Report of 9th Annual Meeting of Saving Asia's Vultures from Extinction

SAVING ASIA'S VULTURES FROM EXTINCTION

4-6th November 2019
Pinjore, India

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1. About SAVE and this report

The SAVE consortium, originally of eleven (now 24) organisations was formally established in February 2011 under the banner 'Saving Asia's Vultures from Extinction' (SAVE). These organisations have the common understanding to agree, prioritise and help implement the actions required to conserve Asia's Endangered vultures, based on sound scientific grounds. The annual meeting serves to review, report against, and update the regional Blueprint for the Recovery of Asia's Globally Threatened Vultures. This report presents the updated priorities (pp.4-5) and the refreshed Blueprint document (p. 88) (Note this now covers all Asia's Globally Threatened Vulture species, although the main focus remains the three Critically Endangered, resident Gyps species) together with all the background information that has resulted in this updated version.

The annual reporting process presented in this report, uses the agreed Blueprint actions by country, and has been carried out each year since 2014 when the Blueprint was initiated. SAVE Partners (and others carrying out relevant actions addressing Blueprint activities) have provided their updates, and highlighted their concerns. Note that each action for each country has been assessed as Green (On Track), Yellow (Some Concerns) or Red (Behind Schedule). These colour codes have been agreed in full consultation with all SAVE Partners for last year. Participants have had the opportunity to comment both during the meeting and by correspondence on a circulated draft. We have compiled summary tables of these flags (traffic lights) for each activity and by country, and also present those from last year for comparison (pp 11-12).

The top SAVE priorities (p4) for conserving South Asian vultures are revised annually, along with the separate list for SE Asia priorities (p5), where the main threats are recognised as being quite different. These priorities are reflected in more detail within the Blueprint (Annex 3).

Opening of the 9th Annual SAVE meeting with pre-release of an important pharmacy surveys paper.

Senior representation of IVRI, Indian state Governments (Chief Wildlife Wardens and PCCFs) of Madhya Pradesh, West Bengal and Haryana with SAVE Chairman.

9th SAVE Meeting and Acknowledgements

We warmly thank our hosts, the Bombay Natural History Society staff team at the Jatayu Conservation Breeding Centre, Pinjore. Vibhu and Nikita Prakash kindly organised all ground arrangements with support from the Haryana State Government as well as the manager and staff of Timber Trail, Parwanoo allowing the meeting to progress smoothly.

The RSPB provided the main financial support including travel costs for those unable to support themselves, which allowed the meeting to take place. Both RSPB and BNHS assisted with travel logistics and bookings. We take this opportunity to warmly thank all donors on the SAVE website during the past year who have generously contributed their support during the year. Unfortunately we did not receive any external grants or contributions for this year's meeting but appreciate those participants who supported their own travel costs and hotel bill from their own organisations or pockets. This was very helpful.

The programme and attendees (Appendix 3, Appendix 4) was carried out over 5-6 November 2019. SAVE Associate POJ produced two excellent video clips of the meeting with interviews: https://youtu.be/juNIxRcoQpY https://youtu.be/YTuKlu-3A5c

Finally, thanks to all contributors, especially those partners who supplied the main reports and indeed carried out the enormous body of work. Also to the growing number of new contributors, including for the first time from the Middle East, and to Mary Davies for additional and invaluable support in preparing the report.

Chris Bowden,
SAVE Programme Manager
SAVE Report Compiler

Chairman Prof Rhys Green Prof Vinny Naidoo (Pretoria Univ) Dr Chandra Mohan (IVRI)

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[photos Chris Bowden/RSPB]

2. Updated priorities for Asian vulture conservation in 2020

2.1 Vulture Conservation Priorities for South Asia 2020

- Veterinary licences to be withdrawn for drugs known to be toxic to vultures: aceclofenac (a pro-drug for diclofenac), ketoprofen, nimesulide, flunixin & carprofen - based on good existing evidence that these NSAIDs are unsafe for vultures
- Develop an effective system for the regulation of veterinary drugs, based upon safety-testing on vultures - and continue this for all current painkillers (NSAIDs) and for all potential new ones entering veterinary practice.
- Evaluate safety to vultures of nimesulide in India as a priority, closely followed by other emerging veterinary NSAIDs.
- Identify additional vulture safe NSAIDs (alternatives for vets) and publicise such findings and promote existing known vulture-safe NSAIDS.
- Major efforts urgently needed to address the immediate and increasing gap in funding for vulture conservation which now jeopardises the programme.
- Promotion of network and approach of 'Vulture Safe Zones' across South Asia with expansion to include trans-boundary cooperative efforts.
- Maintain the existing vulture conservation breeding programmes throughout South Asia.
- Secure a safe environment for further soft releases of captive vultures at identified sites (100km radius) in Nepal and for first soft releases in India, requiring satellite monitoring of the released birds.
- Develop national reporting systems for as many vulture deaths as possible, from any cause, with written recording and data storage protocols and pathways for immediate transportation and reliable tissue analysis throughout the SAVE region.
- Trial poison-bait response training and awareness workshops for identified key areas within the region. These will aim to improve the recording and documentation of poisoning incidents and increase the accessibility of data on poisoning incidents.
- Use the Convention of Migratory Species' Vulture Multi-species Action Plan as a tool to promote these SAVE priority actions and engage with governments and to approach CMS for funding.
- Closely support National Vulture Recovery Committees and the Regional Steering Committee (RSC) in order to facilitate the urgent implementation of the 2012 Delhi Regional Agreement and SAVE priorities.

[photo: Bird Conservation Nepal]

2.1 Vulture Conservation Priorities for South East Asia 2020

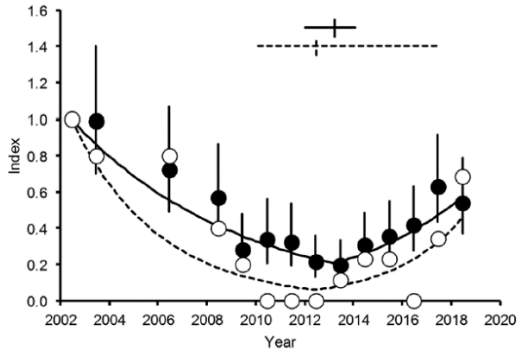
- Implementation of a high profile anti-poisoning campaign (across Cambodia)
- Trial poison-bait response training and awareness workshops for identified key areas within the region.
- More effective law enforcement within protected sites to halt forest conversion and hunting (targeted law enforcement patrols and nest guardians) to protect priority vulture nesting areas.
- Effective spatial planning to retain the priority forest areas for vulture conservation, ensuring strong environmental impact assessments are carried out to prevent detrimental regional development projects (Cambodia).
- Effective implementation of Cambodia's veterinary diclofenac ban.
- Seek a veterinary diclofenac ban for Myanmar through awareness raising and advocacy.
- Programme of undercover pharmacy surveys to determine NSAID availability and usage trends.
- Vulture restaurants continue to be maintained at four priority sites (Cambodia) to continue population monitoring.
- Develop Vulture Safe Zone concept for Cambodia and Myanmar. Improve quantification of population impact of poisoning and other significant threats on important vulture populations in Cambodia through better data collection and analysis.
- Establish baseline vulture monitoring data for Kachin (at VSZ) and Shan States.
- Improve funding situation for vulture priorities in both countries.
- Tagging of white-rumped vultures (in Cambodia) particularly to help locate breeding sites and understand movements.
- Closely support Cambodian Vulture Recovery Committee's involvement with the Regional Steering Committee (RSC) in order to facilitate the urgent implementation of SAVE priorities.

[photo: Chris Bowden/RSPB]

3. Overview of updates since 8th SAVE meeting

3.1 Outstanding achievements/updates of 2019

- **The Cambodia Government declared a veterinary diclofenac ban** with immediate effect on 31 July 2019. This prompt action follows the discovery of veterinary use in 2018, and an approach by the SAVE Partner, Cambodia Vulture Working Group using SAVE dossiers and inputs.
- The **positive vulture population trend in Nepal** was published in Bird Conservation International and publicised reinforcing the Vulture Safe Zone approach and diclofenac removal as the key steps needed.



- The **Bangladesh Government ban of ketoprofen and aceclofenac** was earlier declared by the Forest Department in the two VSZs but a Govt meeting called by the Livestock Department (in June) has brought crucial engagement needed for the implementation of this (Formerly only FD but this means it should really happen!).
- Successful completion of phase 2 **Tolfenamic Acid safety testing** tentatively suggests that this NSAID may be safe for vultures!
- Further steps were taken to address **aceclofenac threat in India** (additional letters from senior levels in two states to the central Govt drug controller general) but it remains unclear how close we are to a nationwide ban.

- **Releases** of 10 captive-reared and then 8 captive-bred white-rumped vultures **in Nepal** have been successful so far although there have been three fatalities and an apparent outbreak of an unknown disease. A further nine tagged wild WRVs are ranging widely with no mortalities so far.

[photos: Bird Conservation Nepal]

- A further **13 white-rumped vultures** were released in **Nepal** in October 2019 – 6 captive reared and 7 captive bred. As with previous releases, the birds have been fitted with GPS telemetry tags.
- Plans for the first India releases (Haryana & West Bengal) are progressing, satellite tags are now in hand, and the potential for huge profile.
- Construction of one urgently needed colony aviary in the **Assam** centre is nearing completion and a second one also finally underway.
- Methodology for harnessing vultures (to carry satellite tags) was developed with expert input, and an international workshop with key world tagging experts was carried out in August 2019 at ICBP, UK, in conjunction with the IUCN Vulture Specialist Group and significant refinements discussed and are being documented.

- **Indian Government** support for the breeding and release programme was received via BNHS but mainly at the very end of the Financial Year. This was very substantial for Haryana, and full costs covered for the West Bengal centre. **Madhya Pradesh** was also covered although no sign of an urgently needed aviary there. This represented an increase in support for Haryana (although significant sanctioned costs couldn't be fully mobilised), but for **West Bengal** Rajabhatkhawa breeding centre, this is a spectacular increase in government support! It also included construction of two urgently needed colony aviaries in West Bengal. The **Assam** breeding centre remains 100% dependent on external RSPB funds however which is a major concern.

- Growing SAVE engagement in the **Middle East**: Initial moves in **Oman** for a veterinary diclofenac ban using SAVE support gives new hope that this may set an important example if a ban can be achieved. **Saudi Arabia** is meanwhile progressing a similar measure, while initiatives in **Socotra/Yemen** are reported for the first time.
- Our contacts in **Iran** have shown that the veterinary diclofenac ban imposed there in 2015 is holding up very effectively.

3.2 Emerging concerns

- **Nimesulide and aceclofenac** veterinary use is apparently **increasing** in parts of India (also ketoprofen use is high in Bangladesh) and other untested drugs coming into veterinary use. There are further worrying indications across India of increased availability and use especially of nimesulide.
- **IVRI safety-testing in India** is now progressing, but only slowly. It's unclear how this can be speeded up, and risks lagging behind the changing trends in veterinary drug uptake.
- The breeding/release programme in **Assam** remains fully dependent on RSPB support which raises increasing concerns of sustainability.

Safety-testing work by IVRI/BNHS team
[photo Chris Bowden/RSPB]

3.3 The SAVE Blueprint (Action Plan to 2025)

Originally developed in Feb 2014 and updated at the 4th, 5th, 6th, 7th and 8th SAVE meetings is being used as widely as ever and is now formally endorsed and linked to the Convention of Migratory Species (CMS) Vultures Multi-species Action Plan, adopted in November 2017. The latest updated Blueprint version (Annex 3) has a slightly changed format and now also reflects the date by which we expect activities to have been achieved.

3.4 Changes regarding SAVE Partners since 8th SAVE meeting (see also 3.6 below)

SAVE Chairman
Professor **Rhys Green** since 8th annual SAVE meeting.

FACC Chairman
Uddin Ishtiaq Ahmad agreed to take on the FACC Chairing role at the 8th meeting, with emphasis on fundraising has called two Skype meetings so far this year (Feb & June 2019). FACC National focal points were agreed and participated from 5 of the 6 countries and minutes circulated. Note there are provisional plans to subdivide the responsibilities during 2020, separating the Fundraising from the Advocacy and Communications – this will be announced as appropriate via the website

TAC Chairman
Jemima Parry-Jones and **Vibhu Prakash** are Co-chairs.

TAC membership additions
Vinny Naidoo Dean, Faculty of Veterinary Sciences, University of Pretoria has been actively associated with SAVE and NSAIDs vulture work since 2004.
Chandra Mohan S. – Indian Veterinary Research Institute, Izatnagar, UP. India – leading the IVRI NSAIDs vulture safety testing work.
Andrew Routh is now Head Veterinarian, Durrell Wildlife Conservation Trust, reappointed to the TAC and is as active as ever for SAVE.

Board Representatives remain as before with two changes earlier in 2019:

- Ms **Jo Gilbert** has replaced Ms Clare Stringer as RSPB Board Member. Jo is Deputy Director, Conservation Programmes at RSPB, and this will be her first SAVE meeting. Clare has returned to her native New Zealand and sadly has departed RSPB.
- Mr **Yajna Nath Dahal**, Member Secretary of NTNC replaces Govinda Gajurel who has now retired. Mr Dahal sent his apologies for the 9th meeting and was represented by Mr Ram Kumar Aryal Project Chief from BCC-Chitwan

3.5 New SAVE Partners

Neo Human Foundation, of Jharkhand, India has had a long association with SAVE and contributed reports and presentations at previous SAVE meetings. NHF was formally approved and welcomed as a new member in August 2019, and Director Satya Prakash attended the 9th meeting. There is a report of 2019 activities in Section 7 of this report below.

3.6 Website: www.save-vultures.org donations, and SAVE presence at the UK Birdwatching Fair

There were some issues accessing website content (mainly in March/April, but again in July/August) especially for those on weaker internet platforms. It emerged that to resolve this, the outsourced service team, 'Boldlight' requested significant funds (up to £5,000), which included some training in uploading etc. Although Chris Bowden (RSPB) continues overall management of the SAVE website, significant support from Irene Sabiniarz has been crucial and Mary Davies of RSPB is now stepping up to support this and other communications work for the coming year.

SAVE button donations this year have been few. The website issues have hindered in this respect we believe.

For the first time, SAVE manned a stand at the UK Birdwatching Fair, taking advantage of several Partners visiting for a Vulture harnessing workshop which was timed to coincide the same week. The stand was popular and fundraising helped to cover costs, but 80 requests for news/updates via email demonstrate the positive awareness and interest in SAVE's work from the UK and international community [see SAVE website news link]

Team manning the SAVE stand at the British Birdwatching Fair, August 2019, with the help of 'Jatayu' vulture puppet attracting attention and 80 names/emails added to SAVE circulation lists
[photos Chris Bowden/RSPB]

4. Progress Summary (traffic lights) for all Blueprint activities

4.1 Status by November 2019

Progress against SAVE objectives (Blueprint actions) during 2019

Note the **Green (on track), Yellow (some concerns) Red (Behind Schedule), white (not yet started/applicable)** & Grey (completed) colour codes indicate SAVE's assessment of the progress of each activity

Advocacy		Captive Breeding		Vulture Safe Zones (VSZ)		VSZ Monitoring		Research & Monitoring		Fundraising	Cambodia	Myanmar
AD1	India	CB1	India	VS1	completed	ZM1	India	RM1	India	FR1	CAM1	MYA1
	B'desh		SAVE	VS2	India		Nepal		Nepal		CAM2	MYA2
	P'stan	CB2	India	VS3	India		P'stan		SAVE		CAM3	MYA3
	Nepal		SAVE	VS4	India		B'desh	RM2	India		CAM4	MYA4
	Cambodia	CB3	India	VS5	India		Cambodia	RM3	Nepal		CAM5	MYA5
	Myanmar		SAVE	VS6	Nepal		Myanmar	RM4	P'stan		CAM6	MYA6
AD2	SAVE	CB4	P'stan	VS7	Nepal	ZM2	India		B'desh		CAM7	
	India	CB5	Nepal	VS8	P'stan		Nepal		Cambodia		CAM8	
	B'desh		SAVE	VS9	P'stan	ZM3	P'stan		Myanmar			
	P'stan	CB6	India	VS10	n/a until 2022	ZM4	Nepal	RM5	Nepal			
	Nepal	CB7	B'desh	VS11	P'stan		India		India			
	Cam	CB8	India	VS12	P'stan		B'desh	RM6	India			
	Myanmar		SAVE	VS13	Nepal		P'stan		Nepal			
AD3+4	SAVE				P'stan		Myanmar		B'desh			
	India			VS14	Completed 2014		Cambodia		P'stan			
	B'desh			VS15	B'desh		Myanmar		Cambodia			
	P'stan			VS16	Cam	ZM5	India	RM7	India			
	Nepal			VS17	Cam		B'desh	RM8	India			
	Cambodia			VS18	Myanmar		P'stan		Nepal			
	Myanmar			VS19	Myanmar		Nepal		B'desh			
AD5	SAVE			VS20	India		Cambodia	RM9	P'stan			
	India						Myanmar	RM10	SAVE			
AD6	SAVE							RM11	SAVE			
	India											
	B'desh											
	Pakistan											
	Nepal											
	Cambodia											
	Myanmar											
AD7	SAVE											
AD8	India											
	B'desh											
	P'stan											
	Nepal											
	Cambodia											
	Myanmar											
AD9	SAVE											
	India											
	B'desh											
	Myanmar											
AD10	SAVE											

4.2 Status in 2018 (for comparison)

Note the **Green (on track), Yellow (some concerns) Red (Behind Schedule) &** Grey (completed) colour codes indicate SAVE's assessment of the process of each activity

Advocacy		Captive Breeding		Vulture Safe Zones (VSZ)		VSZ Monitoring		Research & Monitoring		Cambodia
AD1	India	CB1	India	VS1	completed	ZM1	India	RM1	India + Nepal	CAM1
	B'desh	CB2	India	VS2	India		Nepal	RM2	India	CAM2
	P'stan	CB3	India	VS3	India		B'desh	RM3	Nepal	CAM3
	Nepal	CB4	P'stan	VS4	India	ZM2	India			CAM4
	Cam	CB5	Nepal	VS5	India		Nepal	RM4	P'stan	CAM5
AD2	India	CB6	India	VS6	Nepal	ZM3	P'stan		B'desh	CAM6
	B'desh	CB7	B'desh	VS7	Nepal	ZM4	Nepal		Cam	
	P'stan	CB8	India	VS8	P'stan		India	RM5	India	
	Nepal			VS9	P'stan		B'desh		Nepal	
AD3+4	India			VS10	n/a until 2019		P'stan	RM6	India	
	B'desh			VS11	P'stan	ZM5	India		B'desh	
	P'stan			VS12	P'stan		B'desh		P'stan	
	Nepal			VS13	Nepal		P'stan		Nepal	
AD5	India				P'stan		Nepal	RM7	India	
	B'desh				India			RM8	India	
	Pakistan			VS14	Completed 2014				Nepal	
	Nepal			VS15	B'desh			RM9	P'stan	
AD6	India			VS16	Cam			RM10	India	
	B'desh			VS17	Cam			RM11	India	
	Pakistan									
	Nepal									
AD7	India									
	B'desh									
	Pakistan									
	Nepal									
AD8	India									
	B'desh									
	P'stan									
	Nepal									
	India									
AD9	B'desh									
AD10	India									
	B'desh									
	P'stan									
	Nepal									

5. 2019 Composition of the SAVE Partnership

Website: www.save-vultures.org

Chair: Professor Rhys Green. Cambridge University Professor of Conservation Science.

The SAVE programme is coordinated by **Programme Manager** Chris Bowden, RSPB.

Core Partners (Board) - Bird Conservation Nepal, BNHS India, Bangladesh National Vulture Recovery Committee, Cambodia Vulture Working Group, Hawk Conservancy Trust, International Centre for Birds of Prey, National Trust for Nature Conservation Nepal, Royal Society for the Protection of Birds and WWF Pakistan.

BCN **ICBP** **NTNC** **Pakistan**

Project Partners – Zoological Society of London, Wildlife Conservation Society, The Peregrine Fund, BirdLife Cambodia, Myanmar Vulture Working Group.

Project Partners (**Research & Govt.) –** Indian Veterinary Research Institute, Bangladesh Forest Department, Department of National Parks & Wildlife Conservation (Nepal), Environmental Research Institute (UK), VULPRO & University of Pretoria (both South Africa).

Key Supporting Agencies to SAVE objectives

Ministry of Environment, Forest and Climate Change (India)
Pakistan Forest Department
Forest Department, People's Republic of Bangladesh
Ministry of Forest and Soil Conservation, Nepal
Ministry of Agriculture Forestry & Fisheries (Cambodia)
Haryana State Forest Department
West Bengal Forest Department
Assam Forest Department
Madhya Pradesh Forest Department
Central Zoo Authority (India)
Nepal Department of National Parks & Wildlife Conservation
Forestry, Wildlife & Fisheries department, Punjab Province
IUCN Bangladesh Country Office

SAVE Associates – Arulagam, Corbett Foundation, Neo Human Foundation, Prokriti O Jibon.

