking and release of wild and / or captive-bred birds as may be required under the Wild Life (Protection) Act, 1972 for the purposes of conservation-breeding and research including satellite telemetry, monitoring studies, or translocation of eggs / birds as per the Action Plan approved by the Steering committee.

Article- IIIC: Habitat restoration and bird release

- (a) In due course of Project execution, as the captive-bred Great Indian Bustards and Lesser Floricans become ready for release into the wild, conservation areas in Rajasthan shall be prioritized for release, followed by conservation areas in Gujarat, Maharashtra, Andhra Pradesh, Karnataka and Madhya Pradesh.
- (b) However, for the best interest of the species' persistence, choice of sites for releasing these captive-bred birds will depend on the degree of in-situ management actions implemented by the State Forest Departments and the level of habitat restoration in these conservation areas.
- (c) The release sites must have cumulatively 200 km² of inviolate space within the Great Indian Bustard landscape comprising of secured habitat patches exceeding 20 km² each and the connecting habitats in between these patches should be devoid of all hostile infrastructure. All potential threats to Great Indian Bustard at the release sites should have been mitigated to the best possible. Steering Committee shall set up a Task Force to assess these release sites for meeting the above mentioned criteria prior to the release of captive-bred birds. All captive bred released birds would be monitored using the best available technology to assess the success of the program.
- (d) The first and second party will endeavor to carryout voluntary relocation of communities in the habitat to create inviolate spaces.
- (e) A detailed landscape level management plan should be prepared by Second Party in consultation with First and Third Parties to ensure effective implementation of in-situ measures. This management plan should include actions required for (a) securing breeding enclosures in wild, (b) reducing threats in landscapes adjoining these breeding enclosures and (c) addressing livelihood concerns, as per the recommendations of the Guidelines for Resident Bustards' Recovery Programme.
- (f) First and Second Parties and GIB range states shall collectively provide financial support for implementing in-situ measures as per the landscape management plan.
- (g) The signing parties shall co-opt any other range states to be partners in the project with specific terms of agreement with that state.

ARTICLE IV: Project staff

Third Party shall engage staff for running Project facilities that includes:

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- Project Scientist and Veterinary officer for running the Conservation Breeding Center who shall be trained at International Conservation Breeding Centers;
- (ii) International bustard captive breeding expert(s) as Project Advisor (s);
- (iii) And appropriate staff for running the Facilities.

Third party of the Project shall provide all salaries and allowances to Project personnel including approved project allowances to the personnel deputed by Second Party in the Project

Third party of the Project shall also arrange for appropriate training of Project personnel, including educational visits to International Bustard Breeding Centers, in order to develop a highly skilled team for execution of Project, as mentioned in Article IIIa.

ARTICLE V: Project staff responsibilities

Project Scientist(s), in consultation with the Lead Project Scientist, Advisors and team members, and in understanding with the Project Head, shall:

- (i) Assist in drafting Action Plan for Project and seeking approval from the Steering Committee;
- (ii) Supervise the construction of Facilities;
- (iii) Identify and procure infrastructure and equipment for running the Facilities as per Third Party rules;
- (iv) Assume responsibility for routine management and development of the Project;
- (v) In consultation with Project management committee to Identify Conduct relevant studies on species' biology, behavior, reproduction, genetics, ecology and management, both in captivity and in wild along with studies on socio-economy and other relevant topics on local community in liaison with other mutually agreed research institutions if required.
- (vi) Regularly report Project activities to Steering Committee, Project management committee and other relevant states (Gujrat, Maharashtra, Madhya Pradesh, Karnataka and Andhra Pradesh) authorities and interest groups. This will include preparation of annual and final reports, and supply of prompt response to any query concerning current status and activities of the Project;
- (vii) And facilitate training of Project personnel in conservation breeding techniques as well as in-situ management.

ARTICLE VI: Addition of parties and dispute resolution

- (a) All Parties shall facilitate the involvement or contribution of representatives from relevant national and international institutions in this Project, provided such involvement does not in any manner compromise with the primary objectives of the Project.
- (b) Any dispute between Parties in respect of matters governed by this Memorandum of Agreement shall first be placed before the Steering Committee for amicable resolution. However, failing such resolution, the decision of Director General of Forests and Special Secretary to the Government of India, Ministry of Environment, Forests and Climate Change shall be final.

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ARTICLE VII: Validity of MoA

This Memorandum of agreement shall be effective from the date of signing of the agreement and remain valid for a period of five years from the date of signing and may be extended after review of progress every five years by all three parties for necessary adaptive management. Any of the Parties may give to others a written notice six months in advance of its intention to terminate the Memorandum of Agreement before the date of expiry. This Memorandum of Agreement may be modified or amended by mutual written consent of all Parties.

ARTICLE VIII: Projected financial obligations and commitments

The parties will commit funds (Rs. lakh) as under for the first four years of project implementation.

Year	Total fund requirement (in lakhs)	Commitment						
230		First Party	Second Party					
2017-18	803.00	773.00	30.00					
2018-19	623.00	593.00	30.00					
019-20	532.00	512.00	20.00					
020-21	532.00	512.00	20.00					

The financial commitment of first party includes construction of Conservation Breeding Center (CBC), running and maintenance of CBC, in situ pilot management and out reach. The commitment from Second party includes International Travel and training, and infrastructure for Conservation Breeding Center. Implementation of Conservation Breeding Programme Will be done by Third party. Detailed break-up of fund commitment by First Party is provided in annexure 1 and total fund requirements for executing the Conservation Breeding Programme for 40 years is provided in annexure 2.

IN WITNESS WHEREOF, the parties hereto have caused their representative duly authorized for that purpose to sign and execute this Memorandum of Agreement and affix hereto their seals on the dates and in the year herein above written.

Signatures of

First Party

Inspector General of Forests THEIL SQUMITRA DASGUP

(On behalf of the Pretatenctor Geogral of Forests

M/o Environment, Forest and Climate Change

Chief Wildlife Warden

(On behalf of the Governor of Rajasthan)

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डा. वि.वि. माथुर/Dr. V.B. Mathur निवेशक/Director भारतीय वन्यजीव संस्थान WILDLIFE INSTITUTE OF INDIA वेहरावून/Dehradun

Third Party

Director, Wildlife Institute of India

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Annexure 1 - Budget break-up of fund commitment by First Party for initial years of project implementation

	Paket habitat P		* [Applied research							Conservation Breeding					Staff engagement											
7)2	Produtor-proof-fencing in critical enclosures	Total costs of capacity-building & awareness	Contingency (collaborative services & miscellaneous)	Awareness inaterials (posters, boards & documentary film)	Mobile workshops to sensitize focul people (equipment, materials, travel & logistics) - 15 villages yr & -500 people yr	participants/workshop	quipments)	Technology aided patrolling (developing tooks conducting training solutions)	Training of Forest Conservation Staff (wildlife specialization & when	Total costs of applied research	Contingency (collaborative service charges & miscellaneous)	Research conservation laboratory (genetics & pesticides); quinment four contributions is	Accommodation & travel	General field equipment (camera traps, laptops, cameras, accessories & stationers,	Surveys for land acquision/rationalization, social aspects & other species status	Population/habitat surveys (honorarium, vehicle, accommodation & task. GPS & bases)	Threat assessment surveys (vehicle charges)	Satellife telemetry costs (PTT & trapping costs)	Total costs of conservation breeding	Miscellaneous costs (training, collaboration & contingency)	Community and reduction of the Community Commu	C'enter maintenance costs	Center running costs	Center establishment costs	Total costs of staff engagement	Project Management Linit (part cost)	Duily labour in field & CRC	3 Field assistant grade 1 (field)	1000	4 Project Assistant grade I (TCBC + 3 field)	4 Project Assistant grade 2 (2 CBC + 2 field)	2 Project Associates (field)	3 Project Scientists (1 CBC + 1 vet + 1 field)
10x.00	32.80	55.0	0.40	2000	400	× 92	1314	0.00	159.70	10.46	58.35	7.92	17.70	9.00	18.43	13,50	33.34	476.29	47.44	WE SEPTIME	0.00	1485	414 00	79.28	15.36	3.00	2.88	10.08	7,30	9.00	10.85	20 16	Vr I
144 (6)	64 93	7.85	7.40	200	1	×	17 14	20.00	105.20	7.87	13.35	7.92	2.07	5.40	300	13.50	52.09	346.34	36,49		0.00	39.85	270.00	83.96	13.65	337	3.17	11.09	8.03	10.56	11.93	22 18	Vr.2
000	94 60	N. H.	× 14	2 70	2	18.0	1335	21 00	68.75	6.42	14.69	8.53	2.28	5.94	0.00	14.85	16.05	290.16	18.82		150	41.84	225.00	92 13	14.80	3.70	3.4x	12.20	8.83	11.62	13.11	24.39	Yr3
000	48.96	7.57	2.20	3.90		480	4.40	21,00	67.69	6.37	14 69	8 72	2.28	5.9H	0.00	14 85	14.85	169.41	15.07		22.50	41.84	90,00	101.14	16.05	4.07	3.83	13.42	971	12.78	14 44	26.83	Yra
000	49.87	7.85	0.00	6.14	10.28		4 60	2100	110.58	8.88	34.82	9 14	238	0.00	24.64	15.51	15.53	171.85	1552		22.50	43.84	90.00	111.02	1743	448	4.22	14 76	10.68	14.06	15.88	29.52	Yr5
757	261.18	17.01	1814	1966	* 83	-	0.43	X5.00)	51192	39.66	13589	42.23	26.70	1728	46.06	723	131.86	1454.06	133,34		49.50	182 22	1089.00	467.55	77.29	18.68	17.58	61.54	2 4	\$8.61	66.23	123.08	Total



Annexure 2 F		County application	Creation of			
Annexure 2 Proposed long-term (40 years) hidget for Butter I	TOTAL	Voluntary relocation of familias for exacting inviolent mades Rebutar existences	Mothicanno of this older spects	Total costs of pilot implementation of habitat management	Agro-environmental Incentives & food provisioning in enclosures	Marking power-lines with Bird Divertors
80.506			247.00	3,00	00.16	43.00
773.44	1000		173.00	5.00	0.00	24.00
592,66	7 P. C.		77.00	53.00	0.00	24.00
512.45			125.25	53.00	68.25	4.00
511.57	St. West		68.25	0.00	68.25	0.00
3,385,20	100		69	-11	227.80	9

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निया प्रकार

Director, Wildlife Institute of India

Third Party

(On behalf of the Governor of Rajasthan)





राजस्थान सरकार वन विभाग

कमाक १० ४(२)वर / २००५ पार्ट

जयपुर दिनाक 05-06 2018

अतिरिका प्रधान गुरुथ वन संरक्षक एव गुरुय वन्य जीव प्रतिपालक, राजस्थान, जयपुर।

Sub-Approval of the MoU for Captive Breeding Center of GIB

Ref:-Your Letter No. 8554 Dated 26.04.2018

Hall GM

अपराक्त विषयान्तात सन्वर्भित एव द्वारा राजरणान में ग्रेट इण्डियन बरटडें (GIB) के ब्रीडिंग सेन्टर की स्थापना हेतु प्रवित एम०ओ०यू० को विधि विभाग से विधिक्षा कराया जाकर विधिक्षित एम०ओ०यू० की प्रति संलग्न कर आपके स्तर से अभिम आवश्यक कार्यवाही कराय जाने हेतु प्रस्तृत है।

सलग्न - उपराक्तान्सार

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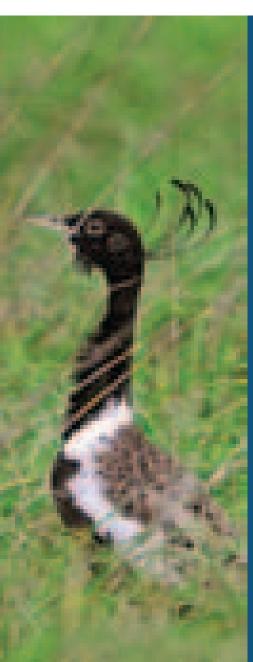


Annexure 4.9.2.











GUIDELINES FOR STATE ACTION PLAN FOR RESIDENT BUSTARDS' RECOVERY PROGRAMME









GUIDELINES FOR STATE ACTION PLAN FOR RESIDENT BUSTARDS' RECOVERY PROGRAMME

Citation:

Dutta, S., Rahmani, A., Gautam, P., Kasambe, R., Narwade, S., Narayan, G., and Jhala. Y. 2013. Guidelines for State Action Plan for Resident Bustards' Recovery Programme. The Ministry of Environment and Forests, Government of India. New Delhi.

ABBREVIATIONS USED IN THE TEXT (IN ALPHABETICAL ORDER)

ASHRAM: Abhayaramya Samraksham through Holistic

Resource Array Management

BF: Bengal Florican

BNHS: Bombay Natural History Society

CAMPA: Compensatory Afforestation Fund
Management and Planning Authority

CES: Center for Ecological Sciences

CITES: Convention on International Trade in

Endangered Species of Wild Fauna and Flora

CMS: Convention on Migratory Species

CWLW: Chief Wildlife Warden

GEER: Gujarat Ecological Education and Research

GIB: Great Indian Bustard

GIBF: Great Indian Bustard Foundation
GUIDE: Gujarat Institute of Desert Ecology

IUCN: International Union for Conservation of Nature

KERC: Kutch Ecological Research Center

LF: Lesser Florican

MoEF: Ministry of Environment and Forests NGO: Non-governmental Organization

NP: National Park
PA: Protected Area

PRA: Participatory Rural Appraisal

RRA: Rapid Rural Appraisal

SACON: Salim Ali Centre for Ornithology and Natural History

SRP: Species Recovery Plan

SWaN: Society for Wildlife and Nature
TWSI: Tourism and Wildlife Society of India

UP: Uttar Pradesh

WII: Wildlife Institute of India
WLS: Wild Life Sanctuary
WTI: Wildlife Trust of India
WWF: Worldwide Fund for Nature



S.S. GARBYAL
Additional Director General of Forests (Wildlife)



भारत सरकार पर्यावरण एवं वन मंत्रालय GOVERNMENT OF INDIA MINISTRY OF ENVIRONMENT AND FORESTS Paryavaran Bhawan, CGO Complex, Lodhi Road New Delhi - 110 003

July 25, 2013

The grassland ecosystems of India are threatened by habitat alterations due to unplanned agro-industrial developments and overgrazing by over 500 million livestocks. Grasslands are known to provide a vast array of ecosystem services, support human livelihoods and harbour a number of endemic species. Despite these roles, they have been largely ignored in the process of development and over-exploited by agro-pastoral practices. Securing these habitats and livelihoods is fundamental to conserving bustards, a family of Old World grassland birds that indicate conservation crisis of associated species and act as flagships to garner public support. Out of the 25 bustard species occurring worldwide, six are endangered including all three residents Bustards of India. These are the Great Indian Bustard, Lesser Florican and Bengal Florican. Their populations are facing extinction due to compounding effects of anthropogenic pressures on their slow life-history traits. Immediate conservation actions are required to save these species that will also benefit a wide spectrum of species sharing similar habitats and needs, and secure traditional livelihoods.

'Guidelines for State Action Plan for Resident Bustards' Recovery Programme' comprise a review of the species' biology, threats, and conservation recommendations. The document has been prepared after consultative workshops involving wildlife scientists, forest department officials and non-governmental organizations from nine bustard range States. Since bustards are landscape dependent species, they cannot be conserved solely by a Protected Area approach as they also inhabit agro-pastoral systems. The Guidelines provide direction to a holistic management approach wherein an optimal balance needs to be struck with traditional livelihoods and modern development using smart green infrastructure, and Protected Areas through policy, legislation, local management, awareness, and research. If earnestly implemented, these Guidelines will help save bustard and grassland resources of India for posterity.



S.S. Garbyal Additional Director General of Forests (Wildlife)



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The resurrection of bustards and grassland conservation is rooted in the formation of 'Bustard Task Force' under the motivation of former Honourable Minister of Environment and Forests (MoEF), Mr. Jairam Ramesh, and the continued support of the current Minister, Ms. Jayanti Natarajan.

'Guidelines for State Action Plan for Bustards' Recovery Programme' were conceptualized during the Task Force meetings convened by Mr. A.K. Srivastava, Inspector General of Forests (Wildlife) and Ms. P. Srivastava, Deputy Inspector General of Forests (Wildlife). Their concerns and support on this issue motivated us all along the way.

The financial support for publication of the Action Plans was provided by the MoEF to the Wildlife Institute of India (WII). We are grateful to Mr. P. Tyagi, Joint Director (Wildlife), Mr. Y. P. Singh, Mr. P. R. Sinha, Directory (WII) and Mr. V. B. Mathur, Dean (WII) for facilitating this process. The document was published after several consultative meetings and workshops organized by the Bombay Natural History Society and the World Wide Fund for Nature-India and MoEF, which involved academia, Forest Department representatives, non-governmental organizations and other stakeholders. Logistic support provided by the staff teams of these organizations was indispensable for execution of this task.

Content of this document is purely the result of information, observations and brain-storming exercises of participants in these workshops. Therefore, we express our deep gratitude to the contributions of Dr. M. K. Ranjitsinh, Mr. H. Vardhan, Mr. R. Singh, Mr. B.C. Choudhury, Dr. H.S. Pabla, Mr. A. Saxena, Mr. R. Kumar, Ms. V. Gola, Mr. B.S. Bonal, Mr. U.M. Sahai, Mr. M.K. Rao, Dr. K.T. Rao, Dr. M.H. Swaminath, Mr. V.K. Bissa, Mr. Jayaram; Dr. N. Shah, Dr. K. Sivakumar, Dr. G.S. Bharadwaj, Ms P. Pande, Dr. P. Patil, Dr. J. Joshua, Mr. K.S.A. Samad, Mr. A. Pimplapure, Mr. K. Pandharipande, Dr. L. Rosalind, Dr. R. Raza, Mr. D. Gadhavi, Mr. M. Kalra, Dr. G. Areendran, Mr. N.A. Ansari, Mr. R. Bhargava, Mr. N. Nirmal, Mr. A. Banerjee, Dr. F. Khusha, Ms. P. Ray, Mr. T.K. Sajeev and Mr. N. Khan.

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Clearly, this document is an outcome of joint effort involving many people, and the editors regret if they have been unable to duly accredit any contributor.

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Bustards (family *Otididae*) are obligate grassland birds with slow life-history traits and an open nesting system. These characters make them vulnerable to extinction when faced with environmental changes and direct threats. Out of the 25 species occurring worldwide, six are endangered that includes all three residents of India. This fact highlights the conservation crisis of Indian grasslands, mainly attributed to hunting and habitat modification. The resident bustards: the Great Indian Bustard (Ardeotis nigriceps, GIB), Lesser Florican (Sypheotides indica, LF) and Bengal Florican (Houbaropsis bengalensis, BF) play umbrella and indicator roles for much wildlife that inhabit agro-grass systems and face similar extinction risks. Indian conservation circles are therefore proposing grassland conservation strategies with bustards as the flagship taxa. With this aim, the Species Recovery Plan (SRP) has been formulated by the Ministry of Environment and Forests through consultative meetings with Forest Departments, wildlife biologists and non-governmental organizations. The SRP reviews species' biology, assesses threats, and prescribes actions at generic and site-specific levels to secure the long-term persistence of the resident bustards of India. It broadly advocates a holistic conservation approach at species and habitat levels, which includes protection and management of breeding areas, addressing local livelihood concerns, research and monitoring, conservation awareness, and need-based interventions. The document is subdivided into three sections, each dedicated to a species, providing needful conservation information for policy makers, managers, frontline staff and researchers.







