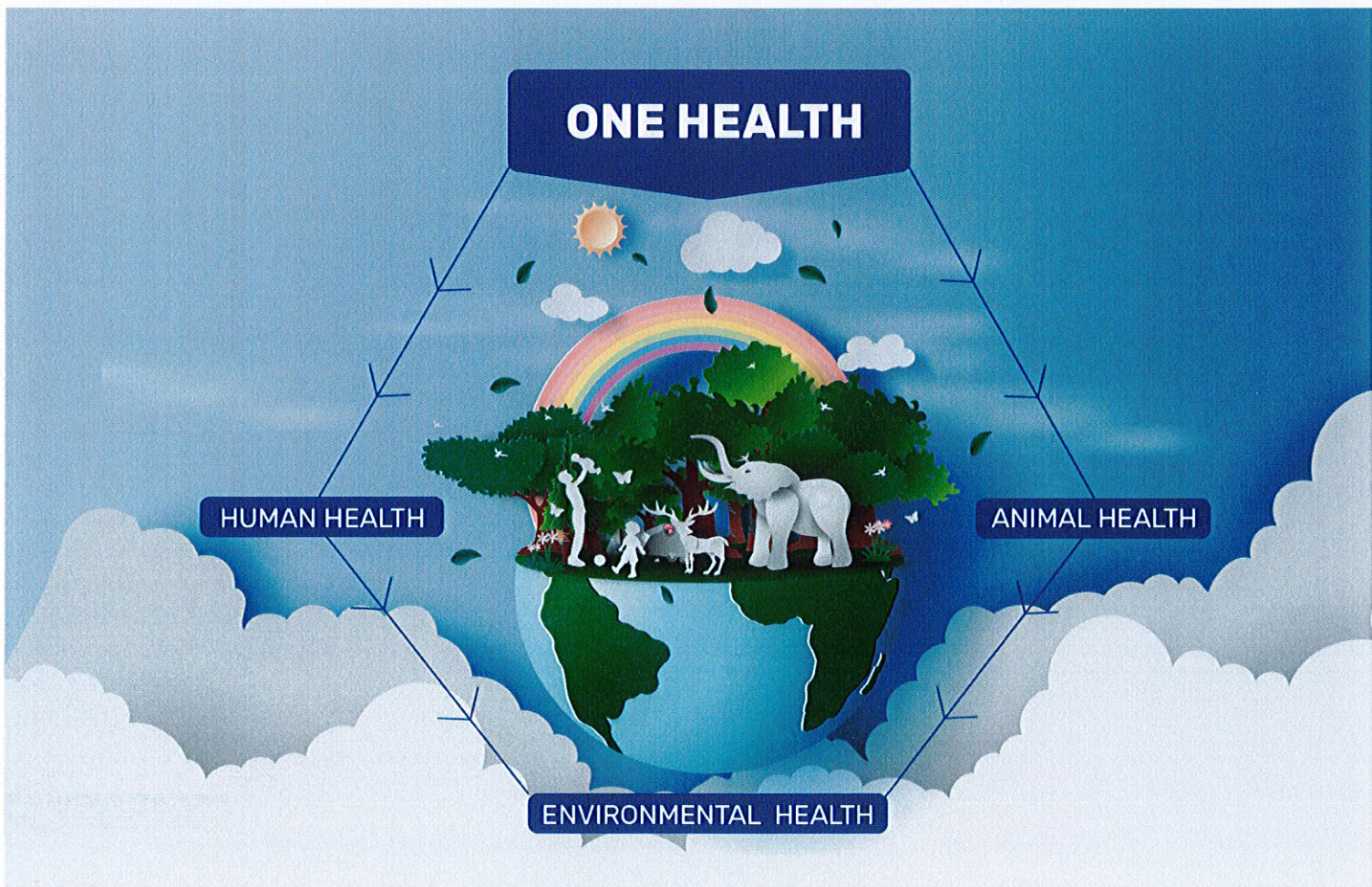




REPORT

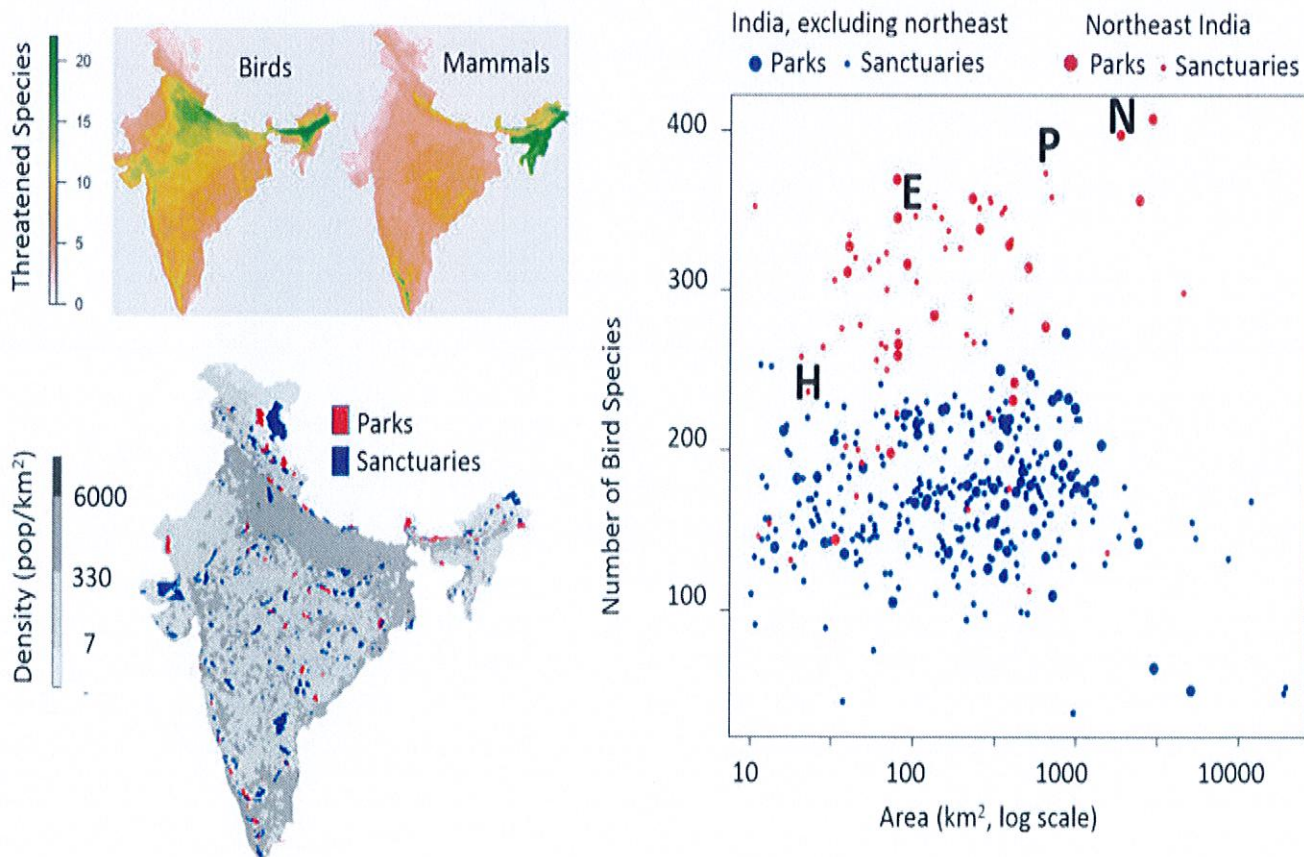
2021-22

**National Referral Centre for Wildlife Diseases Monitoring and
Prevention**









BACKGROUND

India's rich biodiversity and wildlife are a national and international treasure. The spectrum of ecosystems stretch from desert to tropical rainforest to the Himalayan alpine. Hence, wildlife health and conservation are important issues, though understandably a complex undertaking. India has a network of 981 Protected Areas including 104 National Parks, 566 Wildlife Sanctuaries, 97 Conservation Reserves and 214 Community Reserves covering a total of 1,71,921 km² of geographical area of the country which is approximately 5.03%¹. There is additionally a network of about 150 recognized zoos and rescue facilities that house more than 550 species of which at least 150 native species are endangered². India also boasts of a major animal husbandry sector with more than 50 crore domestic animals and 100 crore poultry stabilized and raised under various agroclimatic conditions.