SAVE meets to review priorities each year, and has two sub-committees, which report to these meetings. The current composition of these sub-committees is as follows:

SAVE Technical Advisory Committee (TAC)
Jemima Parry-Jones (Co-chair) - World expert raptor captive breeding & raptor biology
Vibhu Prakash (Co-chair) - Principal Scientist BNHS and renowned raptor biologist
Mohini Saini – Principal Scientist, Wildlife Section at Indian Vet Research Institute
Monirul Khan – Assoc Professor, Dept Zoology, Jahangirnagar Univ., Bangladesh
John Mallord – Senior Conservation Scientist, RSPB Centre for Conservation Science, UK
Mark Taggart – Snr Scientist, NSAIDs expert, Univ of Highland & Islands, UK
Krishna Bhusal – Vulture Conservation Programme Officer, Bird Conservation Nepal
Campbell Murn – Head Conservation & Research, Hawk Conservancy Trust (UK)
Chris Parish – Director California Condor reintroduction, The Peregrine Fund (USA)
Nic Masters – Head of Veterinary Services, ZSL & London Zoo
Andrew Routh – Head Veterinarian, Durrell Wildlife Conservation Trust
Chiranjibi Prasad Pokheral - Project Chief of NTNC's Biodiversity Conservation Centre, Nepal
ABM Sarowar Dipu – IUCN Bangladesh & BNVRC
Vinny Naidoo – Dean, Univ Pretoria, South Africa
Chandra Mohan S –Indian Veterinary Research Institute
Rhys Green. Cambridge University Professor of Conservation Science

SAVE Fundraising, Advocacy and Communications Committee (FACC)
Uddin Ishtiaq Ahmad (Chair) – IUCN Bangladesh Country Rep, CCF B'desh Forest Dept. (retired)
Ram Jakati – Director Indira Gandhi Nati Forest Academy (retired)
Homi Khusrokhan – President of BNHS India
Devendra Swarup – Director IVRI (retired) & NSAIDs & veterinary expert
BC Choudhury – Senior Scientist at Wildlife Institute of India (retired)
Nick Lindsay – Head of International Zoo Programmes, ZSL (retired)
Paul Insua-Cao – Partner Support, RSPB (UK)
Anil Sharma – Principal Scientist, Centre Wildlife Cons, Mangt & Disease Surveillance, IVRI (retired)
Enam Ul Haque – Founder Bangladesh Bird Club
Ishana Thapa – CEO BCN
Sarita Jnawali – National Trust for Nature Conservation, Nepal
Naiky Ny – BirdLife Cambodia
Anuj Jain – Programmes & Fundraising, BirdLife International Asia Secretariat
M. Jamshed Chaudhry – WWF Pakistan
Deepak Apte – Director BNHS
Thiri Dae We Aung – Director BANCA, Myanmar
Chris Bowden – Globally Threatened Species Officer & Vulture Programme Manager, RSPB

Past Chairs
Prof Ian Newton (2011-2015)
Prof David Houston (2015-2018)

6. Main report: SAVE Partners 2019 updates by Country

6.1 General SAVE actions

Advocacy

Code	Country	Action	Lead Partner	By (end date)
AD2	**Achieve the banning of the veterinary use of ketoprofen, aceclofenac, Nimesulide, Carprofen, and Flunixin in India, Pakistan, Bangladesh, Nepal, Bhutan, Cambodia & Myanmar. First step to stop Government purchase or supply of all 5 NSAIDS**			
AD2	**All**	**Discuss the issue with the Regional Steering Committee, all governments and pharmaceutical industry using research results.**	**SAVE**	**2020**
This has not yet been taken up by RSC and needs restating to them at the next meeting.				
AD2	**All**	**Make/update materials available on website specific to these NSAIDSs**	**SAVE RSPB**	**2020**
The NSAID Alert tab on SAVE website has materials including the dossiers for ketoprofen, nimesulide, aceclofenac, carprofen, but more are still required. No significant additions since Nov SAVE meeting. However, these documents are currently proving an invaluable resource e.g. heavily used for achieving the recent Cambodia ban, and we are regularly referring Myanmar, Oman, Yemen, Saudi Arabia and other contacts including OIE contacts and the BirdLife Secretariat to these dossiers. Further additions and updates to be added in 2020 including adding carprofen, meloxicam, diclofenac dossiers. Also tolfenamic acid.				
AD3/4	**Establish system and procedures by which veterinary drugs with unknown effects on vultures have their approval for veterinary use withheld or withdrawn until scientific testing on Gyps vultures establishes their safety at maximum likely exposure levels. (ALL, although lower priority only for Cambodia)**			
AD3/4	**SAVE**	**Write protocol and make this available on SAVE website. [Now available].** **Provide and update technical assistance and advice on the operation of the procedures, using information from monitoring.**	**SAVE RSPB**	**2020**
This protocol has been developed and is available via SAVE. Follow-up still required.				
AD3/4	**SAVE**	**Discuss with NVRCs and at Regional Steering Committee (RSC).** **Approach medicines regulatory authorities to request that any new veterinary medicine should be tested for safety to vultures prior to registration/release to market.** **[NB to amend wording here after discussion with drug authority representatives/experts]**	**SAVE**	**2020**
Outstanding task is to take this up fully at national and RSC levels. This was not discussed at the recent RSC.				
AD3/4	**SAVE**	**Explore the possibility of a moratorium on new (veterinary) NSAIDs**	**SAVE**	**2020**

This has been mentioned, but has not progressed, so needs restating or further discussion on finding a constructive way to take it forward.				
AD5	**Work with both the pharmaceutical industry and governments to identify, by a robust safety testing and approval process, NSAIDs that are safe for vultures. Currently meloxicam is the only such drug.**			
AD5	**SAVE**	**Agree on best approach to achieve robust safety testing, and to acknowledge any progress - through relevant national partners.**	**SAVE TAC**	**2020**
Agreed to seek more direct involvement of pharmaceutical experts/industry/government authority individuals with SAVE discussions to help develop this and other angles to find practical solutions that are acceptable/workable.				
AD5	**SAVE**	**TAC with IVRI to promote next priority NSAIDs for testing [add agreed NSAIDs here tbc]**	**SAVE TAC BNHS IVRI RSPB**	**2020**
Identified a need to write letter to European drug companies producing flunixin - from BirdLife and/or SAVE on the impact on vultures of flunixin – Univ Pretoria and ERI to provide further input. TAC to consult and agree priority drugs closely with IVRI and others on the next priority drugs for testing, and to communicate recommendations.				
AD5	**SAVE**	**Complete testing, confirm and promote safety of tolfenamic acid**	**IVRI**	**2020**
This work scheduled for December 2019, with report to be completed and circulated for any implicated actions in early 2020. Full publication will follow later in 2020.				
AD6	**Contribute, with government agencies and pharmaceutical companies, to maintaining pharmacovigilance and regulation of veterinary drugs, to prevent their negative effects on wild vultures.**			
AD6	**SAVE**	**Proposed procedure/s to be developed and shared.**	**SAVE**	**2020**
This remains something that is needed and wasn't done at the last meeting. Greater engagement of pharmaceutical experts/industry/government authority individuals with SAVE discussions is being sought to help progress this.				
AD7	**Establish a SAVE alert web-based system for veterinary drugs which combines information of levels of use from pharmacy surveys and analyses of cattle carcasses with results from safety testing to draw attention of govts to potentially hazardous drugs.**			
AD7	**SAVE**	**Operate system and provide advice to the Regional Steering Committee, governments and pharmaceutical industry**	**SAVE**	**2020**
Greater engagement of pharmaceutical experts/industry/government authority individuals with SAVE discussions is being sought to help progress this.				
AD7	**SAVE**	**Establish system within SAVE. (System established 2016) Operate system and provide advice to the Regional Steering Committee, governments and pharmaceutical industry.**	**SAVE TAC**	**2020**
This needs follow up. Again greater engagement of pharmaceutical experts/industry/government authority individuals with SAVE discussions is being sought to help progress this.				
AD7	**SAVE**	**Add SAVE website feature on this (include updates on pharmacy surveys)**	**SAVE**	**2020**

		All partners to alert SAVE of any changes & post on website		
This needs follow up but the upcoming pharmacy surveys paper (submitted) will largely address this.				
AD7	**SAVE**	**SAVE: Improve prominence on SAVE website & update information.**	**SAVE**	**2020**
Further work needed in 2020 on this.				
AD9	**Develop wider awareness-raising initiatives to highlight NSAIDs concerns and provide incentives acknowledgement of those taking positive steps.**			
AD9	**SAVE**	**Establish SAVE pharma working group involving initially companies that produce good formulations or showing interest in supporting**	**SAVE**	**2020**
A priority for 2020 to identify members and get this group operational.				
AD10	**Develop SAVE positions on key issues as highlighted by the CMS Vultures MSAP**			
AD10	**SAVE**	**Circulate position statements and report at annual meeting [Note Research needs also to be added in research and survey section]**	**SAVE TAC**	**2020**
No progress.				
AD10	**SAVE**	**Update CMS annually on SAVE/Blueprint Updates**	**SAVE**	**2020**
This has been done, but now need to establish a link (from the SAVE website) which automatically refreshes to the newly updated Blueprint version each year. MSAP clearly draws on the SAVE blueprint for South Asia and should be considered synonymous with it. Ongoing watching brief on activities under MSAP.				

Conservation Breeding

CB1	**Conservation breeding of OWBV, LBV and SBV at VCBC Pinjore (India).**			
CB2	**Conservation breeding of OWBV, LBV and SBV at VCBC Rajabhatkhawa (India).**			
CB3	**Conservation breeding of OWBV and SBV at VCBC Rani (India).**			
CB5	**Conservation breeding of OWBV at VCBC Chitwan (Nepal).**			
CB8	**Conservation breeding of OWBV & LBV at VCBC Bhopal (India)**			
CB1,2,3,5,8	**SAVE**	**Propose optimum vulture numbers to be held at centre for each species**	**SAVE TAC**	**2020**
TAC/BNHS to lead this process and propose figures for longer term.				

Research and Monitoring

RM1	**Develop method for GPS PTT vulture tracking and corpse recovery in VSZs.**			
RM1	**SAVE**	**Produce harnessing and wing-tagging guides.**	**RSPB**	**2020**
Harnessing workshop took place in August at ICBP to refine harnessing techniques. This was done also under the banner of the IUCN Vulture Specialist Group. Step by step guides for the different techniques are being developed and will be made available.				
RM1	**SAVE**	**Continue development of corpse recovery method.**	**BNHS BCN RSPB**	**2020**

Recent contact and visit (to Pinjore) by Prof Sam Wasser of University of Columbia, USA, investigating sniffer-dog training options (training up a local stray dog) for efficiently finding corpses was helpful in advancing ideas, but this highlighted the challenges including the BNHS staff capacity issues. Use of a goniometer may be a further option (for PTT but not GSM tagged birds). This topic is not resolved.				
RM10	**Estimation of the former and potential future value of the ecosystem services provided by wild vultures.**			
RM10	**SAVE**	**Conduct a survey of costs of cattle carcass disposal, feral dog control and other ecosystem service measurements. Based on IUCN India paper, VSG to have standard statement on role of vultures in disease ecology. Current best knowledge of role of vultures in ecosystem function is inconclusive. Update SAVE website with relevant publications.**	**SAVE**	**2021**
IUCN India Report overdue for publishing and awaited. Maintain links with IUCN Vulture Specialist Group on statements relating to this and any links with human health.				
RM11	**Investigate factors affecting use of vulture-safe NSAIDs by veterinarians, paravets and livestock owners.**			
RM11	**SAVE**	**Conduct questionnaire studies, choice experiments and other investigations, as appropriate.**	**SAVE TAC**	**2020**
The ongoing pharmacy surveys will collect some information on the use of different NSAIDs by different users. To be pursued via the TAC for all SAVE countries. See AD1 for Myanmar.				
RM11	**SAVE**	**Exploit potential for collaboration with social scientists who could pursue some of this work. TAC identify means to achieve this, eg SAVE website, engage with pharma groups.**	**SAVE TAC**	**2020**
This theme needs developing in 2020 with some clearer remit provided by TAC				

Fundraising

FR1	**Develop stronger fundraising capacity.**			
FR1	**SAVE**	**1. Identify national focal points for fundraising. 2. FACC to meet 4 times/year and develop further actions. Actions to be proposed and agreed through FACC during 2020.**	**SAVE**	**2020**
This has happened through the FACC forum for all SAVE countries except India so far. Meetings on track. Met twice (Skype) chaired by Uddin Ishtiaq, with good participation (see FACC short report).				
FR1	**SAVE**	**Develop sustainable funding approaches for each country/state. Identify broader set of fundraising opportunities (eg GEF regional multi-country)**	**SAVE**	**2020 Ongoing**
This needs further development in 2020				

6.2 India

Advocacy

Code	Country	Action	Lead Partner	By (end date)
AD1	**Achieve the removal from the market of vials of diclofenac supposedly intended for human medicine in excess of 3 ml capacity.**			
AD1	**India**	**Propose restrictions on large vials to the Regional Steering Committee, National Vulture Recovery Committees (NVRCs), governments and pharmaceutical industry. Establish the restrictions.**	**BNHS**	**Done**
No recent contraventions we are aware of. Large vials have not appeared manufactured outside India, except in Vietnam. Topic not seriously taken up at RSC.				
AD1	**India**	**Proactive involvement (including providing technical assistance) in court case brought by Indian pharma company to uphold 2015 ban.**	**Arulagam**	**Done**
No recent contraventions we are aware of during 2019.				
AD1	**India**	**Approach appropriate agency/ies accredited /recognised by concerned governments to undertake pharmacy surveys and produce reports related to the multi-dose vial issue**		**?**
Not yet been done. Need to review feasibility.				
AD1	**India**	**Monitor availability of larger (<3ml) diclofenac vials**	**BNHS, Arulagam, Corbet Fndn, Neohuman Fndn, State Govts.**	**2020**
Generally large vials are no longer being produced. Some larger vials (old stock) still being sold, and e.g. in Tamil Nadu, prosecutions are being planned by the drug authorities. The signs are that this issue is gradually being resolved.				
AD2	**Achieve the banning of the veterinary use of ketoprofen, aceclofenac, nimesulide, carprofen, and flunixin in India, Pakistan, Bangladesh, Nepal, Bhutan, Cambodia & Myanmar. First step to stop Government purchase or supply of all 5 NSAIDS**			
AD2	**India**	**Seek bans for all 5 drugs for veterinary use – follow-up on process already initiated.**	**BNHS IVRI**	**2020**
The Tamil Nadu restrictions of Government purchase and supply of ketoprofen and aceclofenac at District level (all Districts of the State where vultures regularly occur) were apparently upheld in 2018 and 2019). Note these restrictions have not expanded further. However, note that recently, TN Govt has started supplying flunixin as a Govt funded alternative – and is showing some interest in restricting this at least from the 'Vulture Districts' within the state. [See Arulagam report]				

It appears that getting a national aceclofenac ban or at least some restrictions is becoming a real possibility. Several State drug controllers have further applied pressure on the Central Govt. for this but it is under consideration.

Getting aceclofenac banned appears to be more feasible, despite the longstanding toxicity evidence available for ketoprofen. But no official information available.

AD2	**India**	**Approach State Drug Controller/Animal Husbandry Director to stop Govt. supplies to vets and prohibits use by Govt vets. (refer to 2012 Delhi Declaration) – at least all VSZ initiatives to do this**	**BNHS Arulagam Corbet Fndn Neohuman Fndn**	**2020**

See table of progress on this for certain states.

Indian State	**Govt supplies vets NSAIDs? Y/N**	**If so – Which NSAIDs supplied? (including brands)**	**Govt. approached? (Date)**	**Any Policy in place? Y/N**	**NGO or lead contact**
Andhra Pradesh	?				
Arunachal Pradesh	?				
Assam	NO		YES by BNHS		BNHS/ Sachin Ranade
Bihar	?				Arvind Mishra
Chhattisgarh	?				
Goa	?				
Gujarat	YES	??	??		Kartik Shastri
Haryana	NO		YES by BNHS		BNHS
Himachal Pradesh	?				
Jammu and Kashmir	?				
Jharkhand	YES	Meloxicam Melox+Paracetamol (Karnataka Antibiotics & Pharm Ltd)	YES, by Satya Prakash, NHF, June 2018	YES (see NHF rept)	Satya Prakash Neo Human Foundation
Karnataka	YES	Meloxicam only but checking re flunixin	YES by Prayag/CB Jan 18, Jan 20	No Circular from Anim Hus Commissioner 2020 (to be cornfirmed).	Rajkumar Prayag HS
Kerala	?				Sashikumar
Madhya Pradesh	?				BNHS/Rohan Shringarpure
Maharashtra	?				BNHS/Deepak Apte
Manipur	?				
Meghalaya	?				

Mizoram	?				
Nagaland	?				
Odisha	?				
Punjab	?				
Rajasthan	YES	includes ketoprofen!	?		
Sikkim	?				
Tamil Nadu	YES	Meloxicam only – But 2019 added flunixin	YES by Arulagam	Yes (ref Arulagam)	Arulagam Bharathidasan S
Telangana	?				BNHS/Deepak Apte Shaik Hussain
Tripura	?				
Uttar Pradesh	YES	Meloxicam only	Yes by BNHS (2018)	No	BNHS/Alka Dubey
Uttarakhand	YES	Meloxicam only?			Khima Balodi/ BC Choudhary
West Bengal	?				BNHS/Vibhu Prakash/S Chakraborty

AD2	**India**	**Chase aceclofenac ban in 2020**	**BNHS**	**2020**
This is in progress. Awaiting scientific committee outcomes.				
AD2	**India**	**Formally approach Drug Controller Gen (India) through IVRI. Request IVRI to provide technical input for joint recommendation with BNHS to prompt an advisory from DCGI on this as interim measure**	**BNHS IVRI**	**2020**
This was done but not formally. Review whether this should be done more formally.				
AD2	**India**	**Provide technical assistance and advice on the operation of the ban, using information from monitoring.**	**SAVE RSPB**	**2020**
This is being done through publishing the paper "Trends in the availability of the vulture-toxic drug, diclofenac, and other NSAIDs in South Asia, as revealed by covert and overt pharmacy surveys" (submitted).				
AD2	**India**	**State level advocacy targeting Govt authorities including all state/provincial Animal Husbandry Depts to stop purchase target NSAIDs for vets**	**BNHS**	**2020**
See table above. Some progress. Circulars issued, but needs to become state policy.				
AD3/4	**Establish system and procedures by which veterinary drugs with unknown effects on vultures have their approval for veterinary use withheld or withdrawn until scientific testing on Gyps vultures establishes their safety at maximum likely exposure levels. (ALL, although lower priority only for Cambodia)**			
AD3/4	**India**	**Explore the possibility of a moratorium on new (veterinary) NSAIDs**	**BNHS**	**2020**
This has not progressed but other AD actions are contributing.				

AD5	**Work with both the pharmaceutical industry and governments to identify, by a robust safety testing and approval process, NSAIDs that are safe for vultures. Currently meloxicam is the only such drug.**			
AD5	**India**	**Promote funding of IVRI safety testing and discuss revision of the list of drugs to be tested. Provide encouragement and technical advice.**	**SAVE BNHS RSPB IVRI**	**2020**
Only IVRI safety-testing is progressing, and this has made important progress but is a slow process. Technical and logistical support have been provided, and funding from Govt is gradually coming through. More urgency is needed, but this is progressing. Engaging the pharma industry on this has not progressed and needs attention.				
AD6	**Contribute, with government agencies and pharmaceutical companies, to maintaining pharmacovigilance and regulation of veterinary drugs, to prevent their negative effects on wild vultures.**			
AD6	**India**	**Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.**	**BNHS**	**2020**
This area needs more attention.				
AD8	**Improve the availability of more effective vulture-safe drugs and formulations thereby facilitating take up by veterinary practitioners.**			
AD8	**India**	**Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam. Share and publicise good practice examples among SAVE and more widely for companies (e.g. Bangladesh) able to demonstrate better (e.g. neutral pH etc) meloxicam formulations and alert Govts to this aspect. Sensitise more companies on this.**	**BNHS SAVE Arulagam (Tamil Nadu)**	**2020**
Flunixin was purchased by the Department of Animal Husbandry, Government of Tamil Nadu. It was alerted to the higher officials. Now Government has taken decision to stop purchasing harmful drugs and ensured to purchase only meloxicam. Greater efforts are needed in other states and directly with the pharma industry on this.				
AD8	**India**	**Request Director of IVRI to recommend Tolfenamic Acid to MoEFCC and Veterinary Council of India. Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier). Check on Tolfenamic acid formulations that they are being used and accepted by vet community all countries**	**SAVE BNHS**	**2020**
To follow in 2020.				

AD9	**Develop wider awareness-raising initiatives to highlight NSAIDs concerns and provide incentives acknowledgement of those taking positive steps.**			
AD9	**India**	**Initiate system to support eg cattle shelters & dairy cooperatives that ensure only vulture-safe NSAIDs are used. (eg kite-mark/certification system).**	**Arulagam SAVE Associates**	**2020**
Proposals for this in Tamil Nadu (by Arulagam) did not receive funding, although some progress made. This needs taking up more widely and to get funding.				
AD9	**India**	**General national awareness programme perhaps using a celebrity as a front person**	**BNHS SAVE Associates**	**2020**
No progress.				
AD9	**India**	**Dialogue with drug companies identified producing good formulations (meloxicam, tolfenamic acid)**	**BNHS SAVE**	**2020**
Very limited discussion/progress so far. To progress in 2020				

Conservation Breeding

CB1	**Conservation breeding of OWBV, LBV and SBV at VCBC Pinjore (India).**			
CB1	**India**	**Maintain the captive population in good health. Produce as many fledglings as possible of all three species, using artificial intervention as appropriate, but with less emphasis on OWBV and more on SBV and LBV, using artificial incubation for those species if appropriate. Transfer of surplus immatures to release programme.**	**BNHS**	**2025**

Established in 2004, the Jatayu Conservation Breeding Centre is located at the edge of Bir Shikargah Wildlife Sanctuary 8 km from Pinjore, Haryana.In 2018-2019, a record number of 47 chicks (27 Long-billed, 17 Oriental White-backed and 3 Slender-billed) hatched at the centre, the highest so far. At present, 333 Gyps Vultures (175 Long-billed, 115 Oriental White-backed and 43 Slender-billed) are housed at the centre, where BNHS and Haryana Forest Department work collaboratively.

Preparation for the Vulture Reintroduction Programme:

- Eight vultures were housed in a pre-release aviary which is next to the centre and fitted dummy Platform Transmitter Terminals (PTTs) to allow them to get used to the tags and also check for any possible negative impacts. The free-ranging vultures were attracted outside the aviary for providing food to encourage interaction with the captive birds. The exercise attracted nearly 400 vultures, with 80% being Himalayan Griffon and the rest, White-backed Vultures. The Haryana Forest Department has procured 8 PTTs, including 4 based on GSM (mobile phone technology). The release is now planned between December 2019 to March 2020.
- A radius of 100 km around the centre was monitored regularly to assess food availability. The carcasses, including intact carcasses, partially eaten and also skeletons were counted once a week at six fixed dumps. This helped us to assess the status of food supply to vultures throughout the year.

- Surveys were carried out every month on a fixed road transect covering 400 km- to estimate the free ranging vulture population. While Egyptian Vultures were the only species seen throughout the year, Himalayan Griffon dominated the region during the winter months. White-backed Vultures were also sighted throughout the years except for a few months in summer. The maximum number of White-backed Vultures seen were 90.
- Undercover pharmacy surveys indicated meloxicam had replaced diclofenac in the 100 km radius of the centre. Very little diclofenac (3%) was sold by pharmacists and it was only sold in 3 ml ampoules.
- A major workshop on vulture conservation and reintroduction programme was conducted in February 2019 at Panchkula, Haryana for officials of Forest , Animal Husbandry, Food and Drug Administration, and NGOs from the neighbouring five states, where a number of recommendations were chalked out for different stakeholders that would eventually help in vulture conservation and release. The workshop concluded with a pledge by the delegates to not buy veterinary drugs without prescription.
- The 10th governing council meeting of the centre was held in May 2018, where the proposed reintroduction programme was discussed.

General Observations: One temporary aviary was constructed to house this year's juveniles in the facility across the road from the centre which was originally developed for Himalayan Griffons, as there was shortage of aviary space at the centre. One Colony aviary was under construction.

Totals summary:

Centre	OWBV	LBV	SBV	Total
VCBC, Pinjore	115	175	43	333

Fledged 2019

Centre	OWBV	LBV	SBV	Total
VCBC, Pinjore	27	17	3	47

CB2	**Conservation breeding of OWBV, LBV and SBV at VCBC Rajabhatkhawa (India).**			
CB2	**India**	**Maintain the captive population in good health. Produce as many fledglings as possible of all three species (subject to sufficient aviary space). There should be special emphasis on SBV, using artificial incubation for that species if appropriate. Transfer of surplus immatures to release programme.**	**BNHS**	**2025**

Established in 2005 and located 15 km from Alipurduar in West Bengal, the VCBC is a collaborative project of BNHS and the West Bengal Forest Department. The 2018-2019 breeding season saw 24 nesting pairs and there were 9 successful fledglings, of which 7 were Oriental White-backed and 2 Long-billed Vulture. In all, the centre had 129 vultures of three species (84 Oriental White-backed, 18 Slender-billed and 27 Long-billed Vultures).

Preparation for the Vulture Reintroduction Programme: The centre held its seventh governing council meeting in February 2019, where various issues pertaining to vulture conservation were discussed, including soft release of rescued Himalayan Griffon, as a precursor to the actual release programme, by fitting them with satellite transmitters and monitor the survival of birds after release and how they adjust to wilderness after being in captivity for a long period of time.

A release site for pre-release aviary, 2 km from the centre, was also identified, where the Himalayan Griffon have been shifted and wing tagged. They will be kept there for at least three months before the release. Free-ranging vultures were attracted by providing food outside the aviary. The Himalayan Vultures will be released in December 2019. It is hoped that the reintroduction of the captive bred vultures will be initiated during 2020-21.

The centre, along with West Bengal Forest Department, jointly organized a workshop on Vulture Conservation and Reintroduction Programme at Chalsa, West Bengal from February 22 to 24, 2019, to familiarize officials of Forest , Animal Husbandry, Food and Drug Administration, and NGOs about the release programme. As in the Haryana workshop, the Chalsa workshop too chalked out recommendations to various stakeholders and ended with the participants pledging their resolve to not buy veterinary drugs without a prescription.

Main Observations:

1. *The artificial incubation facility is ready but the double clutching will be done only when additional aviary space is created, probable from 2021-2022.*
2. *The centre constructed two new colony aviaries in 2018-19. Birds will be shifted to them soon.*

We anticipate a higher productivity in future with more aviary-space.