The Great Indian Bustard is Critically Endangered (IUCN) under prevailing levels of hunting and habitat loss (agro-infrastructural development and illinformed management). A global population of ~300 birds is further fragmented in the states of Rajasthan (shared with Pakistan), Maharashtra, Andhra Pradesh, Gujarat, Karnataka, and Madhya Pradesh in India. The largest population of 100–125 birds exists in Rajasthan and remaining populations are ≤ 35 birds each. Prevalent conservation strategies use legislation to secure traditional breeding areas by declaring small Protected Areas, or protect vast areas with varied human land uses. The vagrant nature of GIB reduces the benevolent effect of small Protected Areas while large reserves alienate people by curbing legitimate subsistence rights through strict legislation. These factors along with ill-informed habitat management challenge the current Protected Area approach even causing local extinctions. Population viability analysis shows that GIB populations are extremely sensitive to loss of adult birds and breeding failure, which are extremely high under prevalent human modifications of the landscapes. With current levels of hunting in Pakistan, extinction is a real threat. Additionally, unreliable information on population and habitat status and lack of monitoring schemes forces conservation decisions to rely on anecdotes. The SRP recommends [a] protection of core areas by making them inviolate of consumptive human use during breeding months (June-September); [b] landscape management plans that integrates livelihood concerns with conservation by encouraging compatible livelihoods and curtailing harmful infrastructure in priority areas; [c] population research and monitoring, and habitat research using biotelemetry across the range; [d] conservation breeding as a security policy; and [e] a liaison committee between Government and local communities for joint decision making on incentive driven pro-conservation use of private-public mixed ownership lands.

The Lesser Florican is endemic and Endangered (IUCN) with <2500 birds left in India. They breed in patchily distributed semiarid grasslands and agro-grass mosaics of Rajasthan, Gujarat, Madhya Pradesh and Maharashtra. The major causes behind their decline are agricultural intensification in breeding grounds, historical hunting, and loss of grassland habitats and limited knowledge of their non-breeding habitat requirements. Some of the breeding grounds are Protected Areas but mostly subjected to ill-informed management, while the remaining are unprotected agro-pastoral landscapes facing rapid intensification of agricultural practices. Moreover, little is known about their landscape and seasonal movement patterns, regional population status and biology. The SRP recommends [a] protection of core areas by making them inviolate of consumptive human use during breeding months (July-September); [b] curtailing conversion of grassland to wooded habitat by plantation of shrub/tree species; [c] declaring unprotected breeding areas as conservation/community reserves and integrating livelihood concerns with conservation by encouraging incentive driven compatible livelihoods therein; [d] population research and monitoring and habitat research using biotelemetry across the range; and [e] a liaison committee between Government and local communities for joint decision making on the use of private-public mixed ownership lands.



Girish Vaze

The Bengal Florican is Critically Endangered (IUCN) with ~400 birds of the subspecies H. b. bengalensis in the Indian subcontinent. It is an obligatory indicator of moist (terai and duars) grasslands and its status and ecology are sparsely known. Once widely distributed in alluvial plains of North India, it is presently restricted to few Protected Areas. The major reasons behind its decline are historical hunting and habitat loss due to human pressures and flooding. Its habitats were historically maintained by changing river courses as well as grazing by wild mega-herbivores. Alteration of river courses led to emergence of new areas that were colonized by grass and shrubs, while older areas got eroded or submerged. Recently, wild herbivore populations have been dramatically reduced, as human impact has increased radically. Lands newly altered by prolonged inundation during monsoon are rapidly turned into agriculture, thereby preventing colonization of grasslands, while alluvial grasslands are also being cultivated increasingly. Florican occupied patches are now small and isolated, making the populations susceptible to local extinctions. Even grasslands inside Protected Areas face risks of being converted to woodlands by natural succession, and from human encroachment and disturbances as deficit of infrastructure and trained personnel make law enforcements difficult. Bengal Florican has disappeared from many Protected Areas and is unlikely to return without drastic conservation actions. The species recovery plan invokes that proper management of moist grasslands needs to be a compromise that benefits Bengal Florican and associated threatened species but also addresses local livelihood concerns. Thus, the SRP advocates [a] protecting and managing florican habitats within Protected Areas; [b] allowing regulated grazing, burning and grass harvesting in areas outside Protected Areas; [c] filling research gaps about the species and habitat through advanced techniques like biotelemetry; [d] raising conservation awareness among local communities and forest staff; and [e] identifying and conserving potential florican habitats outside of existing Protected Area network.



INTRODUCTION

IDENTIFICATION OF SPECIES FOR INITIATING ACTION

Grasslands are one of the most neglected ecosystems, often treated as wastelands or pastures. However, they provide a wide range of ecosystem services and support numerous threatened species. Bustards (family Otididae) are considered as flagships of grasslands owing to their habitat association, charismatic nature, and extinction-prone slow life-history traits. All three resident bustards of India are severely endangered indicating the conservation crisis of these ecosystems. The Great Indian Bustard inhabits semiarid open landscapes of India and Pakistan. Their populations are rapidly dwindling with <300 birds left, no known breeding population outside of India, and local extinction from ~90% of the former range. About 75% decline has been observed in last three generations and predicted extinction probability is very high within next three generation time as well . Human induced threats to the species have increased and are likely to increase further. Therefore, it has been enlisted as Critically Endangered by IUCN. The Lesser Florican is virtually endemic to India, breeding in dry grasslands of the north-west. Represented by <2500 birds, their numbers and habitats have dwindled due to uncontrolled habitat loss and illegal hunting. The IUCN has enlisted it as an Endangered species, requiring immediate conservation actions. The Bengal Florican is Critically Endangered (IUCN 2011) with <400 individuals left in the Indian subcontinent. It occurs in moist grasslands in alluvial plains of N. India. Once widely distributed, it is presently restricted to a few Protected Areas. All these species are enlisted in Schedule I of the Indian Wildlife Protection Act 1972 and National Wildlife Action Plan 2002-2016. According to the National Forestry Commission's recommendation No. 172 and resolution passed by the IUCN during the World Conservation Congress in Thailand, 2004, Government of India should protect bustards and floricans as the flagship taxa for grassland flora and fauna through the commencement of 'Project Bustards'. Therefore, Ministry of Environment and Forests, under its Centrally Sponsored Scheme - Integrated Development of Wildlife Habitats, has identified these three species for initiating recovery plans. A Task Force was constituted which developed these guidelines after detailed consultative meetings with Forest Departments, wildlife biologists and other stakeholders.

PROTECTING BUSTARD
HABITATS WOULD
BENEFIT SEVERAL
GRASSLAND/ SAVANNA
SPECIALIST SPECIES
LIKE THE VULNERABLE
BRISTLED GRASSBIRD

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2. ETYMOLOGY

The Great Indian Bustard was first described to science as *Otis nigriceps* (Vigors 1831) from specimens collected at the Himalayan foothills of northwest India. The name was later changed to *Otis edwardsi* (Gray 1831), *Eupodotis edwardsi* (Blanford 1898), *Choriotis nigriceps* (Ali and Ripley 1969) and finally *Ardeotis nigriceps* (Sibley and Ahlquist 1990). Etymology of its recent scientific nomenclature is: *Ardea* (heron), *otis* (bustard), *niger* (black), ceps (headed). The current classification of bustard lineage recognizes 11 genera and 25 species (Pitra et al. 2002). This group lacks hind toe, flies rarely and is strictly terrestrial (del Hoyo et al. 1996). The lineage possibly originated20-30 million years ago in Africa. *Ardeotis* has the largest generic range spreading across Eurasia, India and Australia, crossing oceanic barriers and speciating in discreet ranges.



MALE (LEFT) GREAT INDIAN BUSTARD CAN BE DISTINGUISHED FROM FEMALE (RIGHT) BY ITS LARGER SIZE (NOTE IT IS CROUCHING), MORE COMPLETE CROWN, WHITER NECK AND DARKER WING FEATHERS

© Nirav Bhatt

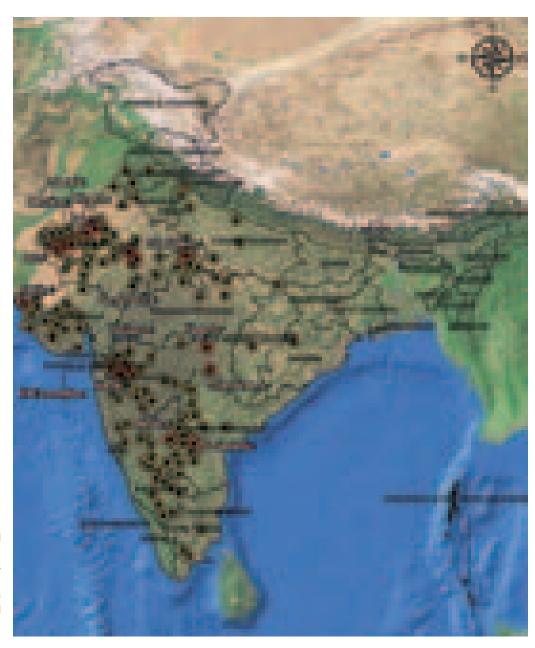
3. DISTRIBUTION

Historically the species was distributed throughout the western half of India, from Punjab and Haryana in north to Tamil Nadu in south, and from Gujarat and Rajasthan in west to Orissa in east, spanning eleven states (Rahmani 1989). The last three decades have seen a drastic reduction in the range occupancy of this species (Dutta et al. 2011). The current distribution is restricted to fragmented pockets in six states of the country (fig 1). In Rajasthan, the Desert National Park in the districts of Jaiselmer and Barmer along with the agro-pastoral landscapes of Bikaner holds the largest global population currently numbering between 100-125 birds, along with another 25-50 birds in Ajmer, Pali and Tonk districts (Rahmani 2006).

All other populations number less than 35 birds each (BirdLife International 2011). These populations are located within the states of: a) Maharashtra: at the Bustard Sanctuary of Solapur and Ahmednagar districts having 30-35 birds, Nasik district having 5-8 birds and Chandrapur district having 4-6 birds (Thosar et al. 2007), b) Andhra Pradesh: at Rollapadu Sanctuary of Kurnool district and its adjoining areas of Anantpur district having about 30 birds (Rao and Javed 2005), c) Gujarat: in Abdasa tehsil of Kachchh district having 25-30 birds (Singh 2001), d) Karnataka: where the population status is poorly known, but few birds (~4) have recently been reported from Sirguppa tehsil of Bellary district (Ahiraj 2008), and e) Madhya Pradesh: where the bustard population has faced a stark decline (Rahmani 2006) and numbers in Gwalior district are likely to be less than 10 birds. The Rajasthan and Kachchh populations are probably shared with eastern Pakistan where sporadic, seasonal occurrences of 15-20 bird sightings have been recorded (Khan et al. 2008).







PAST (YELLOW) AND **CURRENT (RED) DISTRIBUTION OF GREAT** INDIAN BUSTARD IN INDIA (SOURCE: THREATENED **BIRDS OF INDIA)**

HABITAT

Bustards generally favour flat open landscapes with minimum visual obstruction and fewer disturbances. Great Indian Bustard use arid-semiarid areas dominated by grasslands with 30-70 cm grass height interspersed with short shrub and extensive agriculture. A recent study substantiates that breeding use is restrictive to traditional areas and positively influenced by grassland prevalence, connectivity, and terrain flatness, but negatively influenced by disturbances. Whilst, non-breeding use is vast and greater in productive and connected agro-grass-scrub patches with short fruiting shrubs. At a fine scale, habitat envelopes differ between daily activities, indicating that large heterogeneous patches needs to be conserved. Birds prefer sparse ground cover for roosting, moderately tall and dense vegetation for resting, and agro-grass mix with fruit resources for foraging. Birds show strong fidelity to breeding sites, which occur in grasslands with a mix of sparse cover for displaying males and moderately tall less-grazed cover for nesting females. Here males' mating territories are strategically placed where long term female usage is high, implying that their destruction can cause serious conservation problems.



TYPICAL GREAT INDIAN BUSTARD HABITATS: SAVANNA/SCRUB (TOP), OPEN COUNTRY, SHORT GRASSLAND, AND AGRO-GRASS MOSAICS (BOTTOM LEFT TO RIGHT)

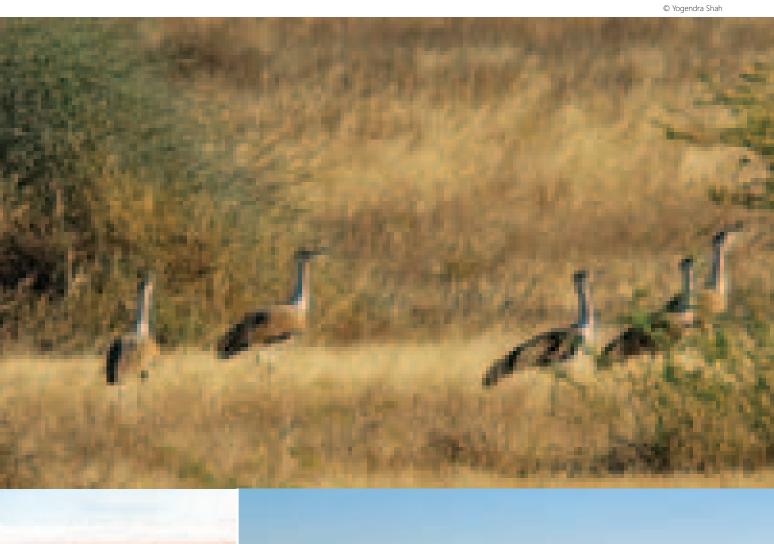
















5. BEHAVIOUR

Great Indian Bustard is a diurnal species, typically active in early morning (0600-1100) and evening (1700-2000) hours. They are gregarious, usually forming sexually segregated flocks that dissociate during the breeding season. Flocking is more prominent during roosting behaviour. Historically flocks of 20-50 birds have been commonly observed but the current typical flock size is only 2-3 birds (Dutta 2012), probably due to the overall population decline. Information on seasonal movement pattern is required for conservation planning at landscape level. Dietary observations reveal that species is omnivorous, feeding on 1) plant matter such as grass seeds, Zizyphus, Eruca sativa; 2) agricultural crops such as groundnut, millets and legumes; 3) grasshopper and beetles; and 4) vertebrates like lizards and rodents (Bhushan and Rahmani 1992). Among these, beetles, grasshoppers, fleshy fruits and crops constitute the bulk. Diet seasonally shifts from predominantly herbivory in winter (71% dry weight of plant matter) to insectivory in summer and monsoon (72% insects). Being desert adapted, it drinks water only if available but frequently during the hot summer (Rahmani 1989). The species breeds principally between March and September, differing regionally based on rainfall. Breeding males establish territories in an exploded lek mating system (Rahmani 1989), which females apparently attend for mating (Ho"glund and Alatalo 1995). During this time, males display elaborately from specific spots by inflating their gular pouch to produce deep resonant calls, cocking their tail, and occasionally engage in highly ritualized territorial fights with intruding males. Reproduction is slow as the female typically lays a single egg (rarely two) in secluded, open ground, and incubates for about 25 days without any cooperation from the male in nest guarding. Disturbance to nesting site is a major cause of egg and chick mortality. The precocial chick fledges in about 75 days and follows its mother for almost a year. Sexual dimorphism is stark, where males weigh double than the females (11-18 kg, Elliott 1880; Vyas et al. 1983) and have prominent secondary sexual characters. Insemination of all breeding females by only 1-2 males in Nanaj and Rollapadu (Rahmani 1989; Rahmani and Manakadan 1986) hints on a polygynous mating system, and probable intrasexual selection for more attractive traits (Johnsgard 1994; Zahavi 1975).











GREAT INDIAN BUSTARD BREED IN EXPLODED LEKS. **MALES FREQUENTLY ENGAGE IN TERRITORIAL** RITUALS OVER DISPLAY ARENA DURING BREEDING **SEASON**

6. STATUS AND TREND

Knowledgeable estimate of the current global population is less than 300 birds. Their numbers were roughly equal to about 1260 individuals in 1969 (Dharmakumarsinhji 1971), that dwindled down to about 745 individuals by 1978 (Dharmakumarsinhji 1978a) and around 600 individuals at the turn of this millennium (BirdLife International 2001). At this rate, extinction is imminent in small populations (<30 birds) within next few generations (Dutta et al. 2011). Even large populations (>100 birds) have high probability of extinction if poaching of adult birds continues (Dutta et al. 2011). Populations are also extremely sensitive to human induced loss of adult female birds and breeding failure (nesting, hatching and fledging failures; see Dutta et al. 2011). Therefore, it is extremely important to protect breeding sites from all human-induced disturbances and reduce poaching. Securing these two life history phases is likely to revive the declining trend of their populations.

Demographic parameters of Great Indian Bustard used for Population Viability Analysis (Dutta et al. 2011).

Some of these parameters are obtained from earlier studies on GIB while others are obtained from studies on similar sized bustard species having similar life history strategies; therefore, should be applied with caution.

REPRODUCTIVE SYSTEM & RATE

Age of producing 1st offspring (sexual maturity):

3 years (female) & 4 years (male)

Maximum age of reproduction: 20 years

Average number of progeny/year:

1 Sex ratio at birth: 1:1

% Adult breeding/year: 50 ± 10

% in breeding pool: 25

Mortality rate

 $50 \pm 10\%$ [1st year]; $10 \pm 2\%$ (female) & $16 \pm$ 3% (male) [2nd year]; $5 \pm 1\%$ (female) & $8 \pm$ 1.5% (male) [Adults]

7. INTERNATIONAL/NATIONAL OBLIGATIONS

The species has been protected in India since Independence. It is accorded the highest protection/conservation status nationally (Schedule I species) and internationally (Critically Endangered), and has been identified as one of the priority species for recovery programme by the Government of India in 2009. It is also enlisted in the CMS Convention and CITES Appendix I, to which India is a signatory.

8. BIOTIC PRESSURE AND SOCIO-ECONOMIC PROFILE

8.1. Assessment of threats

8.1.1. Direct threats

Historically, Great Indian Bustard has been hunted as a game bird (Ali 1927; Hume 1878; Rahmani 1989) and continues to be hunted in neighbouring Pakistan (Khan et al. 2008). The western Rajasthan and Kachchh populations are probably shared with Cholistan desert and Sindh of Pakistan, where 49 birds were hunted out of the 63 that were sighted over a period of 4 years (Khan et al. 2008). Low intensity poaching still persists within India. Given the life history traits of the species, this level of removal threatens its existence in immediate future. Occasional collection of its eggs for consumption occurs in some parts of Karnataka and Andhra Pradesh, which directly threatens the breeding success. Fatal bird collisions with high tension electric wires, fast moving vehicles and other human structures continues in the industrial development zones near bustard areas. Such deaths have been reported from Kachchh (Gujarat) and Solapur (Maharashtra). Moreover, domestic dogs of farmers and pastoralists, and free ranging dogs of villages adjoining bustard areas have been observed to be disturbing the displaying males (which has extremely reduced movement during breeding season), and more seriously causing nest damage. Unethical photography during breeding season often acts as a constant source of disturbance; such instances have been reported from Naliya grasslands (Gujarat). Due to the lack of legislative enforcement and protective measures in core breeding areas, decline of bustard population continues unrestricted.