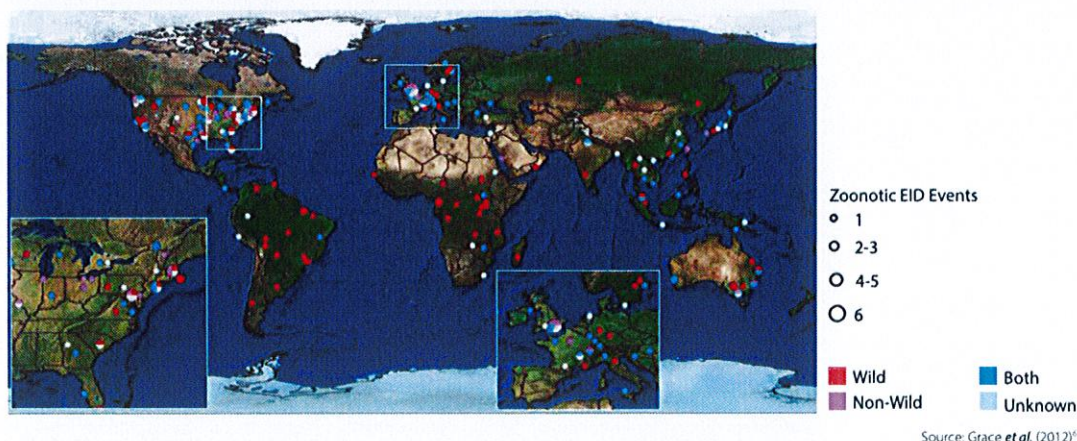


With one of the highest human densities in the world, our country has a critical interface between wildlife, domestic animals, and human compartments, which form an alarming interface with modernization and developments. More than 70% of the diseases that affect humans are attributed to be of animal origin¹. The COVID-19 pandemic brought about pause and forced us all to ponder about species loss and natural habitat destruction that are essentially considered the root of the problem. Zoonotic diseases make up 60% of emerging infectious disease events worldwide. Of the 335 emerging disease events in humans, nearly 72% originated in wildlife. India is not new to zoonotic diseases and there have been localized yet grave instances of death due to such diseases (e.g Kyasanur Forest Disease, Nipah virus outbreak). This leads into our ability to monitor the emerging diseases efficiently in the wild animal populations and further continually monitor the health of captive wild animals in zoological institutions across the country.

Impacts of zoonoses

Zoonosis	Primary transmission/ reservoir species	Impact
Avian Influenza		The 2004 outbreak in East Asia resulted in economic losses of US\$ 20 billion over the following five years. ⁴⁸ The 2015 outbreak in the US has cost the poultry industry US\$ 3.3 billion and led to the death of 48 million birds either from the flu itself or from culling. ^{46,47}
Bovine tuberculosis		US\$ 15 billion of economic losses from 1986-2009 in the UK. ⁷
Ebola		The 2014-2015 Ebola outbreak in Guinea, Liberia and Sierra Leone led to 11,310 deaths and 28,616 confirmed cases. ⁴⁸
MERS		Since September 2012, 27 countries have reported confirmed cases, with about 624 deaths. ⁴⁹
Nipah virus		US\$ 671 million of economic losses, one million pigs culled, and 100 people died from the 1998 outbreak in Malaysia. ⁷
SARS		The impact of the 2002 outbreak was estimated at US\$ 41.5 billion, with 8,000 confirmed infections and 800 deaths. ⁷

Events of zoonotic disease emergence by type of animal hosts



Current Initiative

Currently the burden on any one center to cater to all the needs of wildlife health can be overwhelming. India needs a scientific, forward looking wildlife disease management system and a nodal entity to coordinate it. Robust disease surveillance plans that can assess the spread of diseases within and across animal and human compartments and an ability to proactively contain them is necessary. This is only possible through an establishment which can coordinate and execute the mandate to put in place preventive measures, predict events in advance and effectively diagnose and contain potential outbreaks to prevent a full blown national disasters. With these considerations in mind, Ministry of Environment, Forests and Climate Change envisions to create a center that co-ordinate wildlife health management and all aspects of wildlife disease control with national and international entities in the form of National Referral Center for Wildlife Disease Management & Prevention (NRC-WLDMP).



The Central Zoo Authority was identified as a nodal institute and a proposal was submitted to CAMPA in September 2020. The Ad-Hoc CAMPA vide its letter F.NO. NA-13/2/2020-NA dated 5.03.2021 has conveyed the approval to the CZA proposal for setting up the National Referral Centre for Wildlife Disease Monitoring and Prevention.

Activities conducted in phase I

The grant of Rs 25,00,000/- (Rs Twenty-Five lakhs only) received as part of the first installment (vide its letter F.NO. NA-13/2/2020-NA dated 5.03.2021) was spent towards the activities of Phase I of the project.

To deliberate on the proposal and to finalize a concrete plan to realize this ambitious endeavour a committee comprising of the following members was set up:

- 1 Shri R.N. Mehrotra. IFS (Retd.)
- 2 Shri R.K. Singh. IFS (Retd)
- 3 Dr P.K. Mallik (Scientist G. Retd.) Wildlife Institute of India
- 4 Dr Sindura Ganapathi. o/o Principal Scientific Advisor, GOI
- 5 Dr Karthikeyan Vasudevan Sr. Principal Scientist CCMB/ LaCONES
- 6 Dr S.S. Mujumdar. National Institute of Animal Biotechnology
- 7 Shri Upamanyu Basu,, Jt Sec., Department Of Animal Husbandry And Dairying,
- 8 Dr Parag Nigam (Representative) -Scientist F and Head, Dept of Wildlife Health management, Wildlife Institute of India
- 9 Dr Abhijit Pawde, Senior Principal Scientist, Centre for Wildlife, Indian Veterinary Research Institute
10. Dr Sonali Ghosh, IFS, CCF (RE&WP), Assam Forest Department, Assam,
11. Dr Praveen Mallik, Commissioner, Animal Husbandry, DAHD
- 10 Deputy Inspector General of Forest-CZA (Member Convenor)

The Central Zoo Authority held 4 meetings and the committee deliberated on the proposal that was put forth by the CZA. The deliberations in the 4 virtual meetings aided to streamline the vision and mission for the center thus determining the way forward.