Summary numbers

Centre	OWBV	LBV	SBV	Total
VCBC, Rajabhatkhawa	84	27	18	129

Fledged 2019

Centre	OWBV	LBV	SBV	Total
VCBC, Pinjore	7	2		9

CB3	**Conservation breeding of OWBV and SBV at VCBC Rani (India).**			
CB3	**India**	**Maintain the captive population in good health. Produce as many fledglings as possible of both species (subject to sufficient aviary space). There should be special emphasis on SBV, using artificial incubation for that species if appropriate. Transfer of surplus immatures to release programme.**	**BNHS**	**2025**

Established in 2007, the VCBC is located near Belguri village at Rani Block, Assam. The centre breeds two Gyps Vultures – the Slender-billed and Oriental White-backed Vultures. The first successful breeding was in 2011 and, to date, there have been 43 fledglings. This year, there were 5 successful Oriental White-backed fledglings. There are 117 Gyps Vultures housed at the centre currently.

Preparation for the Reintroduction Programme: Over the year, the centre conducted awareness programmes for 250 forest staff, besides 56 other groups including veterinary doctors, students and wildlife enthusiasts. The centre assists the Forest Department in rescuing wild vultures, which are then treated in the centre and released into the wild. The vulture reintroduction programme is scheduled for 2020-21.

Main Observations

1. *One colony aviary and a temporary aviary made up of iron poles and safety netting were under construction to ease the over crowing in the existing colony aviary.*
2. *The centre has the largest Slender-billed Vulture population*
3. *There is a serious problem of lack of aviary space. There is an urgent need to construct one more colony aviary.*

Totals

Centre	OWBV	LBV	SBV	Total
VCBC, Rani				117

Fledged 2019

Centre	OWBV	LBV	SBV	Total
VCBC, Rani	5			5

CB3	**India**	**Complete second and add third colony aviary in Assam centre**	**BNHS**	**2020**

One colony aviary is under construction (since early July 2019) with RSPB funds which were agreed could be used over a year ago (and despite recent floods it is progressing and on track to shift birds for the coming breeding season to at least one of them).

CB6	**Conservation breeding of OWBV and LBV at CZA centres (India).**			
CB6	**India**	**Training of staff and preparation of facilities Transfer of captive bred OWBV and LBV from VCBC Pinjore.**	**BNHS**	**2020**

Training has been happening periodically. Staff visits to Pinjore Bhopal and Jharkhand.

CB6	**India**	**Maintain the captive population in good health. Produce as many fledglings as possible by natural methods.**	**MOEFCC CZA**	**2020**

VCBC, Junagarh. There are 56 Oriental White-backed Vulture and Long-billed vulture at the centre. One White-backed nestling fledged during 2016-17.

VCBC, Hyderabad. There are 11 White-backed Vultures at Nehru Zoological Park in Hyderabad. Two pairs attempted breeding but were not successful.

VCBC, Nandankanan, Odisha
There are now eighteen Long-billed Vultures which were shifted from Gwalior, Madhya Pradesh. One pair attempted breeding but was not successful.

CB6	**India**	**Transfer captive-bred birds to release facility or other centres.**	**CZA**	**2025**

No other transfers agreed for 2019.
VCBC Jharkhand: Note that this centre is constructed according to the SAVE model and is requesting birds from BNHS centres (ie LBVs and WRVs). There are no birds as yet. There is an MOU being agreed with BNHS, and this has been developed recently.
Only 40 vultures have been transferred to Bhopal so far from Pinjore. Efforts are being made to sign an MoU with Jharkhand governments and shift birds to Muta zoo soon.

CB6	**India**	**Update release plan annually.**	**CZA**	**2025**

This should happen once releases have progressed, but currently almost no breeding productivity away from BNHS-run centres.

CB8	**Conservation breeding of OWBV & LBV at VCBC Bhopal (India)**

CB8	**India**	**Establish & maintain a captive population in good health – primarily through supply and exchanges of subadult birds from other existing centres.**	**BNHS**	**2020**

The VCBC is located at the edge of a Reserve Forest area near Kerwa Dam, 9 km from Bhopal. The centre covers 5.5 acres of Madhya Pradesh Forest Department land. The VCBC is a collaborative effort of BNHS and Madhya Pradesh Forest Department to save Oriental White-backed and Long-billed Vultures from extinction. Currently, 51 vultures are housed at the centre; 4 nestlings fledged during 2018-19.

The centre organized awareness programmes for school and college students and the general public to familiarize them about vultures in preparation for the reintroduction programme.

Main Observations

1. *There is urgent need for an additional colony aviary as the number of vultures are increasing*
2. *There is an immediate need for Incubation and brooder facility, veterinary section, and microbiology laboratory*
3. *There is a need to shift Long-billed Vultures from Rajabhatkhawa centre*

Totals

Centre	OWBV	LBV	SBV	Total
VCBC, Bhopal				51

Fledged 2019

Centre	OWBV	LBV	SBV	Total
VCBC, Bhopal		4		4

Vulture Safe Zone – Implementation

VS1	**Identification and selection of new provisional Vulture Safe Zones (pVSZs) in India, in particular for LBV.**			
VS1	**India**	**Collect information and select pVSZs. Completed**	**BNHS**	**Done**
VS2	**Capacity building & local advocacy of prov. Vulture Safe Zones (pVSZs) India.**			
VS2	**India**	**Develop capacity in pVSZs.**	**BNHS NeoHumanFndn Arulagam**	**2020**
Plans for a VSZ meeting have not so far materialised. There is need for a review and further refinement of actions.				
VS3	**Selection of pVSZs in India suitable for conversion to full VSZs.**			
VS3	**India**	**Selection and conversion of pVSZs to full VSZs based upon undercover pharmacy monitoring data and monitoring of fates of tagged vultures. Focus on proposed release areas & transboundary areas VSZs and review current**	**BNHS NeoHumanFndn Arulagam SAVE**	**2020**

		emphasis (prioritise Haryana, UP, Bihar, Gujarat, Tripura, Meghalaya, W Bengal, Jharkhand)		
This area needs more attention.				
VS3	**India**	**Review selection/process & then again review in 2019, 2021. (2017 MP Reviewed)**	**BNHS SAVE**	**2020**
The review of Tamil Nadu VSZ has not yet happened. Visits by SAVE/RSPB to Assam have resulted in some useful feedback and ideas for streamlining reporting for all VSZs. This area will be given priority attention in 2020.				
VS4	**Maintenance and review of VSZs in India**			
VS4	**India**	**Continue VSZ implementation. Potential removal of VSZ status if monitoring shows that conditions have changed.**	**BNHS SAVE TAC**	**2020**
See above. But reports from Assam, UP and MP VSZs awaited (not yet received). From Assam VSZ there has been more progress and results are incorporated to other actions. See Arulagam report (Associates Reports) for Tamil Nadu.				
VS5	**Release of captive-bred vultures in VSZs in India.**			
VS5	**India**	**Transfers of captive-bred vultures to holding aviaries in VSZs.**	**BNHS, Indian State Govts**	**2020**
Planned for 2020.				
VS5	**India**	**Releases of first captive-bred vultures in VSZs.**	**BNHS, Ind State Govts**	**2020**
Planned release of 8 OWBV with PTTs for early 2020 in Haryana. Also plans developing for West Bengal by end 2020.				
VS20	**Livestock management and husbandry training in pVSZs and VSZs in Tamil Nadu**			
VS20	**India**	**Implement training programme.**	**Arulagam**	**2022**
Nothing to report. See Arulagam report (Associates Reports).				

Vulture Safe Zone – Monitoring

ZM1	**Monitoring movements, survival and causes of death of wild vultures with GPS PTTs in pVSZs and VSZs**			
ZM1	**India**	**Seek permits for OWBV capture and tagging of wild vultures in VSZs. Initial tagging trials & monitoring/ recovery system in place for any mortalities for autopsy.**	**BNHS Nat Vult RC**	**2020**
Haryana: plan is to capture wild birds, tag and release at same time as release of captive-bred vultures. Eight PTTs / GSM tags have been purchased to fit to released captive birds. Assuming success of this initial release, wild birds could be tagged in future. West Bengal: two PTTs have been obtained for use on rehabilitated Himalayan Griffons as pilot, but no wild birds tagged.				
ZM2	**Monitoring of survival and causes of death of released vultures with GPS PTTs in pVSZs and VSZs.**			

ZM2	**India**	**Tag all captive-reared and captive-bred vultures prior to release with GPS tags. Monitor to identify foraging sites, recover corpses and establish cause of death.**	**BNHS**	**2020**
Haryana: eight PTT / GSM tags have arrived so releases ready at Pinjore, planned for early 2020. ii) Releases planned at West Bengal				
ZM4	**Monitoring of availability of NSAIDs for veterinary use in representative samples of pharmacies and other outlets in pVSZs and VSZs.**			
ZM4	**India**	**Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.**	**BNHS Arulagam NeoHuman Fndn**	**2020**
Pharma surveys have been carried out in Haryana Release Zone, MP and Assam VSZs. Assam is showing meloxicam as totally dominating, and diclofenac is down throughout the three areas. However, nimesulide is there. In MP, nimesulide and piroxicam are increasing. In HP (within Haryana VRZ) the meloxicam prevalence is up, to 80% prevalence. [Aim to present more detail here in future SAVE reporting]				
ZM5	**Monitoring of wild vulture populations and breeding success in pVSZs and VSZs in India, Pakistan, Bangladesh, Nepal, Myanmar & Cambodia.**			
ZM5	**India**	**Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.**	**BNHS Arulagam NeoHumanFndn Corbett Fndn**	**2020**
No details or reports finalised but preliminary feedback from MP shows stability, but in Assam there have been some decreases, relating to the poison-baits incidents over the past two years. No monitoring in UP VSZ and no breeding birds known in Haryana. [More reporting on these surveys and trends is planned in more detail for future reporting].				

Research and Monitoring

RM1	**Develop method for GPS PTT vulture tracking and corpse recovery in VSZs.**			
RM1	**India**	**Complete tagging and recovery tests on RHV and LBV. Evaluate corpse recovery using simulated tagged corpses. Test tag attachment methods on captive Gyps.**	**RSPB BNHS**	**Done**
RM1	**India**	**Begin tag deployment on Gyps vultures in pVSZs and VSZs.**	**RSPB BNHS**	**Done**
RM2	**Road transect surveys of vulture numbers in India. (NB South India isn't included here. Needs action to follow-up)**			
RM2	**India**	**Conduct surveys using same methods as in previous surveys. Publish results of the survey done in the previous year.**	**BNHS RSPB**	**Annually**

Latest data for Gyps vulture numbers from the road transect survey in India were published in 2017 alongside population trends and population size estimates. The results were both positive and negative – white-rumped vultures continue to increase, but long and slender-billed vultures appear to have declined further; and all populations are small. Latest data for red-headed and Egyptian vulture numbers from the same survey and previous survey are yet to be analysed. 2020 Road transects are planned and will give an important update.

RM2	**India**	**Extend surveys to include South India**	**tbc**	**2020**
To follow in 2020				
RM5	**Monitoring of NSAID contamination of ungulate carcasses in northern India and Nepal.**			
RM5	**India**	**Complete current round of sample collection in several states. Measure concentrations of all NSAIDs potentially hazardous to vultures.**	**BNHS IVRI**	**2020**
Delays in the process to send samples for analysis have hampered progress. Thankfully these are now progressing.				
RM5	**India**	**Publish NSAID monitoring results and expected effects on vulture death rates**	**RSPB BNHS**	**2020**
Paper "Trends in the availability of the vulture-toxic drug, diclofenac, and other NSAIDs in South Asia, as revealed by covert and overt pharmacy surveys." To be published will include more for coming reports				
RM6	**Monitoring of causes of death and NSAID contamination of wild vultures in India, Pakistan, Nepal, Cambodia & Bangladesh.**			
RM6	**India**	**Create database to document circumstances of death of vultures.** **Collect as many dead wild and released vultures as possible.** **Conduct post mortem examinations to determine causes of death.** **Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons.** **Trial methods to detect NSAIDs and other poisons in bone and other hard tissues.** **Retain carcasses frozen for future use.** **Publish the results periodically.** **2020 develop methods for acquiring data for database (eg searching at roosts, sniffer dogs?)**	**SAVE BNHS RSPB**	**2020 Annually**
The field work for a project monitoring the Bikaner carcass dump (Rajasthan) for dead raptors has ended and delivered samples from hundreds of individual vultures and other scavenging birds of prey. Roughly one half of these samples have been analysed by Advinus/Eurofins for diclofenac only; and the other half are currently being extracted. Diclofenac has been found in a few individuals of species we already know are intolerant to the drug. We need all samples to be analysed for multiple NSAIDs. Advinus/Eurofins may be able to do this for us, but it would be better and possibly cheaper to send these samples to ERI (Scotland), which requires hard-to-get permission to export. Note, that not many post mortem examinations found visceral gout but potentially because vultures were rarely found soon after death. Only opportunistic sampling will continue in the future.				

Two wild vultures were dead on Sep, 13 & 15 2019 in Gujarat. One was alive during the rescue. Eventually it died after few hours. Tissue samples were collected with the support of Forest department and sent it to lab of Salimali Center for Ornithology and Natural History Society. Progress on developing a dead vulture database, and this will be developed for wider circulation in 2020.				
RM7	**Safety testing on captive vultures at Pinjore of NSAIDs of uncertain toxicity. Needs updating from previous discussion**			
RM7	**India**	**Obtain wild Himalayan griffon vultures and house in captivity for safety testing programme.**	**BNHS**	**2020 ongoing**
This has been happening (see below)				
RM7	**India**	**Conduct testing of four NSAIDs. Apply to test four more NSAIDs.**	**IVRI BNHS**	**2020 Ongoing**
Testing of tolfenamic acid has been completed. Initial dosing of 12 Himalayan Griffons, with double the recommended dose, resulted in three birds showing elevated uric acid levels, and the death of two birds. However, subsequent dosing of 18 birds, again with the double dose, was successful with no problems experienced by the birds. In both cases, four birds acted as controls, given a sham treatment of benzyl alcohol, with no ill-effects. The final phase has now also been completed, and results being compiled for circulation. In a controlled toxicity experiment conducted in South Africa, a pair of Cape Griffon Vultures were given the maximum likely exposure of nimesulide, calculated from initial pharmacokinetic and residue experiments in cattle. Both vultures died within 30 h, after showing outward signs of toxicity and increases in biochemical indicators renal failure. Blood samples will be sent to ERI in Thurso for further analysis, before testing can continue in India.				
RM7	**India**	**Review safety testing programme and decide on testing needs.**	**SAVE TAC**	**Annually**
Ongoing				
RM7	**India**	**Continue testing programme as NSAIDs posing potential hazards are identified by the SAVE alert system (see timeline AD6).**	**IVRI BNHS**	**Annually**
This is progressing, which is very welcome, but is in need ofspeeding up.				
RM8	**Monitoring of availability of NSAIDs for veterinary use in pharmacies and other outlets in India, Nepal, and Bangladesh other than in VSZs.**			
RM8	**India**	**Complete current round of undercover and open pharmacy surveys linked with sampling of ungulate carcasses (see RM5)**	**BNHS, Arulagam**	**Annually**
Pharmacy surveys outside pVSZ in India are done alongside cattle carcass surveys. There has not been any of these carried out in India since 2013. NSAID "flunixin" is widely available in the market in Tamil Nadu as well as in Government dispensary. It was observed that flunixin is drug of choice by the vets especially for treating horses. (see AD8 for details)				
RM8	**India**	**Publish NSAID availability monitoring results.**	**BNHS RSPB**	**every 2 years**
This is progressing for submission by Jan 2020.				

6.3 Nepal

Advocacy

Code	Country	Action	Lead Partner	By (end date)
AD1	**Achieve the removal from the market of vials of diclofenac supposedly intended for human medicine in excess of 3 ml capacity.**			
AD1	**Nepal**	**Seek ban**	**BCN**	**Done**
There is no record of Diclofenac in both undercover and general pharmacy surveys in 2019.				
AD1	**Nepal**	**Monitor availability of larger (<3ml) diclofenac vials**	**BCN**	**2020**
Ongoing				
AD2	**Achieve the banning of the veterinary use of ketoprofen, aceclofenac, nimesulide, carprofen, and flunixin in India, Pakistan, Bangladesh, Nepal, Bhutan, Cambodia & Myanmar - First step to stop Government purchase or supply of all 5 NSAIDS**			
AD2	**Nepal**	**Seek bans of all 5 drugs for veterinary use – follow-up on process already initiated for ketoprofen and aceclofenac. Approach State Drug Controller/Animal Husbandry Director to stop Govt. supplies to vets and prohibits use by Govt vets. (refer to 2012 Delhi Declaration) – at least all VSZ initiatives to do this**	**BCN**	**2020**
National Vulture Recovery Committee, Nepal sent reminder letter to Department of Drug Administration (DDA) requesting for banning of the vulture toxic drugs ketoprofen and aceclofenac. DDA response that aceclofenac has not been licensed in Nepal and they will not provide license in future for production or sale. Also reviewing the status for banning the ketoprofen in Nepal.				
AD2	**Nepal**	**Provide technical assistance and advice on the operation of the ban, using information from monitoring.**	**SAVE RSPB**	**2020**
Ongoing				
AD3/4	**Establish system and procedures by which veterinary drugs with unknown effects on vultures have their approval for veterinary use withheld or withdrawn until scientific testing on Gyps vultures establishes their safety at maximum likely exposure levels. (ALL, although lower priority only for Cambodia)**			
AD3/4	**Nepal**	**Explore the possibility of a moratorium on new (veterinary) NSAIDs**	**BCN**	**2020**
This has not been progressed, but recognition this is a major ask.				
AD6	**Contribute, with government agencies and pharmaceutical companies, to maintaining pharmacovigilance and regulation of veterinary drugs, to prevent their negative effects on wild vultures.**			
AD6	**Nepal**	**Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.**	**BCN**	**2020**
This has not progressed significantly with RSC, and limited scope with small pharma industry.				

AD8	**Improve the availability of more effective vulture-safe drugs and formulations thereby facilitating take up by veterinary practitioners**			
AD8	**Nepal**	**Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.**	**BCN**	
This has been part of discussions with Govt and through national vulture committee, but limited scope with small national pharma industry. To follow.				
AD8	**Nepal**	**Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier)**	**BCN SAVE**	**2020**
To follow when available				
AD8	**Nepal**	**Check on Tolfenamic acid formulations that they are being used and accepted by vet community all countries**	**BCN**	**2020**
To follow				

Conservation Breeding

CB5	**Conservation breeding of OWBV at VCBC Chitwan (Nepal).**			
CB5	**Nepal**	**Maintain the captive population in good health. Produce as many fledglings as possible by natural methods. Transfer some captive-reared birds to release facility along with chicks of previous year.**	**NTNC**	**2023**
20 eggs laid, but only two chicks fledged. Mostly as a result of eggs not hatching. Suspect some major disturbance but information on this is unclear and a concern. The total number of birds held has been reduced to 40, plus 13 that were in the pre-release aviary ready for release (more details regarding the release birds below). Note RSPB support for the centre will finish by 2022-23 FY as regarded as a job successfully done, and that all birds should be released by then. Some different perceptions regarding the centre as a showpiece and something to perpetuate means that further meetings are needed for planning ahead, and incorporating into a revision of the 5-year national vulture recovery plan.				
CB5	**Nepal**	**Update the release plan (ongoing) in consultation with national partners, with plans to release captive-bred birds when less than 2 years old, maintaining best breeding birds but releasing others. All this subject to ongoing safety-evaluation of the environment and annual review. Continue with above for new release plan (5 year plan).**	**DNPWC BCN**	**2020**
Planned for 2020				

Vulture Safe Zones - Implementation

VS6	**Maintenance and review of VSZs in Nepal.**			
VS6	**Nepal**	**Continue VSZ implementation and expansion**	**NNVRC, BCN**	**2020**
In total 72 districts have been declared as diclofenac free districts out of 77 districts which occupies the 141,411sq.km area (more than 95% area of country). Out of six Vulture Safe Feeding Sites (VSFS) five have been operating smoothly. One VSFS located far western region of Nepal has ceased operating now because of internal management and land accusation problems. They have been able to raise some internal funds through selling of bones and skins, selling of tickets to the visitors and raising small proportion of the profit from income generation activities. VSFSs have been playing a good role in publicising vulture work in Nepal; supporting in disseminating the message to stop diclofenac and conserve vultures and supporting in maintaining Vulture Safe Zone. Community and stakeholder awareness, colony monitoring and vulture surveys are all going on throughout the range districts. Note all VSFSs are overseen by BCN with one exception in eastern Nepal (Koshi Tappu Wildlife Reserve) which has support of Himalayan Nature. However this one is not currently fully functional https://www.himalayannature.org/project/vulture-conservation-program-				
VS7	**Release of captive-reared & captive-bred vultures in VSZs in Nepal.**			
VS7	**Nepal**	**Releases of captive-reared OWBV not likely to breed from VCBC.**	**NNVRC, BCN, NTNC**	**Done**
VS7	**Nepal**	**1-2 Releases of captive-bred OWBVs each year. Numbers released subject to annual review, taking release success & numbers of birds bred into account. See more info in Additional Reports.**	**NNVRC, BCN, NTNC**	**2023**
Proceeding well. Further releases of captive-bred (n = 13) and wild-caught (n = 10) white-rumped vultures occurred at Pithauli in October 2019. All birds fitted with Ornitela OT-30 GPS/GSM tags.				
VS13	**Community-led vulture-based tourism in pVSZs and VSZs in Nepal and Pakistan.**			
VS13	**Nepal**	**Continue to implement programme in Nepal (after ensuring viability and ensuring no disturbance).**	**BCN**	**2025**
To promote the ecotourism in VSFS collaborate with Nepal Tourism Board and concern authority of local Government produced an ecotourism promotion brochure and distributed it widely. Nepal Tourism Board and local government accept the VSFSs are one of the ecotourism destinations in their locality and support it financially also. Note that two (Pithauli & Ghachok) are regularly visited by foreign tourists, but all are still key for national visitors and communication of conservation messages A team led by the Ecologist of Department of National Park and Wildlife Conservation visited to four out of six VSFS for monitoring and evaluation of implementation of VSFS management plan 2016-2020. About 150 foreigners and about 1000 Nepalese visitors visited to VSFS in last year – the majority being at Pithauli.				

Vulture Safe Zone - Monitoring

ZM1	**Monitoring movements, survival and causes of death of wild vultures with GPS PTTs in pVSZs and VSZs**			
ZM1	**Nepal**	**Seek permits for OWBV capture and tagging of wild vultures in VSZs. Initial tagging trials & monitoring/ recovery system in place for any mortalities for autopsy.**	**DNPWC BCN**	**2020**
Tagging permissions requested and authorised. Ten birds caught and fitted with GPS/GSM tags at Pithauli in October 2019. Continued monitoring of GPS data to identify any instances of mortality and followed up by searches by local tracking team. No definite instances of mortality; although loss of signal of 1-2 birds, including one in Himachal Pradesh, may have been due to technological problems. New Ornitela GSM tags have worked well so far (and are cheaper). One telemetry tagged wild Red-headed Vulture one was found dead in Tanahu district on 24 February 2016. Collected samples tested in National Forensic Laboratory, Khumaltar, Kathmandu but could not find the reason for mortality. One release bird was killed by carnivore and corpse remains also preserved on lab. We have been collected about three vulture sample found in nature but sure they do not have visceral gout. Cases of 4 sick birds are being followed up. See RM6 below. Note there are no confirmed plans for tagging more wild birds than at present in future.				
ZM2	**Monitoring of survival and causes of death of released vultures with GPS PTTs in pVSZs and VSZs.**			
ZM2	**Nepal**	**Tag all captive-reared and captive-bred vultures prior to release with GPS tags. Monitor to identify foraging sites, recover corpses and establish cause of death.**	**BCN**	**2020**
Released 13 white-rumped vultures into the wild, including six captive-bred and seven captive-reared birds – all tagged – harnessing experts from RSPB assisted and trained the BCN team who are well versed in this.				
ZM2	**Nepal**	**Plan further releases to 2024. Ongoing.**	**DNPWC BCN**	**2023**
Plan will be refined in detail, but further releases of 9 birds planned for October 2020				
ZM4	**Monitoring of availability of NSAIDs for veterinary use in representative samples of pharmacies and other outlets in pVSZs and VSZs.**			
ZM4	**Nepal**	**Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.**	**BCN**	**2020**
Undercover and general pharmacy survey was continued on the previously identified points mostly concentrated in western part of Nepal as almost all the released and tagged birds move around there. There is no record of multi dose vial of diclofenac during the survey. Published its long term monitoring result in 2019. See SAVE news for more information: https://community.rspb.org.uk/ourwork/b/biodiversity/posts/building-a-vulture-safe-zone				
ZM5	**Monitoring of wild vulture populations and breeding success in pVSZs and VSZs in India, Pakistan, Bangladesh, Nepal, Myanmar & Cambodia.**			

ZM5	Nepal	Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.	BCN	2020

15th annual road count survey of vultures was conducted across terai lowland following east-west highway covering from Narayanghat to Gaddachauki in May 2019. During that survey in total 92 white-rumped vultures were observed. This was very slightly down but similar to previous year.