Other than a legal status, Great Indian Bustard habitats do not enjoy any protection measure.

AGRICULTURAL
INTENSIFICATION IS A
MAJOR THREAT TO GREAT
INDIAN BUSTARD HABITATS.
USE OF PESTICIDES AND
INFRASTRUCTURAL
DEVELOPMENT DEPLETE
FOOD RESOURCES AND
REDUCE AVAILABLE
HABITATS

HABITATS 8.1.2. Habitat threats

According to reports of the Wildlife Institute of India, 1-1% grassland comes under the PA network (Rodgers and Panwar 1988). As a result, most bustard landscapes have faced severe habitat loss and alteration over the recent past from: 1) widespread agricultural expansion and mechanization of farming (Singh et al. 2006); 2) infrastructural development such as irrigation, roads, electric poles, windmills and constructions; 3) mining and industrialization; and 4) well-intentioned but ill-informed past habitat management.









Vogendra Shah

Due to Government irrigation and housing policies, many typical bustard landscapes are changing at an accelerated rate. With increased availability of water, agriculture has spread over vast arid-semiarid grasslands. For example, the Indira Gandhi Nahar Project has caused drastic hydraulic changes and massive agricultural conversion in and around the Desert National Park. Moreover irrigation facilities and changing lifestyles have led to a shift in the crop pattern from bustard-friendly traditional monsoonal crops (Sorghum, millet etc.) to cash crops (sugarcane, grapes, cotton, horticulture etc.) which are not suitable for bustard. Due to ambiguous land distribution policies and confusion arising from segregated ownership between local communities, Revenue Department and Forest Department, encroachment is another major problem in many bustard areas, especially in bustard sanctuaries of Maharashtra and Kachchh.

In many protected areas (e.g., Gaga-Bhatiya in Gujarat and Rennibennur in Karnataka), open grassland habitats have been transformed into scrubland through management practices such as exotic shrub/tree species plantation (*Eucalyptus*, *Glyricidia* and invasive *Prosopis juliflora*) by State Forest Departments. Overgrazing on private and community lands has also led to degradation of some areas. It has been lately observed that along with the increasing native livestock population, semi-nomadic livestock from other areas (e.g., *Kathiawadi* livestock of Gujarat) are adding to grazing pressure in the states of Maharashtra, Karnataka and Andhra Pradesh. Lastly, activities such as indiscriminate mining, stone quarrying, industrial growth, power projects, expansion of roads, electric power lines, wind turbines and other



8.2. Data deficiency

For effective species' conservation, certain ecological information are crucial. Important lacuna of knowledge in case of this species include: 1) their ranging patterns (seasonal movements and landscape use) which requires biotelemetry based research; 2) lack of centrally coordinated, scientific population estimation protocol; 3) impact of pesticides on food availability, bioaccumulation and effects on physiology; 4) impact of predators and anthropogenic disturbances on nesting success; and 5) lack of awareness among common people.

8.3. Conservation Initiatives

Conservation of bustards and their preferred grassland resources was first brought into the focus of governance through a symposium of eminent conservationists in Jaipur during 1980 (Goriup 1983). Following this, the State Governments of India declared eight bustard Sanctuaries post 1980s. Most of these PAs were either too small, targeting traditional breeding patches, or very large, covering entire agro-pastoral landscape inclusive even of large townships. Within these reserves, the recommendation was to maintain small scattered conservation refuges (preferably the traditional breeding spots that could be protected during the breeding season to exclude cattle and human disturbance) with large buffers (Rahmani 1989). Refuges were recommended to be managed so as to provide habitat requirements for crucial activities such as lekking, nesting, chick rearing and foraging (Rahmani 1989)

8.3.1. Legal limitations

The prevalent legal system in 1980s-1990s governing PAs was not sufficiently flexible to permit implementation of even these simple recommendations (discussed above, Rahmani 1989). Settlement of land rights between local communities and Government were delayed, restricting Forest Department's control over lands and allowing minimum scope of management. In case of small conservation refuges, Forest Departments had no authority on the surrounding private lands, where land-use changes were drastically high in subsequent years (e.g., Lala-Naliya Sanctuary in Gujarat and Bustard Sanctuary Maharashtra) leading to their reduced usage.





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8.3.2. Lack of local support

The wide ranging nature of bustard makes implementation of protection measures difficult without public support (Rahmani 2003). However, inclusion of private lands within PAs and strict legislation therein has been an obstacle in harnessing such support. For instance, in the Karera Bustard Sanctuary, Madhya Pradesh (202 km2), enhanced protection and restricted livestock grazing resulted in the explosion of residing small blackbuck population, causing

crop depredation in adjoining agricultural lands. Blackbuck being a Schedule-I species ([Wildlife (Protection) Act, 1972], 1993) could not be hunted. This antagonized local agro-pastoral communities (Rahmani 2003) resulting in a backlash by the communities that caused the local extinction of bustard and reduction of blackbuck population through poaching. Similarly, the large expanse of Bustard Sanctuary of Maharashtra (8,496 km² area, much of it being non-bustard habitat) restricted private land owners therein to use their lands freely and profitably. This again generated bitterness amongst the local populace. Bustard conservation is not incompatible with traditional human landuses that require minimum infrastructural development. However, due to the lack of awareness and reduced benefits from establishment of PAs, local populace of Maharashtra and Madhya Pradesh consider bustard as an obstacle to development, and do not cooperate with the State Forest Departments.

8.3.3. Lack of effective grassland management

Management of bustard habitats has been impeded by inadequate appreciation of grassland resources. Traditionally, grasslands and scrub have been considered as "wasteland" and the Forest Department policy until now has been to convert them to "forests" with plantation of fuel/fodder shrub/tree species, even exotics like *Prosopis juliflora*, *Gliricidium* and *Eucalyptus spp.*, under social forestry and compensatory afforestation schemes (Forest (Conservation) Act 1988; Indian Forest Act 1927).

GREAT INDIAN BUSTARD Ardeotis nigriceps



INFRASTRUCTURE LIKE
HIGH TENSION POWER
LINES (RIGHT) AND WIND
TURBINES (ASIDE) IN
GREAT INDIAN BUSTARD
HABITATS POSE MAJOR
THREAT TO THESE LOWFLYING BIRDS BY
INCREASING CHANCES OF
FATAL COLLISIONS AND
FORMING BARRIERS TO
MOVEMENT

Massive afforestation under CAMPA funds has resulted in loss of crucial habitats, while lack of funds constraints effective conservation efforts such as land acquisition for the formation of undisturbed breeding refuges. In some small bustard refuges well-intentioned but ill-informed management practices such as development of large water bodies, network of roads, delineation of 'reserve grasslands' through



trenching-cum-mounding and plantation, have resulted in severe habitat alteration (Pande and Pathak 2005) and are considered to have caused local extinction of the species from Ranibennur and Gaga-Bhatia Sanctuaries. Prevalent conservation-incentive schemes in Gujarat and Madhya Pradesh such as reward to local people for reporting bustard eggs and appointing watchmen for nest monitoring have often been counterproductive due to the disturbance they cause to incubating females.

8.3.4. Institutional failures

Great Indian Bustard requires a landscape level conservation policy on government-private mixed ownership land, which involves coordinated efforts from various Government departments and community institutions. Such a holistic approach is currently absent. Each bustard range state has developed its own plan of action for the species in isolation from other states; however it is likely that individuals are moving between populations. Considerable portion of habitats lies under the jurisdiction of Revenue Department whose mandate is to promote agriculture since revenue collection is directly linked with the area under agriculture. Massive encroachment of revenue lands have been reported from core breeding areas in Abdasa (Gujarat) but due to the lack of inter-departmental coordination and delay in legal actions, these lands have not been reclaimed. Much of the problem stems from the absence of accountability, i.e., specific responsibilities, of the relevant departments to ensure sustainable land resource management in bustard landscapes. In India, negligible proportion of grasslands is protected (http://www.wii.gov.in/). With a livestock population of >540 million and still growing, our grasslands are under substantial biotic pressure from grazing and land-use conversions. However, the country lacks a national grazing policy and grassland management policy (Rahmani 2006). Most of these pasture lands are common property resources belonging to villages without any well-defined ownership rights or responsibilities. This alongside external economic forces and dissolution of informal (community) grazing institutions are leading to open access of these resources (Hardin 1968). Local communities can be involved in an integrated management approach by securing their grassland dependent livelihoods using scientific and traditional knowledge bases. Joint Forest Management and Agro-Environmental Incentive schemes are relevant examples of this approach, which need to be implemented in bustard habitats. Non-Governmental Organizations have the potential of gaining local support for bustard conservation and bridging the gap between State Forest Departments and communities. However, currently very few NGOs are working specifically for bustard conservation; they do not receive adequate support from Government authorities and suffer from lack of communication between each other. Thus, it is important to strengthen

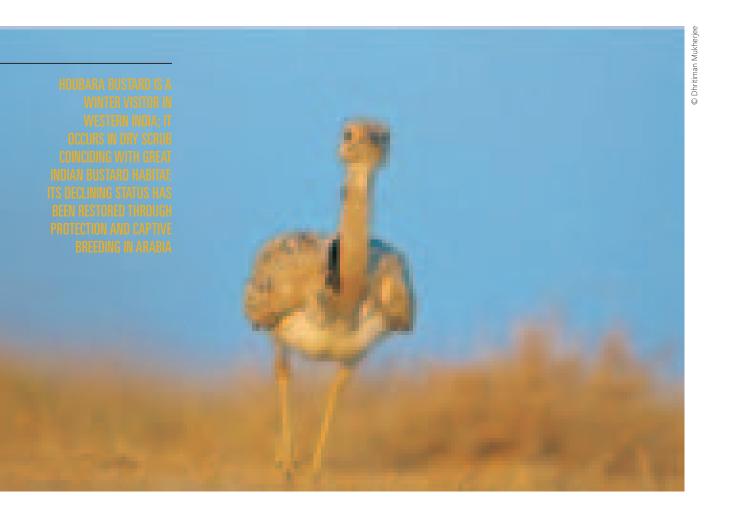
DOMESTIC DOGS ACCOMPANYING SHEPHERDS AND FARMERS INSIDE BUSTARD HABITAT, POSE THREAT TO NESTS AND CHICKS, AND CAUSES DISTURBANCE TO INCUBATING FEMALES AND DISPLAYING MALES



the network of State Forest Department, NGOs and communities for more effective conservation. For all these purposes (research, monitoring, training and management), there is an urgent need to provide necessary financial support.

Section II: Prescription for recovery of Species

IN LIGHT OF THE SPECIES' ECOLOGICAL REQUIREMENTS AND THREATS, FOLLOWING RECOVERY ACTIONS SHOULD BE UNDERTAKEN, WHICH HAVE BEEN CATEGORIZED INTO NATIONAL LEVEL, STATE LEVEL AND SITE SPECIFIC PLANS.



PART I. SPECIES LEVEL RECOVERY

A. STUDY OF POPULATION ECOLOGY

Systematic, centrally organized status & distribution surveys have to be implemented across the country at an initial stage for baseline information. The monitoring protocol should use modern population estimation theory and techniques. Understanding species' vital rates (e.g., survival, recruitment, dispersal and effective population size) and their environmental correlates unfolds the causes of species' decline. Once the factors for declining demographic rates are identified, they can be managed for long term species' survival. Such research will require biotelemetry (satellite and radio tagging) of several individuals, which will inform us about the seasonal movement patterns, connectivity/linkages between populations, and cross-country movements (summer movement of







individuals towards Pakistan and subsequent poaching is currently the most serious threat). Bustards' populations are most sensitive to the loss of adult birds and breeding failure (Dutta et al. 2011). However, how various factors influence them needs to be understood to secure the species' "Achilles' heel".

B. CONSERVATION BREEDING PROGRAMME

Owing to the extinction prone *k*-selected nature and threat from hunting, the species is in urgent need for ex-situ conservation and subsequent supplementation of existing small in-situ populations. Although a few unscientific attempts to breed the species in captivity have failed in the past (Putman 1976; Rahmani 1986; Sankhala 1977), scientific execution of conservation breeding is possible (Collar 1983) along the lines of successful breeding programs of houbara bustard *Chlamydotis undulata* (Lawrence et al. 2008), great bustard Otis tarda (Great Bustard Group 2006-2007), and kori bustard Ardeotis kori (A.R. Rahmani pers. obs.). Since there is no captive population of Great Indian Bustard, extinction from wild implies total



CAPTIVE INDIVIDUALS OF ARABIAN BUSTARD (TOP RIGHT) AND **HOUBARA BUSTARD** (ASIDE) IN A **SCIENTIFICALLY EXECUTED CONSERVATION BREEDING PROGRAMS** (RIGHT) IN ARABIA





© Taej Mundkur

extinction. For the appropriateness and execution of conservation breeding of the species, a workshop involving national and international experts needs to be organized at the earliest that will formulate the breeding plan in a scientific & professional way, and decide the centre of location, technology, staff and infrastructure required. Technical and legal inputs of Central Zoo Authority in initiating the conservation breeding programme also needs to be considered.

PART II. HABITAT LEVEL RECOVERY

A. CORE AREAS PROTECTION PLAN

Existing Great Indian Bustard breeding areas have to be excluded from all kind of human disturbances excepting low intensity traditional agro-pastoralism, that too not during the breeding season. This includes restriction on infrastructural development and land-use diversion (ban on roads, high tension electric poles, intensive agriculture, wind turbines and construction). These areas must be actively protected during the breeding months by Forest Department staff. Carnivores like domestic dogs, fox and jackals are believed to be contributing to breeding failure. Since bustards are known to nest in specific spots over years, these high priority spots and relevant surroundings within the breeding areas have to be freed from the above problem species prior to breeding. This has to be done in coordination with municipal corporations and gram panchayats for removal of dogs, and translocation of problematic wildlife (such as fox, jackal) by competent Forest Department authority and field biologists. Alternative livelihoods have to be provided to traditional hunters in some areas (selected through research).

B. LANDSCAPE LEVEL CONSERVATION PLAN: INTEGRATING LIVELIHOODS WITH **CONSERVATION**

As mentioned before, the species requires a viable landscape level policy that incorporates local livelihood concerns. Hence, stakeholder analysis through interactions with priority stakeholders is required. Solutions obtained from such exercises can be implemented as pilot projects to validate their viability. For example, Little Bustard population has been dramatically revived within a few years following good





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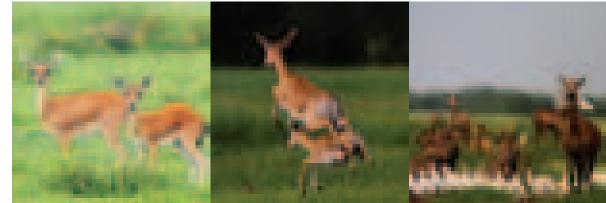
GREAT INDIAN BUSTARD
CONSERVATION IS
COMPATIBLE WITH
LOW-INTENSITY
LANDUSES LIKE SHORT
CROPLANDS
INTERSPERSED AMONG
GRASSLANDS (LEFT) AND
REGULATED LIVESTOCK
GRAZING (RIGHT)

practices like agro-environmental schemes (advocating private farmers for organic alfalfa cultivation in breeding areas) in France (Bretagnolle et al. 2011). Also, a profitable and equitable mechanism to share revenues generated from eco-tourism with local communities (Narain et al. 2005) may go a long way in harnessing support for bustard conservation. Communities have to be sensitized, in parallel, through popular literature on the importance of grassland and conservation of bustard in local languages. For the awareness and capacity building of Forest Department officials and NGOs, training manuals have to be published and workshops have to be arranged in different range States. This will facilitate the process of building a network between Forest Department, NGOs and communities for integrated bustard conservation. Such networks can operate through formal institutions like Bustard cell, so that illegal activities are reported and reduced through prosecution. Government should urgently consider the need of developing environmentally viable grazing and land tenure policy particularly for bustard landscapes. Since bustard conservation requires horizontal coordination between various Government departments, such an arrangement can be facilitated by a liaison advisory committee at the district level involving these department heads (for e.g., Chief Wildlife Warden, Forest Department and Collector, Revenue Department) for joint decisions on bustard habitat. Strict enforcement of legislation and accountability of concerned authority are essential at all managerial levels.

Management has to be linked with research-based evidence for more effective conservation, which might require legislative amendments. For e.g., instead of plantation of shrub/tree species in grasslands, CAMPA funds can be used for more rational management, such as increasing the size of protected core breeding habitats to develop contiguous disturbance-free bustard breeding areas, or habitat manipulations to suit ecological requirements of grassland species.

C. RESEARCH AND MONITORING

Existing and potential bustard breeding and non-breeding areas have to be clearly identified in each landscape. Such information can be obtained simultaneously from the population monitoring exercise (refer to section IIA). Once suitable habitats are identified, their status can be monitored over years to detect and address incipient changes to these habitats. Recommendation from existing studies (Dutta 2012; Rahmani 1989) should be used to manage habitat within such core areas. Knowledge of bustard's seasonal critical resource requirements and landscape scale ranging patterns must be investigated through biotelemetry research. Once limiting factors of a population are identified, managing those factors is likely to bring about faster revival of the species.



NATIVE UNGULATES LIKE CHINKARA, BLACKBUCK, AND NILGAI (LEFT TO RIGHT) SHARE HABITATS WITH BUSTARDS



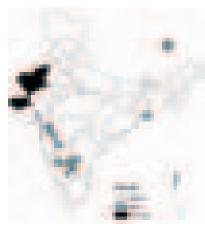


SPINY-TAILED LIZARD
FOUND IN ARID NW INDIA
IS HERBIVOROUS,
BURROW-DWELLING, AND
THREATENED BY HUMAN
CONSUMPTION AND
HABITAT MODIFICATION. IT
SHARES HABITAT WITH
GREAT INDIAN BUSTARD
(BELOW)

Actions	Center	State	List of Pot	List of Potential NGOs & Research organizations											
			Gujarat	Madhya Pradesh	Rajasthan	Maha- rashtra	Andhra Pradesh	Karnataka							
Preparation of Action Plan	MoEF	Forest Dept	WII BNHS WWF KERC GEER	WII BNHS WWF	WII BNHS WWF TWSI	WII BNHS WWF GIBF	WII BNHS WWF	WII BNHS WWF SACON							
Execution	MoEF	Forest Dept Revenue Dept Panchayat	WII BNHS KERC GEER GUIDE	WII BNHS WWF	WII BNHS WWF TWSI	WII BNHS WWF GIBF	WII BNHS WWF ASHRAM	WII BNHS WWF SWaN SACON							
Monitoring	MoEF	Forest Dept	WII	WII	WII	BNHS	BNHS	WII							
& Evalua- tion		Revenue Dept	BNHS WWF	FES BNHS WWF	TWSI BNHS WWF	WWF WII GIBF	WWF WII	BNHS WWF CES, SACON							



CONSERVATION
PRIORITY OF GREAT
INDIAN BUSTARD
LANDSCAPES BASED ON
POPULATION STATUS
AND POTENTIAL FOR
LONG-TERM VIABILITY



RECOVERY ACTIONS AND ADMINISTRATION

Based on the assessment of threats and review of conservation strategies, certain site-specific actions are recommended for the species recovery plan (Appendix II). State and local level Bustard Conservation Committees have to be formed to plan, discuss, execute, assess, and review these actions in the priority landscapes. These committees should be supervised by a national level committee involving competent authorities. Ideally, the recovery plan should be revisited once in a year to review the progress and effects of such planning.