The following committee members attended the National Conference for Zoo Directors and Veterinarians held at Kevadia, Gujarat from October 10-11, 2021.

1. Shri R.N. Mehrotra. IFS (Retd.)
2. Shri R.K. Singh. IFS (Retd)
3. Dr Sindura Ganapathi. o/o Principal Scientific Advisor, GOI
4. Dr Karthikeyan Vasudevan Sr. Principal Scientist CCMB-LaCONES
5. Mr Upamayu Basu- Jt Sec., Department Of Animal Husbandry And Dairying
6. Dr Abhijit Pawde, Principal Scientist, Indian Veterinary Research Institute, Bareilly
7. Dr Sonali Ghosh, IFS, CCF(R&T), Assam Forest Department
8. Dr Praveen Mallik, Commissioner, Animal Husbandry, DAHD

The committee members met several times over the course of the 2 days conference and discussed the formation of a blueprint document of the centre. Based on the deliberations of the committee and the meetings with the stakeholders (Zoo Directors and Veterinarians who attended the National Conference held at Kevadia, Gujarat in October 2021) the following recommendations emerged:

Immediate effort should be made towards finalisation of a blueprint document and outline the National Referral Center (NRC) with consideration of fulfilling the following functions;

1. To serve as a specialized apex institute that encompasses all aspects of 'wildlife health management' with regional centres.
2. Areas that this institute can cover could include:
 - a. Disease management (including preventive measures, disease diagnostics and treatment approaches, sample collection and dispatch).
 - b. Disease surveillance including but not limited to zoonotic diseases
 - c. Research
 - d. Telemedicine
 - e. Teaching, training and serve as a referral body that can link up with regional/local centres to provide expertise, and support to upgrade them
 - f. Information and data management for the sector
3. National and International collaboration as a strong component to provide exchange of knowledge and expertise

4. Strong linkage with zoos and wildlife areas of the country in order to serve as a dynamic link to facilitate exchange of knowledge, materials and translation of solutions.

Way Forward based on the activities of Phase I

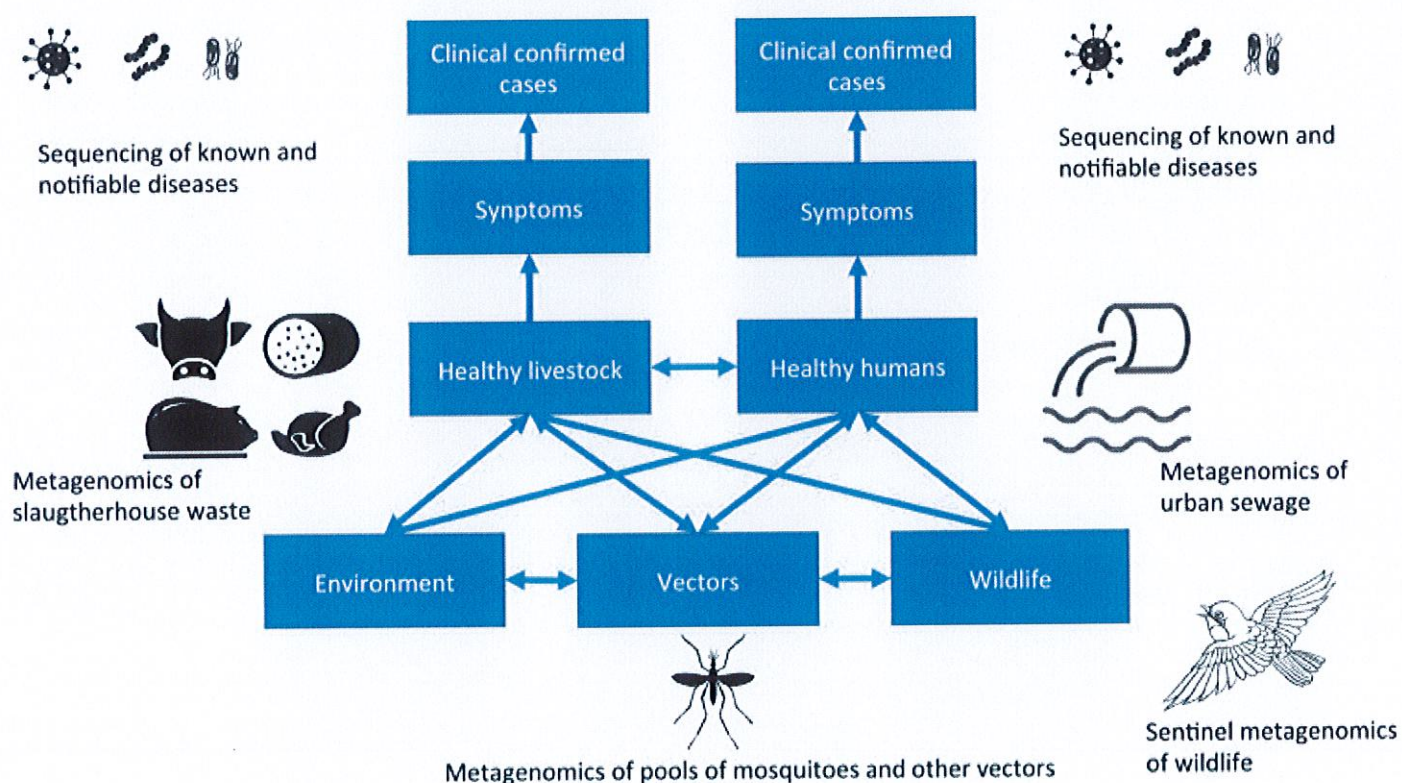
Disease control rests not just on being able to detect diseases (*'surveillance'*) but effectively being prepared for it (*'prevention'*) and addressing it in an appropriate and timely manner whenever there are outbreaks (*'response'*). Currently there are challenges pertaining to reliable supply of critical vaccines for wildlife (such as Canine Distemper), issues related to mode of delivery to free ranging animals, disease diagnostics and tools necessary for health management which are currently mostly imported and lack of overall systems to coordinate various stakeholders that need to come together for effective containment of a fast-spreading disease. NRC shall:

- a) Identify gaps in the needs of the wildlife disease management,
- b) Coordinate investments in R&D for addressing these gaps by working with public/private scientific institutions, industry in the country as well as relevant international entities
- c) Ensure that solutions that are developed are effectively deployed on the ground and,
- d) Continue to play a critical role in developing capabilities of the country in this regard.

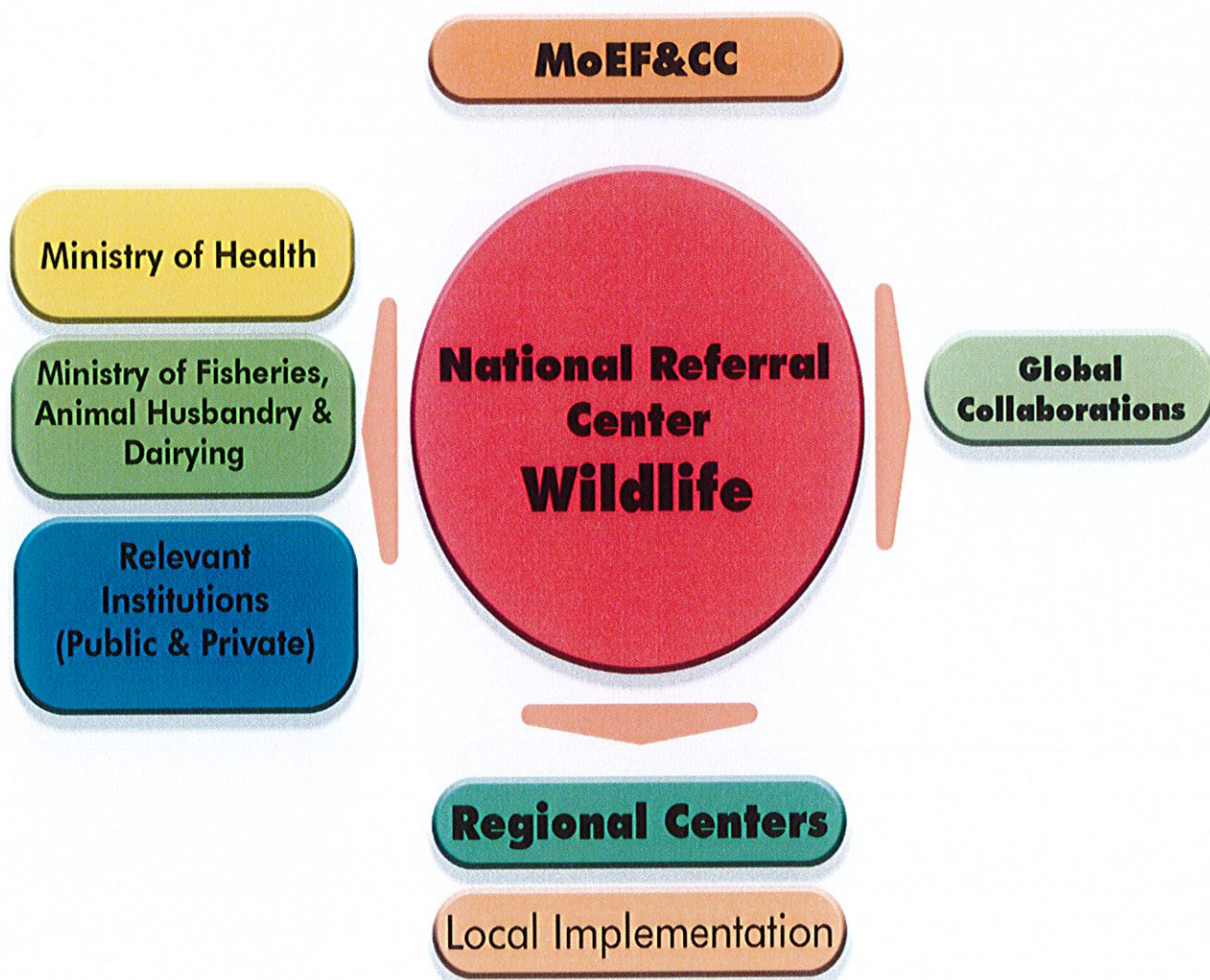
NRC is envisioned to function as the hub for the country working in close coordination with the 'regional resource centers' all over India providing linkage to the field level.