Vulture colonies were monitored in the breeding season 2018-19 in Nepal as detail:-

Species	Total Nest	Successful Nest	Failure Nest	Breeding Success (%)
WRV	396	244	152	61.62
SBV	7	5	2	71.43
EV	9	7	2	77.78
RHV	4	2	2	50.00
BV	11	9	2	81.82
HG	71	56	15	78.87
TOTAL	498	323	175	64.86

Numbers of seven vulture species counted at known breeding, roosting and foraging sites in 32 districts of Nepal to celebrate 11th International Vulture Awareness Day on 7th September 2019. (note this information has been submitted for publication)

	Vulture Species									
District	**WRV**	**SBV**	**RHV**	**EV**	**HG**	**BV**	**CV**	**EuV**	**LBV**	**Total**
Arghakhachi	49	0	6	14	93	6	0	0	0	**168**
Gulmi	5	0	0	8	12	2	0	0	0	**27**
Baglung	0	0	3	0	0	0	0	0	0	**3**
Palpa	79	3	4	8	11	2	0	0	0	**107**
Kaski	56	13	23	339	11	0	1	0	0	**443**
Tanahau	1	0	0	58	0	0	0	0	0	**59**
Parbat	0	0	0	0	6	1	0	0	0	**7**
Mustang	0	0	0	0	13	6	0	0	0	**19**
Manang	0	0	0	0	14	0	0	0	0	**14**
Dang	171	7	3	7	0	0	3	0	0	**191**
Nawalpur	116	1	3	2	0	0	0	0	0	**122**
Parasi	135	0	0	2	0	0	0	0	0	**137**
Rupandehi	91	0	1	2	7	0	0	0	0	**101**
Kapilvastu	4	0	0	2	0	0	0	0	0	**6**
Kailali	35	2	0	0	0	0	0	0	0	**37**
Kanchanpur	149	12	2		10	0	6	0	0	**179**
Baitadi	0	0	1	2	19	2	0	0	0	**24**
Jajarkot	0	0	3	6	70	6	0	0	0	**85**
Rukum	0	0	0	3	6	0	0	0	0	**9**

Salyan	0	0	3	3	3	1	0	0	0	**10**
Pyuthan	11		5	5	4	0	0	0	0	**25**
Rolpa	0	0	0	3	16	0	0	0	0	**19**
Humla	0	0	0	4	8	2	0	0	0	**14**
Dolpa	0	0	0	0	35	3	0	0	0	**38**
Jumla	0	0	0	0	22	2	0	0	0	**24**
Taplejung	0	0	2	0	6	1	0	0	0	**9**
Sunsari	20	0	0	0	0	0	0	0	0	**20**
Mugu	0	0	0	0	3	2	0	0	0	**5**
Syangja	0	0	3	0	0	0	0	0	0	**3**
Kathmandu	0	0	0	0	0	0	0	0	0	**0**
Banke	0	0	0	0	0	0	0	0	0	**0**
Bardiya	0	0	0	0	0	0	0	0	0	**0**
Total	**922**	**38**	**62**	**468**	**369**	**36**	**10**	**0**	**0**	**1905**

RM1	**Develop method for GPS PTT vulture tracking and corpse recovery in VSZs.**			
RM1	**Nepal**	**Complete tagging and recovery tests on RHV and LBV. Evaluate corpse recovery using simulated tagged corpses. Test tag attachment methods on captive Gyps.**	**RSPB BCN**	**Done**
RM1	**Nepal**	**Begin tag deployment on Gyps vultures in pVSZs and VSZs.**	**RSPB BCN**	**Done**
Done but constantly under review. Tracking and corpse recovery method developed and in use in Nepal. Further refinements of harness methods (in Nepal) which will be reported in more detail elsewhere. https://save-vultures.org/2019/09/september-2019-update-on-nepal-vulture-releases/				
RM3	**Road transect surveys of vulture numbers in Nepal.**			
RM3	**Nepal**	**Conduct survey using same methods as in previous surveys.** **Western lowland surveys annually.** **Midhills and East-West highway survey every four years (done in 2018)** **2020: Next annual survey to be conducted.**	**BCN RSPB**	**Annually**

Survey completed 8-17 May 2019 in the Terai and Midhills regions.

Species	Total counts	
	Low Land	Mid-Hills
White-rumped Vulture	92	67
Red-headed Vulture	0	16
Egyptian Vulture	0	65
Slender-billed Vulture	2	2
Himalayan Griffon	18	131
Cinereous Vulture	0	1
Storks	35	25
Raptors	53	186
Total	**200**	**493**

These actually show a minor decrease over 2018.

The long-term counts of vultures through the East-West highway and western mid hill is published in 2019. We use the country's major roads as a series of transects on which we count vultures. We analysed 14 years of data in this paper. We showed population declines between 2002 and 2012/13 followed by partial recoveries between 2012/13 and 2018. The partial recovery was better than expected if it was due to reproduction alone, suggesting that the populations are being bolstered by immigration as well.

RM5	**Monitoring of NSAID contamination of ungulate carcasses in northern India and Nepal.**			
RM5	**Nepal**	**Complete current round of sample collection in several states. Measure concentrations of all NSAIDs potentially hazardous to vultures**	**RSPB BCN**	**2020**
Cattle carcass surveys in Nepal have been cancelled following problematic results from samples previously analysed (which stem from field sampling issues) and a decision to use and rely upon just the telemetry of vultures to measure the prevalence of diclofenac in vulture food.				
RM5	**Nepal**	**Publish NSAID monitoring results and expected effects on vulture death rates**	**RSPB BCN**	**2020**
Paper is being submitted January 2020				
RM6	**Monitoring of causes of death and NSAID contamination of wild vultures in India, Pakistan, Nepal, Cambodia & Bangladesh.**			
RM6	**Nepal**	**Create database to document circumstances of death of vultures. Collect as many dead wild and released vultures as possible. Conduct post mortem examinations to determine causes of death. Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons. Trial methods to detect NSAIDs and other poisons in bone and other hard tissues.**	**BCN RSPB**	**2020 Annually**

		Retain carcasses frozen for future use. **Publish the results periodically.** **2020 develop methods for acquiring data for database (eg searching at roosts, sniffer dogs?)**		
BCN and RSPB met with the Centre for Molecular Dynamics Nepal to discuss in- and out-country tissue analysis for NSAIDs. They often send biological material (including that from wildlife) overseas for analysis. The Centre's Director knows Ishana (CEO, BCN) and said that he, as a collaborator, could get vulture samples to ERI (Scotland) for analysis. This needs concerted follow up and sending some test samples. Post mortems carried out on three dead PTT-tagged WRV; two are likely to have been predated, the other uncertain but possibly collision. Three wild HGs found dead, probably poisoned (poison-bait), close to a cattle carcass on which the vultures had been feeding, c.12km from release site. Samples sent off for analysis – awaiting results. Four tagged released birds and one untagged wild bird picked up and treated for mystery disease. Wild bird and one other recovered and re-released. Other three birds still in captivity. Awaiting arrival of samples in UK (next week with Krishna) as still unknown what caused disease. Similar problems also noted in Buxa (West Bengal) and in far-west Nepal. NSAID poisoning not suspected in any case and a virus appears the most likely cause at this stage (although negative results for Newcastle's Disease). Await the outcome from the samples being sent to the UK with great interest. More to follow in 2020.				
RM8	**Monitoring of availability of NSAIDs for veterinary use in pharmacies and other outlets in India, Nepal, and Bangladesh other than in VSZs.**			
RM8	**Nepal**	**Complete current round of undercover and open pharmacy surveys linked with sampling of ungulate carcasses**	**BCN**	**Annually**
See RM5				
RM8	**Nepal**	**Publish NSAID availability monitoring results.**	**BCN** **RSPB**	**every 2 years**
Submission due Jan 2020				

6.4 Bangladesh
Advocacy

AD1	**Achieve the removal from the market of vials of diclofenac supposedly intended for human medicine in excess of 3 ml capacity.**			
AD1	**Bangladesh**	**Make contact & take steps to prevent licensing through drug authorities.**	**IUCN B'desh**	**Done**
No significant news on this. Not produced in Bangladesh. A vial was purchased on a Bangladesh pharmacy survey (2014), manufactured in India, but this is so far an isolated case and not currently seen as a significant threat in view of the India MDV ban now in place.				
AD1	**Bangladesh**	**Monitor availability of larger (<3ml) diclofenac vials**	**IUCN B'desh**	**2020**
None were reported during 2019 and none found in the last undercover pharmacy survey.				
AD2	**Achieve the banning of the veterinary use of ketoprofen, aceclofenac, Nimesulide, Carprofen, and Flunixin in India, Pakistan, Bangladesh, Nepal, Bhutan, Cambodia & Myanmar - First step to stop Government purchase or supply of all 5 NSAIDS**			
AD2	**Bangladesh**	**Seek bans for all 5 drugs for veterinary use – follow-up on process already initiated. Enforce ketoprofen/aceclofenac ban within VSZ as first step. Extending bans to whole-country bans is target for ketoprofen/aceclofenac in 2020.** - **Make contact and meet with pharmaceutical companies which are supplying target NSAIDS** - **Hold meetings with Bangladesh DGDA to reinforce & extend ketoprofen ban to national level by 2020**	**IUCN B'desh**	**2020**
Bangladesh has banned ketoprofen within two VSZs in 2017. Thereafter, in 2018, undercover pharmacy surveys conducted by IUCNB and BFD showed that there is still 62% ketoprofen prevalent in the VSZ which is c.10% lower than previous year. The results of the third undercover pharmacy survey was presented to the 8th BNVRC on 9 January 2019. In the meeting it was decided that a letter will be sent to all relevant stakeholders asking for their opinion on the country-wide ban of ketoprofen. In the 8th RSC meeting, held in Dhaka, on 4 April 2019, it was also decided that measures to ban ketoprofen will be taken not only nationally in Bangladesh but also in the other vulture range countries. A letter was sent to all relevant stakeholders by BFD. In response to the letter, the Ministry of Livestock and Fisheries held a meeting on 18 June 2019 to discuss the country-wide banning of the drug. In the meeting it was decided that ketoprofen will be banned in the whole country by 2021 and in the meantime, measures will be taken to reduce ketoprofen in the two VSZs. The banning of ketoprofen is also an official priority activity in the government approved Bangladesh Vulture Conservation Action Plan (2016-2025). On 20 October 2019, 9th BNVRC meeting was organized where it was decided that the Ministry of Environment Forest and Climate Change will take final measures to ban ketoprofen country-wide				

shortly after holding another meeting in November with relevant stakeholders especially with pharma companies, where they will be instructed to mainstream meloxicam further.				
AD2	**Bangladesh**	**Provide technical assistance and advice on the operation of the ban, using information from monitoring.**	**SAVE RSPB**	**2020**
Regular contact was maintained through the year and some exchanges, mainly relating to the pharmacy surveys.				
AD3/4	**Establish system and procedures by which veterinary drugs with unknown effects on vultures have their approval for veterinary use withheld or withdrawn until scientific testing on Gyps vultures establishes their safety at maximum likely exposure levels.**			
AD3/4	**Bangladesh**	**Explore the possibility of a moratorium on new (veterinary) NSAIDs**	**BNVRC**	**2020**
This has not been progressed significantly during 2019, but the ketoprofen progress is a major step.				
AD6	**Contribute, with government agencies and pharmaceutical companies, to maintaining pharmacovigilance and regulation of veterinary drugs, to prevent their negative effects on wild vultures.**			
AD6	**Bangladesh**	**Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.**	**IUCN B'desh**	**2020**
Bangladesh has been in constant contact with the two large pharma companies. The companies are well aware of the dangers of drugs on vultures. They were also willing to test their meloxicam drug formulations for effectiveness. On 4 April 2019, meetings were held in Renata (one of the largest pharma companies) with IUCNB, BFD and SAVE representatives. Representative of the Drug Administration attends every BNVRC meeting. Currently, a total of 12 companies produces meloxicam and in the recent undercover survey, it was seen that meloxicam has increased 9% while ketoprofen has decreased 10% in the two VSZ, which shows regulation and vigilance. Also, in the meeting held by Ministry of Livestock on 18 June 2019, it was mentioned that regulatory measures will be taken to further reduce ketoprofen in the VSZ and ban the drug in the whole country by 2022. On 20 October 2019, 9th BNVRC meeting decision includes a meeting with all relevant stakeholders especially focusing on pharma companies, to initiate more pharmacovigilance.				
AD8	**Improve the availability of more effective vulture-safe drugs and formulations thereby facilitating take up by veterinary practitioners**			
AD8	**Bangladesh**	**Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.**	**IUCN B'desh**	**2020**
Remains the best example of working closely with pharma companies (eg Renata) to both produce good formulations, and market as environment/vulture friendly. This is ongoing. More details will follow. A meeting with major pharma companies producing meloxicam will be held at the end of March, tentatively, with BNVRC, MoEFCC, BFD and IUCNB				

AD8	**Bangladesh**	**Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier)**	**IUCN B'desh**	**2020**
To follow when available				
AD8	**Bangladesh**	**Check on Tolfenamic acid formulations that they are being used and accepted by vet community all countries**	**IUCN B'desh**	**2020**
To follow				
AD9	**Develop wider awareness-raising initiatives to highlight NSAIDs concerns and provide incentives acknowledgement of those taking positive steps.**			
AD9	**Bangladesh**	**Initiate system to support e.g. cattle shelters & dairy cooperatives that ensure only vulture-safe NSAIDs are used. (e.g. kite-mark/certification system). Dialogue with drug companies identified producing good formulations (meloxicam, tolfenamic acid).**	**BNVRC**	**2020**
Government of Bangladesh is looking to initiate a program to implement the Bangladesh Vulture Action Plan with IUCNB, where large scale awareness activities will be conducted. Furthermore, IUCNB along with BFD hold regular awareness activities in local communities, celebrate the International Vulture Awareness Day, distribute free meloxicam, arrange school programmes etc. Lastly, Pharma companies use vulture awareness messages in labelling to raise awareness.				
AD9	**Bangladesh**	**Develop/promote progress achieved in Bangladesh (labelling) & Tamil Nadu (District ketoprofen bans) initiatives**	**SAVE SAVE Associates**	**2020**
Not so far taken up specifically. But see above.				

Conservation Breeding

CB7	**Conservation breeding of OWBV in Bangladesh.**			
CB7	**Bangladesh**	**Consider the development of a VCBC in Bangladesh. [This has been considered, and decided not to do so]**	**BNVRC**	**Done**

Vulture Safe Zone - Implementation

VS14.	**Identification and selection of pVSZs and VSZs in Bangladesh.**			
VS14	**Bangladesh**	**Identify and select pVSZs.**	**BNVRC**	**Done**
VS15.	**Implementation of pVSZs in Bangladesh.**			
VS15	**Bangladesh**	**Continue to implement VSZ programme for two main VSZs.**	**IUCN B'desh BNVRC**	**2020**

Government is committed to continuing VSZ work. Pharmacy surveys progressed on track along with other advocacy work in 2018. NB: Two VSZs established for white-rumped vultures in Bangladesh, but no measures proposed for Himalayan Griffon in northern Bangladesh. 40-50 being rehabilitated annually which provide an important advocacy opportunity. 2020 starting VSZ management programme as per Bangladesh Vulture Action Plan.

Vulture Safe Zone - Monitoring

ZM1	**Monitoring movements, survival and causes of death of wild vultures with GPS PTTs in pVSZs and VSZs**			
ZM1	**Bangladesh**	**Seek permits for OWBV capture and tagging of wild vultures in VSZs. Initial tagging trials & monitoring/ recovery system in place for any mortalities for autopsy.**	**BFD IUCN B'desh**	**2020**
Not yet taken up				
ZM4	**Monitoring of availability of NSAIDs for veterinary use in representative samples of pharmacies and other outlets in pVSZs and VSZs.**			
ZM4	**Bangladesh**	**Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.**	**IUCN B'desh**	**2020**
Have conducted undercover pharmacy survey in 2018 in two VSZ that showed no presence of veterinary diclofenac and increase of meloxicam by c. 9.4% and decrease of Ketoprofen by c. 10%. A joint draft paper is under development. Bangladesh plans to hold the next undercover pharmacy survey in 2020.				
ZM5	**Monitoring of wild vulture populations and breeding success in pVSZs and VSZs in India, Pakistan, Bangladesh, Nepal, Myanmar & Cambodia.**			
ZM5	**Bangladesh**	**Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.**	**IUCN B'desh**	**2020**
In the 2019-2020 breeding season, there have been a total of 12 WRV nests in VSZ 1 and from VSZ 2, three nests have been recorded so far.				

Research and Monitoring

RM4	**Vulture population monitoring in Pakistan, Bangladesh, Cambodia and Myanmar.**			
RM4	**Bangladesh**	**Conduct annual surveys.**	**BNVRC IUCN B'desh BFD**	**Annually**
Ongoing surveys are conducted in the VSZs and hotspots. Population counts are conducted during breeding season and at feeding stations. It is estimated that the population of vultures in Bangladesh is currently stable with 260-300 individuals. Community-based Vulture Conservation				

Teams are trained and functioning and inform us about any new sighting, nesting or roosting areas. A comprehensive survey methodology is being developed for country-wide surveys. Himalayan griffon vultures are counted in the Feeding Stations and the Rescue Station in DInajpur. In 2019, a total of 20 HG were rescued and 7 were wing-tagged. In 2020, a total of 25 HGs and one Cinerious Vulture are currently in the rescue centre, which will be wing-tagged and released in April.				
RM6	**Monitoring of causes of death and NSAID contamination of wild vultures in India, Pakistan, Nepal, Cambodia & Bangladesh.**			
RM6	**Bangladesh**	**Create database to document circumstances of death of vultures.** **Collect as many dead wild and released vultures as possible.** **Conduct post mortem examinations to determine causes of death.** **Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons.** **Trial methods to detect NSAIDs and other poisons in bone and other hard tissues.** **Retain carcasses frozen for future use.** **Publish the results periodically.** **2020 develop methods for acquiring data for database (eg searching at roosts, sniffer dogs?)**	**IUCN B'desh RSPB**	**2020 Annually**
No dead white-rumped vultures in 2019 found, however two Himalayan griffons were found dead due to starvation possibly due to long migrations. No autopsies were conducted in the dead vultures and both were buried.				
RM8	**Monitoring of availability of NSAIDs for veterinary use in pharmacies and other outlets in India, Nepal, and Bangladesh other than in VSZs.**			
RM8	**Bangladesh**	**Complete current round of undercover and open pharmacy surveys linked with sampling of ungulate carcasses (see RM5)**	**IUCN B'desh**	**Annually**
Has conducted undercover pharmacy survey in 2018 in two VSZ that showed no presence of veterinary diclofenac and increase of meloxicam by c. 9.4% and decrease of Ketoprofen by c. 10%. A joint draft paper is under development. Bangladesh plans to hold the next undercover pharmacy survey in 2020.				
RM8	**Bangladesh**	**Publish NSAID availability monitoring results.**	**IUCN B'desh RSPB**	**every 2 years**
Paper has been submitted (included in India and Nepal paper with RSPB support)				

6.5 Pakistan

Advocacy

AD1	**Achieve the removal from the market of vials of diclofenac supposedly intended for human medicine in excess of 3 ml capacity.**			
AD1	**Pakistan**	**Make contact & take steps to prevent licensing through drug authorities.**	**WWF Pak SAVE**	**2020**
This has been discussed with Drug Registration Authority of Pakistan (DRAP) and it has been clarified by DRAP that multi-dose vials of all human NSAIDs are banned in Pakistan and only 3 ml vials are registered and available. There are no plans for such a licence to be issued.				
AD1	**Pakistan**	**Monitor availability of larger (<3ml) diclofenac vials**	**WWF Pak**	**2020**
Reaffirmed with DRAP that multi-dose vials of all human NSAIDs are banned in Pakistan and only 3 ml vials are registered and available. This therefore appears to be resolved.				
AD2	**Achieve the banning of the veterinary use of ketoprofen, aceclofenac, Nimesulide, Carprofen, and Flunixin in India, Pakistan, Bangladesh, Nepal, Bhutan, Cambodia & Myanmar - First step to stop Government purchase or supply of all 5 NSAIDS**			
AD2	**Pakistan**	**Seek bans for all 5 drugs for veterinary use – follow-up on process already initiated. Enforce ketoprofen and aceclofenac ban within VSZ as first step. Extend these bans to national bans for ketoprofen and aceclofenac and expand on ban in VSZ to include all 5 drugs.**	**WWF Pak**	**2020**
Since the order by Chief Drug Inspector of Sindh in 2018, there has been good progress towards eliminating the availability and use of aceclofenac and ketoprofen in Sindh Province: pharmacy surveys have not found any aceclofenac on sale. Ketoprofen was available at only one surveyed outlet. Further discussions about extending this restriction to other parts of Pakistan will be pursued via DRAP (Drug Regulatory Authority of Pakistan) during consultative workshops planned with DRAP and other stakeholders in January 2020.				
AD2	**Pakistan**	**Provide technical assistance and advice on the operation of the ban, using information from monitoring.**	**SAVE RSPB**	**2020**
Support has been provided during 2019. Meetings with DRAP were delayed however and planned for 2020.				
AD3/4	**Establish system and procedures by which veterinary drugs with unknown effects on vultures have their approval for veterinary use withheld or withdrawn until scientific testing on Gyps vultures establishes their safety at maximum likely exposure levels. (ALL, although lower priority only for Cambodia)**			
AD3/4	**Pakistan**	**Explore the possibility of a moratorium on new (veterinary) NSAIDs**	**WWF Pak**	**2020**
Neither nimesulide nor carprofen is registered in veterinary medicine in Pakistan and this remains the case, and DRAP are aware. Ensuring this is policy remains an ongoing need.				
WWF-Pakistan has been awarded a consultancy study from Punjab Wildlife and Parks Department and following are the deliverables of the study by June 2020: 1. Conduct undercover and open market survey to determine the availability of diclofenac drug in all the districts of Punjab Province. 2. Evaluate the status of the use of aceclofenac, ketoprofen and other vulture toxic NSAIDs. 3. Potency testing of meloxicam drug available in the market. 4. Find / explore additional vulture safe NSAIDs.				

5. Organize seminar / workshop for the development of effective system regarding regulation of veterinary drugs, based upon safety-testing on vultures and for all potential new ones entering veterinary practice.				
AD6	**Contribute, with government agencies and pharmaceutical companies, to maintaining pharmacovigilance and regulation of veterinary drugs, to prevent their negative effects on wild vultures.**			
AD6	**Pakistan**	**Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.**	**WWF Pak**	**2020**
No further progress here.				
AD8	**Improve the availability of more effective vulture-safe drugs and formulations thereby facilitating take up by veterinary practitioners**			
AD8	**Pakistan**	**Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.**	**WWF Pak**	**2020**
Since progress in 2017, next step is a plan to approach BI to request the release of the meloxicam formulation patent for Pakistan, but this has not yet been done. No activity here from Pakistan at all. Recent RSPB contact with BI (and potential funding) can provide new opportunities for requesting this favour from them. Sample collection for meloxicam formulation testing due in 2020				
AD8	**Pakistan**	**Publicise results of main report on Tolfenamic acid (available on MoEFCC website/SAVE dossier)**	**WWF Pak**	**2020**
To follow up.				
AD8	**Pakistan**	**Check on Tolfenamic acid formulations that they are being used and accepted by vet community all countries**	**WWF Pak**	**2020**
To follow up in 2020				

Conservation Breeding

CB4	**Conservation breeding of OWBV at VCC Changa Manga (Pakistan).**			
CB4	**Pakistan**	**Maintain the captive population in good health. Produce as many fledglings as possible by natural methods and artificial incubation as necessary. Transfer of birds to release programme as appropriate. Maintain target of 5 to 10 fledglings per year aimed for release.**	**WWF Pak**	**2025**
The facility at Changa Manga houses 22 OWbV including 15 adults, 6 subadults and one juvenile that was successfully fledged during breeding season 2018-19. The birds are fed seven days a week during the breeding season, otherwise there is one fasting day per week. All birds at the facility are in good condition and exhibit expected normal behavioural and feeding patterns. The main aviary has two CCTV cameras with two more due for installation in 2019.				