2. SYNONYMS & LOCAL NAMES

The species name has following synonyms: *Eupodotis indica* (Sibley and Monroe 1990), *Sypheotides indica* (BirdLife International 2000; Collar 1993-94; Collar and Andrew 1988) and *Sypheotides indicus* (BirdLife International 2009). It has various local names, such as: Florikin (Rajasthan); Khar-Mor or Tilor (Gujarat); Likh, Khar-Teetar, Bhatt-Kukra or Bhatt-Titar (Madhya Pradesh), Chini-Mor or Kannoul (Karnataka); Niala-Nimli (Andhra Pradesh); Warragu-Kozhi (Tamil Nadu); Chatta-Kozhi (Kerala); Tan-Mor (Maharashtra); and Khar-Mur (meaning *grass peacock*), Chhota-Charat, Charaz, Barsati, Kala-Charaz, Tugdar or Trina-Mayur (Hindi). The Pardhi or Wagri tribe in Maharashtra refers to the male as *Khalchida* and the female as *Bhandewadi* (Kasambe 2007).



ADULT FEMALE (ASIDE) AND MALE (RIGHT) LESSER FLORICAN WITH NOTABLE PLUMAGE DIFFERENCES DURING BREEDING SEASON

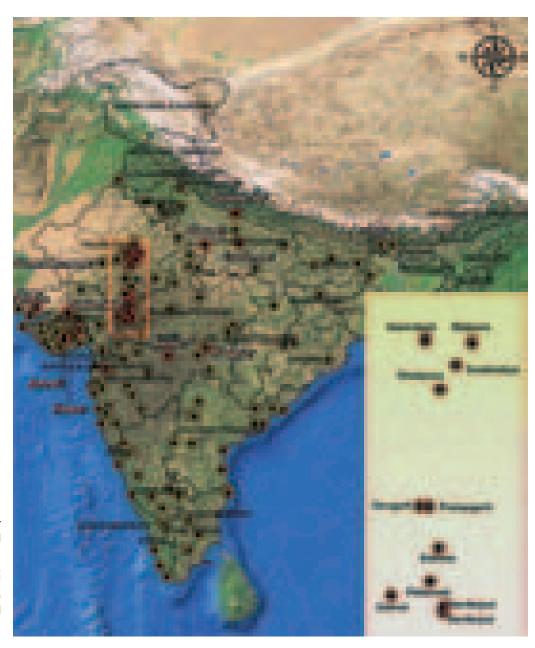
3. MORPHOLOGICAL FEATURES

The species exhibits slight reverse sexual dimorphism, wherein males (46cm) are smaller than females (51cm). Breeding male has contrasting black-and-white plumage with three narrow spatula-ended upcurved black plumes projecting behind from either side of head. Whilst the female is sandy buff and mottled, with two parallel dark stripes running down the center of throat and fore-neck, and blackish arrowhead marks on back. Non-breeding male is similar to female but with much white plumage on wing. The chick is uniformly dirty pale yellow with some black stripes on wing, back, sides, and around the ears, and an unclosed 'V' on the crown (BirdLife International 2012).

4. PAST AND PRESENT DISTRIBUTION

Lesser Florican is virtually endemic to India (BirdLife International 2001) and distributed in the lowland open plains. Historically, it occurred from Gujarat and Rajasthan in west to West Bengal and Orissa in east, and from Saharanpur (Uttar Pradesh) in north to Thiruyananthapuram (Kerala) in south (Baker 1922-1930; BirdLife International 2001; Sankaran 1995). It also occurred in terai region of Nepal, Pakistan and vagrantly in Bangladesh and Myanmar. It is resident in some places, but exhibits irregular movements between breeding and non-breeding seasons elsewhere (Ali and Ripley 1969). Such ranging patterns are poorly understood. The main breeding areas were probably in the districts of Nashik, Ahmednagar and Sholapur of Maharashtra, eastern Haryana and the Kathiawar Peninsula of Gujarat (Goriup and Karpowicz 1985). The current breeding distribution is restricted to: 1) Rajasthan, in the districts of Ajmer, Bhilwada, Tonk, Pali and Pratapgarh (Bharadwaj et al. 2011); 2) Gujarat, in the districts of Dahod, Bhavnagar, Amreli, Surendranagar and Kachchh (Bharadwaj et al. 2011); 3) Madhya Pradesh, in the districts of Ratlam (Sailana WLS), Dhar (Sardarpur WLS), Jhabua and Sheopur (Kuno WLS); 4) Maharashtra, in the districts of Yavatmal, Akola (Kasambe and Gahale 2010), Washim (Pandhripande and Patil pers. comm.), Nashik (Raha and Prakash 2001) and Kolhapur (Karkare pers. comm.); and 5) Andhra Pradesh, in the district of Kurnool (Rollapadu WLS and Banganpalli tehsil). Post-breeding, birds migrate to peninsular- (Dharmakumarsinhji 1950) and north-India (Sankaran pers. comm.). Their sightings became rare since the last few decades (Goriup and Karpowicz 1982). A recent survey in 91 grassland patches of NW India (Gujarat, Madhya Pradesh and Rajasthan) detected florican in 26% of sites during 2010 (Bharadwaj et al. 2011) as opposed to 41% sites in 1999 (Sankaran 2000).





PAST (YELLOW) AND PRESENT (RED) DISTRIBUTION OF LESSER FLORICAN IN INDIA (SOURCE: THREATENED BIRDS OF INDIA)

5. HABITAT

Lesser Florican breeds in rain-fed grasslands (0.02-30 km2 in area) with ample ground cover (>55% grass and herb cover), moderately tall grasses (~50 cm) like Sehima, Chrysopogon, Dicanthium and Cymbopogon spp., and scattered shrubs (<50/ha density) like Zizyphus and Acacia spp. (BirdLife International 2009; Sankaran 1997; Magrath et al. 1985). Use of croplands for breeding is not common, but has been recorded in soyabean (Glycine max) and groundnut (Arachis hypogea), and less frequently in sorghum (Sorghum vulgare), maize (Zea mays), sugarcane (Saccharum), rice (Oryza sativa), mustard (Brassica campestris), and wheat (Triticum vulgare) crops (Sankaran 2000), as well as grasslands within forest plantations. Hilly terrain, wetland, dense forest, and deserts are avoided. Moderately high grassland biomass, an indicator of low grazing pressure, and remoteness from human settlements (>2.6 km away) are additional important predictors of their occurrence (Dutta and Jhala 2012; Sankaran 1997; Magrath et al. 1985). Densities tend to be higher in extensive agriculture than intensive agriculture and dense scrub. In agro-grass mosaics birds tend to clump in the scattered grasslands (Dutta and Jhala 2012), and can breed even in small grassland patches (<1 ha) within agriculture. Dutta and Jhala (unpublished data) found that breeding male territories have more heterogeneous ground vegetation structure than the general habitat, possibly to accommodate diverse life-history needs (food, concealment and advertisement). Sankaran (1997) reported that in intensively grazed grasslands, species tends to be found

LESSER FLORICAN BREEDING HABITATS ARE MODERATELY TALL (30-40CM GRASS HEIGHT) GRASSLAND (ASIDE) AND SAVANNA (RIGHT)



more frequently in croplands. He also observed that in years of good rainfall when grasslands are covered with tall (>1.5m) grass, males shift to shorter vegetation, such as soyabean fields. During non-breeding season, the species sometimes uses lightly wooded areas, grasslands and *Zizyphus* dominated scrubland (Sankaran 2000).

6. BEHAVIOUR

The Lesser Florican is relatively solitary and less shy than other bustards. They forage in relatively open areas in early morning and evening, and retire into thicker cover during mid-day. Birds conceal themselves in ground vegetation by lying low, and flush only when the agent of disturbance is within a few meters. Once flushed, they fly a considerable distance running immediately upon alighting. Their flight is similar to other bustards, by rhythmic strokes of broad wings, neck outstretched and legs tucked under body, although their wing-beats are faster than other bustards.

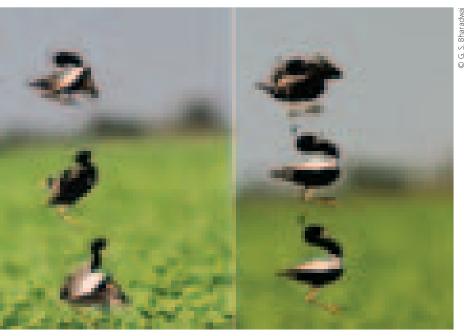
The species is omnivorous, feeding on insects such as grasshoppers, beetles (families *Cantharidae*, *Chrysomelidae*, *Buprestidae* and *Scarabidae*) ants and caterpillars, amphibians, and plant parts like seeds, herbs, fruits and plant shoots (Ali et al. 1986; Baker 1922-1930; BirdLife International 2001; Sankaran and Rahmani 1986). Birds commonly feed in short grasses and low crops. They typically walk 5-10 m before pausing and scanning for prey as well as threats, thereafter either dash at or snap up or creep-stalk prey items in the manner of an egret (Ali et al. 1986). On reaching their breeding grounds in lean condition, birds feed throughout the day; however with the advancement of season, males are observed to feed and display alternatively. Availability of insects is conjectured as an important factor in the reproductive success of female floricans.

Breeding behaviour of lesser florican has been extensively studied in the past (Dharmakumarsinhji 1950; Dharmakumarsinhji 1953; Goriup and Karpowicz 1985; Sankaran 1991a; Sankaran and

MUCH OF LESSER
FLORICAN HABITAT IS
NOW MODIFIED BY
AGRICULTURE, BREEDING
INDIVIDUALS ALSO USE
AGRO-GRASS MOSAIC
(ABOVE) AND
OCCASIONALLY
CROPLANDS (ASIDE)

Manakadan 1990; Sankaran and Rahmani 1986). The species exhibits an exploded lek mating system, where males establish territories of 2-3 ha size, spaced at 200-500 m from each other (Sankaran 1994). Sankaran (1994) reported an average of 4.7 territories per km², while a recent study (Dutta and Jhala 2012) estimated an average of 1.5 territories per km² in grasslands of Kachchh. Breeding coincide with the timing and intensity of South-West monsoon, beginning from May to August, and continuing till September. During this time, birds immigrate to breeding grounds, where males acquire breeding plumage and establish territories within the first few weeks (Sankaran 1994). They perform an aerial display from specific spots within the territory (Sankaran and Rahmani 1986), where they leap up to two meters in air from ground, rapidly beating their wings and paddling the legs, thereafter falling swiftly back to ground with their wings and legs tucked in. They also emit a frog-like rattle that can be heard from 300 to 400 m distance. Each male performs this display after every 50 seconds on an average (Ridley et al. 1985, Dutta and Jhala unpublished data) and up





LESSER FLORICAN BREEDING MALES
PERFORM AERIAL DISPLAY TO ATTRACT
FEMALE AND DETER RIVAL MALES. THE
COMPLETE SEQUENCE COMPRISES OF
ASCENT (LEFT) AND DESCENT (RIGHT)
WITH A CHARACTERISTIC RATTLE
SOUND



DURING EARLY WEEKS OF BREEDING SEASON LESSER FLORICAN MALES ENGAGE IN TERRITORIAL FIGHTS OVER DISPLAY ARENAS

to 500-600 times a day. Display rates are generally higher during the latter part of breeding season, early morning and cloudy/rainy weather. It serves the dual function of repelling rival males and advertising to adjacent females. Females visit male arenas exclusively for mating, and nest outside or at the periphery of their territories (Sankaran 1994), raising the offsprings alone.

Females prefer tall grass cover for nesting, and lay 4-5 eggs (49 x 41 mm² size and olive-brown, mottled, streaked and blotched shades) on bare ground (Gadhvi 2003; Sankaran 1994). She incubates these eggs for 21 days sitting cautiously still (and not moving away) to avoid detection. They remain highly vulnerable to predators and poachers during this time. The newly hatched precocious chicks stay with their mother for roughly over 15-30 days. Females and chicks stay in breeding grounds for at least a month longer than males. Breeding in cultivation is not frequent, but does occur in short crops like soyabean and groundnut, and less frequently in the taller ones like cotton, sorghum, maize and sugarcane (Sankaran 2000). Grasslands in southern India are possibly used for breeding only when conditions are unfavourable in the usual breeding range (Sankaran and Manakadan 1990). At the end of the breeding season around October/November, birds have been reported to return in the south-easterly and northern directions (Dharmakumarsinhji 1950, Sankaran pers. comm.).

Life-history information on lesser florican is extremely scanty, but one ringing recovery showed that their life span can exceed four years (Dharmakumarsinhji 1950). Their local movements are considered to be partial and opportunistic, with birds tending to concentrate in regions that have received good rainfall in the current year, and sporadically elsewhere. Dutta and Jhala (2012) report much lower breeding bird density in drought year (\sim 0.6 males/km2) than years with average rainfall (\sim 1.5 males/km2) in grasslands of Kachchh. Magrath *et al.* (1985) observed males returning to the same breeding sites every year for >20-30 years, and speculated that breeding site fidelity is strong. However, Dharmakumarsinhji's (1950) ringing records (involving 18 of 489 birds) revealed moderate levels of site-fidelity, as only 10 of these birds were recaptured in the ringing site while the remaining were found >50 km away.

7. STATUS AND TREND

Decline of Lesser Florican was reported to have begun around 1870s as fallout of massive hunting for sport. Since 1960-70s, the major cause of decline had shifted to habitat loss from land use changes and invasion of non-native woody shrub like *Prosopis juliflora*. The species' population dynamics probably depend on rainfall. Thus climate change, through the adverse effect of frequent droughts on breeding, can also exert unprecedented effects on birds (BirdLife International 2001). Their global population was estimated at approximately 4374 in 1982, 1672 birds in 1989, 2206 in 1994 and 3530 birds in 1999. Currently, less than 2500 individuals are estimated to be surviving (BNHS ENVIS 2008). The decline is predicted to increase in near future as pressure on remaining grasslands intensifies.

8. INTERNATIONAL AND NATIONAL OBLIGATIONS

Lesser Florican is listed under Schedule I of the Wildlife (Protection) Act (1972), the highest level of protection in India. It is declared as Endangered by IUCN (2011), Appendix II of the Convention on International Trade in Endangered Species (CITES), and the Convention on Migratory Species (CMS). India is a signatory to both CITES and CMS. Therefore, Lesser Florican has been identified as one of the species for Recovery Programme under the Centrally Sponsored Scheme-Integrated Development of Wildlife Habitats of Ministry of Environment and Forests, Government of India in 2009.

9. BIOTIC PRESSURE AND SOCIO-ECONOMIC PROFILE

Primary occupations of local communities in Lesser Florican habitats are cultivation and animal husbandry. Grassland habitats preferred by the species are severely threatened by land-use changes, while hunting has historically impoverished their populations. Following is an assessment of threats:

A. DIRECT THREATS

Hunting is one of the major threats to the species. Displaying males render themselves conspicuous and vulnerable, and have been extensively hunted for sport by the British and Indian royal families during the colonial period (late 19th to mid 20th centuries). Till now some traditional hunting communities such as the *Phasepardis* (Maharashtra) and *Wagris* (Gujarat) hunt them for livelihood sustenance (Kasambe and Gahale 2010), and supposed aphrodisiac properties. In many areas, birds nest in agricultural lands (Sankaran et al. 1992) that expose them to local people who occasionally consume their eggs. Such practices still prevail as much of florican habitats lie outside of Protected Areas where enforcement of legal protective measures is difficult.

B. HABITAT LOSS AND ALTERATION

More than 90% of grasslands in India, some of which are florican habitats, falls outside of the Protected Area network (Rodgers and Panwar 1988). These private, community and Revenue Department owned grasslands have suffered the most from habitat alterations throughout the species' range. Due to increasing local human demands, these areas, earlier treated as pastures and wastelands, are currently being developed.



1) Agriculture: In many areas (e.g., Abdasa, Aimer etc.), 40-80% of these grasslands have been encroached and converted to intensive agriculture (Dutta and Jhala 2012; Joshua 2011; Sankaran 1995) within the last 2-3 decades. Lesser florican can survive in agro-grass mosaics but not in entirely cultivated areas (Dutta and Jhala 2012). Conversion of traditional grazing pastures to illegal agriculture are also disturbing for the livelihoods of local pastoralists (Sankaran 1995). These birds are attuned to organic farming of food crops like groundnut, Soyabean, mustard, millets, maize and cereals, which act as pseudograsslands (Rahmani 2006; Sankaran et al. 1992). Better irrigation facilities and technology have led to changes in cropping pattern to high yielding cash crops like Bt-cotton, sugarcane and grapes, which stand much taller than the birds' limits of tolerance. Agricultural intensification has been associated with increased usage of



SOME COMMON BIRDS OF

THESE HABITATS ARE THE

RAIN QUAIL (PERVIOUS

PAGE: LEFT BOTTOM).

AND BLACK FRANCOLIN

(ASIDE)



pesticides, many of which are known to interfere with the physiological processes of farmland birds (Carson 1962) as well as reduce food supply. Lesser florican, which consumes insects and plant parts of such treated croplands, are likely to be in danger, although this possibility awaits scientific validation.

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2) Industries: Many areas have faced rapid economic growth in terms of mining, power plants, wind farms and industries. Mining, especially in the form of *open* cast, even while operating over small areas, may have a much wider zone of impact. Deposition of mining wastes creates visual obstruction to displaying birds, interfering with their breeding ecology. Such economic growth is associated with infrastructural development in the forms of road and electricity networks, which facilitates human access and spreads disturbances in adjoining areas.

3) Livestock grazing: Overgrazing by domestic livestock and ill-timed grass

burning (by accident, vandalism or management practice) have adversely changed the vegetation composition and productivity of many areas, while associated herders and dogs have caused additional disturbances, rendering these areas unsuitable. On the other hand, many habitats that have legal status do not enjoy effective protection and management measures. In some of these PAs, well-intentioned but florican-incompatible habitat management, such as plantation of shrub/tree species under compensatory afforestation scheme, and development of roads and water bodies (the latter attracting more livestock pressure) have adversely affected the species. Rapid spread of exotic *Prosopis juliflora* poses another serious threat, by rendering the habitat scrubby and unsuitable (Dutta and Jhala 2012; Sankaran 2000).