Given the expanse and diversity of forests in India, especially considering wild animal movement for treatment or diagnostics is challenging. Therefore, NRC is directed to be a '**coordinating center**' that hosts the knowledge and capability and works closely with multiple regional centres under the ambit of state forest departments and zoological institutions. These regional resource centres in turn, will be connected closely with local administrations to carry out the necessary field level intervention and implementation. The existing knowledge systems of wild life and veterinarian scientists

working in specific regional forestry habitat and with specialization with taxa shall serve as the talent pool.



As envisioned in the concept proposal circulated by CZA, NRC will engage with referrals and investigation of wildlife disease outbreaks and surveillance in in-situ and ex-situ situations and control of diseases and formulating prevention strategies throughout the country. NRC will coordinate the access for needs of sophisticated diagnostics and pathogen characterization studies as needed for the country either through existing capabilities from other institutions or building of such capabilities as needed.



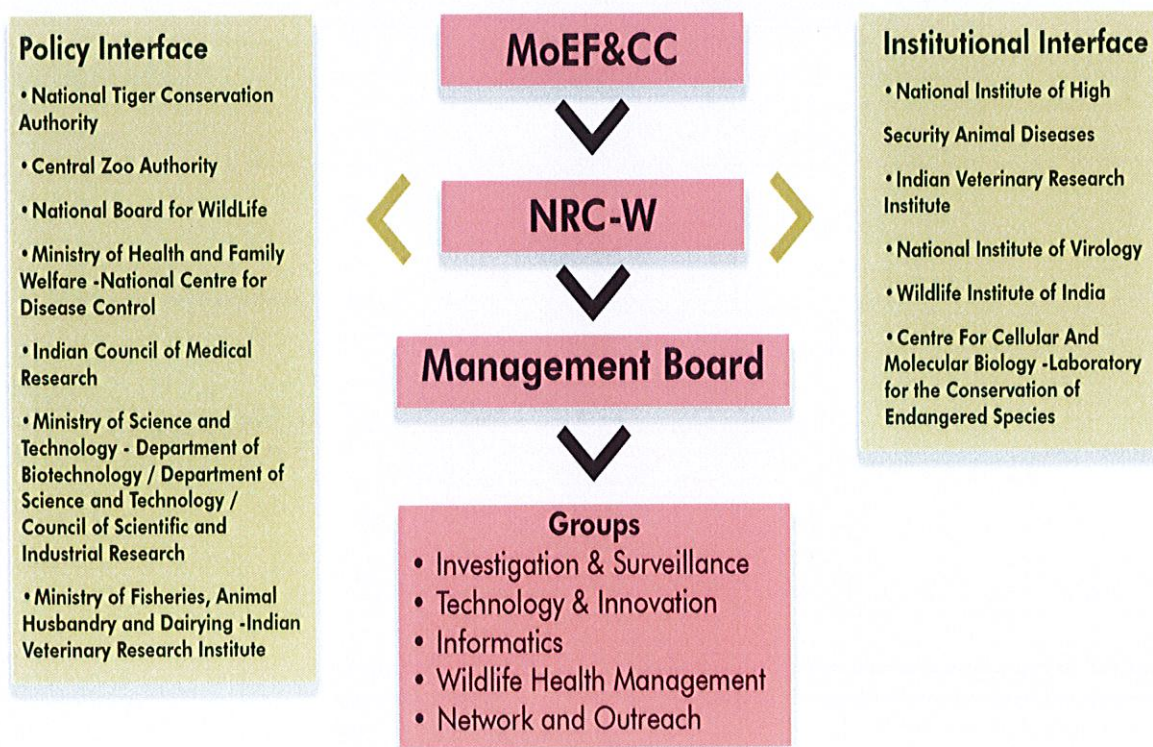
Since the functioning of the NRC includes handling of wildlife samples and high-risk pathogens requiring high security containment facilities, a BSL 3 facility for NRC is

needed. This facility will need to be maintained by a qualified engineering team. Without such infrastructure, there is a risk for escape of pathogens having pandemic potentials to humans as well as unparalleled risk to livestock and agriculture economy. NRC-WDMP may enter into arrangements with existing BSL 3 labs to access and use the facility and provide dedicated resources for investigations.