The facility breeds goats and rabbits to provide a sustainable food supply. These include a herd of goats of about 15 animals and a small breeding group of about 40 rabbits. Regular vaccination and deworming of these animals is also carried out to maintain a health stock. Donkeys and other livestock purchased for food supply are kept and managed on site for the necessary withdrawal period. There are regular visits of a veterinarian from the Lahore Zoo for the health checks of food animals and also the vultures.

Other activities that were conducted during 2018-19 season (after the last SAVE report) include:

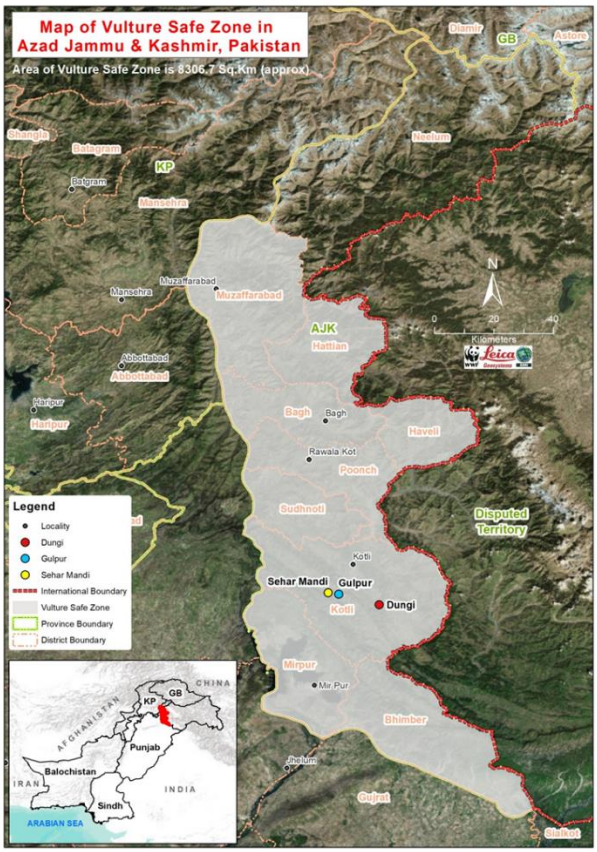
- All the nests in the aviary were repaired and cleaned, old nest material was replaced with new material, perches of the vultures in the aviary were wrapped with coconut rope.
- Progress was made on the large new aviary that is under construction, which is aimed for completion in 2020 after the breeding season
- Deworming of all vultures was done, blood samples were collected for molecular sexing and all the vultures were tagged for identification purposes.
- Every year during non-breeding season, students and journalists visit the captive breeding centre and are sensitized about the importance and conservation of Vultures.
    - During 2019 about 1200 students and journalists visited the Changa Manga centre.
- WWF-Pakistan in collaboration with University of Veterinary & Animal Sciences (UVAS), Lahore and Lahore Zoo celebrated International Vulture Awareness Day on 7th September at Changa Manga. Students of UVAS were briefed about the threats to vulture species, aims and objectives of captive breeding, ecological importance and need for vulture conservation and steps taken by WWF-Pakistan along with its partners for vulture conservation in Pakistan. An awareness walk was conducted to raise awareness among students and public about vultures. Students also participated in the sketch making/photography competition and made beautiful sketches and photographs of vultures and winners were awarded with prizes and shields.
- WWF-Pakistan arranged an exposure visit of journalists to Changa Manga in the first week of September 2019 also in accordance with International Vulture Awareness Day. The aim of this visit was to create awareness about the ecological significance of vultures among media and gather public support for their conservation.

Vulture Safe Zone - Implementation

VS8	**Identification & selection of additional pVSZ Pakistan.**			
VS8	**Pakistan**	**Develop capacity**	**WWF Pakistan**	**2020**
Ongoing				
VS8	**Pakistan**	**Continuing: progress, monitoring and meetings with provincial wildlife department to declare as pVSZ. Identified as AJK. 2020 One more could be identified (Changa Manga)**	**WWF Pakistan**	**2020**

After consultation with the Azad Jammu & Kashmir (AJ&K) Wildlife, Forest and Fisheries Department, the map of proposed VSZ in AJ&K was revised. The proposed VSZ includes Bhimber, Mirpur, Kotli, Sudhnoti, Poonch, Haveli, Bagh Hattian and Muzaffarabad districts of AJ&K. Discussion is in progress with AJ&K wildlife department to declare it a safe zone (pVSZ).

Undercover surveys were conducted in four districts of AJK i.e. Mirpur, Kotli, Sudnoti and Muzaffarabad to monitor the availability of NSAIDs in the area and a total of 22 medical outlets were visited. Unfortunately, diclofenac and ketoprofen were available in all 22 stores, aceclofenac in 18 stores, flunixin in 17 stores and meloxicam was also available in all 22 stores. The map of pVSZ is below.



VS9	**Maintenance & review of VSZs in Pakistan.**			
VS9	**Pakistan**	**Continue VSZ implementation and expansion.**	**WWF Pakistan**	**2020**
In Nagar Parkar VSZ, the conservation efforts are continuing as a part of which Gyps vulture population monitoring are conducted on annual basis. Additionally, various initiatives to improve community-based livestock management practices to reduce use of NSAIDs and minimise vulture mortality are continuing in the area in collaboration with Parkar Foundation. Various awareness-raising initiatives were continued through the establishment of nature clubs in local schools are in place to develop a sense of ownership about the conservation of vultures and other natural resources of the area amongst the youth. During 2019, a total of 10 environmental awareness sessions were conducted with communities and students in different schools in VSZ area to sensitize them about vulture conservation and other environmental issues. The activities include the presentation on vultures, documentary screening, poster competition and essay writing etc.				
VS10	**Release of captive-bred vultures in VSZs in Pakistan**			
VS10	**Pakistan**	**2022 Pakistan: Releases of captive-bred vultures in VSZs**	**WWF Pakistan**	**2024**
WWF-Pakistan has no plans of vulture release in wild until at least December 2020				
VS11	**Livestock management and husbandry training in pVSZs and VSZs in Pakistan**			
VS11	**Pakistan**	**Continue to implement training programme.**	**WWF Pak Parkar Fndn**	**2020**
Livestock management and husbandry trainings are planned in the Tharparkar District for November-December 2019. The trainings are completed by the Parker Foundation with support from University of Veterinary and Animal Sciences (UVAS), Lahore.				

VS12	**Free veterinary camps in pVSZs and VSZs in Pakistan.**			
VS12	**Pakistan**	**Continue to implement programme. [Ongoing] 2020 reinforce links with UVAS in Lahore**	**WWF Pak ICI Pakistan, Lahore Uni Vet School**	**2020**
Veterinary camps (worming and vaccination) are planned for January-February 2020				
VS13	**Community-led vulture-based tourism in pVSZs and VSZs in Nepal and Pakistan.**			
VS13	**Pakistan**	**Creating nature clubs at schools. [Rather than tourism, emphasis is on outreach around breeding centre. Progress with nature clubs in VSZ at Nagar Parkar] Ongoing Sindh. Proposed for AJK.**	**WWF Pak**	**2020**
The eastern Sindh Province is a remote part of Pakistan that is infrequently visited by tourists. Unlike some other VSZs or pVSZs there is relatively little opportunity at present to develop vulture-based ecotourism in this area. Rather than tourism, in Pakistan the emphasis is on establishing Nature Clubs and increasing community engagement with vulture conservation.				

Vulture Safe Zone -Monitoring

ZM1	**Monitoring movements, survival and causes of death of wild vultures with GPS PTTs in pVSZs and VSZs**			
ZM1	**Pakistan**	**Seek permits for OWBV capture and tagging of wild vultures in VSZs. Initial tagging trials & monitoring/ recovery system in place for any mortalities for autopsy.**	**WWF Pak**	**2020**
WWF-Pakistan in collaboration with Punjab Wildlife and Parks Department (PW&PD) has planned to tag 4 vultures with PTTs in January-February 2020. Two PTTs have been purchased through the vulture project of PW&PD and Hawk Conservancy Trust has committed to provide further two PTTs and also for the training of Pakistani researchers in Pakistan.				
ZM3	**Monitoring of movements, survival and causes of death of released vultures with GPS PTTs in pVSZs and VSZs in Pakistan.**			
ZM3	**Pakistan**	**Tag all released captive-bred vultures. Monitor to identify foraging sites, recover corpses and establish cause of death.**	**WWF Pak**	**2024**
Pakistan has no plans of vulture release until after December 2020				
ZM4	**Monitoring of availability of NSAIDs for veterinary use in representative samples of pharmacies and other outlets in pVSZs and VSZs.**			
ZM4	**Pakistan**	**Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.**	**WWF Pak**	**2020**
In AJ&K, undercover surveys were conducted in four districts - Mirpur, Kotli, Sudnoti and Muzaffarabad in 2019 to monitor the availability of NSAIDs in the area and a total of 22 medical stores/pharmacies were visited. Diclofenac and ketoprofen were available in all 22 stores, Aceclofenac in 18 stores, Flunixin in 17 stores and Meloxicam was also available in all 22 stores				

In Nagar Parkar, undercover surveys were conducted in VSZ in 2019 to monitor the availability of NSAIDs in the area and a total of 15 medical stores/pharmacies were visited. Veterinary diclofenac and aceclofenac were not available in all medical stores. Ketoprofen was available at one medical store and meloxicam was available at nine medical stores.

In Punjab, undercover surveys to check the availability of NSAIDs in all the 37 districts are continuing. A full time conservation officer has been employed and will conduct surveys on standard protocols. The surveys will be completed and results will be compiled by June 2020.

ZM5	**Monitoring of wild vulture populations and breeding success in pVSZs and VSZs in India, Pakistan, Bangladesh, Nepal, Myanmar & Cambodia.**			
ZM5	**Pakistan**	**Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.**	**WWF Pak**	**2020**

VSZ in Nagar Parkar

Population assessment surveys for Oriental White-backed Vultures (OWBVs), Long-billed Vultures (LBV), Egyptian Vulture (EV) and Red-headed Vultures were carried out in February 2019 in Nagar Parkar VSZ area. During the surveys, 72 active nests of LBVs were observed, 221 vultures were observed of which 140 were adults, 9 were sub adults and 72 were chicks. Similarly, 24 OWBVs were observed of which 21 were adults and 3 were sub-adults, however, no active nest of OWBVs was observed. One active nest (egg in the nest) of Red headed vulture was found and 8 adult RHVs were observed. For Egyptian vultures, 195 EVs were observed of which 178 were adults and 17 were sub adults. Nest surveys of vulture breeding areas in AJK, northern Pakistan, are due for 2020.

Research and Monitoring

RM4	**Vulture population monitoring in Pakistan, Bangladesh, Cambodia and Myanmar.**			
RM4	**Pakistan**	**National survey planned. 2020: compartmentalize annual surveys in specific areas instead of National survey?**	**WWF Pakistan**	**2020**
Due to lack of funds, the national survey was postponed again in 2019. Vulture monitoring outside the two pVSZs in Pakistan is not happening systematically. Funds will again be searched for in 2020.				
RM6	**Monitoring of causes of death and NSAID contamination of wild vultures in India, Pakistan, Nepal, Cambodia & Bangladesh.**			
RM6	**Pakistan**	**Create database to document circumstances of death of vultures.** **Collect as many dead wild and released vultures as possible.** **Conduct post mortem examinations to determine causes of death.** **Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons.** **Trial methods to detect NSAIDs and other poisons in bone and other hard tissues.** **Retain carcasses frozen for future use.** **Publish the results periodically.**	**WWF Pak THC**	**2020 Annually**

		2020 develop methods for acquiring data for database (e.g. searching at roosts, sniffer dogs?)		
All vultures found dead during fieldwork are assessed. In 2019 there have only been feather piles found in the field, which have not been suitable for post-mortem analysis. The aim is still to collect as many dead wild vultures as possible and take liver and kidney samples to determine concentrations of all NSAIDs where possible.				
RM9	**Monitoring of availability of NSAIDs for veterinary use in pharmacies and other outlets in Pakistan.**			
RM9	**Pakistan**	**Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac offered illegally for veterinary use. [Pharmacy surveys ongoing]**	**WWF Pak HC**	**2020 Ongoing**
See ZM4.				

[photo: WWF Pakistan]

6.6 Cambodia

Advocacy

AD1	**Achieve the removal from the market of vials of diclofenac supposedly intended for human medicine in excess of 3 ml capacity.**			
AD1	**Cambodia**	**To achieve Govt. ban of veterinary diclofenac**	**CVWG**	**Done**
Major success!! – veterinary diclofenac ban declared July 2019.				
AD1	**Cambodia**	**Follow-up on the ban, enforcement, collect baseline data, monitoring for large vial human diclofenac**	**CVWG**	**2020**
To follow and start this – funds needed.				
AD2	**Achieve the banning of the veterinary use of ketoprofen, aceclofenac, Nimesulide, Carprofen, and Flunixin in India, Pakistan, Bangladesh, Nepal, Bhutan, Cambodia & Myanmar - First step to stop Government purchase or supply of all 5 NSAIDS**			
AD2	**Cambodia**	**Removal of 5 target NSAIDs from the market and seek a ban / prevent licensing prior to entry to the market**	**CVWG**	**2020**
The wording of the recent diclofenac ban appears quite helpful at least for aceclofenac, but possibly for others. The translation of the document reads: "Banning the importing, distribution, supplying, and using of DICLOFENAC veterinary medicine or its substance that may impact on vulture in Cambodia in animal treatment", but from the sequence of how this was achieved, it seems that the Government may not immediately extend this ban to other veterinary drugs apart from diclofenac. This is being pursued.				
AD2	**Cambodia**	**Monitor availability and use of target NSAIDs**	**CVWG**	**2020**
Funding may be an issue for planning more and for the enforcement of the new ban (RSPB and BirdLife Asia being asked to support, and a concept note under preparation).				
AD3/4	**Establish system and procedures by which veterinary drugs with unknown effects on vultures have their approval for veterinary use withheld or withdrawn until scientific testing on Gyps vultures establishes their safety at maximum likely exposure levels. (ALL, although lower priority only for Cambodia)**			
AD3/4	**Cambodia**	**Explore the possibility of a moratorium on new (veterinary) NSAIDs**	**CVWG**	**2020**
To follow.				
AD6	**Contribute, with government agencies and pharmaceutical companies, to maintaining pharmacovigilance and regulation of veterinary drugs, to prevent their negative effects on wild vultures.**			
AD6	**Cambodia**	**Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.**	**CVWG**	**2020**
?????				

AD8	**Improve the availability of more effective vulture-safe drugs and formulations thereby facilitating take up by veterinary practitioners**			
AD8	**Cambodia**	**Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.**	**CVWG**	**2020**
Too early. To follow.				
AD8	**Cambodia**	**Publicise results of main report on Tolfenamic acid (available on MoEFCC website/SAVE dossier)**	**CVWG**	**2020**
To follow				
AD8	**Cambodia**	**Check on Tolfenamic acid formulations that they are being used and accepted by vet community (all countries)**	**CVWG**	**2020**
To follow				

Vulture Safe Zones - Implementation

VS16.	**Identify pVSZs in Cambodia**			
VS16	**Cambodia**	**Develop VSZ concept with areas proposed or decide if this approach is not relevant for Cambodia at CVWG meeting(s)**	**CVWG SAVE**	**2020**
Not yet taken up. To follow				
VS17.	**Implementation of pVSZs in Cambodia**			
VS17	**Cambodia**	**Continue to implement VSZ programme. [to add specific actions here in future] TAC to support define VSZ criteria for Cambodia**	**CVWG SAVE(TAC)**	**2020**
To follow				

Vulture Safe Zones - Monitoring

ZM1	**Monitoring movements, survival and causes of death of wild vultures with GPS PTTs in pVSZs and VSZs**			
ZM1	**Cambodia**	**Initiate monitoring with tagging as option in future (with support from TAC)**	**CVWG SAVE(TAC)**	**2020**
At planning stages				
ZM4	**Monitoring of availability of NSAIDs for veterinary use in representative samples of pharmacies and other outlets in pVSZs and VSZs.**			
ZM4	**Cambodia**	**Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and**	**CVWG**	**2020**

		vial size of diclofenac and date of manufacture offered for veterinary use.		
Preliminary start, but this to follow. Funding needed.				
ZM5	**Monitoring of wild vulture populations and breeding success in pVSZs and VSZs in India, Pakistan, Bangladesh, Nepal, Myanmar & Cambodia.**			
ZM5	**Cambodia**	**Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.**	**CVWG**	**2020**
Planning stages, and more funding needed. To follow.				

Research and Monitoring

RM4	**Vulture population monitoring in Pakistan, Bangladesh, Cambodia and Myanmar.**			
RM4	**Cambodia**	**Conduct annual census. Quarterly coordinated feeding counts continued.**	**CVWG**	**Annually**
Vulture monitoring in Cambodia is happening at feeding sites (coordinated counts) twice a year.				
RM6	**Monitoring of causes of death and NSAID contamination of wild vultures in India, Pakistan, Nepal, Cambodia & Bangladesh.**			
RM6	**Cambodia**	**Create database to document circumstances of death of vultures.** **Collect as many dead wild and released vultures as possible.** **Conduct post mortem examinations to determine causes of death. Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons.** **Trial methods to detect NSAIDs and other poisons in bone and other hard tissues.** **Retain carcasses frozen for future use.** **Publish the results periodically.** **2020 develop methods for acquiring data for database (eg searching at roosts, sniffer dogs?)**	**CVWG**	**2020** **Annually**
One carcass Post Mortem and tests in 2019.				

Cambodia (CAM)

CAM1	**Monthly supplementary feeding in at least four sites**			
CAM1	**Cambodia**	**Provide at least one dead cow per month at vulture restaurants.**	**CVWG**	**2020** **Ongoing**
The central component of CVWG actions is the operation of permanent supplemental-feeding stations (vulture restaurants). Four permanent restaurant sites were in operation since October 2018. At each site the responsible organization pledges to provide a minimum of one cow carcass per month in order to collect data for generating population estimates and trends. In addition, the carcasses increase the				

food availability for vultures, which may improve breeding and fledging success, supporting the recovery of vulture populations. The number of each species, sex, age, and presence of wing-tags and rings, is recorded.

CAM2	Improve population monitoring			
CAM2	Cambodia	Census vulture restaurants in March, June, September and December.	CVWG	2020 Ongoing

Vulture Census 2019

Year	RHV	SBV	WRV	Total
20-Mar-19	8	32	73	113
10-Jun-19	14	25	57	96
20-Jun-19	21	28	70	119
20-Sep-19	16	43	78	137
20-Dec-19	13	35	54	102

CAM3	Safeguard nesting areas from logging			
CAM3	Cambodia	Check all known nest locations, improve law enforcement at key sites.	CVWG	2020 Ongoing

A total of 22 active nests were discovered during the 2018-2019 breeding season (Table below). The majority of nests (12) were found at SPKLWS (2 RHV, 10 SBV), 4 nests at CWS (all RHV) and, 4 nest (RHV) in Sesan District, Stung Treng Province, and one WRV nests were found by WWF-MFF team. The vulture chicks in CWS fledged from the nests much earlier than elsewhere. All nests, of both RHV and SBV, at SPKLWSW and Sesan District nests, fledged later in the season during June and July.

Site/Partner	RHV Nest			SBV Nest			WRV Nest			Total Nest	Total Chick	Protection Method
	Total	Fledge	Fail	Total	Fledge	Fail	Total	Fledge	Fail			
SPKLWS/BLI	2	1	1	10	7	3	0	0	0	12	9	Nest Monitoring
Sean/ACCB	4	1	3	0	0	0	0	0	0	4	1	Nest Monitoring
CWS/WCS	4	3	1	0	0	0	0	0	0	4	3	Nest Guardian
MFF/WWF	1	1	0	0	0	0	1	1	1	2	1	Nest Guardian
EPL/WWF	0	0	0	0	0	0	0	0	0	0	0	
Total	**11**	**6**	**5**	**10**	**7**	**3**	**1**	**1**	**1**	**22**	**14**	

CAM4	Protect vulture nests from human predation			
CAM4	Cambodia	Evaluate effectiveness of nest protection across sites. Continue nest protection if found to be effective	CVWG	2020

Vulture nest searching activities are undertaken every breeding season by CVWG partner's field staff and trained community members. Nest locations from previous breeding seasons are checked early in the season to establish continued nesting activity, field teams conduct searching activities in other areas of forest to identify new or previously unrecorded vulture nests, relying heavily on local ecological knowledge from nearby communities and knowledge gathered by project field staff during other types of field work. If local community members find new nests and identify them to CVWG nest teams they can be rewarded with a nest finders' one-off payment of between $5-$15USD, and where suitable or feasible the nest finders can then be employed throughout the breeding season to either monitor or guard the nest until nest fledging or failure. The decision to employ people as nest monitors or nest guardians must be considered carefully as nest guardians have proven very effective in some areas; in others they may have sometimes had a net-negative effect on fledging success. In the last

breeding season, Vulture nest at Chheb wildlife sanctuary (WCS) and vulture nest at Mekong Flood Forest (MFF) were considered carefully as nest guardians, vulture nest at Siempang wildlife sanctuary Sesan IBA and Eastern plan Landscape (EPL) were consider nest protection method as nest monitoring (Checking nest around one time per week).

CAM5	**Monitor sales of veterinary drugs at key sites**			
CAM5	**Cambodia**	**Quarterly monitoring of veterinary drug sales at key sites.**	**CVWG**	**2020**

A pilot project on the control of pesticide sales and use in Western Siem Pang was launched during this report period. The goal of this project was to ensure that no vulture dies because of poisoning at Cambodia's best known vulture site. An awareness workshop was organized by BirdLife in Siem Pang district town by BirdLife for local authorities and pesticide sellers on 28th June 2019 to inform them about the rules and regulations regarding the sale and distribution of inorganic pesticides. Technical officers from DoAFF have now started enforcing these regulations since July 2019. All pesticide selling shops in Siem Pang district town were identified by BirdLife, some of these shops have not yet received a permission letter from DoAFF. Warnings have been issued to these shops that all pesticide will be confiscated if they don't receive permission letters.

Veterinary NSAID Monitoring

CVWG last conducted a wide-reaching survey of veterinary medicine outlets and livestock owners in 2014/15 but have continued to monitor for the appearance of veterinary formulations Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) since that time. Consequently, on the 9th of May 2018 ACCB staff identified a 100ml veterinary formulation NSAID containing diclofenac, in a veterinary supply shop in Siem Reap. The product was manufactured by the Vietnamese company APA and is licensed for buffaloes, cows, sheep, pigs, goats, piglets, calves and dogs, and priced at $5.25 USD.

Response to discovery of Veterinary NSAIDs

The CVWG acted quickly by jointly drafting a letter regarding veterinary-use diclofenac, the threat to vultures and requesting the development of a Prakas banning the veterinary use of diclofenac in Cambodia. The letter was submitted to the Ministry of Agriculture Forestry and Fisheries (MAFF) on the 7th of June 2018. MAFF informed back that only one company named 'Chamreuin Veth', imported 100 bottles of diclofenac at the end of 2017, which were distributed in or around Phnom Penh and Kampong Cham for treatment of pigs. The actions and process to successfully complete the necessary legislative process to ban diclofenac and other damaging veterinarian drugs/pesticides is ongoing. Therefore, the CVWG have cooperate with General Department animal health and Production (GDAHP) of MAFF to develop diclofenac banning proclamation and MAFF minister agree to ban diclofenac for using in Cambodia to conserve vulture by singe on degree on 15 July 2019.