C. PAUCITY OF INFORMATION

Studies on Lesser Florican have mostly focused on their breeding behaviour (Dharmakumarsinhji 1950; Ridley et al. 1985; Sankaran 1991a, b; Sankaran 1994; Sankaran 1996; Sankaran and Manakadan 1990), and a few have estimated breeding population status and habitat use (Sankaran 1997 2000; Sankaran et al. 1992). These studies have laid the benchmark for conservation, but have limited coverage of the species' distribution that hinders our understanding of local contexts and birds' adaptations. Moreover, some crucial ecological aspects (see below) are ill-known that impedes effective management:

- 1) Their landscape use and seasonal movement patterns, particularly resource requirements outside of breeding season, are poorly understood which impedes prioritization of conservation areas.
- 2) Little is known about their life-history ecology, such as factors influencing survival, dispersal/migration and reproductive rates, particularly for females, which impedes effective conservation management.
- 3) As mentioned earlier, agricultural expansion and modernization have introduced pesticides, mechanized farming, and farmland dogs in florican habitats. They can adversely affect the survival and recruitment of birds, but without scientific validation it is difficult to confront these disruptive forces.
- 4) The existing population monitoring protocol is confounded with issues of imperfect bird detection, lack of quantification of survey efforts, and unsystematic sampling design, that complicates statistical inference and hinders our understanding of true population dynamics. Hence a more robust monitoring protocol needs to be implemented for timely conservation actions (Dutta and Jhala 2012; Sankaran 2000).
- 5) Lastly, there is dearth of popular literature and information manuals required to sensitize local communities and Forest Department staff about florican conservation.

D. POLICY AND GOVERNANCE ISSUES

1) Lack of coordination between implementing bodies: There is a lack of coordinated conservation efforts among florican states. Currently, each area follows its own management and monitoring plan regardless of other states.

Given the migratory nature of birds, a centrally planned conservation program is much required similar to Projects Tiger and Elephant (Rahmani 2006). Secondly, floricans are distributed over mixed ownership lands, under private, community and government sectors, which have conflicting interests. For example, the Forest Department intends to conserve natural habitats but the Revenue Department intends to maximize taxes from agricultural expansion. Under this arrangement, coordination between stakeholders

for the cause of conservation becomes difficult. Ambiguous land tenure system (unclear land rights, responsibilities and related issues) aggravates this problem (Rahmani 2006). Massive encroachment of revenue pasture lands has been reported from breeding areas in Kachchh, but due to the lack of interdepartmental coordination and delay in legal actions, these lands have not been reclaimed.

2) Policy pit-falls: Lack of awareness and appreciation of grassland ecology and economics has led to negligible protection and no conservation policy for this ecosystem.

Traditionally, grass-scrub have been considered as wasteland and the Forest Department policy, until recently, has been to convert them to forests with plantation of fuel/fodder shrub/tree species, even exotics like *Prosopis, Gliricidium*, and *Eucalyptus spp.*, under social forestry and compensatory afforestation schemes [Indian Forest Act 1927; Forest (Conservation) Act 1980] resulting in degradation of these habitats (Dutta et al. 2011). Secondly, with a livestock population of >540 million and still growing, our grasslands are under substantial biotic pressure from grazing. However, the country lacks a grazing policy (Rahmani 2006). Ironically in India, only livestock is considered as



resource, not the pastures they depend on. Most of these pastures are common property resources belonging to villages without well-defined ownership rights and responsibilities. Under such circumstances and widespread dissolution of informal (community) grazing institutions, pasture lands are likely to suffer from the tragedy of open access (Dutta 2012; Hardin 1968).

3) Need of participatory planning: There is a lack of participatory approach in florican conservation. Local communities have not been involved in the planning process, and their livelihood concerns have been undermined. Traditional land tenure systems, institutions and knowledge bases have sustainably managed many grasslands in the past. These are now disappearing due to

LESSER FLORICAN
PREFERS EXTENSIVE
AGRICULTURE BUT
INTENSIFICATION OF
FARMING PRACTICES LIKE
INORGANIC CROPPING
(TOP) AND OVERGRAZING
(ASIDE) ARE THE MAJOR
HABITAT THREATS

increasing population pressure, modernization, and changes in public policy and value system (Rahmani 2006). An integrated approach that recognizes and secures traditional grassland-dependent livelihoods is required. Not much interest has been shown on developing educational materials in local languages on grassland/florican, or conducting awareness programmes in schools, colleges, and civil societies. Such practices will garner support from local communities. In the current scenario, very few NGOs are working specifically for florican conservation. Those who are working do not receive adequate support from Government authorities, and suffer from lack of communication between each other. However, NGOs have the potential of gaining local support and facilitating problem solving processes between multiple sectors. Thus, it is important to strengthen the network of Forest Department, NGOs and communities for more effective and holistic florican conservation.

4) Need of conservation prioritization: In the light of growing human demands for land in florican habitats, it might not be possible to protect and conserve all areas. Thus it is important to prioritize conservation areas based on scientific criteria (species richness, florican distribution, tolerance of local communities etc.). However, no such planning exists; partly due to the paucity of ecological information (non-breeding areas are ill-known).



SECTION-II: PRESCRIPTION FOR RECOVERY OF SPECIES



THE RECOVERY PLAN AIMS AT RESCUING THE SPECIES FROM EXTINCTION THROUGH AN INTEGRATED APPROACH OF RESEARCH, PROTECTION TO BIRDS, HABITAT CONSERVATION, PUBLICITY AND COMMUNITY INVOLVEMENT.

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PART-I: SPECIES LEVEL RECOVERY ACTION

A. STUDY OF POPULATION ECOLOGY

Lesser florican population and space use dynamics probably depend on rainfall and landuse patterns that are sparsely known but have strong conservation implications. Satellite telemetry program has to be scientifically undertaken to understand seasonal movement patterns and life-history requirements of different habitats and regions. Improving the quality of information on population status of floricans is imperative for effective conservation. For this, centrally standardized population surveys have to be implemented at an early stage for baseline information, and then followed up regularly through the involvement of local NGOs and research organizations. The surveys will help prioritize florican conservation areas. Long-term scientific research will enable isolating crucial factors that can be managed for the species' recovery.

B. CONSERVATION BREEDING PROGRAMME

Ex-situ conservation efforts are not an absolute must at this stage. However, given the rate of habitat and population declines and the fact that there are no lesser florican in captivity, it may be prudent to initiate a conservation breeding program while the bird population size permits removal of eggs without much negative impacts on the overall population. Once a critical population size is reached like in the case of GIB, commencing conservation breeding will also have serious implications on wild population persistence. It may be cost-effective to have a single breeding center for both GIB and florican.

PART-II: HABITAT LEVEL RECOVERY

A. APPROPRIATE MANAGEMENT OF PROTECTED AREAS

These actions apply to the existing legally protected florican breeding areas (Pratapgarh in Rajasthan, Lala-Naliya WLS and Velavadar NP in Gujarat, Sailana and Sardarpur WLS in Madhya Pradesh, Rollapadu WLS in Andhra Pradesh etc.).

1)Herein, well-intended but ill-informed management practices need to be replaced by florican-friendly ones. Sufficient information now exist on their habitat relationships to develop such management plans (Dutta and Jhala 2012; Sankaran 1997). Birds prefer grasslands with moderately tall grass (<50cm) but sparse scrub cover. Thus, plantation of tree/shrub species has to be strictly avoided. Some originally grassland areas that have turned scrubby and unsuitable due to past plantations, need to be restored by eradicating shrub/tree/weed species. In some parks, grass plantations are undertaken during monsoon,

when birds need undisturbed areas to display and nest. Such practices may be carried out after monsoon.

2)Adequate ground staff force has to be appointed to provide protection to birds and habitat particularly during monsoon-the breeding season (July-September). These include complete restriction on consumptive uses of grasslands, such as livestock grazing and grass cutting during peak monsoon. Such practices may be allowed after monsoon in a regulated manner. These habitats and their adjoining areas (2-km radius) should be protected at all times from encroachment, degradation and development (intensive agriculture, industries and infrastructure).

B. COMMUNITY BASED CONSERVATION IN UNPROTECTED AREAS



LESSER FLORICAN
CONSERVATION IS
COMPATIBLE WITH LOWINTENSITY TRADITIONAL
LANDUSES. MALES
OFTEN DISPLAY FROM
CROPLAND EDGES AND
CAN PERSIST UNDER
LOW LEVELS OF
HARMLESS
ANTHROPOGENIC
ACTIVITIES PROVIDED
VEGETATION COVER IS
AMPLE

These actions apply to several lesser florican breeding grounds that are unprotected agro-grasslands facing high levels of human disturbances (Shokhaliya and Shahpura in Rajasthan, Rampara in Gujarat, Akola-Washim in Maharashtra etc.).

- 1) These government-private mixed ownership lands can be legally conserved as (a) Conservation Reserve, (b) Community Reserve, or (c) Ecologically Sensitive/Fragile Area [Section 31A of Wildlife (Protection) Amendment Act 2002 (2003); Section 5 of Environment (Protection) Act 1986] (Dutta et al. 2010, 2011). Such arrangement does not require acquisition of lands but allows flexible management interventions.
- 2) These areas can be managed as a mosaic of short croplands and grasslands, instead of unplanned total agricultural conversion. Pesticide-free cultivation of florican-friendly crops (soyabean, groundnut, millets, cereals) have to be promoted through state subsidy and other incentive driven mechanisms.
- 3) Other consumptive uses, such as livestock grazing and grass cutting can be minimized during peak monsoon to reduce their adverse effects on breeding birds and vegetation structure, but can be allowed afterwards (October onwards). This will provide more biomass to livestock during the lean period. Livestock can be stall fed during peak monsoon with subsidized fodder.
- 3) Florican survival is compatible with traditional livelihoods (pastoralism, low-intensity agriculture etc.) but activities requiring heavy infrastructure (intensive agriculture, industries, mining and power plants) have to be curtailed within these areas.
- 4) For all these, positive publicity campaigns have to be jointly organized by Forest Departments, local NGOs and research agencies. Local communities have to be convinced that a win-win situation is possible in case of florican conservation and local livelihood concerns.

C. POLICY AND GOVERNANCE

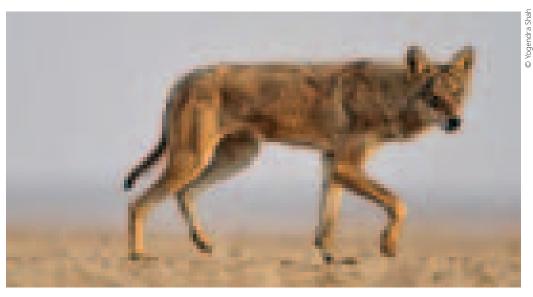
- 1) Since florican conservation requires coordinated efforts from various departments (Forest, Revenue etc.), such an arrangement can be facilitated by liaison advisory committee at the district level involving appropriately sensitized department authorities (for e.g., CWLW and Collector) for joint decisions on managing florican habitats. Strict enforcement of legislation and accountability of concerned authority are required at all managerial levels.
- 2) Government should urgently consider the need of developing environmentally viable grazing and land tenure policies particularly for florican areas. This includes scientifically determining local stocking rates (with the help of research agencies), implementing rotational grazing models and fodder development schemes, and a monitoring body to ensure such practices on ground.
- 3) Livelihood support to agro-pastoral communities adjoining priority florican areas (to be identified by research) will be helpful in reducing pressure on grasslands. Support for suitable income generating



activities has to be extended to beneficiaries (to be identified through stakeholder analysis) in lieu of their support to grassland conservation.

D. RESEARCH AND MONITORING

Long term targeted research needs to be conducted to supplement the species and habitat recovery programme. Centrally standardized population monitoring (that uses modern theory and techniques) has to be systematically executed at local levels all over the country, along the lines of the ongoing tiger monitoring exercise. Understanding vital rate parameters (such as survival, recruitment, dispersal and effective population size) and their environmental correlates unfolds the causes of species decline. Once these crucial environmental factors are identified, they can be managed for the long term survival of species. Such research will require biotelemetry (satellite and radio tagging) of several individuals, which



INDIAN WOLF IS AN ENDANGERED CANID ENDEMINC TO INDIA THAT SHARES MUCH OF ITS HABITATS WITH BUSTARDS AND WILL DIRECTLY BENEFIT FROM BUSTARD CONSERVATION PROGRAMME

will inform us about the seasonal movement patterns and connectivity/linkages between populations. A complete understanding of wintering areas and breeding space use dynamics is required to prioritize conservation areas. Such information can be obtained from the population surveys and biotelemetry research. Once suitable habitats are identified, their status can be monitored over years to detect and address incipient changes. Effective management of habitat can only be accomplished through detailed research on species-habitat relationships. Stakeholder analyses have to be conducted using PRA and RRA techniques to address local livelihood concerns in conservation planning.

PART III. INSTITUTIONAL FRAMEWORK PLAN OF OPERATIONS

Recovery Actions and administration

Based on the assessment of threats and review of conservation strategies, certain actions are recommended for the species recovery plan (Appendix II). State and local level joint Great Indian Bustard and Florican Conservation Committees have to be formed to plan, discuss, execute, assess, and review these actions. These committees should be supervised by a national level committee involving competent authorities. Ideally, the recovery plan should be revisited once in a year to review the progress and effects of such planning.





SOME COMMON CARNIVORES IN THESE HABITATS ARE THE JUNGLE CAT (ASIDE) AND GOLDEN JACKAL (RIGHT)

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SECTION I: SPECIES ACCOUNT



Taxonomy

Sibley and Ahlquist 1990

Kingdom: Phylum: Class: Animalia Chordata

Order:

Family: Genus:

Aves Gruiformes Otididae

Houbaropsis bengalensis

Species:

2. SYNONYMS & LOCAL NAMES

Bengal Florican was first described by Gmelin (1789) as *Otis bengalensis*. Blanford (1898) termed it *Sypheotis bengalensis*, while Baker (1929) termed it *Houbaropsis bengalensis*. Ali and Ripley (1969) and Sibley and Monroe (1990) termed it *Eupodotis bengalensis*, but BirdLife International (2001) and subsequent workers recognize it as *Houbaropsis bengalensis*. There are two subspecies: *Houbaropsis bengalensis bengalensis* found in the Indian subcontinent, and *H. b. blandini* (Delacour 1928) found in Cambodia and Vietnam. This document pertains only to the *H. b. bengalensis*, also known as *Charas*, *Charq* (Urdu, Hindi), *Ulu Moira* (Assamese) and *Dao Triling* (Bodo).



PLUMAGE DIFFERENCES BETWEEN MALE (ASIDE) AND FEMALE (RIGHT) BENGAL FLORICAN

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3. MORPHOLOGY

Bengal florican is a medium sized ground bird, about 60 cm tall. It shows distinct sexual dimorphism. The adult males have black head, neck, and body with white wings which is distinctly visible while flying. When standing the white wings appear as a thin patch on either side of body. The back is mottled with buff-brown. During the breeding season, males develop a thick bunch of feathers hanging under the breast. On the other hand, the female and immature male is dull brown and moulted on the back. Females are slightly larger than males but are more elusive and cryptic.

4. PAST AND PRESENT DISTRIBUTION

In the Indian subcontinent, Bengal Florican was historically distributed in Gangetic and Brahmaputra plains south of the Himalayas, from the Kumaon terai of Uttar Pradesh through Bihar, southern Nepal, northern West Bengal, to the foothills and plains of Assam and Arunachal Pradesh. Currently, it is found only in U.P., Assam and Arunachal Pradesh in India.

HABITAT

Bengal Florican occurs in undisturbed grassland patches of *terai* and Bramhaputra valley that extend along the southern edge of the Himalayas in India and Nepal. The region is composed of early successional riverine plant communities on alluvium deposited by changing water courses. The vegetation is a mix of tall, dense grass (e.g., *Imperata, Narenga, Saccharum, Setaria & Desmostachya*) and various herbs, scattered with early colonizing shrubs (*e.g., Blumea, Osbekia, Sonchus & Grewia*) and trees (*Bombax ceiba, Acacia catechu* and *Embelica officinalis*). In undisturbed areas, grasslands are maintained by prolonged inundation during the monsoon or by periodic burning. In disturbed areas, where regular burning, grazing, and/or grass harvesting occur, grasslands are replaced by fire-climax communities of reduced diversity. Because of its specialized association with productive grasslands, the species acts as an indicator of the health of grassland ecosystem (Narayan 1992). Quantitative data on habitat relationships are sparse for the *H. b. bengalensis*. However research on *H. b. blandini* has revealed sex-specific habitat preferences. The displaying males select areas of extensive burn and lower cover of tall grass and tall scrub with lowintensity human activity (Gray et al. 2007).





PAST (YELLOW) AND PRESENT (RED) DISTRIBUTION OF BENGAL FLORICAN IN INDIA (SOURCE: THREATENED BIRDS OF INDIA)

Females select unburned, uncultivated grasslands and mostly nest outside of the lekking area, implying that conserving only the lekking areas is insufficient (Gray et al. 2009a). This study revealed that non-breeding areas were within 20-40 km from breeding sites, in open dry forest with a mosaic of groundcover types including grassland, scrub and traditional low intensity crop-fields. The species shares habitat with birds like Swamp Francolin Francolinus gularis, Manipur Bush-quail Perdicula manipurensis, Slender-billed Babbler Turdoides longirostris, Jerdon's Babbler Chrysomma altirostre, Black-breasted Parrotbill Paradoxornis flavirostris, Hodgson's Bushchat Saxicola insignis, Grey-crowned Prinia Prinia cinereocapilla and Finn's Weaver Ploceus megarhynchus; and mammals like Greater Onehorned Rhinoceros Rhinoceros unicornis, Swamp Deer Rucervus duvaucelii, Hog Deer Hyelaphus porcinus, Hispid Hare Caprolagus hispidus, and Pygmy Hog Porcula salvania.

BENGAL FLORICAN
INHABITS TALL, MOIST
GRASSLANDS OF N. INDIA.
THEY REQUIRE A MIXTURE
OF SHORT (BURNED) AND
TALL (UNBURNED) GRASS
PATCHES TO BALANCE
CONCEALMENT AND
DISPLAY NEEDS.



6. BEHAVIOUR

Bengal Florican is largely cursorial but capable of sustained flight. They are omnivorous and feed on various seeds, grain, tender shoots of grass, and insects like grasshoppers, ants, beetles and even frogs. Females are more elusive and less detectable than males. The breeding season starts from February and lasts till early July. During this time adult males are territorial, although a few males remain non-territorial probably due to lack of suitable habitat (floaters). Several males have been observed in agonistic interactions through brief time during early breeding periods. Breeding females are normally solitary but occasionally found in pairs. Although short grasses like *Imperata cylindrical* and *Narenga porphyrocoma* favour foraging and displaying activities, males seek shelter in tall grass during the heat of the day and females spend much of their time in the tall grass (Narayan and Rosalind 1990b). Similar behaviour was noticed in Nepal (Peet 1997) and Cambodia (Davidson 2004). Females do not prepare proper nest, and typically lay 1-2 eggs after scratching the bare ground. Parental care is entirely provided by females.