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Based on these deliberations the blueprint document was prepared and finalized. (Annexure 2).

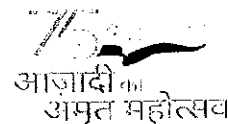
Following the blueprint, it is envisaged to outline the budget and functioning in details and it is thus proposed to identify a consultant to put together a DPR for the NRC-WLDMP Project.

Annexure-111



National Informatics Centre Services Inc.

(A Government of India Enterprise Under NIC)
 Ministry of Electronics and Information Technology
 Hall No. 2 & 3, 6th Floor, NBCC Tower, 15 Bhikaji Cama Place, New Delhi-66
 Tele: 011-22900533 Fax: 91-11-26105212 Email: pi@nicssi.nic.in



PROFORMA INVOICE

(Validity :- For a Period of 3 Months from the date of Proforma Invoice)

Tender No.	NICSI/eGov Professionals/2020/11	Tender Valid up to:	21/10/2023
Invoice No.:	PPCDL220567	Ref. No.:	133636(PC)
Date:	21/11/2022	Ref. Date:	09/11/2022

PAC Project ID : Not Available

To:	Name: Central Zoo Authority, Delhi Address: Ministry of Environment, Forest and Climate Change, Government of India, B-1 Wing, 6th Floor, Pandit Deendayal Antyodaya Bhawan, CGO Complex, Lodhi Road, New Delhi-110003, Delhi GSTIN No.: 07AAAJC0780F1ZM Contact No.: Email: fo-cza@nic.in
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S.No.	Details Of Services Required Under Various Heads	Basic Cost	CGST on (A)	SGST on (A)	IGST on (A)	Total Proposed Amount	Selected Vendor
		(A)	(B)	(C)	(D)	(E)	(F)
1	Based on Proposal Submitted by M/s Ernst & Young LLP for a National Referral Center-Wildlife Central Zoo Authority (CZA) Consultants with 15 yrs & above experience(Management /Functional Profile Tier-1) - 1 no. for 5 Months and @Rs.400575/- per Man Month	20,02,875.00	9% / 1,80,258.75	9% / 1,80,258.75	0% / 0.00	23,63,392.50	Ernst & Young LLP
2	Subject Matter Expert with 10+yrs experience for Tier-1 - 1 no. for 5 Months @Rs.457800/- per Man Month	22,89,000.00	9% / 2,06,010.00	9% / 2,06,010.00	0% / 0.00	27,01,020.00	Ernst & Young LLP
3	Subject Matter Expert with 10+yrs experience for Tier-1 - 1 no. for 5 Months @Rs.457800/- per Man Month	22,89,000.00	9% / 2,06,010.00	9% / 2,06,010.00	0% / 0.00	27,01,020.00	Ernst & Young LLP
4	Consultants with 15 yrs & above experience(Management /Functional Profile Tier-1) - 1 no. for 2 Months @Rs.400575/- per Man Month	8,01,150.00	9% / 72,103.50	9% / 72,103.50	0% / 0.00	9,45,357.00	Ernst & Young LLP
5	Consultants with 10 yrs and < 15 yrs experience(Management /Functional Profile Tier-1) - 1 no. for 2 Months @Rs.343350/- per Man Month	6,86,700.00	9% / 61,803.00	9% / 61,803.00	0% / 0.00	8,10,306.00	Ernst & Young LLP
6	Consultants with 6 yrs and < 10 yrs experience(Management /Functional Profile Tier-1) - 1 no. for 4 Months @Rs.314737.5/- per Man	12,58,950.00	9% / 1,13,305.50	9% / 1,13,305.50	0% / 0.00	14,85,561.00	Ernst & Young LLP

	of the date of closure of the PO/WO, to NICS I for examination and decision from NICS I end. The decision of NICS I shall be final and binding on parties.
9	Placement of work-order shall be after receiving 100% Advance Payment from user-department/client through RTGS/NEFT or Demand-Draft/Cheque, as per the details mentioned above. (Charges towards the Demand Draft is to be borne by the user/client). No interest will be paid on advances (Non Grant-In-Aid projects).
10	While placing the order to NICS I, the complete details of the user-department/client (including the location where the manpower is to be deployed) viz, name, address, contact numbers and e-mail address are to be mentioned. In addition to above, please also mention the Amount-Paid along with the DD/Cheque/UTR-number, Date, PI number & other Project information in the attached "Project-Execution Form" and send it to NICS I, New Delhi through concerned NICS I/NIC-Project Coordinator or through email in projects-nicsi@nic.in .
11	PI for the project, not approved through NIC PAC/PRISM approval process, is issued on the basis of the requirement/request received from the User Department. In such case it is assumed that NIC resources would not be required during the execution period of the project. If PAC/PRISM number is not mentioned, it is assumed that NIC resources would not be required during the execution period of the project.
12	User Department/Client should inform to NICS I within 7 days from the receipt of this Proforma Invoice or placing the Purchase/Work Order, whichever is earlier, about any tax (TDS, GST etc.) exemption or concessions availed by them. In case no such information is received from the User Department/Client within the stipulated time, it is assumed that no exemption/concession is availed by the User Department/Client and NICS I shall not be responsible/liable for any damage caused to them.
E & OE	
<p>For prompt service, you may like to attach the copy of this Proforma-Invoice (PI) along with your Letter/ Purchase-order.</p> <p style="text-align: right;">For National Informatics Centre Services Inc.</p> <p>Date: 21/11/2022</p> <p style="text-align: right;">(Authorized Signatory)</p>	
"For any query, please contact NICS I Helpdesk: 011-22900548, 22900533 pi@nicsi.nic.in"	