CAM5	**Cambodia**	**2020: Support government focal point on diclofenac ban implementation.**	**CVWG**	**2020**

On 12 September 2019, Cambodia vulture working group in collaborate with General Department Animal Health and Production conducted a dissemination workshop on diclofenac Banning Proclamation. Focal points from 5 vulture targeted provinces (Stung Treng, Mondulkiri, Preah Vihear, Rattanakiri, and Kratie), Department of Animal Health (MAFF), Ministry of Environment, Cambodia Vulture Working Group and Media were invited to this workshop. The main purpose of the workshop is to inform about diclofenac banning proclamation and Conservation status of Cambodia vulture, discuss and develop priority action plan for ensuring the diclofenac banning proclamation will take to

enforce and benefit to vulture and to celebrate International Vulture Awareness raising Day 2019. This workshop came up with following urgent actions that need to implement from now on:
. Public awareness raising about diclofenac proclamation
. Establish communication network (i.e. social media) for sharing information
. Conduct law enforcement (recall all diclofenac)
. Research and survey about present of diclofenac and other NSAID at vulture target provinces
. Invite GDAH to be a member of Cambodia Vulture Working group
. NGO members of Cambodia Vulture Working Group organize meeting with vet team at target provinces and other stakeholders to monitor the availability of diclofenac and come up with join enforcement actions

CAM6	**Increase sustainability of CVWG**			
CAM6	**Cambodia**	**Integrate vulture conservation activities into other NGO activities.** **Develop sustainable financing where possible** **Evaluate CVWG activities and effectiveness** **Nationalize management of CVWG**	**CVWG**	**2020**

Develop sustainable financing where possible - Income from ecotourism operation can sustain the cost of vulture restaurant in CWS however we still not find the best option for other sites yet. Replicate ecotourism initiative is piloting in Lomphat Wildlife Sanctuary. The other sites still depend on donor support.

Nationalize management of CVWG - Management structure of CVWG is improved. This partnership co-lead by representative from government focal point (Mr. Meas Sophal) and conservation NGOs (Mr. Alistair Mould). BirdLife International Cambodia Programme is coordinating body of this working group. BirdLife assign Ms. Ny Naiky (vulture project coordinator) to facilitate and serve this working group. The members of working group are divided to core members and ordinary members. Core member including Ministry of Environment, Ministry of Agriculture Forestry and Fishery, BirdLife, WCS, WWF, and ACCB. During this report period, four ordinary members were invited to join this working group based on their expertise including: NatureLife Cambodia, Sam Veasna Center, Cambodia Bird Guide Association and Center for Biodiversity Conservation. Since members are increasing, CVWG is playing significant role in advocating and awareness for policy change and generate public support on vulture conservation.

CAM7	**Assess mortality due to non-NSAID threats**			
CAM7	**Cambodia**	**Training workshop on poison baits** **Learning from other SAVE partners and African countries**	**CVWG**	**2020**

To follow

CAM8	**Identify locations of WRV breeding sites**			
CAM8	**Cambodia**	**Satellite tagging of 2+ WRVs to lead to breeding areas**	**CVWG**	**2020**

To follow

6.7 Myanmar
Advocacy

Code	Country	Action	Lead Partner	By (end date)
AD1	**Achieve the removal from the market of vials of diclofenac supposedly intended for human medicine in excess of 3 ml capacity.**			
AD1	**Myanmar**	**Removal of diclofenac from the market and undercover survey for NSAIDs**	**MVWG**	**2020**
• In April a vulture conservation workshop was organized together with the relevant government departments: Forest department, General Administration Department, Veterinary department. There was resistance to banning diclofenac, which is seen as a new, useful and cheap NSAID. This was the first time the veterinary community was made aware of the impact of diclofenac on vultures. • The Myanmar Veterinary Association has joined the MVWG and is willing to cooperate on this issue.				
AD1	**Myanmar**	**Propose restriction on large vials of diclofenac to government**	**MVWG SAVE**	**2020**
The Cambodia news (vet diclofenac ban) has already been used to approach Government and bring extra pressure for a similar step in Myanmar.				
AD2	**Achieve the banning of the veterinary use of ketoprofen, aceclofenac, Nimesulide, Carprofen, and Flunixin in India, Pakistan, Bangladesh, Nepal, Bhutan, Cambodia & Myanmar - First step to stop Government purchase or supply of all 5 NSAIDS**			
AD2	**Myanmar**	**Removal of target NSAIDs from the market and seek a ban / prevent licensing prior to entry to the market**	**MVWG**	**2020**
Early stage for Myanmar, so no progress as yet. The availability of these drugs is not yet known in Myanmar.				
AD2	**Myanmar**	**Monitor availability and use of target NSAIDs**	**MVWG**	**2020**
Follow-up pharmacy surveys are underway in some areas. A survey to undertake pharmacy surveys in Shan and Kachin state was designed. • An undercover pharmacy survey was conducted at four animal pharmacy shops at Mohnyin Town, Hopin town, Mokaung town and Nan Mon village which are located in Indawgyi and surrounding areas, Kachin State. A total of 11 different drugs for animals were found to be sold including diclofenac and metamizole for pain killers and others are antibiotics. This is the first time that diclofenac has been recorded in Myanmar. This is the first time that diclofenac has been recorded sold in a pharmacy for veterinary use in Myanmar. Neither ketoprofen nor aceclofenac have yet been recorded being used in Myanmar • Due to a lack of funds, and a potential partner pulling out late in the planning stage, a similar survey could not be conducted in Shan State. • BANCA secured funding from Birdlife International (Asia) for undercover and open pharmacy surveys to be conducted in Spring 2020 in Kachin and Shan States. This activity will be in collaboration with the Myanmar Veterinary Association and Institute of Veterinary Science.				

AD3/4	**Establish system and procedures by which veterinary drugs with unknown effects on vultures have their approval for veterinary use withheld or withdrawn until scientific testing on Gyps vultures establishes their safety at maximum likely exposure levels.**			
AD3/4	**Myanmar**	**Explore the possibility of a moratorium on new (veterinary) NSAIDs**	**MVWG**	**2020**
Not yet approached.				
AD6	**Contribute, with government agencies and pharmaceutical companies, to maintaining pharmacovigilance and regulation of veterinary drugs, to prevent their negative effects on wild vultures.**			
AD6	**Myanmar**	**Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.**	**MVWG**	**2020**
Early stage. To follow.				
AD8	**Improve the availability of more effective vulture-safe drugs and formulations thereby facilitating take up by veterinary practitioners**			
AD8	**Myanmar**	**Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.**	**MVWG**	**2020**
Early stage. To follow.				
AD8	**Myanmar**	**Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier)**	**MVWG**	**2020**
To follow.				
AD8	**Myanmar**	**Check on Tolfenamic acid formulations - that they are being used and accepted by vet community all countries**	**MVWG**	**2020**
To follow				
AD9	**Develop wider awareness-raising initiatives to highlight NSAIDs concerns and provide incentives acknowledgement of those taking positive steps.**			
AD9	**Myanmar**	**Consider initiatives generating awareness with pharmacies, drug distributors, vets, farmers**	**MVWG**	**2020**

- A panel discussion on “Wildlife” was jointly organized by the Myanmar Veterinary Association and BANCA at the University of Veterinary Science to raise vulture conservation awareness, to highlight NSAIDs concerns.
- Focus group discussions were planned to be held with farmers at Indawgyi area about veterinary NSAIDs in early October to understand the cattle treatment and raising practices. 10-15 farmers were expected at the meeting.
- In April a vulture conservation workshop was organized which included the Veterinary department and Myanmar Veterinary Association and the Myanmar Veterinary Association joined the MVWG.

Vulture Safe Zones - Implementation

VS18	**Identify pVSZs in Myanmar**			
VS18	**Myanmar**	**Collect information and select sites for pVSZs.**	**MVWG**	**2020**
During the vulture conservation workshop hosted by the government in Naypitaw in April 2019, Indawgyi Biosphere reserve was agreed to be the first provisional Vulture Safe Zone in Myanmar. Potential for Shan state but limited information. Vulture surveys will be conducted in 2020 to help identify a pVSZ.				
VS19	**Maintenance & review of VSZs in Myanmar**			
VS19	**Myanmar**	**Continue VSZ implementation and expansion.**	**MVWG**	**2023**
VS19	**Myanmar**	**Proposal submitted to government for formal nomination of VSZ**	**MVWG**	**2020**
To follow. Early stages				

Vulture Safe Zones - Monitoring

ZM1	**Monitoring movements, survival and causes of death of wild vultures with GPS PTTs in pVSZs and VSZs**			
ZM1	**Myanmar**	**Initiate monitoring with tagging as option in longer-term future**	**MVWG**	**2022**
Early stages. To follow.				
ZM4	**Monitoring of availability of NSAIDs for veterinary use in representative samples of pharmacies and other outlets in pVSZs and VSZs.**			
ZM4	**Myanmar**	**Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.**	**MVWG**	**2020**
Undercover surveys conducted in Kachin State and list of veterinary drugs collected (see AD2). Wider surveys needed in future. Undercover surveys and open surveys are being planned for Shan State in April 2020 by BANCA with funding from Birdlife International (Asia).				
ZM5	**Monitoring of wild vulture populations and breeding success in pVSZs and VSZs in India, Pakistan, Bangladesh, Nepal, Myanmar & Cambodia.**			
ZM5	**Myanmar**	**Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.**	**MVWG**	**2020**
A viewpoint survey methodology was developed by FFI for the survey at Indawgyi pVSZ in Kachin State and surrounding area. 16 points were selected on hills overlooking the flat land area and the whole survey area covered about 5,000 sq km centred on Indawgyi Biosphere Reserve in which vultures are encountered the whole year. The survey was conducted in September with the following results:				

VP-7	White-rumped Vulture	5-Adult
VP-4	White-rumped Vulture	11-Adult, 2-juvenile
VP-4	Slender Billed Vulture	8-Adult
VP-2	White-rumped Vulture	5-Adult

Most of the days were cloudy as it was still the rainy season. The survey will be repeated in October.

Research and Monitoring

RM4	**Vulture population monitoring in Pakistan, Bangladesh, Cambodia and Myanmar.**			
RM4	**Myanmar**	**Establish methodology and ensure baseline surveys carried out.**	**MVWG**	**2020**
A methodology for conducting a baseline survey at the pVSZ at Lake Indawgyi, Kachin State using viewing point counts was developed and will be used for monitoring surveys (see ZM5). Funding could not be secured for surveys in Shan State in 2019. With funding support of Birdlife International (Asia), BANCA will undertake population surveys using a viewpoint method in both Kachin State in collaboration with FFI Myanmar and Indawgyi Biosphere Reserve and in Shan State at the same time in March 2020.				

Myanmar (MYA)

MYA1	**Nesting site protection and law enforcement**			
MYA1	**Myanmar**	**Nest site identification and protection.**	**MVWG**	**2020 Ongoing**
Initiated.				
MYA2	**Public awareness raising**			
MYA2	**Myanmar**	**Work with communities, develop media locally and nationally**	**MVWG**	**2020 Ongoing**
Three public awareness activities were done in 2019 as below, • Myanmar Vulture Working Group Facebook page was created. • Article on vulture conservation in Myanmar Times news journal (English version) on 27 Nov 2019 by Myat Moe Aung https://www.mmtimes.com/news/place-where-vultures-can-get-proper-protection.html • Article on vulture conservation in Myanmar Times news journal (Myanmar version) on 29 Nov 2019 by Phyo Wai Kyaw Aung https://myanmar.mmtimes.com/news/131658.html There is a plan for public awareness work in Shan State in April 2020 tied to vulture and pharmacy surveys.				
MYA2	**Myanmar**	**2020 IVAD with Yangon Zoo**	**MVWG**	**2020**
MYA3	**Restaurant site for environmental tourism**			
MYA3	**Myanmar**	**Start a restaurant**	**MVWG**	**2022**
Not yet started.				
MYA4	**Threat assessment**			

MYA4	**Myanmar**	**Questionnaires (mainly pharmacy focused), focus group discussion at two sites.**	**MVWG**	**2020**
Identification of threats will be done in Kachin and Shan State mainly focused on pharmacy surveys in 2020. The decline in vultures in Myanmar was not due to NSAIDs so we need to understand the causes behind declines better. Toxic NSAIDs represent a potential threat at the moment.				
MYA5	**Update Myanmar vulture species action plan**			
MYA5	**Myanmar**	**Plan to be updated and aligned with SAVE blueprint and Vulture MSAP Done**	**MVWG**	**2020**
Action plan prepared and agreed among partners with Govt, finalised for posting in January 2020 and now available on the SAVE website.				
MYA6	**Regular meetings of MVWG**			
MYA6	**Myanmar**	**2 meetings per year**	**MVWG**	**2020 Ongoing**
It is still early to expect significant updates on any of the above actions, but the main update is that the newly formed consortium and SAVE Partner, Myanmar Vulture Working Group has now met with Government officially and has engaged the Government Veterinary services in the group. Thiri who is leading on this is proactive and the news from neighbouring Cambodia of their ban has encouraged them to push for similar in Myanmar. The MVWG met in April during the vulture workshop in Naypyitaw to review the Myanmar Vulture Conservation Action Plan.				

7. SAVE Associates Reports

7.1 VSZ work of Arulagam

Vulture Safe Zone work is being taken forward with usual fervour by Arulagam in Tamil Nadu in aligning with SAVE blue print.

- Last year 20+ awareness programs targeting Veterinarians and general public was conducted in the VSZ. Message about harmful drugs to vultures, serious impacts of the willful poisoning and how to ensure safe food for the vultures were spread among the target audience. These programs covered 6000+ beneficiaries, 80+ veterinary doctors, 650 veterinary researchers, 65 pharmacies, 74 forest staff and 600+ students
- There was an interactive session arranged at annual 'Tamil Birders meet' and Arulagam's efforts on vulture conservation was appreciated
- Audio panel 'This is Vulture speaking' was installed in Ooty Botanical garden as part of it's awareness building drive. Honourable Collector of Nilgiris J. Innocent Dhivya inaugurated it. The Tamil and English language audio in the form of vulture describing its story and the food risks they are exposed to, was very well received by the audience. On suggestion from the Collector, Arulagam plans to increase the language options in coming year to include six more languages spoken by the locals so that it reaches more people
- Exhibitions organised in 4 popular Cattle Markets and 2 Temple festivals in the target area
- Puppet shows conducted in 6 places in the tribal hamlet
- National level workshop on conservation and management strategies of native cattle and vulture was conducted at Kongunad Arts and Science College
- IVA day -2019 celebrations attracted more stakeholders this year. Processions, Panel discussions, Opening Of Awareness Boards were the events done to mark this day. Tamil Nadu Forest Department actively organised
- 'Selfie with Vulture' cut out erected at Botanical garden to change the negative narratives about Vultures in mainstream media and public mindset and to spread the actual positive role played by these birds. It was well received by the tourist
- Capacity building training was organised for Forest dept front line staff on how to identify vultures
- Arulagam continued its campaign against harmful drugs that kill vultures (eventually) by spreading the awareness among the participants of livestock inspectors general body meeting which was attended by 650 assistants. They appreciated Arulagam's sustained campaign and pledged their support to the cause of vulture.

Highlights

- Arulagam brought up the issue of buying and stocking up another harmful drug flunixin akin to diclofenac' to the notice of Animal husbandry department. Forest dept also joined hands with us and pledged its support and applied sustained pressure on animal husbandry dept that lead to the formation of first ever high level committee to discuss and resolve this problem. Arulagam is delighted to highlight the decision taken by Tamil Nadu government to ban the use of flunixin in and around the VS zones
- Arulagam has recommended to Drugs Enforcement Authority of our State to enforce stringent punishment on sellers of banned Diclofenac medicines (MDV). 40+ case has been registered and drugs were ceased
- A research article and 15 awareness articles were published in mainstream media this year
- On request from Arulagam to the organizers of Coimbatore Kite flying festival that the kites and twine used may cause harm to vultures, the organization has postponed the event

- Death of two vultures were noticed this year in the VSZ. Autopsy reports are awaited to know the cause(s)
- For ensuring the improved availability of safe food to vultures, an attempt was made. Yes. The carcass of an elephant found outside the forest area was shifted into the forest zone. WWF joined hand and assisted along with Tamil Nadu forest department
- A book, with the Title " பாறு கழுகுகளும் பழங்குடிகளும் " in Tamil (vultures and the tribes - 160 pages), written by the secretary of Arulagam, Su. Bharathidasan was published on behalf of Arulagam. This book has been dedicated to all those volunteers who strive to protect vultures allover the world, the likes of Vibu Prakash from India, Dhan Bahadur Chaudhary and Krishna Bhusal from Nepal, Uzma Khan from Pakistan, Alam Sarowar/Dipu from Bangladesh, Munir Virani and Andrew Botha from Africa, Chris bowden of Saving Asia's Vultures from Extinctions (SAVE) and all field workers of Arulagam.

Mahatma Gandhi and Clean India Campaign and Vultures
Mahatma Gandhi is the torch bearer of Clean India campaign. This campaign has been gathering pace in Cities. This cleanliness drive is done very very effectively in our forests too, by Nature Sanitary Crew, 'Vultures'.

Driven by a deep sense of gratitude to these birds and to commemorate the 150th birth anniversary of the Father of the nation, Arulagam NGO has planned to plant Vulture friendly trees (Terminalia arjuna, Terminalia bellerica) in Moyar river banks in Sathyamangalam and Mudumalai Tiger Reserve from October 2nd, 2019 onwards at 10 different location with 150 saplings each. We are sure that these trees we plant today in the name of Mahatma Gandhi will provide shelter for the future generations whenever they multiply in number and whenever they look for new places to nest.

Supported by:
Rufford Foundation, Disney Conservation Fund, Van Tien Hoven Foundation and Tamil Nadu Forest department.

Applying to:
Robert BOSH Foundation, Whitley Fund for Nature
Applied and not favourably considered:
MBZ foundation, PBNF and Habitat Trust

7.2 Report of Prokriti O Jibon Foundation (Nature & Life Foundation)

SAVE Blueprint Objectives are priority actions for Prokriti O Jibon Foundation as a SAVE associate member. Our objectives are very much similar to the SAVE priority areas. We are working on advocacy and mass awareness in close collaboration with Forest Department, Ministry of Environment, Forests and Climate Change in Bangladesh for the conservation of Vultures. According to the SAVE priorities, our activities were-

1. Conservation Dialogue for Vulture Conservation in Bangladesh
We have conducted a Conservation Dialogue for Vulture conservation in Bangladesh to address the priority issues with government, local officials and other stakeholders. The major issues were sustainable management of VSZ, functioning the vulture rescue centre, produce safe drug and trained the veterinary practitioners. POJF also conducting some programs to encourage pharmaceuticals companies in Bangladesh to produce more meloxicam product for veterinary uses.

2. Knowledge Sharing and Mass Awareness

Prokriti O Jibon Foundation is mostly focused on the knowledge sharing and awareness issues for vulture conservation in Bangladesh. We are sharing the information's related to importance of vultures, how they are vanishing, use of safe drug for dairy farming and Vulture Safe Zone management to the grassroots through various media.

- **TV Media:** We have produced 2 Video message (30 second each) and telecasted almost 250 times through the satellite TV Channel (Channel i). We have also produced 1 TV discussion program on **Challenges in the Conservation Vultures in Bangladesh** to promote the massages. The foundation also telecasted 6 **TV News** on different issues for vulture conservation.
- **Vulture Awareness Day-2019 Celebration:** Prokriti O Jibon Foundation in Association with IUCN Bangladesh & Bangladesh Forest Department jointly celebrated Vulture Awareness Day-2019 with discussion program and school programs.
- **Print Media:** We have published some articles on the national daily newspaper **The Daily Jugantor** and quarterly Nature Magazine **Prokritibarta** to promote the use of safe drug Meloxicam in spite of ketoprofen.
- **FM Radio:** The FM Radio stations are very popular media now, so we have disseminated 3 vulture conservation massages almost 500 times through our FM Radio Station **Radio Bhumi**.

7.3 Report from Neo Human Foundation

D. Satya Prakash (President, Neo Human Foundation)

Key activities currently includes monitoring, awareness and advocacy in provisional vulture safe zone Hazaribag by NHF. We are trying our level best with the limited resource to continue to work in the HPVSZ, without any fund. This year 2019 with the support of volunteers, newly appointed Forest Guard and villagers we are receiving the information of presence of vulture form different parts of HPVSZ, which was previously only restricted to Hazaribag district. Number of vulture has decreased in Hazaribag but it is reported from different areas within vulture safe zone within a radius of 100 km. This year 2019 the movement of vulture are being reported from various areas like Khunti (Ranchi district), Hazaribag district, Chatra district and Koderma district. The movement of vulture are recently seen in these areas in a radius of 100 km from Hazaribag Town. Recently in January 2019, 2 Cinereous vulture were also sighted for the first time by us near Juljul Hill, Hazaribag. With no fund from any sources we are facing difficulties to carry out conservation work. Although we tried this year to have funding with the Forest Department but no success was made.

We are continuously pursuing forest department of Jharkhand for implementation of in-situ conservation vulture in Hazaribag Provisional Vulture Safe Zone (HPVSZ) through Forest department funding. Apart from this we are also incorporating some fund for Vulture Monitoring and Conservation Awareness programme in various Wildlife Management Plan being prepared for user agency (IRCON, NHAI, DVC etc) for land diversion for developmental project like railway (IRCON), road (NHAI), transmission line (DVC) etc. prepared by NHF in Hazaribag PVSZ.

Also perusing Forest Department and talked to PCCF Wildlife and Chief Wildlife Warden (Jharkhand) to have MoU with BNHS for Vulture Conservation Breeding Centre, Muta, Ranchi, Jharkhand as early as possible. They are in process of MoU with BNHS. Recently meeting with PCCF Wildlife and Chief Wildlife Warden (Jharkhand) and Dr. Vibhu Prakash was held on 23rd September for MoU with Forest Department and also visited to VCBC, Muta, Jharkhand With Vibhu , Chris, DFO Wildlife and CCF Wildlife for MoU with BNHS to make VCBC functional.

The state forest department is concern for both In-situ and Ex-situ Conservation of Vulture in Jharkhand. Present PCCF Wildlife and Chief Wildlife Warden is taking keen interest in this regards. I had many talks with him on various occasions during meeting with him. Hope this year some progress will be made.

NHF president Satya Prakash is continuously engaged in giving training to newly appointed Forest Guard for vulture conservation. About 1000 Forest have been given training for vulture conservation. These guard are posted in different district of Jharkhand including PVSZ. We are in touch with them receiving current status from there jurisdictions.

Apart from this we are also conducting awareness programmes with school children, JFMC and trainees in Forest Training School. NTPC is supporting every year in printing of Vulture conservation awareness materials for free distribution. This year 5000 brochure were printed by NTPC. Publicity department of Forest Department, Jharkhand is also printing brochure and poster as awareness materials every year with the support of NHF. These are distributed in various meeting and awareness programmes etc.

7.4 The Corbett Foundation

Activities have taken place by the Corbett Foundation (TCF) in Kaziranga (Assam), Bandhavgarh and Kanha (Madhya Pradesh) and Kutch (Gujarat), all in India:

1. Veterinary Cover for Domestic Livestock: TCF's divisions in Kutch, Kanha, Bandhavgarh and Kaziranga operate a total of 6 regular mobile veterinary clinics through its network of Livestock Inspectors guided by Dr. Naveen Pandey, veterinarian and a conservation medicine professional working with TCF. This is in the mobile veterinary outreach program of TCF which spans over 450 villages across TCF's operational areas with an estimated coverage of nearly 200,000 livestock annually for treatment and immunization. Not only diclofenac but TCF has banned use of all NSAID, except meloxicam, since 2012 till other NSAIDs are proved to be safe for vultures. By organising the above-mentioned veterinary network, TCF has ensured elimination of non-safe NSAIDs from its areas of operations.

In 2019, TCF's mobile vet teams have treated over 5000 cattle heads and vaccinated over 45000 cattle from the tiger reserves of Kanha and Sanjay-Dubri in Madhya Pradesh and in Kutch, Gujarat.