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The elaborate display has been described by Sankaran (1991b) and Narayan (1992). It usually takes place in open areas of the territory. The male fluffs up feathers of the head, neck and breast, inflates the breast pouch, draws the head backwards and lowers the body by bending the legs partly. Thereafter it springs up diagonally forward at an angle of $\sim\!45^{\rm o}$ with a loud, rapid wing-flapping while ascending. On reaching a peak 4-5 m height the flapping stops, wings are opened displaying the white feathers against the contrasting black body, and the legs are suspended or paddled. Then it delivers a sharp whistle ('chip-chip') and glides down 1-2 meters on open wings with the pouch drooping under the breast and the head thrown back. Just 1-2 m above ground, it begins to flap its wings again and moves forward. The display flight covers 20-40 m ground stretch in 6-9 seconds and emits 4 to 7 calls in the air.

7. STATUS AND TREND

The current population of subsepecies $H.\ b.bengalensis$ is <350 birds. About 40 of them survive in Nepal (BirdLife International 2010) while birds have possibly gone extinct in Bangladesh. The remaining are found in 1) Uttar Pradesh, where ~70-80 birds are present in Dudhwa, North Pilibhit, Kishanpur, Katerniaghat, Lagga-Bagga and probably Sohagi-Barwa PAs; 2) Assam, where ~180-220 birds are present in Manas, Kaziranga, Orang, Dibru Saikhowa, Burachapori and Laokhowa PAs along with some river islands outside PA network in Tinsukia, Dibrugarh, Dhemaji, Lakhimpur and Sonitpur districts; 3) Arunachal Pradesh, where ~40-50 birds are present in D'Ering Memorial PA along with Lohit river islands and reserved grasslands in Dibang district. There is little doubt that the populations continue to decline everywhere. The global species population have probably declined from 3500 to less than 1000 from 1997 to 2007 (Gray et al. 2009b).





8 INTERNATIONAL AND NATIONAL OBLIGATIONS

Bengal Florican is Critically Endangered (IUCN 2011) and at the brink of extinction. Populations have declined as a result of habitat loss and hunting and the species no longer occurs outside Protected Areas in the Indian subcontinent (BirdLife International 2001). The species has been listed under Schedule I of the Indian Wildlife (Protection) Act 1972 and protected since Independence. It is also enlisted in the CMS Convention, and CITES Appendix I, to both of which, India is a signatory. Studies have shown that their conservation is compatible with low-intensity traditional human use of the landscape (Gray et al. 2007). Hence, the species has been identified for recovery programme under the Integrated Development of Wildlife Habitats (Centrally Sponsored Scheme) of the Ministry of Environment and Forests, Government of India, 2009.

9. BIOTIC PRESSURE AND SOCIO-ECONOMIC PROFILE

A. DIRECT THREATS

Human exploitation, especially in breeding season, is the major cause of species' decline throughout the range. Rampant sports hunting during the British rule (Pollok 1879) initiated the decline by 1920 (Inglis et al. 1920). Birds were easily shot and were "among the best of table-birds" (Baker 1922-1930). Even in the 1980s hunting persisted in many areas (Narayan and Rosalind 1990a) and several instances of birds being shot, snared or killed were reported from Assam and Arunachal Pradesh (Choudhury 1996a, b, 2000). The Sahabad-Sayedabad tea estates in

Darjeeling (West Bengal) supported a small population which recently went extinct in the hands of local people who openly admitted killing birds and robbing their nests (Narayan and Rosalind 1990b). Collection of eggs by people using grasslands for livelihood sustenance is common. In many areas nest destruction through trampling by livestock has greatly increased in recent years (Choudhury 1996b; Narayan 1992). While birds might adapt to breed in certain crop-fields, chances of nest destruction during the weeding and harvesting periods is very high (Ali et al. 1986). Accidental nest destruction also occurs due to human activities in the periphery of PAs, for e.g., collection of ripe *Grewia sapida* fruits in Uttar Pradesh.

B. HABITAT LOSS AND ALTERATION

Historically, terai grasslands were maintained by flooding and changing river courses and grazing by large wild herbivores. Alteration of river led to emergence of new areas that were colonized by grass and shrubs, whilst older grasslands and forests got eroded or submerged. Recently, terai rivers have been *tamed* by hydro-electric and irrigation projects, while wild herbivore populations have been dramatically reduced as human impact has increased radically. Newly emerging lands are being rapidly converted to agriculture preventing colonization by grasslands, and the highly arable alluvial grasslands are also being cultivated. In this way huge grassland areas have been lost to agriculture and plantations as well as alteration of flooding regimes by dam and irrigation schemes. For instances, Ramnagar Forest Division (Uttarakhand) was a typical terai habitat dominated by *Imperata cylindrica* and *Saccharum bengalense* dotted with isolated trees till the 1950s (Ali and Crook 1959), whereas most of this habitat and floricans had disappeared by 1985 (Ali et al. 1986). Small grasslands in Uttar Pradesh previously harbouring floricans

have been rapidly replaced by sugarcane plantations (Ali et al. 1986). Remote sensing indicates that <2% of alluvial grasslands remain intact, and are being maintained by either prolonged inundation of low-lying areas or by periodic burning in well-drained sites. Repeated burning, illegal or legal, adversely affect the floral composition of grasslands and survival of many fauna, especially the Bengal Florican. Many remaining grasslands are also subjected to high grazing pressure from domestic livestock and intensive harvesting by local communities (Bell and Oliver 1992; Bhargava 2000; Javed and Rahmani 1991). Such habitat loss and degradation has resulted in huge declines of florican population (Narayan and Rosalind 1990b) and contraction of its range particularly in Uttar Pradesh. All remaining grasslands within the species' range in South and South-East Asia face intense pressures which threaten their future (Peet et al. 1999; Rahmani 1988). Most of the extant grasslands are restricted to PAs (Bell and Oliver 1992, Peet 1997) but often their small expanse and isolation expose bird populations to high risks of local extinction. Moreover, political instability in many regions hampers long-term protection measures (Narayan 1992, 1995). Due to scanty information on non-breeding usage, PA coverage is certainly insufficient for these lifecycle needs (Narayan 1995).

Grasslands inside PAs are also at risk of encroachment in some areas. Grassland continues to be converted to rice and mustard fields in the Dibru-Saikhowa National Park, and new settlements are being established (Choudhury 1995, 1996b). Burachapori Wildlife Sanctuary is heavily encroached and cultivated by immigrant farmers. Although the habitat is otherwise ideal, the species has become rare since the 1980s (Narayan and Rosalind 1990b). Jaldapara Wildlife Sanctuary and Manas National Park have been degraded (Samant et al. 1995) by overgrazing of livestock, since law enforcement is hindered by adverse security situation (Rosalind 1989). Dudwa National Park was threatened by rising anti-tiger sentiments apparently stirred by local politicians trying to exploit the potential gains should the park area be reduced (Scott 1989). The Lagga Bagga Sanctuary contained good-quality grasslands but by promising land to encroachers local politicians have increased disturbances in this area (Rahmani and Qureshi 1991). Several other potential habitats in PAs (e.g. Laokhowa WLS, Assam and Katerniaghat WLS, Uttar Pradesh) are also facing similar high-intensity human landuses (Ali et al 1986). The Bengal Florican has disappeared from many such areas and is unlikely to reappear without drastic conservation actions. Grasslands in Dibru-Saikhowa, Pabitora and Kaziranga PAs are further threatened by unusually large floods of recent years, presumably from the greater run-off of denuded Brahmaputra catchment (Choudhury 1997) and hydel-power projects. Erosion caused by these floods has already reduced the extent of grassland in the reserve and particularly affected terrestrial birds (Narayan and Rosalind 1990a). Invasive species like Mimosa, Mikenia or Eupatorium, and colonizing shrubs like Lea, or trees like Bombax or Dilenia, have also contributed to habitat degradation.

C. PAUCITY OF INFORMATION

The species faces indirect harm due to our lack of knowledge on its ecology in current conservation contexts. (1) Florican's habitat relationships and seasonal ranging patterns are unknown. There is lack of centrally coordinated, scientific population estimation protocol. (2) Floricans have coevolved with ungulates, and depend on grazers to maintain suitable habitat structure. While regulated livestock grazing can be beneficial, over-grazing may lead to habitat homogeneity and resource depletion. The effects of various grazing regimes on florican are unknown but essential for developing florican-compatible stocking rates and grazing system. (3) Quantitative information on the impact of other grazers such as rhino, elephant and wild buffalo as well as human disturbances on florican's reproductive success has not been investigated. (4) Impact of use of fire as management tool in breeding season on birds are not known, but likely to be detrimental. (5) Although considerable portion of their diet is constituted of fruits, and insects, the impact of pesticides on them has not been examined. (6) Quantitative information on landuse change pattern and birds' responses to human disturbances are scanty. For effective conservation, such information should be generated through targeted long-term research. (7) There is a lack of information on florican in popular literature. The traditional knowledge arising out of the human-wildlife coexistence has not been documented.

D. POLICY AND GOVERNANCE ISSUES

Although PAs harbor majority of the florican population, they suffer from well-intentioned but ill-informed management practices and difficulties in law enforcement. These are due to the poor infrastructural facilities, lack of funding, and lack of trained personnel among the Forest Departments (Choudhury 1995). Management practices often fail to consider the ecological requirements of the species. Indiscriminate dry season burning once or twice every year by frontline staff, to promote fresh growth of grass and improve visibility, is the most prominent example of unscientific management. Research shows that habitat heterogeneity is crucial for the Bengal florican since males prefer open, burned areas and females prefer cover. To promote such habitat heterogeneity, regulated burning based on scientific information has to be practiced.



SECTION II: PRESCRIPTION FOR RECOVERY OF SPECIES

FLORICAN CONSERVATION HAS TO ACCOMMODATE LIVELIHOOD CONCERNS OF LOCAL COMMUNITIES



The recovery plan recommends the following conservation actions in Parts I A-B and II A-E:

- 1. Strengthen protection in PA network
- 2. Regulate livestock grazing and grass collection
- 3. Control repeated grass burning and practice timely rotational burning
- 4. Eradication of invasive species
- $5. \ \ Generate\ information\ on\ non-breeding\ habit at\ ,\ behaviour\ and\ other\ sparsely\ known\ biological\ traits\ of\ the\ species$
- 6. Increase the level of awareness among targeted stakeholders

PART I. SPECIES LEVEL RECOVERY

A. POPULATION ECOLOGY STUDY

Systematic, centrally organized status surveys have to be implemented to generate benchmark information. Satellite telemetry program has to be scientifically undertaken to understand seasonal movement patterns, life-history and habitat requirements. Migratory movements certainly occur in the Brahmaputra valley as much of the breeding habitat is seasonally flooded, but are not clearly known (Choudhury 2000).

B. CONSERVATION BREEDING PROGRAMME

Since there is no captive population of Bengal Florican, extinction from wild means total extinction. Conservation breeding of this species may be possible along the lines of successful breeding programs of other bustard species. For the appropriate execution of conservation breeding, a workshop involving national and international experts has to be organized. It is the right time to secure a genetically representative captive population as an insurance against extinction. Waiting for further declines in the wild will make collection of birds/eggs for conservation breeding hazardous to the remnant populations.

PART II. HABITAT LEVEL RECOVERY

Proper management of terai grasslands has to be a compromise that benefits Bengal Florican and associated threatened fauna but also addresses local livelihood. To facilitate this, clear-cut grassland management policy has to be institutionalized (Rahmani and Qureshi 1991). The most important methods should be rotational grazing, controlled burning, regulation of stocking rate, and protection of grassland plots to conserve seed banks. Moreover, conservation requirements of species should be viewed in combination with the needs of other threatened fauna, hence sites with broad spectrum of associated species have to be prioritized, and habitats should be managed to benefit other species as well.

A. STRENGTHENING PROTECTION OF PA NETWORK TO PREVENT HUMAN INDUCED BIRD MORTALITY

Florican PAs have to be excluded from all forms of consumptive human uses during breeding season but low intensity traditional agro-pastoralism can be allowed outside of breeding season. Infrastructural

REGULAR PATROLLING
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CAN REDUCE HUNTING,
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HABITAT WHICH WILL
BENEFIT OTHER SPECIES
AS WELL



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development (roads and electricity networks) and unfriendly land-uses (intensive agriculture, power generation and construction) have to be curtailed within 2km radius of florican PAs as they increase chances of fatal bird accidents. Grazing should be curtailed during breeding season to reduce risks of nest trampling. To enforce protection measures, Forest Department personnel have to be employed and appropriately trained. Alternative livelihoods have to be provided to traditional hunters in some areas.

B. HABITAT MANAGEMENT BY INTEGRATING LIVELIHOODS WITH CONSERVATION REQUIREMENTS

Management of grasslands has tended to concentrate on large threatened mammals such as tiger and rhinoceros (Baral 2000). Instead habitat management plans should be formulated that seek to maintain the existing biodiversity in PAs (Peet et al. 1999). Structural heterogeneity is a crucial prerequisite for that. Earlier, dynamics of flood used to maintain habitat mosaics and different successional stages of short and tall grasslands and woodlands in the North Indian alluvial plains. Now, due to reduced floods by taming terai rivers through hydro-electric and irrigation projects as well as limited habitat available only in PAs, successive habitat management to maintain these seral stages becomes crucial for Bengal Florican and other grassland specialist species. Hence areas of short, open grassland used by florican (which are currently succeeding to tall grassland) have to be preserved side by side tall, closed grasslands. Such mosaic will accommodate sex-specific habitat requirements of florican and varying habitat requirements of associated species. This can be achieved by rotational grazing, controlled burning and harvesting. Research has shown that these practices can increase herbage production and thus the carrying capacity of grasslands while allowing grassland birds to breed. This provides a partial remedy to the fundamental problem of India's rapidly increasing per capita livestock population (Narayan 1992). These clearance regimes should be completed prior to the onset of breeding season (Narayan and Rosalind 1990a). However, current cutting and burning regimes do not appear to halt succession from short to tall grassland in Royal Chitwan National Park but such practices seem to be effective in India (Narayan and Rosalind 1990a). More research is required to inform this aspect.

WELL-INTENDED BUT ILLINFORMED MANAGEMENT
PRACTICES LIKE
UNREGULATED OR
FREQUENT BURNING OF
GRASSLAND OFTEN
DURING BREEDING
SEASON CONTINUES TO
THREATEN BENGAL
FLORICAN.

Thus, the currently practiced annual dry season burning of grass between February and May should be stopped and grasslands should be protected against intruders starting a fire. Burning for habitat management should be done in rotational blocks, where adjacent blocks should be burnt only once in two years and only in the months of December and January. Ploughing is counterproductive and should be avoided (Baral 2000). Invasion of species like *Eupatorium*, *Mimosa* and *Mikenia* have caused ecological degradation in many florican Pas and should be eradicated through habitat restoration programs.









C. RATIONALIZING BOUNDARIES AND MANAGEMENT OF PAS

In North-east India, Dibang, Kerim and (proposed) Sirkee Reserve Forests (area of 202 km2) should be



declared as National Park following earlier propositions (Choudhury 1996b). The D'Ering Memorial WLS should be extended to include grasslands between Sibia and Sesseri rivers. Garampi WLS should be extended to include the entire Nambor Reserve Forest. Lagga Bagga in UP (India) is contiguous with Sukla Phanta WLS in Nepal and would be better protected through a cooperative agreement between the two countries. In the Amarpur section of Dibru-Saikhowa, the species is mostly confined to relatively undisturbed fenced portions of grassland used for research by the Soil Conservation Department. This area should be designated as a satellite core area with no human disturbance. Similar fenced areas enclosing 1-2 km2 of grassland should be established in habitat such as Sibia chapori, Miri chapori and Bhim chapori (Sadiya district) to favour florican usage (Choudhury 1996b) . Boundaries of many forest villages have extended beyond their legal limits encroaching PAs (Laika

THE NEAR THREATENED **GREY-HEADED FISH EAGLE** SHARES HABITAT WITH BENGAL FLORICAN

> and Dadhia in Dibru-Saikhowa WLS, Lakhipathar, Choraipung, Borjan and Dimoruhola in Upper Dihing West Block Reserve Forest, and Kherjan, Bhimporapathar and Dhekiajan in Upper Dihing East Block Reserve Forest) and should be rationalized. A strict policy disallowing the establishment of new settlements should be enforced in all PAs.

D. AWARENESS AND EDUCATION

Local people in the periphery of PAs should be sensitized about Bengal Florican conservation. Capacity building of Forest Department staff and NGOs in florican range States through manuals and workshops are required. These bodies should be encouraged to form conservation network that can operate through formal institutions like Florican Cell so that illegal activities are promptly reported and reduced.

E. RESEARCH AND MONITORING

- 1) Baseline information on population and habitat status have to be generated through a standardized, systematic, range-wide monitoring program that uses modern theory and techniques. This exercise will identify existing and potential breeding and non-breeding areas whose status can be monitored over years to confront incipient, adverse changes.
- 2) Satellite and radio tagging of several individuals is required to understand vital rates (survival, recruitment, dispersal and effective population size) and their environmental correlates, seasonal habitat use, ranging patterns, critical (limiting) resources and carrying capacity of landscapes. Such knowledge will aid in manipulation of environmental elements so as to benefit the species' persistence.

PART III. INSTITUTIONAL FRAMEWORK PLAN OF OPERATIONS

IMPLEMENTATION, ADMINISTRATION AND MONITORING OF PROJECT

Conservation Action Plan for Bengal Florican requires participation of various stakeholders. As implementation progresses and new facts come into light, this plan has to be adapted. A detailed annual plan of operation and financial requirements has to be developed for each florican site by the Forest Department in consultation with researchers and Non-Government Organizations. State and local level Bengal Florican Conservation Committees have to be formed to plan, discuss, execute and review the recommended actions. These committees should be supervised by a national level committee involving competent authorities that will monitor the progress of this program once in a year.

RECOVERY ADMINISTRATION

N.B. THIS LIST IS OF POTENTIAL MEMBERS. **EVALUATION OF THE** PROGRAMME WILL BE CARRIED OUT BY THIRD PARTY WHOSE PARTICIPATION WILL BE DECIDED BY THE MOEF.