Proposal : Developing a Detailed Project Report for setting up National Referral Center- Wildlife for wildlife disease management, monitoring and prevention.

The Central Zoo Authority is proposed as a nodal agency to facilitate the establishment of the center to exclusively study and collaborate with agencies studying zoonotic diseases and facilitate wildlife health and management training. The implementation was proposed as a collaborative initiative involving the current national referral center nominated by CZA, national and international agencies (both governmental and non-governmental) involved in epidemiological and emerging wildlife health and wildlife disease research.

The Ad-Hoc CAMPA vide its letter F.NO. NA-13/2/2020-NA dated 5.03.2021 conveyed the approval to the CZA proposal for the National Referral Centre for Wildlife Disease Monitoring and Prevention.

Further, in this regard and with support from the Ad-Hoc CAMPA funds to support CZA's endeavour a committee was constituted to guide the preparation of the scoping document for the National Referral Centre- Wildlife for wildlife disease management monitoring and prevention (NRC-W).

The committee constituted had several meetings including a meeting with stakeholders and based on their detailed deliberation a blueprint document outlining the concept for the NRC-W was prepared. The blueprint document was circulated for appraisal of the Hon'ble Minister, Environment Forest and Climate Change, Government of India.

The deliberations with the Wildlife Division of MoEF&CC on the blueprint document revealed a similar endeavour under the aegis of Project Lion pertaining to National Wildlife Disease Diagnostic Research and Referral Centre. This was informed by the Wildlife Division vide email. Detailed as below:

"6) Establishment of state-of-art Veterinary research centre and Global Knowledge Hub for Wildlife Disease Diagnostics (National Wildlife Disease Diagnostic, Research and Referral Centre) in Gujarat:

In order to investigate the causes of mortality events, especially large-scale die-offs or those that are otherwise unusual for lions and other wildlife, a National Disease Diagnostic and Referral Centre equipped with all modern facilities and infrastructure and manned by veterinary experts will be set up in Junagarh, Gujarat under the ambit of Project Lion. The centre will be operating under the supervision of Ministry of Environment, Forest and Climate Change, Gol. The Centre would facilitate disease diagnostics, treatment, vaccine development, Forensics, surveillance, creation of data bank and forecasting system of animal diseases, use of biotechnological tools in developing vaccines for zoonotic diseases, disaster management for wild animals through wild animals through multi-disciplinary approach, genetic studies on disease resistance in wild animals developing Asiatic lion genome vaccine to have 100% efficacy on Asiatic lion etc. The centre would also help in diseases diagnosis and treatment for wildlife across India besides providing training of veterinary officers. The centre would also have permanent sub-centre of IVRI and CCMB."

4. Use of digital interventions, data systems and platforms
5. Resources needed for linking to regional hubs

The deliberations of the committee and the blueprint document reveal the nature of the center and the eventual budget outlay for this state of the art NRC-W facility will be decided based of the DPR.

The following activities are being proposed for the funds from Ad Hoc CAMPA relevant to approval received vide letter F.NO. NA-13/2/2020-NA dated 5.03.2021 and a proposal for the preparation of the Detailed Project Report for the NRC-W and associated activities related to the same is being submitted.

Table 2: Budget for the preparation of the Detailed Project Report for the NRC-W and associated activities

No.	Activities	2022-23 (Rs)
1	National level and regional Consultative meeting with stakeholders	17,00,000
2	Meetings of committee set up to oversee the preparation of the scoping document and MoEFCC	1,00,000
3	Travel for team (for discussions related to collaborations with regional centres, NRC-W site visit etc.)	1,00,000
4	DPR preparation	1,62,00,000
6	Set up of background IT infrastructure	65,00,000
7	Planning for implementation stage- vendor selection, onboarding process etc	5,00,000
8	Identification and setting up of training and capacity development domains and modules	21,00,000
9	Miscellaneous	3,00,000
	TOTAL	2,75,00,000