2. TCF's efforts to declare 265 km^2 area as Vulture Safe Zone in Kutch, Gujarat

From the year 2016 to 2018, the population of White-rumped Vulture (WRV) in Kutch has dwindled down from 64 to about 40 individuals (Kamboj et al. 2019). The local birdwatchers also presume that the numbers are possibly around c. 25 WRV (Gadhavi D. K. *pers. obs.* 2019).
Rapidly increasing network of power lines and windmills and illegal usage of harmful drugs in the livestock treatment are believed to be the two major reasons behind such a drastic decline.

The Abdasa and Mandvi taluka are the two most important vulture areas in Kutch district of Gujarat, the former being the breeding site and the latter is a regular feeding site. Unfortunately, right in the middle of these two areas, a few windmills and many powerlines were planned to be developed by different private companies. The said development was approved by the honorable government and construction was in progress when it came into the notice of the TCF team on 16 March 2019. TCF wrote a letter to different authorities of Gujarat State requesting to keep the area suggested in Fig 1, free from such infrastructural development to ensure the safety of the last vultures of Kutch. An email in this regard was also sent to the concern authorities.
Subsequent to this effort, TCF also requested all birdwatchers and NGOs of Kutch to write similar letters to the concerned authorities. In a period of about two months, more than 30 letters were written by local NGOs, birdwatchers and photographers. The news was published in different newspapers and the same can be checked here in 1 and 2 .

TCF representative also personally met the Collector Kutch and Deputy Conservator of Forests Kutch West Division to explain the importance of this area and to request to keep it safe from the windmills and

powerlines. Later on 2nd April 2019, Collector Kutch asked the DCF Kutch West Division to give their opinion on this matter quoting the letter sent by TCF as reference. On 4th April 2019, DCF Kutch West Division gave a positive opinion in favor of vultures. Later on 30 May 2019, collector Kutch gave a 9 pages long order with a new format of application form to apply for the windmill installation in Kutch. In this form on page no 4 under section 11 of the table, the polygon suggested by TCF has been described as 'Vulture Zone' to be kept safe for the vultures.

Hence, the initiative taken by TCF resulted in the declaration of a 'Vulture Zone', an area of about 265 km^2 which will be maintained as a safe zone and will be kept free from the powerlines and windmills.

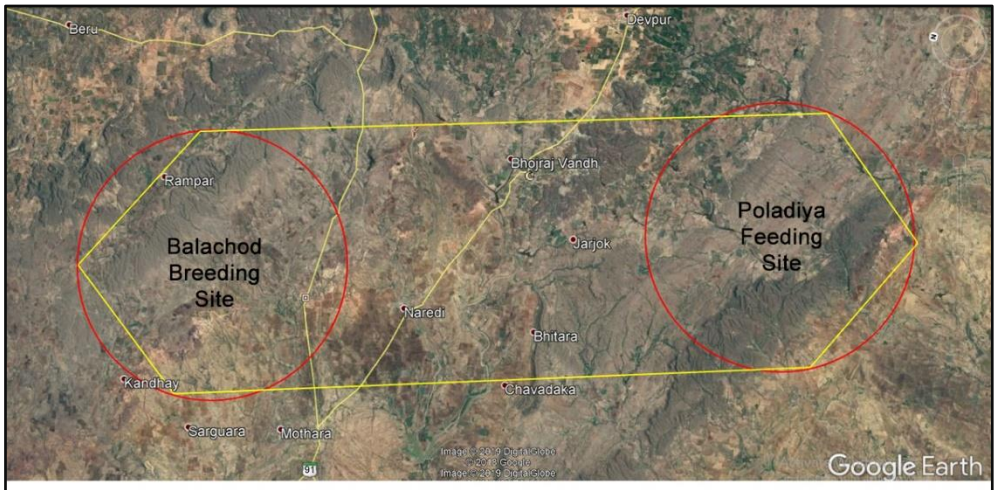


Fig 1. Map showing Vulture Safe Zone in Kutch, Gujarat.

Some important actions to be taken for the safety of last surviving vultures of Kutch

a. Owing to the shortage of funds, distribution of safe drugs at subsidized rates could not be implemented for longer period. This program needs to be supported to start a long-term distribution or RSPB, BirdLife Internationals, BNHS and all the SAVE partners should convince the government to supply the safe drugs at a subsidized rates, wherever the last vultures are struggling to survive.
b. A very strict vigilance on the para-vets by Government is necessary to ensure that only qualified para-vets are practicing, and no harmful drugs are being used.
c. Regular sampling of livestock carcasses in vulture areas should be implemented and encouraged.
d. Results of such sampling should be shared with all the SAVE associates on quarterly basis.

3. Awareness: TCF's veterinary programme spreads the much-needed awareness among the local communities. TCF interacts with the schools and community of over 120 villages in the above locations on a regular basis. Our awareness programmes touch several topics about biodiversity conservation, including vulture conservation. TCF has in the past printed posters on the status of India's vulture species and highlighting the diclofenac issue. These posters are being regularly used during our awareness programmes. Posters have already been produced in English, Hindi, Assamese, Marathi and Gujarati. The overall distribution outreach of these posters is around 5000 that are distributed to schools, colleges, veterinary hospitals, forest departments and village community halls for making people familiar with the diclofenac toxicity prevailing in our country and to prevent use of diclofenac in treatment of cattle.

International Vulture Awareness Day celebration in Kaziranga:

Kaziranga National Park (KNP) is home to more than 500 species of different bird including many species of Vultures namely White-rumped Vulture, Slender-billed Vulture, Himalayan Vulture, Griffon Vulture and Cinerous vulture. KNP is surrounded by dense human population and rural economy of these villages are based on agriculture and livestock rearing. But, unlike other parts of India, vulture population of Kaziranga also suffered huge population loss due to diclofenac poisoning staring late 1990's. But constant conservation efforts and support of Govt agencies, Non-Governmental agencies and local community has stabilized the remaining population in Kaziranga. TCF Kaziranga is working in fringe villages of KNP and has played a crucial role in the Kaziranga landscape to spread awareness about vulture conservation and diclofenac poisoning. Every year on International Awareness Vulture Day, TCF Kaziranga organizes community-based awareness programs in and around Kaziranga and sensitize local people about vulture conservation. In 2019 TCF organized an awareness programme at Shankar Dev Sishu Niketan, Bokakhat, Kaziranga for over 70 students and teachers, including a talk on vulture crisis and the need of vulture conservation. The talk session was followed by screening of a documentary on vulture in Assamese language which provided much valuable information about vultures. The team also organized a quiz session on vultures through which another round of information sharing was done by the tram members. TCF team had also distributed copies of Vulture Posters produced by TCF.

8. Additional Reports received relevant to SAVE Priorities from South Africa

Carprofen and Nimesulide: Toxicity Testing in South Africa

Vinny Naidoo, University of Pretoria, South Africa

Numerous drugs have been tested for their safety in Vultures in South Africa in the last ten years. For this report, the results of the two latest tested Non-Steroidal Anti-inflammatory drugs (NSAIDs) carprofen and nimesulide are reported. For the testing, the studies both made use of a previously approved protocol and a three step approach. In step 1 of the study, the pharmacokinetic of the drug was determined in cattle 7 to 9 months of age, with the specific aim of determine the time to maximum of plasma concentration (Tmax). In step 2 of the study, a second set of cattle were treated at double the manufacturer's recommended dose, and animals slaughtered at the Tmax determined in step 1, to determine and the tissue concentration in liver, kidney, muscle and injection site for identification of the tissue with the highest concentration. For step 3, the highest concentration was dosed to two vultures by the oral route. Following the specified methodology, both drugs were deemed to be toxic to adult vultures, with one and two birds succumbing to toxicity for caprofen and nimesulide respectively. In all cases birds that died showed typical signs of depression, hyperuricaemia, hyperkalaemia and visceral gout. Based on the results of these studies, neither drug can be considered to be safe in vultures. From purely the clinical picture nimesulide appears to induce more severe tissue damage.

Mechanism of Toxicity of NSAIDs

For this study, the mechanism of toxicity of diclofenac in vultures was ascertained. Using molecular techniques and real time markers, the effect of diclofenac on renal function was determined. Using the chicken as a standard species for the study of bird physiology, it was evident that the diclofenac interfered with both renal blood supply and uric acid excretion in real time. Subsequent molecular analysis was able to demonstrate areas of similarities and difference in the uric acid excretion between vultures and chickens. The study was able to show that the vulture inherent renal function was the defining point in diclofenac toxicity and species sensitivity

9. Additional Reports received relevant to SAVE Priorities from India

9.1 Pilot assessment of veterinary non-steroidal anti-inflammatory drugs available for veterinary use in 7 states of India in 2019

Devojit Das, Vets for Vultures
(*unpublished data*)

To evaluate the presence of different veterinary NSAIDs in seven states of India, we conducted undercover pilot surveys of 62 veterinary and general pharmacies (Andhra Pradesh, Assam, Gujarat, Karnataka, Rajasthan, Telangana & Uttar Pradesh) during 2019. Lead investigator and veterinary pharmaceuticals professionals visited the pharmacies to collect information/take photos of available NSAIDs and pretended to be surveyor of market intelligence to evaluate the competitive edge of different veterinary NSAIDs in the market. We adopted comparable methodology with previous NSAID pharmacy survey conducted by Cuthbert et al 2011. This NSAID pharmacy survey undertook within 50 km radius of 10 known or historical evidence of vulture breeding colonies and feeding grounds of all critically endangered species of vulture in India.

Across all 7 states 34 bolus/oral brands, 45 injectable brands and one topical (skin application) brand of NSAIDs were recorded for sale to treat livestock.

Meloxicam was the most common NSAID, encountered in 96% of pharmacies followed by nimesulide (72%). However, 62% of meloxicam brands and 76% of nimesulide brands had paracetamol as secondary active ingredients. Paracetamol was encountered mostly in oral (65%) as compared to injectable formulations. At least one of the following NSAIDs that are known to be toxic, namely Aceclofenac, Carprofen, Flunixin, Nimesulide & Ketoprofen, were encountered in 82 % of pharmacies during this pilot. Encouragingly, Tolfenamic acid, a possible second so far, safe NSAID for vulture was recorded in 42% pharmacies.

Secondly, we also collected information on NSAIDs supplied by Government to the government veterinary services for the eight states (Andhra Pradesh, Assam, Bihar, Jammu & Kashmir, Jharkhand, Telangana & West Bengal). Apart from meloxicam, six toxic NSAIDs for vulture like aceclofenac, carprofen, flunixin, nimesulide, paracetamol & ketoprofen were also listed as being supplied to govt veterinary services. Ketoprofen, a toxic NSAID for vulture was found to be common NSAID in 6 of the 7 states.

This pilot undercover pharmacy survey and the information collected for Government supplied NSAIDs, provides an important indication of the current availability and use of different veterinary NSAIDs in 11 states of India in 2019. Note that these are therefore available in the system for threatening the Critically Endangered Gyps vultures. It therefore provides a useful platform to inform the strategy for creating safe zones for both wild and reintroduced vulture populations in South Asia.

9.2 Vets for Vultures Initiative (India)

Percy Avari, Bombay Veterinary College

Only limited activity during 2019, (but see also 9.1 above) - Dr. Percy Avari delivered a talk about Vulture Conservation and NSAIDs at an event organised by the PPAM, (Pet Practitioners Association of Mumbai), to around 150 veterinarians October 2018. Another talk was delivered at a series of lectures organised by “Phoenix Veterinary Specialty”. The talk was organised at the College of Veterinary Science, Rajendranagar, Hyderabad on 12 December 2018. The audience consisted of about 30 veterinarians from all over India, 20-25 veterinary students from the college, staff members from the college including the Associate Dean.

Dr. Amrita Deb delivered a talk at the 3rd GSG Avian Medicine Symposium 2019 on 23 February 2019. Many renowned avian veterinarians from around the globe attended the Symposium. Vets for Vultures also got significant mention at the EAAV (European Association of Avian Veterinarians) newsletter July 2019.

9.3 DNA metabarcoding for parallel identification of species, sex and diet: an application to the conservation of globally-threatened *Gyps* vultures in India

Mousumi Ghosh-Harihar, Nehal Gurung, Harsh Shukla, Ishani Sinha, Awadhesh Pandit, Vibhu Prakash, Rhys E. Green, Uma Ramakrishnan

An understanding of the factors affecting the diet composition of critically endangered *Gyps* vultures in the Indian subcontinent has important applications to the design of effective conservation strategies. After suffering a massive decline (~99%) in numbers caused by veterinary use of the nephrotoxic drug diclofenac, vultures now persist in very low numbers, mostly concentrated within or near National Parks. This spatial association might be attributed to the availability of wild ungulate carcasses free from toxic veterinary drugs. Hence, quantification of vulture diets and the factors affecting them is critical to test this hypothesis.

We have developed and validated a robust "field-to-benchtop-to-desktop" metabarcoding workflow for assessing the species- and sex-specific diet of these obligate scavengers from non-invasively collected faecal samples. Seven metabarcodes targeting mitochondrial and nuclear genes were used to simultaneously determine the vulture species identity, sex and species consumed. The amplicons were sequenced using an Illumina Miseq platform. We included controls and three replicates per sample to establish a series of non-arbitrary thresholds to filter the sequence data and eliminate cross-contamination, PCR/sequencing errors and false positives.

Using this strategy enabled identification of species and sex for all samples (Fig. 1). Diet species-specific sequences could be identified with high taxonomic resolution for 93% of samples (Fig. 2). Out of the seven metabarcodes, just four were sufficient to meet the objectives. From this preliminary analysis, domestic livestock seem to be the most frequently consumed diet item across samples from inside and outside protected habitats.

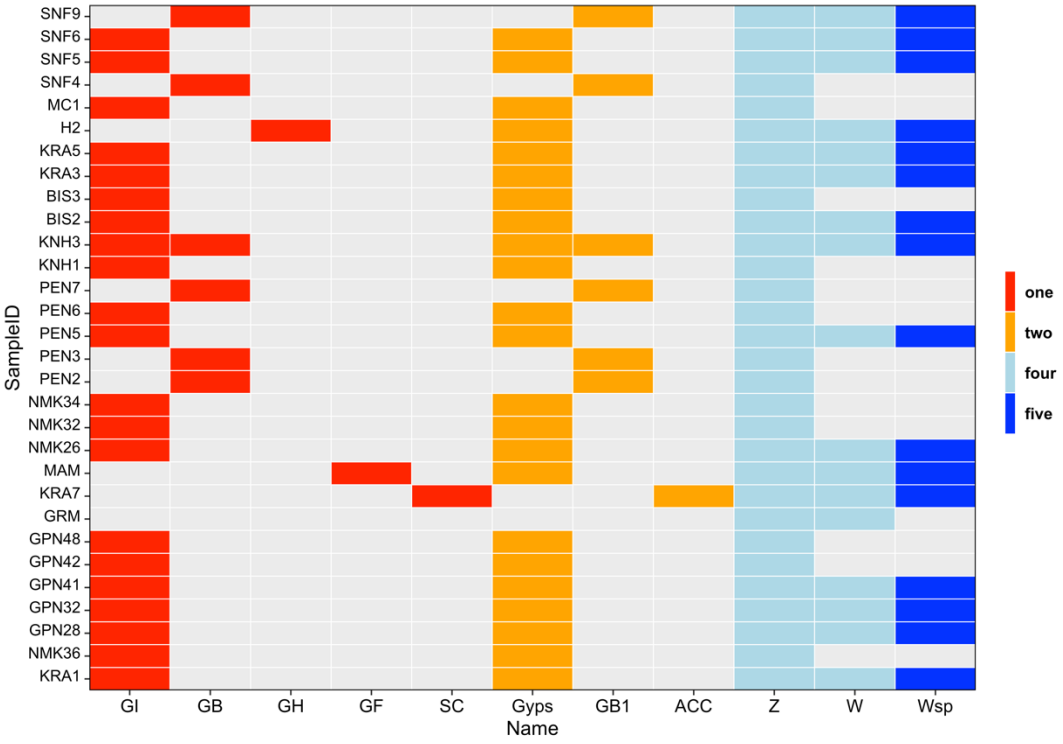


Figure 1. The primer-wise taxonomic and sex assignment of the samples. Abbreviations: G-*Gyps,* GI-*Gyps indicus*, GB-*G. bengalensis*, GH-*G. himalayensis,* GF-*G. fulvus,* SC-*Sarcogyps calvus*, ACC-Accipitridae, Z-Z chromosome, W-W chromosome (female-specific). One sample (KNH3) contained sequences specific to both *G. indicus* and *G. bengalensis,* making the origin of the W-specific sequences uncertain.

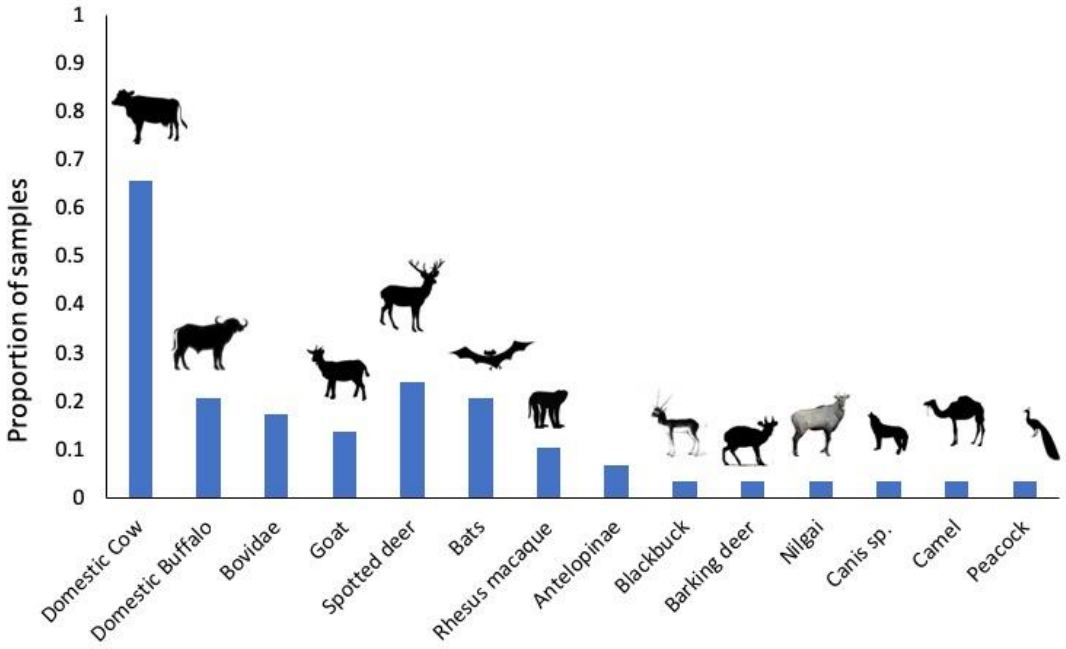


Figure 2. The diet composition of *Gyps* vultures from a preliminary sample of 28 faecal samples from Rajasthan and Madhya Pradesh.

Our method provides a rapid and reliable tool for describing large-scale variation in consumption of domestic versus wild species in the diet of these species, paving the way for a better understanding of the role protected areas play in persistence and recovery of the remaining *Gyps* vulture populations in the wild. We have so far collected more than 500 faceal samples from Rajasthan, Madhya Pradesh and Kerala and are expecting to add more samples from Assam, Himachal Pradesh, Tamil Nadu and Gujarat in the coming year. This will enable a more systematic analysis of the diet of wild vultures and assess the risk of mortality from NSAIDs based on the contribution of livestock in the diet.

9.4 Vulture Safe Zone Central Gujarat, India Report

Kartik Shastri, Dr. Shashikant Jadav and Sherwin Everett

Populations of Gyps vultures in Southeast Asia are in dire trouble. Work in India has recorded declines in excess of 95% in populations of three species across 12 Indian states since the early 1990s. Gujarat, having a considerably good population of Egyptian Vulture (*Gyps bengalensis*, estimated to 577 in 2012) is an important state for vulture conservation in India. We found Ahmedabad and its surrounding 100km radius area is one of the major pockets holding almost one third of this population.

Sr no	Place	No of vulture found	Species	Nesting
01	Khambat	50	White rumped Vulture	11
		25	Long billed Vulture	
02	Khadi	25	White rumped Vulture	10
03	Surrounding Surendra nagar area	30	White rumped Vulture	8
04	Pavagadh	28		7
04	Viramgam	150 birds	Egyptian Vultures	1
05	Ahmedabad	0	--	0

Monitoring the cause of death (RM6)

Date	Species	Place	Cause	No of Vultures
04/01/19	**WRV**	**Kadi**	**Ksi**	**01**
05/01/19	**WRV**	**Kadi**	**Ksi**	**01**
16/1/19	**EGV**	**Jamnagar**	**Wind mill Accident**	**01**
Dead 04-04-2019	WRV	Kadi	Dehydrated	01
Dead 16-04-2019	WRV	Kadi	Dehydrated	01
Dead 07-10-2019	WRV	Surnedranagar	Visceral gout	02
Dead 17-05-2018	WRV	Kadi	Sitting on hocks, Comatose condition, Regurgitating yellowish brown material	01
Dead 16-05-2018	WRV	Kadi	Weak & dehydrated, liver problem	01
Dead 26-05-2017	WRV	IIM, Ahmedabad	Sharp keelbone, Severely dehydrated, showing signs of neck drooping,	01
Dead 30-05-2017	WRV	Surnedranagar	Constant regurgitation, Whitish vomit, 105.7 F,	01
Dead 27-05-2017	WRV	Surnedranagar	105.2 F, Not standing, trying to attack though,	01
Dead 30-05-2017	WRV	Surnedranagar	High temp when brought(109.1 F) Dull, depressed, severe dehydration, sternal recumbancy, eye shrunken	01

There are many anthropogenic causes like- The cheap painkiller was commonly used by veterinarians to treat minor ailments in livestock, but is toxic to vultures, causing fatal gout or renal failure, Dehydration due to high temperature but the major problem is visceral gout caused by diclofenac multi dose formulations into the veterinary sector and other toxic drugs, followed by severe injuries caused by strings used for flying kites
continues to be major threat.

Migration

India has nine species of old world Vultures of which 7 species are resident and 2 species are winter migrants' - Eurasian griffon and Himalayan griffon. The decline in the numbers of vultures is attributed mainly to their migration from Ahmedabad city to nearby Surnedranagar district, and also to the fact that the civic body has decided not to dump carcasses in the open, but bury them. Dumping of Nilgai carcasses at sites has also
stopped, non –availability of their food in Ahmedabad city has lowered the numbers of these scavenger birds in the city.

Awareness and Education

We organized a Vulture Habitat conservation and habitat conservation Orientation Program for long bill vulture, Egyptian vulture and WRV- white rumped vulture at Sardar Krishinagar Agricultural university,

Dantiwada, Banaskantha (North Gujrat) for benefit and awareness to Multi stake holders such as Forest officials, farmers, veterinarians, Vet students, Researchers, NGOs, food and drug department officials, Livestock inspectors, veterinary professors, govt. officials etc. The Program aimed at creating awareness and educating the stake holders about Vulture Conservation, role of vultures, and problems faced by Vultures for feeding site.

International Vulture Awareness Day 2019
On September 5, 2019 Jivdaya Charitable Trust organized International Vulture Awareness Day for the ground level volunteers and vet doctors with Bird Conservation Society Gujarat. Vultures are the ecologically vital group of birds that face a range of threats in many areas that they occur. Populations of many species are under pressure and some species are extinction. The overall aim/objective of the International Vulture Awareness Day programme is to developing awareness level about critically endangered vulture and highlights the ecological importance and threads facing by them. The local volunteers and vet doctor were sensitized about different threats to vulture includes poisoning for the traditional medicine trade or by poachers, agricultural poisoning through the illegal use of poisons, accidental poisoning by feeding on meat containing lead or harmful veterinary products, and electrocution and collision with the ever-expanding energy network.

Pharmacy survey (ZM4)
We conducted a random survey of this Critically Endangered White - rumped vulture (gyps bengalensis) and long billed vultures (Gyps indicus) nesting –breeding, feeding and rousting site we found in our survey in the respective areas, due to lack of fund, manpower we are unable to carry out a detail survey.