Action	Central authority	State authority	N. India (U.P. & Bihar)	NE India (W.B., Assam & Arunachal Pradesh)
Preparation of Action Plan	MoEF	State Forest & Revenue Depts & Panchayat	BNHS, WII, WTI, WWF,	EcoSystems-India, Aaranyak
Execution			French Institute	
Monitoring & Evaluation	Monitoring Committee			

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WHO ATTENDED
'CONSULTATIVE
WORKSHOP TO DEVELOP

GUIDELINES FOR THE SPECIES RECOVERY PROGRAMMES FOR THREE RESIDENT SPECIES OF BUSTARD AND FLORICANS IN INDIA' ORGANIZED BY

MINISTRY OF ENVIRONMENT AND FORESTS, GOVERNMENT OF INDIA, WWF-INDIA AND BNHS AT WWF-INDIA AUDITORIUM, NEW DELHI ON NOVEMBER 1ST AND 2ND 2011

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APPENDIX II

GREAT INDIAN BUSTARD

IN CONTINUATION WITH THE ABOVE GENERIC ACTIONS, THE SITE **SPECIFIC RECOMMENDATIONS FOR CONSERVATION ACTIONS** ARE AS FOLLOWS:

Supplements		During these breeding months grazing or any other form of consumptive human use should not be permitted within the breeding refuge. Outside of the breeding period the area can be moderately grazed by livestock	No Prosopis or other woody trees plantation. Promote pesticide-free low intensity farming in irrigated (IGNP) areas through State subsidy driven mechanisms or award schemes to those following them.	GIB-unfriendly development (road and electricity networks irrigation petroleum excavation and constructions) increase mortality and disturbance to GIB. Curtailing them in prime GIB areas would be legally easy since the area is already a PA.
Priority	High	Very high	High	Medium
Implementation	State F. D.	State F. D.	State F.D. & Research organizations	State F.D. & NGOs
Estimated funds (lakh)	575	6/yr	100	50
Requirements	Fencing repair of 25 lakhs and new fencing of 50km X 11 lakhs/km	Employ 30 watchers @ 5000/month X 4 months	Site specifc scientifically informed management strategies need to be implemented	Replace electricity network by underground cables.
	Consolidate existing enclosures and create at least 5 additional enclosures each >20 sqkm in GIB areas (identifed by reasearch)	Make enclosures inviolate between April- July	Draft and implement enclosure and landscape management plan incorporating community livelihood concerns	No new GIB-unfriendly development and no high tension power lines should be allowed in the minimal infrastructure zone.
Action	Protection to areas intensively used by GIB by creating inviolate spaces during breeding season		Landscapes outside breeding areas (identified by research) should be managed to accommodate differential breeding and non-breeding habitat needs of GIB.	Declare 5km radius around enclosures as "minimal infrastructure zone" where GIB unfriendly infrastructure has to be curtailed.
Site		Daisethan	(Jaiselmer Barmer Bikaner)	

Supplements	Currently Govt. lands are being encroached and developed illegally which is a major threat to GIB habitat		During these breeding months grazing or any other form of consumptive human use should not be permitted within the breeding refuge. Outside of the breeding period the area can be moderately grazed by livestock	To enhance the survival rates of eggs and chicks	Development of water bodies roads trenches and plantations without ecological basis have resulted in loss of GIB habitats within PAs.
Priority	Very high	High	Very	High	High
Implementation	State Govt.	State F. D.	State F. D.	State F.D. & Vet. Dept.	State F.D. & Research organizations
Estimated funds (lakh)	None since the land would be transferred between Govt. depart- ments	280	3/yr	_	cy.
Requirements	Lands from villages of Gadvada, Rava, Berachia, Bitta, Dufi, Kunathia, Kalatalao, Bhachunda, Khirsra, Bhanara, Prajau, Vagapadar, Vingaber, Jasapar, Lala, Budiya of Abdasa	~25 km length chain link @ 11 lakhs/ km and 4 km fence repairing	Employ 10 watchers @ 5000/month X 4 months and their fuel costs	Capture and remove or eliminate	Site specific scientifically informed management strategies need to be implemented
Task	Acquire all Govt. owned revenue and Gauchar lands that constitute breeding areas of GIB within PA network	Chain-link-fencing of entire breeding area within Govt. PA to form "breeding refuge"	Make breeding refuge inviolate during April July-Sept	Predator (dogs and cats) removal in breeding refuge during April July- Sept	Draft and implement breeding refuge and landscape management plan
Action	Protection to known breeding areas by creating sacrosanct refuges made inviolate during breeding months				Landscapes outside core breeding areas (identified by research) should also be conserved to accomodate the different breeding and nonbreeding habitat needs of GIB.
Site		Gujarat (Abdasa Kachchh)			



Supplements	GIB-unfriendly development increase mortality and disturbance to GIB. These need to be controlled or appropriately mitigated within refuge and curtailed within the landscape of intensive use outside of the breeding season. This could be achieved by declaring the area as Ecosensitive Zone.	GIB-friendly livelihood practices include 1) growing short food crops (groundnut Sesame Sorghum millets etc.) 2) farming once annually and leaving agricultural felds fallow for the rest of the year; 3) pesticide free farming 4) allowing GIB to display and nest in private felds 4) instead of herding livestock in peak monsoon stall-feeding them on fodder supplements.	Currently Govt. lands are being developed which is a major threat to GIB habitat	
Priority	High	Medium	Very high	High
Implementation	State F.D. & Research organizations	State Govt. & NGOs	State Govt.	State F. D.
Estimated funds (lakh)	50	75	None since the land would be transferred between Govt.	800
Requirements	No new GIB- unfriendly development should be allowed. Replace electricity network by solar power or underground cables	Implementation within 5 km radius of breeding refuges	Potential sites are Mardi, Karmala, Kamon, Chapadgaon, Sawargaon, Boremani- Gangewadi, Patkul etc.	~80 km length chain link @ 11 lakhs/km
Task	No high tension power lines and major highways within 2 km radius of breeding refuge. No wind turbines and intensive irrigated pesticide use agriculture within 5km radius of breeding refuge.	GIB-friendly practices have to be promoted by State subsidy driven mechanisms or award schemes to those following them.	Consolidate existing cores and create 5-10 additional cores each 5-10 sqkm to form "breeding enclosures"	Chain-link-fencing of entire breeding enclosures
Action	Declare crucial areas (2-5 km) around breeding refuge as "minimal infrastructure zone" where GIB-unfriendly infrastructure has to be minimized.	Link local livelihood concerns with bustard conservation by providing Environmental Incentive Schemes for continuing GIB—friendly traditional practices.	Protection to intensively used areas by GIB (identified by reasearch) by creating sacrosanct breeding refuges made inviolate during breeding months	
Site			Maharashtra (Sholapur Ahmednagar Nasik)	

Supplements	During breeding months grazing or any other form of consumptive human use should not be permitted within the breeding enclosures. Outside of the breeding period the area can be moderately grazed by livestock	To enhance the survival rates of eggs and chicks	No plantation without ecological basis. Selective placement of water guzzlers but no large water bodies. Control of livestock number within 2 km radius of enclosures and regulate grazing.	Mitigating GIB-unfriendly development in and around breeding enclosures should be legally possible since the area is already declared as PA.	GIB-friendly livelihood practices include 1) growing short food crops (groundnut Sesame Sorghum millets etc.) 2) farming once annually and leaving agricultural felds fallow for the rest of the year; 3) pesticide free farming 4) allowing GIB to display and nest in private felds 4) instead of herding livestock in peak monsoon stall-feeding them on fodder supplements.
Priority	Very high	High	High	High	Medium
Implementation	State F. D.	State F.D. & Vet. Dept.	State F.D. & Research organizations	State Govt.	State Govt. & NGOs
Estimated funds (lakh)	10/yr	-	25	50	20
Requirements	Employ 30 watchers @ 5000/month X 5 months and fuel costs	Capture and remove or eliminate	Scientifcally informed management strategies need to be grassland habtiats.	Replace electricity network by underground cables.	Target areas for awareness and Environmental Incentive Schemes within 5 km radius of breeding enclosures
Таsk	Make core PA inviolate during March-April August- October	Predator (dogs and cats) removal in breeding refuges during March-April August- October	Draft and implement core usage and landscape management plan for 5 km radius around breeding enclosures implemented for restoration and maintenance of	No new GIB-unfriendly development should be allowed here. No high tension power lines major highways irrigation projects construction mining and industries should be allowed here.	GIB-friendly practices have to be promoted by State subsidy driven mechanisms or award schemes to those following them. 2. Awareness programmes have to be conducted and publicity manuals for GIB & grassland conservation have to be produced.
Action			Landscapes outside core areas should also be conserved to accomodate the different breeding and non-breeding habitat needs of GIB.	Declare crucial areas within 3 km radius around breeding enclosures as "minimal infrastructure zone" where GIB-unfriendly infrastructure has to be minimized.	Gain popularity for GIB conservation through awareness programmes and by addressing local livelihood concerns through Environmental Incentive Schemes.
Site					



Supplements	Rollapadu has historically been one of the most preferred breeding areas of GIB. Although Rollapadu is well protected adjoining areas have been developed and intensively cultivated in recent times. The few remnant grasslands should be immediately consolidated and restored		During these breeding months grazing should not be permitted within breeding refuge. Complete restriction on GIB egg collection which has been reported occassionally. Outside of the breeding period the area can be moderately grazed by livestock	To enhance the survival rates of eggs and chicks	Restoration of grasslands which are overgrazed or cultivated. No plantation without ecological basis. Regulated grazing (particularly sheep). Selective placement of water guzzlers but no large water bodies. Control of blackbuck population so as to reduce crop damage.
Priority	Very high	Medium	Very high	High	High
Implementation	State Govt.	State F.D.	State F. D.	State F.D. & Vet. Dept.	State F.D. & Research organizations
Estimated funds (lakh)	None since the land would be transferred between Govt. departments	550	3.2/yr	~	م
Requirements	Potential sites for enclosures are Alaganur -Parumanchala Jalakanur-Sunkesula- Gani and Vipangandla- Byrapuram areas	Fencing of 50km X 11 lakhs/km	Employ 12 watchers @ 5000/month X 4 months and fuel costs	Capture and remove or eliminate	Scientifically informed management strategies for 1. Restoration of habitats. 2. No new development projects.
rask	Acquire Govt. owned revenue lands that are intensively used by GIB. Create minimum 3 more core areas of 5-10 sqkm in these areas	Chain-link-fencing over all existing core areas other than Rollapadu to secure breeding refuges	Make breeding refuges inviolate during July- October	Predator (dogs and cats) removal in breeding refuge during July- October	Draft and implement breeding refuge landscape management plan for 5 km radius around breeding refuges
Action	Protection to known intensively used areas by GIB by creating sacrosanct refuges made inviolate during breeding months				Landscapes outside core areas should also be conserved to accommodate the different breeding and non-breeding habitat needs of GIB.
Site		Andhra Pradesh (Kurnool)			

Supplements	GIB-friendly livelihood practices include 1) growing short food crops 2) farming once annually and leaving agricultural felds fallow for the rest of the year; 3) pesticide free farming 4) allowing GIB to display and nest in private felds 4) instead of herding livestock in peak monsoon stall-feeding them on fodder supplements.	Without protection of a fence this area is unlikely to continue supporting bustards for any longterm due to intensive human pressures	Consumptive use of grassland resources should be curtailed during 3 breeding months of GIB (July-Aug). Livestock grazing should be regulated in the non- breeding months.		Control number of livestock in villages within 2 km of core area
Priority	High	High	Very High	Medium	High
Implementation	State Govt. & NGOs	State Govt.	State F. D.	State Govt.	State F.D. & Research organizations
Estimated funds (lakh)	50	650	23/yr		7
Requirements	Target areas for awareness and Environmental Incentive Schemes within 5 km radius of breeding refuges	Chain-link-fencing of ~150 sqkm potential GIB habitat roughly bordered by Tighara reservoir to the north and Dhoha village to the south	Employ 30 watchers @ 5000/month X 12 months and fuel costs	No new development (electricity and road network constructions industries and mining) projects should be allowed within 2 km of the core area	Scientifc management plan for habitat restoration (no plantations especially of Prosopis julifora used as hedge to other plantations.)
नेडर	1. GIB-friendly practices have to be promoted by State subsidy driven mechanisms or award schemes to those following them. 2. Awareness programmes have to be conducted and have to be conducted and publicity manuals for GIB & grassland conservation have to be produced.	Create a core area enclosure in the potential GIB habitat within Ghatigaon Sanctuary (the entire Sanctuary is not critical bustard habitat but the identifed area is crucial for breeding).	Reduction of human presure within the core area		Restoration of habitat in the core area
Action	Gain popularity for GIB conservation through awareness programmes and by addressing local livelihood concerns through Environmental Incentive Schemes.	Consolidation of relatively small potential GIB habitat within the existing PA			
Site			Madhya Pradesh	(Gwallor)	







LESSER FLORICAN

Supplements	Florican-friendly practices include regulated grazing and farming practices. Livestock should be stall fed during two monsoon months (forican breeding time) to reduce disturbance and allow grass regeneration for cover. This will also provide fodder in lean period. Grassland patches > 1 ha should be left intact between crop felds, and organic (pesticide free) farming should be promoted			State Govt. owned lands are increasingly been encroached by cultivators, and need to be conserved for fori-	cans During these breeding months, grazing or other form of consumptive human use should not be permitted within breeding refuge. Outside of the breeding period the area can be moderately grazed by livestock	Floricans avoid tall vegetation that impedes visibility, and Prosopis is an invasive that competitively excludes native species. Dogs and cats are potential threats to nesting females & juvenile survival
Priority	High			Very High		High
Implementation	State F. D. & NGOs			State F. D.		State FD & trained biologists/ veterinary service
Estimated funds (lakh)				240	4.5/yr	
Requirements	Dialogue with owners of private grasslands in these areas	Promote incentive driven forican-friendly grassland man-agement	Infrastructure intensive development (mining, road, electricity & irrigation) should not be allowed here	22 km chain-link-fencing X 11 lakh/km, and repairing existing enclosures in Saunkhaliya	Deployment of 18 watchers (3 per enclosure) X 5000 Rs/month for 4 months for 5 years	Physically remove plantations, capture and eliminate dogs and cats during July- September
Pask	Declare forican sites in and around Pratapgath and Shahpura as Community/ Conservation Reserves.	<u> </u>			in the PA network. Make >5 enclosures of total 30 km2 in these grasslands, which should be made inviolate during July-September	Eradicate tall invasive shrub/tree species (e.g. Prosopis julifora), dogs and cats from all forican sites
Action	Conservation of key habitats. 18 grassland sites have been cleentified by WII, 2011 as critical habitat for			Dicai		
Site		Rajasthan	(Ajmer, Malpura, Shahpura, Devgarh,	r atapgair)		

Supplements	Florican friendly practices are stall feeding livestock during two monsoon months to reduce disturbance and allow grass regeneration for cover. It also includes organic (pesticide free) farming in irrigated areas		Migratory and population dynamics of lesser forican are poorly known without which formulation of conservation strategies becomes diffcult	Florican-friendly practices include regulated grazing and farming practices. Livestock should be stall fed during two monsoon months (forican breeding time) to reduce disturbance and allow grass regeneration for cover. This will also provide fodder in lean period. Grassland patches > 1ha	should be left intact between crop felds, and organic (pesticide free) farming should be promoted
Priority	High	Medium	High	High	
Implementation	State FD & NGOs	State FD & NGOs	State F.D & WII	State FD & NGOs	
Estimated funds (lakh)			46		
Requirements	1.No plantation of tall shrub/tree species 2. Leave intact grasslands (>1ha size) between crop felds 3. Promote subsidy/incentive driven forican-friendly livelihood practices 4. Curtall infrastructure intensive development (mining, road, electricity & irrigation) near breeding habitat.	Disseminate information on ecological & conservation values of forican and their habitats through publication of manuals and workshops	Appoint a biologist @ Rs 15000 /month for 3 years with Rs 40 lakh project implementation cost	Dialogue with owners of private grasslands in the State	Promote incentive driven forican- friendly grassland management
ask Ase	Develop and implement management plan for all forican sites that ad - dresses species' habitat requirements	Educational programme for forest staff and local communities	Alternate year monitoring of forican populations and their habitat. Migratory pattern needs to be studied through satellite tracking technique	Declare forican sites in Gondal, Amreli & around Velavadar as Community/ Conservation Reserves.	
Action		Education and awareness	Research and Monitoring	Conservation of fori- can habitats identified by WII 2007-11 In Abdasa – Kunathia, Kalatalao, Naliya-La- la, Vanku, Sandhan, Latheri, Dediya Layaja	
Site				Gujarat (Velavadar, Abdasa, Rampar, Gondal, Amreli)	



Supplements	State Govt. owned lands are increasingly been encroached by cultivators, and need to be conserved for foricans During these breeding months, grazing or other form of consumptive human use should not be permitted within breeding refuge. Outside of the breeding period the area can be moderately grazed by livestock		Bustards & foricans avoid tall vegetation that impedes visibility, and Prosopis is an invasive that competitively excludes native species. Dogs and cats are potential threats to nesting females & juvenile survival	Florican friendly practices are stall feeding livestock during two monsoon months to reduce disturbance and allow grass regeneration for cover. It also includes organic (pesticide free) farming in irrigated areas.	
Priority	Very High		High	Very High	Medium
Implementation	State FD		State FD & trained biologists/ veterinary service	State FD & NGOs	State FD & NGOs
Estimated funds (lakh)	313	3.6/yr			
Requirements	28 km chain-link-fencing of enclosures X 11 lakh Rs/km and repairing of existing enclosures in Lala	Deployment of 18 watchers (3 per enclosure) X 5000 Rs/month for 4 months for 5 years	Physically remove plantations; capture and eliminate dogs and cats during July-September	1. No plantation of tall shrub/tree species 2. Leave intact grasslands (>1ha size) between crop felds 3. Promote subsidy/incentive driven forican friendly practices 4. No infrastructure intensive development (road, electricity, mining, industry)	Disseminate information on ecological & conservation values of forican and their habitats through publication of manuals and workshops
Task	Acquire State Govt. owned forican sites in Abdasa & Rampar grasslands within the PA network. Make >5 enclosures of total 50 km2 here, which should be made inviolate dur- ing July-September		Eradicate tall invasive shrub/tree species (e.g. Prosopis julifora), dogs and cats from forican sites	Develop and implement management plan in these sites that ad- dresses species' habitat requirements	Educational programme for forest staff and local communities
Action					Education and awareness
Site					

Supplements	Migratory and population dynamics of forican are poorly known without which formulation of conservation strategies becomes diffcult	Florican-friendly practices include regulated grazing and farming practices. Livestock should be stall fed during two monsoon months (forican breeding time) to reduce disturbance and allow grass regeneration for cover. This will also provide fodder in lean period. Grassland patches > 1 ha should be left intact between crop felds, and organic (pesticide free) farming should be promoted			Bustards & foricans avoid tall vegetation that impedes visibility, and Prosopis is an invasive that competitively excludes native species. Dogs and cats are potential threats to the nesting females & juvenile survival
Priority	High	High	Very High	Very High	High
Implementation	State FD	State F. D. & NGOs	State F D	State FD	State FD & trained biologists/ veterinary service
Estimated funds (lakh)	46		5	2.5/yr	-
Requirements	Appoint a biologist @ Rs 15000 /month for 3 years with Rs 40 lakh project implementation cost	Dialogue with owners of private grasslands in these areas to promote incentive driven forican-friendly grassland management	Repair existing fencing	Employ 10 watchers (5 per site) equipped with modern communication & transport facilities during July-Sept	Physically remove plantations, remove dogs and cats during July-September
Task	Alternate year monitoring of forican populations and their habitat is required. Migratory pattern needs to be studied through satellite tracking technique & WII	Declare agro-grass- lands around Sailana & Sardarpur WLS as Community/ Conserva- tion Reserves.	Consolidating existing PAs (Sailana & Sardar-	pura) through fencing & patrolling	Eradicate tall invasive shrub/tree species (e.g. Prosopis julifora), dogs and cats from forican sites
Action	Research and Monitoring	Conservation of	forican habitats (Sailana, Sardarpura,	retawau, Hailuala)	
Site		Madhya Pradesh	(Sailana, Sardarpur,	Thandala)	



Supplements	No Prosopis or other woody trees plantation. Promote pesticide-free low intensity farming in irrigated areas through State subsidy driven mechanisms, or award schemes to those following them.		Migratory and population dynamics of forican are poorly known without which formulation of conservation strategies becomes diffoult	Although Rollapadu is well pro- tected, adjoining areas have been developed and intensively cultivated in recent times. The few remnant grasslands should be immediately consolidated and restored	
Priority	High	Medium	High	Very high the transfer of the	Medium
Implementation	State FD & NGOs	State FD & NGOs	State FD & WII	State Govt.	State FD
Estimated funds (lakh)		-	46		550
Requirements	No plantation of tall shrub/tree species in FD areas Leave intact grasslands (>1ha size) between crop felds & promote subsidy/incentive driven pesticide-free low intensity farming in community lands No infrastructure intensive development (road, electricity, mining, industry) around 2 km of PAs	Educational programme	Appoint a biologist @ Rs 15000 /month for 3 years with Rs 40 lakh project implementation cost	Potential sites for enclosures are Alaganur-Parumanchala, Jalakanur-Sunkesula-Gani, and Vipangandla-Byrapuram areas	Fencing of 50km X 11 lakhs/km
Task	Develop and implement management plan in these sites that ad- dresses species' habitat requirements	Disseminate information on ecological & conservation values of forican and their habitats among forest staff and local communities	Alternate year monitoring of forican populations and their habitat is required. Migratory pattern of needs to be studied.	Acquire Govt. owned revenue lands that are intensively used by foricans. Create >3 more core areas of 5-10 sqkm in these areas	Chain-link-fencing over these core areas other than Rollapadu to se- cure critical habitats
Action		Education and awareness		Research and Monitoring	
Site					

Supplements	During these breeding months, grazing should not be permitted within breeding refuge. Outside of breeding period the area can be moderately grazed by livestock	To enhance the survival rates of eggs and chicks	Rollapadu and its adjoining areas form breeding & non-breeding ground for foricans. Information on habitat use, without which landscape conservation strategies cannot be formulated, is scanty.	Florican-friendly livelihood practices include 1) growing short food crops, 2) farming once annually and leaving agricultural felds fallow for the rest of the year; 3) pesticide free farming, 4) allowing foricans to display and nest in private felds, 4) instead of herding livestock in peak monsoon, stallfeeding them on fodder supplements.	The legal protection status will allow fexible management & necessary Govt. interventions over landuse issues without the need of acquiring private/community lands	Phasepardis have traditional knowledge on foricans. Involving them in conservation programme along with FD staff & research agencies will serve the dual purpose of generating ecological information & reducing hunting pressure	
Priority	Very high	High	Mediu m	High	High	High	
Implementation	State FD	State FD & Vet. Dept.	State FD & WII	State Govt. & NGOs	State Forest, Revenue and Agricultural Departments in consultation with NGO (like Samvedana)	State FD & NGO like Samvedana	
Estimated funds (lakh)	3/yr	-	46		50 lakhs/yr	Binoculars & GPS = 2 lakhs Salary 10 guards @ 5000/month x 12 months = 6 lakhs/yr Travel by FD	
Requirements	Employ 12 watchers @ 5000/ month X 4 months and fuel costs	Capture and remove or eliminate	Appoint a biologist @ Rs 15000 /month for 3 years with Rs 40 lakh project implementation cost for	Target areas for awareness and Environmental Incentive Schemes within 5 km radius of core areas	Minimize heavy infrastructure & industries here Promote subsidy driven organic farming (no pesticide & long rotational period) here	Appoint min. 10 locals (preferably from Phasepardi tribe) as Forest Guards, & provide equipments & logistics for patrolling & monitoring	
łask	Make these core areas inviolate during breeding season (July-September)	Predator (dogs and cats) removal in core areas during July-October	Research & monitoring	1. Florican-friendly practices have to be promoted by State subsidy/incentive driven mechanisms, or award schemes. 2. Awareness programmes have to be conducted and publicity manuals for forican & grassland conservation have to be produced.	Declaration of important forican habitat (~100 sqkm identifed through research) as community/conservation reserve/eco-fragile area	Protection & monitor- ing of forican & their habitats especially in monsoon (breeding months)	
Action				Gamer public support through awareness programs and by addressing local livelihood concerns through Environmenta I Incentive Schemes.	In-situ conservation plans (Habitat management protection & monitor- ing)		
Site						Akola & Washim Districts of Maharashtra	



Supplements	Land needs to be purchased in pieces of 5 to 10 acres at strategic locations to provide crucial refuge to birds	Need to protect these patches from encroachment	Restoration of these patches will increase their carrying capacity for foricans	Forest lands near forican breeding sites are not used by birds because of dense tree cover due to past plantation practices by FD	SHG will implement optional/alternative livelihood programs among tribe members. Bank linkage can be established to ensure sustainability. Tanda Panchayat is an adopted form of Jati Panchayat which is the traditional decision making & confict resolving structure of tribe	Regular feld visits & meetings will be organized with local people & FD staff for documentation
Priority	Medium	Medium	Low	Medium	High; important to gain participation of locals in forican conservation	Low
Implementation	FD, NGO & research agencies will identify these areas	State FD	State FD	State FD	State FD & NGO have to implement the task through Tanda Panchayat & seek support from other State Dept.s (Animal Husbandry)	State FD with NGO (like Samvedana) have to take the initiative & involve local communities & State Departments
Estimated funds (lakh)	750 lakhs	40 lakhs	Labour wage 50,000 Seed cost 50,000 = 1 lakh	Labour wage 100,000 Seed cost 50,000 = 1.5 lakh	50X10,000 = 5 lakhs/yr 50X100,000 = 50 lakhs once 50X10,000 = 50X10,000 = 5 lakhs/yr	5 lakhs
Requirements	Purchase of cumulative 1 sqkm private lands	Chain-link-fencing	Palatable grass plantation (Digitaria & Eleusine) & removal of shrub/weed species	Restoration activities: removal of planted tree/shrub species & plantation of palatable grass (Digitaria & Eleusine)	Skilled human resource for 50 SHGs (one in each village) Capital cost to SHGs for implementing alternative livelihoods Capacity building & support (veterinary & other services)	Human resource, documentation expert & workshop logistics
Task	Acquisition of private grasslands by FD in strategic locations within forican habitats (to be identifed) and their restoration			Grassland restoration in Forest Department lands (cumulative area 1 sqkm) adjoining breeding sites	Developing alternative/ optional livelihoods through Self-Help- Groups (SHG) in Phasepardi villages	Documentation of process & disseminating this model through district level workshops
Action					Implement participa- tory conservation planning that address- es local livelihood concerns (especially that of Phasepardi tribes) in Akola & Washim districts	Implementation of this participatory conservation model in other areas (if successful after 3 years in Akola & Washim)
Site						Buldhana, Amravati, Yavatmal Districts of Vidarbha, Maharashtra





BENGAL FLORICAN

SITES: DUDHWA, KISHANPUR, PILIBHIT, KATERNIAGHAT, LAGGA **BAGGA (UTTAR** PRADESH); MANAS, ORANG, KAZIRANGA, PABITORA, DIBRU-SAIKHOWA (ASSAM); DIBANG, D'ERING (ARUNACHAL PRADESH)

Time line	1 yr	2 yrs				4 yrs					2 yrs
Estimated funds (lakhs)	12 sites X 10 watchers/ site @ 5000/month X 5 months and fuel costs = 2.5lakhs /yr/site	Labour wage & material cost = 5lakh /yr/ site				Appoint 2 feld biologists @ 15000/month/state for 3 years and 40lakhs project implementation cost					Slakhs once for education materials (publication & workshop)
Responsible personnel & requirements	State Forest Departments have to employ 10 watchers/100 sqkm of grassland PA site for protection and management particularly during breeding season.	State Forest Departments have to employ staff, tools and build capacity for restoring habitats.				MoEF will implement feld surveys through research organizations and NGOs	Continuous funding from the Government. BNHS, WII, Ecosystems-India & Aranyak will undertake suitable and needful re- search & develop species and habtiat monitoring plans			NGOs (BNHS, WWF, Aranyak, Ecosystems-India etc.) will undertake community interactions	
Indicators & means of verifycation	Reduction of poaching and egg collection verifed through monitoring reports	Reduction of livestock, human disturbances and fre incidences verifed through management plans and monitoring reports				Grassland and species' distribution maps verifed through survey reports	Comprehensive understanding of forican ecology (non- breeding habitat requirement, migration, life-history correlates etc.) through research papers. Monitoring reports to examine feld implementation of re-				Positive changes in conservation attitude of local stakeholders through sociological surveys
Measures to be taken	Protection & enforcement to control anthropogenic disturbances and poaching	Regulate livestock grazing, food plant & thatch collection	Control grass burning	Eradication of invasive spp.	No infrastructural/agricultural/ industrial development within 3km radius of forican PAs	Systematic habitat surveys across the species' range	Long-term, planned research using modern technology (biote- lemetry)	Population Estimation	Ranging patterns & life history	Response to human disturbances	Conservation education programs
Objectives	Ensuring protection of Bengal forican and its existing habitats in PAs	Effective restoration and management of forican habitat				Locating potentially suitable and occupied habitats outside the existing grassland PAs	Undertaking research to fil up knowledge gaps about the species' conservation ecology				To sensitize local stake- holders and frontline forest staff about the conservation needs
Aim	Improve the conservation status of Bengal Florican and its habitats within next fve years (2013-2017)										



























Govt. of Rajasthan Office of the Addl. Pr. Chief Conservator of Forests and Chief Wildlife Warden, Rajasthan, Jaipur

No. F19 (GIB) Permission/2019/ / 🕱 2)

Dated: 13.12.2019

To

Director, Wildlife Institute of India, Dehra Dun

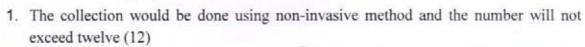
Sub: - Permission for collection of eggs of Great Indian Bustard - reg.

Ref: - 1. MoEF&CC letter No. F.No.1-23/2019-WL Dated 12.012.2019.

- This office letter no. F 19 (GIB)/permission/2019/1537 Dated 03.05.2019 and F 19 (GIB)/permission/2019/1513 Dated 18.07.2019
- 3. Your letter no. WII/TMP/CAMPA-GIB Project/2016/13 Dated 14.11.2019

Sir.

With reference to above cited subject and references, the permission under section 12(b) & 28(1) (c) of the Wild Life (Protection) Act, 1972 for collection of twelve eggs (12) of Great Indian Bustard under the Tripartite Memorandum of Agreement to implement the Great Indian Bustard Conservation Breeding program is hereby granted subject to the following conditions;



- The entire operation involving handling of the Bustards species would be undertaken under the supervisors of trained and skilled personnel in the presence of CCF (WL), Jodhpur
- Utmost care would be taken so as to cause minimum damage to the birds/ eggs/ hatchlings during the process.
- 4. In case of the mis-happening during the process, that endangers or may endanger the safety of the birds, the permission may be reviewed/ revoked apart from the legal action. if and when required
- Regular information about collection of eggs shall be sent to this office/ CCF(WL)
 Jodhpur/ DCF(WL), Jaisalmer simultaneously
- The programme of survey/study is to be necessarily got approved from the DCF (WL) Jaisalmer officer in charge prior to entry in the protected area.
- 7. The provisions, rules and regulations regarding sanctuaries and protected area should be adhered to, strictly. Additionally, the program personnel shall adhere to provisions of Wildlife Protection Act 1972, Rajasthan Forest Act 1953 and other relevant rules & regulations applicable in the area of their operation.
- 8. No wild animal would be disturbed or caused any harm.
- For the purpose of this program, no medicines will be allowed to be given to the wild animal and no change in their habit of eating would be allowed.

DIARY NO.: 74/

Dr. Y. V. Thala, Dean Fus V Dr. Sutisher Dutta Sc. D

- The instructions issued by the Officer in-charge at the time of work should be followed strictly.
- 11. The movement of the vehicles in the protected area, while entering or thereafter would be under the complete control of Officer in-charge concerned.
- 12. If any irregularity, loss incident of poaching or other offence is seen in the protected area or otherwise, it should be immediately communicated to the Officer in-charge in writing and telephonically.
- 13. This permission has been granted for a period of one year from the date of issue of this letter. The permission may be extended upon request. The permission can be withdrawn in the interest of wildlife at any time without mentioning the reasons thereof.
- 14. A logbook should be maintained by project / program team and it has to be made available to Officer in-charge regularly.
- 15. A quarterly report on the activities undertaken and progress made should be provided to this office, CCF (WL) Jodhpur and DCF (WL), Jaisalmer.
- 16. The Officer in-charge may attach a liaison officer to the project / program team based on availability of staff at his / her disposal.
- 17. Chief Conservator of Forest (Wildlife) Jodhpur will be the Nodal Officer and Deputy Conservator of Forest (Wildlife) Jaisalmer will be the Officer in-charge.
- 18. This office doesn't hold any responsibility for any accident / mishap during the project.
- The SOPs and all conditions imposed by Government of India will be strictly complied with.
- 20. The birds should not be released in areas controlled by the Armed Forces.
- 21. Any other permissions collateral to the activities permitted by this letter, may be separately applied for.

Yours faithfully

(Arindam Tomar) Chief Wildlife Warden

Dated: 13.12.2019

No No. F19 (GIB) Permission/2019/

Copy for information and necessary action to: -

- DIG (Wildlife), MoEF&CC, New Delhi
- 2. Secretary, Forest, Secretariat, Jaipur.
- 3. CCF, Jodhpur,
- DCF, (Wildlife) Jaisalmer

Chief Wildlife Warden Rajasthan

Govt. of Rajasthan Office of the Addl. Pr. Chief Conservator of Forests and Chief Wildlife Warden, Rajasthan, Jaipur

No. F19 (GIB) Permission/2019/

1814

Dated: 13.12.2019

To

Director. Wildlife Institute of India. Dehra Dun

Sub: - Permission for Radio tagging of Great Indian Bustard and Lesser Florican from habitats of Rajasthan-Reg.

Ref: - 1. MoEF&CC Letter No. F. No. 1-23/2019 WL dated 12.12.2013

This office letter no. F 19 (GIB)/permission/2019/5995 Dated 06.02.2019

Your letter no. F.No. WII/TMP/CAPA-GIB PROJECT/2016/13 dated 14.11.2019

Sir.

With reference to your letter and cited subject, the permission under section 12 (B) & 28(1) (c) of the Wild Life (Protection) Act,1972 for radio tagging of six (06) Great Indian Bustards and six (06) Lesser Floricans under the research project titled "Conserving Great Indian Bustard occupied landscapes through scientific understanding and participatory planning" is hereby granted subject to the following conditions;

- 1. The capture would be done using non-invasive method and the number shall be restricted to six (06) each species
- 2. The entire operation involving handling of these species would be undertaken under the supervisors of trained and skilled personnel in the presence of CCF (WL), Jodhpur (for GIBs) and CCF, Ajmer (For Lesser Floricans)
- 3. Utmost care would be taken so as to cause minimum damage to the birds/ eggs/ hatchlings during the process.
- 4. In case of the mis-happening during the process, that endangers or may endanger the safety of the birds, the permission may be reviewed/revoked apart from the legal action. if and when required
- 5. Regular information about collection of samples shall be sent to this office/ CCF(WL) Jodhpur/ DCF(WL), Jaisalmer for GIBs and CCF Ajmer / DCF Ajmer for lesser floricans simultaneously
- 6. The programme of action is to be necessarily got approved from the concerned DCF officer in charge, prior to initiation of any activity.
- 7. The provisions, rules and regulations regarding protected area s should be adhered strictly, Additionally the program personnel shall adhere to provisions of Protection Act 1972, Rajasthan Forest Act 1953 and other relevant rules & regulations applicable in the area of their operation.

8. No wild animal would be disturbed or caused any harm. Dr. y. V. Thela, Dear, Fixes Sc. D'

- For the purpose of this program, no medicines will be allowed to be given to the wild animal and no change in their habit of eating would be allowed.
- The instructions issued by the Officer in-charge at the time of work should be followed strictly.
- 11. The movement of the vehicles in the protected area, while entering or thereafter would be under the complete control of Officer in-charge concerned.
- If any irregularity, loss, incident of poaching or other offence in-charge in writing and telephonically.
- 13. This permission has been granted for a period of one year from the date of issue of this letter. The permission may be extended upon request. The permission can be withdrawn in the interest of wildlife at any time without mentioning the reasons thereof.
- 14. A logbook should be maintained by project/program team and it has to be made available to Officer in-charge regularly.
- 15. A quarterly report on the activities undertaken and progress made should be provided to this office, CCF (WL), Jodhpur and DCF (WL), Jaisalmer for GIB and CCF Ajmer, and DCF Ajmer for Lesser Florican
- 16. The Officer in-charge may attach a liaison officer to the project/program team based on availability of staff at his/her disposal.
- 17. Chief Conservator of Forest (Wildlife), Jodhpur will be the Nodal Officer and Deputy Conservator of Forest (Wildlife), Jaisalmer will be the Officer in-charge for Great Indian Bustard and CCF Ajmer will be the Nodal Officer and DCF Ajmer will be the Officer in-charge for Lesser Florican
- 18. This office doesn't hold any responsibility for any accident/mishap during the project.
- The SOPs and all conditions imposed by Government of India will be strictly complied with.
- 20. The birds should not be released in areas controlled by the Armed Forces.
- 21. Any other permissions collateral to the activities permitted by this letter, may be separately applied for.

Yours sincerely,

(Arindam Tomar) Chief Wildlife Warden Rajasthan, Jaipur.

Dated: 13.12.2019

No. F19 (GIB) Permission/2019/

Copy for information and necessary action to: -

- DIG (Wildlife), MoEF&CC, New Delhi
- 2. Secretary, Forest, Secretariat, Jaipur.
- CCF, Wildlife, Jodhpur
- 4. CCF, Ajmer
- 5. DCF, (Wildlife) Jaisalmer
- 6. DCF, Ajmer

Chief Wildlife Warden Rajasthan, Jaipur.

GOVT. OF RAJASTHAN OFFICE OF THE ADDITIONAL PRINCIPAL CHIEF CONSERVATOR OF FORESTS & CHIEF WILDLIFE WARDEN ARANYABHAWAN, JAIPUR

ewlw.raj@gmail.com Ph-0141-2700151

No. F 19(GIB)permission/CWLW/2019-2020/

Dated: 21.06.2019

10

DCF (Wildlife). Desert National Park. Jaisalmer.

Subject: Collect and analyze the carcass samples- Reg.

Sir.

With reference to above cited subject, you are here by directed to collect and dispose of the dead scheduled animal/ birds/ reptiles which have died naturally/by accident or due to pesticides used to kill locust in and around Desert National Park as per rules. You may get assistance from WII scientists working at Jaisalmer for postmortem and for collecting and taking samples for ascertaining the cause of death.

Yours sincerely.

(Arindam Tomar)

Chief Wildlife Warden, Rajasthan

No. 1 19 (GIB) Permission CWLW 2019-20/14 5 4

Dated 21 06 2019

Copy to Dr. Y. V. Jhala, Scientist 'G' Wildlife Institute of India. Dehrandun with request to provide necessary support.

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