10. Reports received relevant to SAVE Priorities from the Middle East

10.1 Iran NSAIDs

Alireza Hashemi**,** Head of Tarlan Ornithological Society,
Dr Mahnoud Marashi veterinarian, Dept Environment Wildlife Disease Unit, Iran

By asking some Vets, Vet drugstores and technicians about the usage of NSAIDs, the most common NSAIDs (Figure 1) currently used in Iran are ranked in order of usage. Although this **is not** a formal statistical study, this is likely to be the situation in Iran generally. We also present the official numbers of cattle and poultry in Iran (Probably an underestimate for cattle) so this could be the base of our next study to assume how much NSAIDs are used annually and what are the most important NSAIDs to clarify as a threat.

We did not talk to responders about the aim of this questions until afterwards. The great news is that there is no trace of using veterinary diclofenac, confirming the diclofenac ban from three years ago is working well, and there is no current interest in using that drug.

The result shows that five NSAIDs from the top cover more than 95 present of veterinarian NSAIDs usage in our country and it means we can use this as a baseline for future assessments. We appreciate we should work more on accuracy and repeatability of the study but probably we could relate this to the numbers of cattle to estimate the approximate veterinary use of NSAIDs in Iran. Further good news is that meloxicam is popular with veterinarians and most of veterinarians think that this drug will be on top of the list soon.

Of more concern, other drugs including carprofen (injectable form) are at the testing stage in Iran and probably will have more usage in future.

There is a project being developed for raptors including vultures, monitoring NSAIDs and other toxins in carcasses, and this is apparently close to receiving approval, so we hope for good news soon on this.

Rank	Drug name	Veterinary Usage	Target	Note
1	**ASPIRIN**	*Anti-pyretic* *Analgesic* *Anti-inflammatory*	Poultry farms	Control of fever and anorexia during infectious diseases epizootics such as Avian influenza, Newcastle disease, Respiratory complexes, Arthritis, etc. Combination with vitamin C is available in Iran
2	**FLUNEXINE MEGLUMIN %5**	*Analgesic* *Anti-inflammatory*	Horse Cow Sheep Goat	Horse colic, lameness and inflammatory diseases in cows, especially mastitis
3	**MELOXICAM %2**	*Drug of choice in horse colic* *Analgesic* *Anti-inflammatory*	Horse Cow Sheep Goat Dog Cat	according to lower abomasal and stomach ulcers Its prescription in Iran is on the rise
4	**PHENYLBUTAZONE %20**	*Specialized* *anti-inflammatory* *in horse lameness*	horse	Alone and in Combination with Dexamethasone is available in Iran Not recommended in cows (Due to drug residue in milk and meat) but unfortunately this drug sold as Over-the-counter (OTC) drug sometimes and uses by farmers
5	**KETOPROFEN%10**	*Specialized mastitis anti-inflammatory in cattle also sometimes horse colic*	Horse Cow Sheep Goat	
6	**TULFANAMIC ACID %4**	*Specialized mastitis and pneumonia anti-inflammatory in cattle*	Horse Cow Sheep Goat Dog	As the newest NSAIDs drug is available in Iran, The long act prescription advantage Is used as a single dose
7	**METAMIZOLE %50**	*Anti-pyretic Spasmolytic* *Anti-inflammatory*	Horse Cow Sheep Goat Dog Cat	Appropriate Peripheral analgesic Proper antispasmodic and gastrointestinal motility effects SPASMOLYTIC Mostly common in horse colic
8	**CELECOXIB100(CAP)**	*Anti-inflammatory* *analgesic* *treatment of rheumatoid arthritis*	Dog Cat	
9	**CAPROFEN100(TAB)**	*Anti-inflammatory - Specific analgesic for joints problem*	Dog	injectable form is not available in Iran (for cows)

Chart 1- Ranking of NSADs usage in Iran

Animal	Max No.（Formal announced）
Poultry	1.6 billion
Horse	60000
cow	9000000
sheep	45000000
Goat	18000000
Dog	1000000
Cat	1000000

Chart 2- Approximate number of individuals (in Iran)

10.2 Oman NSAIDs

M. McGrady, Researcher, International Avian Research;
A. Spalton, Advisor for Environmental Affairs, Diwan of Royal Court;
M. Sarrouf-Willson, Research & Conservation Manager, Environment Society of Oman

Field work has confirmed that the breeding population of Egyptian vultures is multiple times greater than the most recent (2010) published estimate.

In early 2019, diclofenac was found being sold at a veterinary pharmacy during a chance visit by field workers, and initial inquiries suggested its use to be common. Published evidence of toxicity and the resulting vulture population declines on the Indian sub-continent was used to alert government to the dangers of some NSAIDs, and the existence of apparent safe-alternatives. Steps are being taken toward banning importation and sales of diclofenac. Since January 2019, the national waste management company has shown interest in establishing vulture restaurants for the provision of guaranteed safe food for vultures and eagles, but nothing tangible has been done to date.

Electrocution of vultures and eagles is known from radio tracked birds and chance encounters by tourists. Dangerous pole designs are common. However, no assessment of the likely scale of the problem has been undertaken. It is proving difficult to increase the profile of this problem, and therefore difficult to find support for research and monitoring.

10.3 Yemen NSAIDs

Information provided by Nadim Taleb (via Richard Porter)

Vets started using Diclofenac almost 5 years ago though it is apparently not widespread over the republic of Yemen. Flostac drug (Dipyrone) is used widely in the northern Governorates, and other drugs are also widely used including Dexamethasone.

10.4 Report from Socotra, Yemen, on Egyptian Vultures

Information provided by Ahmed Saeed Suleiman, Akarim Nasher and Ali Yahya Ali on behalf of the Socotra UNE-GEF conservation team (via Richard Porter)

The island of Socotra has a large population of the Endangered Egyptian Vulture. Unlike many other Egyptian Vulture populations those on Socotra are resident. Detailed surveys show that the island holds over 1,900 individuals - probably the highest concentration in the world. Our vultures are much respected in the Socotran culture. In the last two years we have celebrated the International Vulture Awareness Day by holding a series of wildlife events for decision-makers, the public and school-children, which have received much publicity.

We are very aware of the dangers of Diclofenac and have made enquiries through the Socotra Agriculture Department and by discussing with the veterinary specialists to collect more information about its possible use. From this we learned that the diclofenac drug is not used any more on Socotra; apparently it was last used in 2007 and 2008, after which it was banned. However, we realise that we need to be vigilant about its potential use in future.

We are also aware of the dangers of using poisons and in 2018 started a campaign for the control of toxic, veterinary and fertiliser materials in the Governates of the Socotra Archipelago. During this 200 shops and warehouses were inspected of which 19 were selling toxic substances, many without licences or safety regulations. The full UNE-GEF report, authored by Ahmed Saeed Suliaman, will be available soon for wider circulation.

Furthermore, the general director of the agriculture department Mr Fahmi Al Gaitnani has informed us that the department is working hard to control the sale of unsafe veterinary drugs and composting items on Socotra; and they are fully authorized by Yemeni law as well as by the local authority to control and dispose of any such item. Recently they carried out a number of disposal campaigns to minimize the negative impacts of these items. Moreover, they are strictly not permitting anyone to sell veterinary drugs unless the shop, or the clinic is licensed and run by a specialist.

11. Fundraising Report of SAVE partners for 2019

11.1 Initial list of support compiled at FACC session of 9th SAVE meeting [to be developed in future]

Area/ Organisation	Top 3 sources of funding in the last 5 years?	Approx. scale of funding in 2019?	Funding gap
Bangladesh	World Bank, MOFCC & BFD, RSPB	150k USD	Satellite tagging, carcass sampling, Him Griffon rescue & rehab, VSZ mgmt (nest monitoring, popl surveys), advocacy, Awareness raising
Cambodia	MacArthur, MBZ, Wildlife Reserves Singapore, RSPB, private (Rising Phoenix)	10k	Vulture restaurant, nest searching, coordination of CVWG, pharmacy surveys, track White Rumped V, ensure efficacy of diclofenac ban
India			
BNHS	RSPB, govt (MOEF, Haryana, UP FD), individuals	Rs 6 crores ask - 1.5 crores from RSPB, 3.5cr from MOEF, 36 lakh from UP FD, 40 lakhs from MP FD	Breeding program, carcass sampling, popl surveys, VSZ mgmt
Arulugam	Rufford, Van Tien, Disney, RSPB, MBZ, CEPF	25 - 30 k USD	Expansion to Karnataka, Kerala; establish rescue centre, carcass sampling, engage dairy companies, develop compensation scheme for livestock deaths by predators to avoid poisoning incidents
Jharkhand (Neo Human Foundation + govt)	None - volunteer based;		Popl surveys, NSAID surveys, carcass sampling, advocacy & awareness raising, tagging, expansion to Bihar

RSPB	Core membership, Darwin, CEPF , SOS, Rufford & VetWork UK, Boehringer Ingelheim	GBP 550k (core) , 20k (Rufford) , 12k (VetworkUK)	Breeding centres/program, coordination (Ind, Nep, Bang), carcass sampling & research
Myanmar			
BANCA	RSPB	4123 USD; 20k USD for 2020	Surveys & monitoring, pharmacy surveys, awareness, advocacy, VSZ
FFI	Core		Same as above
Nepal	RSPB, govt, NTNC, BL, ZSL	140k USD (RSPB), 75k (central govt), 20k (local govts), 40k (NTNC), 15k (BL), 8k (ZSL)	Research & monitoring, ground truthing, release, breeding program, l ab resting & analysis (incl molecular work)
Pakistan	Hawk Conservancy Trust, Disney, private, Punjab WD	30k GBP	VSZ in AJK & Sindh, breeding center, carcass sampling, tagging & tracking

11.2 CVWG (Includes BirdLife Cambodia, ACCB, WCS, WWF Cambodia)

Supporter name	Amount contributed	Period covered by funds & start date	Activity funds are for
BirdLife International- Cambodia Programme			
Mohamed Bin Zayed Species Conservation Fund	$10,000.00	1 April 2017-31 March 2019	. Education awareness raising (anti poisoning). Cambodia vulture working group strengthening. Monitor vulture population
MacArthur Foundation	$ 10200	Jun 2018- Oct 2019	. Western Siem Pang vulture restaurant
MacArthur Foundation	$ 15,000.00	Jan-Oct 2019	. Nest searching and protection. Site education and awareness raising. Population monitoring (Western Siem Pang and Lomphat)
RSPB	$10,000.00	1 Oct 2017- 30 September 2018	. Education awareness raising (anti poisoning). Cambodia vulture working group strengthening. Monitor vulture population. Pilot in monitoring chimical pesticide selling in Western Siem Pang

BirdLife Core	$4250	Jan 2018- May 2018	. Western Siem Pang vulture restaurant
Wildlife Reserve Singapore	$28704	July 2018-Jun 2020	. Strengthening Cambodia Vulture Working Group . Vulture Restaurant . Education and Awareness raising . Technical support in nest searching and monitoring . Pilot community based ecotourism in Lomphat . Coordinate vulture population monitoring
ACCB			
Allwetterzoo Münster	30000$	Jan 2018-Dec 2018	. Nests surveys and carcass surveys . Vulture Restaurant
WWF- MFF (Sok Ko please help to complete)			
Scale-up project WWF Belgium	$22,000	January 01, 2017 to December 31, 2020	Vulture Day
	$4,000		Commune Workshop on Vulture Conservation
	$2,000		Night Show on Vulture Conservation
	$2,000		Mini Campaign on Vulture Conservation
	$3,000		Set up Build Board on Vulture Conservation
	$2,000		Education Sign on Vulture Conservation
	$2,000		Print Books on Vulture Conservation
	$2,400		Print Poster on Vulture Conservation
	$8,800		Vulture Nest Search and Guard
	$29,640		Vulture Restaurant and Census
	$6,400		Survey of domestic cattle died in forest
	$600		Diclofenac survey
	$1,600		Cambodia Vulture Working Group Meeting
	Totals= 86,440		

11.3 WWF Pakistan

Supporter Name	Amount Contributed	Period covered	Activity funds are for	Financial Year
Vulture Conservation Centre, Changa Manga *(Ex-situ)*				
Hawk Conservancy Trust	15,383.2 Euros	2017-2018	Staff, administrative expenses, Vulture feeding	FY 2017-2018
Hawk Conservancy Trust	7977 GBP	2018-2019	Staff, administrative expenses	FY 2018-2019
Vulture Safe Zone, Nagar Parkar *(In situ)*				

Disney Conservation Fund, Phase 2	17,032.54 Euros	2017- 2018	Conserving vultures through community action Effective management in VSZ Livestock and husbandry management trainings/seminars/discussions Community Outreach and Awareness	FY 2017-2018
Disney Conservation Fund	15473.49 GBP	August 2017-July 2018	Conserving vultures through community action Effective management in VSZ Livestock and husbandry management trainings/seminars/discussions Community Outreach and Awareness	FY 2018-2019
Ernest Kleinwort Charitable Trust	7500 GBP	August 2018 – July 2019	Conserving vultures through community action Effective management in VSZ Livestock and husbandry management trainings/seminars/discussions	FY 2018-2019
Potential Vulture Safe Zone in Azad Jammu and Kashmir *(In situ)*				
WWF-Pakistan	4,000 USD	2018	Vulture population monitoring in AJ&K NSAIDs surveys in 4 districts of AJ&K Demarcation of boundary of pVSZ in AJ&K	2018-19
Project Submitted for Funding				
Name of project		**Submitted to**	**Budget**	**Outcome**

Conserving critically endangered Oriental White backed vultures through community action in Azad Jammu and Kashmir	CSR of Khushali Bank Duration: January-December 2019	15400 USD Duration January-December 2019	Not approved

WWF- Mondukiri (Mang Thula please help to complete)			
WCS (to complete)			

11.4 Environmental Research Institute, UK

Supporter Name	Amount Contributed	Period covered	Activity funds are for	Financial Year
NSAID monitoring in cattle carcasses in Bangladesh (and Pakistan) specifically				
UHI-GCRF Allocation 1 2017-18	£16833	July 2017-June 2018	Bangladesh visit/IUCN training/provision of sampling/extraction equipment/staff time	FY 2017-18
UHI-GCRF Allocation 2 2018-19	£11527	July 2018-June 2019	Bangladesh visit/IUCN extraction support/staff time/extract analysis (proposed to start early 2019)	FY 2018-19
Analysis of samples from India (NSAID carcass surveys) and South Africa (safety trials)				
RSPB	£19415	April 2017-March 2018	Sample analysis for SAVE, 15 NSAID method development, analysis of 1806 extracts from India, analysis of all nimesulide safety trial samples, consumables, LC-MS/MS time, staff time	FY 2017-2018

**Note that the above does not include ERI "in-kind" contribution. The "in kind" match for the two UHI-GCRF allocations was (for example) £4208 in year 1 and £14359 in year 2. Likewise, all sample analysis (i.e., for the 1806 India carcass samples) is done on a heavily discounted basis (i.e., £10/sample vs a realistic commercial cost of >£100/sample).*

***In addition to above, a BBSRC grant has been submitted (decision due early 2019) for a new LC-MS/MS system which would (subject to funding) be made available to the SAVE partnership specifically for research regarding NSAID toxicity in birds (i.e., understanding mechanisms, metabolites, physiology of toxicity, etc.). The funding applied for was £973,050 in total.*

Annex 1. Programme of 9th Annual SAVE Meeting – Parwanoo, India

November 4th 2019

Participants arrive at Timber Trail Resort, Parwanoo, by 14.00 if they wish to participate in the visit to Jatayu Vulture Breeding Centre Pinjore, transport departing 14.30 from the hotel.
https://www.timbertrail.in/parwanoo/

15.00 Visit/tour BNHS/Haryana Forest Dept Jatayu Vulture Conservation Breeding Centre.
18.00 Transport back to the hotel
19.30 Dinner at the hotel

Meeting Day 1 – November 5th

08.00 Breakfast
08.30 Registration/coffee
09:00 - Welcome addresses by Chief Guest Mr VS Tanwar IFS PCCF Haryana
- SAVE Chairman's overview of the year
- Preprint release of publication "Analysis of pharmacy surveys in three SAVE countries"
- Participants introduce themselves
- Group photo

10.15 Coffee

NSAID Monitoring and safety testing (Chair – Mark Taggart)

10.45 Introduction to how we monitor NSAIDs through cow carcass monitoring, vulture carcass monitoring, pharmacy surveys and safety testing. Rhys Green
11.00 Safety testing of Tolfenamic Acid and other drugs in India. Chandra Mohan, IVRI
11.15 Progress in South Africa with safety testing of nimesulide and carprofen. Vinny Naidoo
11.30 Safety testing discussion points & the challenge of getting results acted upon by authorities – led by Rhys Green
11.50 Latest trends in the NSAIDs available in pharmacies – John Mallord (10 mins)
India updates – Sachin Ranade (5 mins)
Nepal update – Krishna Bhusal (5 mins)
Bangladesh update & cattle carcass sampling – ABM Alam S Dipu (10 mins)
12.30 Recent NSAIDs results from vulture tissue samples in India - Subramanian Muralidharan
12.35 The mechanism of NSAIDs toxicity in vultures – Vinny Naidoo
12.50 Discussion
13.00 Lunch

Advocacy (Chair – Chris Bowden)

14.00 Achieving a veterinary diclofenac ban in Cambodia – Vorsak Bou
14.15 Outputs from Regional Steering Committee Meeting in Dhaka – Chris Bowden

14.25 Bringing Pharma companies onboard – Bangladesh progress - ABM Alam Sarowar Dipu
14.35 Progress towards bans or removing toxic NSAIDs eg ketoprofen, aceclofenac

1. India – Vibhu Prakash
2. Bangladesh - ABM Alam Sarowar Dipu
3. Nepal – Ishana Thapa/Krishna
4. Pakistan – Campbell Murn (Jamshed)
5. Myanmar – Thiri/Ngwe Lwin

15.00 Development of an updated National Action Plan for India – Vibhu Prakash
15.15 Myanmar Vulture Action Plan & engaging the veterinary sec– Thiri/Ngwe Lwin

15.30 Afternoon tea

Release & monitoring work at release sites (Chair - Jemima Parry-Jones)

16.00 Updates from Nepal releases & monitoring – Krishna Bhusal
16.10 India breeding, release plan & monitoring – Vibhu Prakash
16.20 Discussion including trans-boundary working and potential

Developments and latest lessons from Vulture Safe Zones (Chair Paul Insua-Cao)

[Overview by Chair of VSZ criteria as introduction to the session]
16.30 Vulture Safe Zone lessons & progress on criteria (suggest 5 mins each)

Selected actions from Tamil Nadu – Bharathidasan S
Selected actions from Jharkhand – Satya Prakash
Selected actions from Assam/UP – Sachin Ranade
Selected actions from Nepal – Krishna Bhusal
Selected actions from Bangladesh - ABM Alam Sarowar Dipu
Selected actions from Pakistan – Campbell Murn/Jamshed

17.00 Discussion on Vulture Safe Zone approach and any developments needed

Vulture monitoring: (Chair – John Mallord)

17.10 Cambodia vulture population trends – Naiky Ny
17.20 Nepal vulture updated trends and 2019 publication – Krishna Bhusal
17.30 Myanmar
17.40 Discussion
18.00 Closure for the day
20.00 Dinner at the hotel

Meeting Day 2 – November 6th

Fundraising Session: (Chair – **Mr. Ishtiaq Uddin Ahmad*)***

[Brief announcement of upcoming vulture edition of 'Hornbill' before session gets underway]

09.00 Mobilising the FACC – Update on meetings during the year
Developing Blueprint actions based on these – where to start? – (Ishana Thapa, Anuj Jain, Paul Insua-Cao)

- Fundraising opportunities for South & SE Asia (BirdLife) - Anuj
- Larger grants suitable for vulture work
- Fundraising opportunities through CSR

- Managing Government funding opportunities

Science and Blueprint updates (Chair – TBA)

10.30 Progress collecting better data on causes of vulture deaths other than NSAID poisoning – Rhys Green/Vibhu Prakash
10.40 Workshop and implications of harness design for tagging vultures (Chris Bowden/John Mallord/Rhys Green)
10.50 Drawing up standard SAVE practices and a coordinated coding system

11:15 Tea/Coffee
11.45 Updating the SAVE Blueprint working session (All)
13.00 Lunch

Final Session (Chair - TBA)

14.00 Updating of Blueprint (continued from earlier)
15.30 Tea
16.00 Review/revisit of SAVE priorities for South Asia, and for South-East Asia.
16.30 Summary of meeting and any final discussion points including from NSAID alert symposium & close of Technical Session and Meeting – Prof. Rhys Green
16.50 Votes of thanks
17.00 Close of meeting

18.00 Closed SAVE Board Meeting

20.00 Dinner at the hotel

Annex 2. List of Meeting Attendees

Bangladesh	
ABM Alam Sarowar (Dipu)	IUCN Bangladesh (Board, FACC, TAC)
M Abdur Rahman	DFO Min Envt, For & Climate Change, Dhaka
Muqueed Majumdar Babu	POJ
Shamim Ahmed	POJ
Humayun Kabir	POJ
Shahib Khaledin	POJ
Billal Hawlader	POJ
Cambodia	
Ms .Ny Naiky	BirdLife Cambodia (Board, FACC)
Mr. Bou Vorsak	BirdLife Cambodia
Myanmar	
Ms Thiri Dae We Aung	BANCA (FACC)
Ngwe Lwin	FFI
India	
Chris Bowden	RSPB (SAVE Prog. Manager & FACC)
Satya Prakash	Neo Human Foundation
Bharathidasan Subbaiah	Arulagam, India
Dr. Vibhu Prakash	BNHS (Co-Chair TAC)
Khima Balodi	Dehradun, India
Muralidharan Subramanian	SACON
Kiran Srivastava	RRCF, India
Sachin Ranade	BNHS
Soumya Chakraborty	BNHS
Chandra Mohan S	IVRI (TAC)
A M Pawde	IVRI
Kartik Shastri	Jivdaya Trust, Gujarat
V S Tanwar	PCCF & CWW Haryana
Subhankar Sen Gupta	CCF & FD W Bengal
J S Chauhan	PCCF & CWW Madhya Pradesh
R. Venkatachalam	Kongunadu Arts and Science College, India
Percy Avari	Bombay Vet College
South Africa	
Vinny Naidoo	Pretoria University (TAC)
Lauren Havenga	Pretoria University
United Kingdom	
Rhys Green	Cambridge University (SAVE Chair)
John Mallord	RSPB (TAC)

Jemima Parry-Jones	ICBP (Co-Chair TAC, Board)
Paul Insua-Cao	RSPB (FACC)
Jo Gilbert	RSPB (Board)
Mark Taggart	North Highland College, UHI (TAC)
Campbell Murn	HCT-UK (TAC)
Nepal	
Krishna Prasad Bhusal	BCN (TAC)
Bed Khadka	DNPWC
Ram Kumar Aryal	NTNC
Singapore	
Anuj Jain	BirdLife Asia

Annex 3. Updated SAVE Blueprint for 2020

A Blueprint for the Recovery of Asia's Globally Threatened Vultures

February 2014

(Including 2015, 16, 17, 18, 19 & 20 updates)

The Current State of South Asia's Vultures

Twenty years ago there were tens of millions of vultures in the Indian subcontinent. They provided a valuable ecosystem service by disposing of millions of tonnes of waste carrion from dead cattle each year. Now they, and the services they provided, are nearly all gone. Three species of *Gyps* vultures endemic to South and Southeast Asia, oriental white-backed vulture (*Gyps bengalensis*), long-billed vulture (*G. indicus*) and slender-billed vulture (*G. tenuirostris*), are the worst affected and are threatened with global extinction after rapid population declines, which began in the mid-1990s. They are listed by IUCN as Critically Endangered, the highest level of endangerment short of extinction in the wild. The oriental white-backed vulture population in India in 2007 was estimated at one-thousandth of its level in the early 1990s. Veterinary use of the non-steroidal anti-inflammatory drug (NSAID) diclofenac is the major cause of these declines. Diclofenac has been used to treat symptoms of disease and injury in domesticated ungulates in many parts of the Indian subcontinent since the 1990s. The effects of diclofenac have been studied experimentally on captive individuals of three of the global total of eight *Gyps* vulture species. In all of the species tested, death occurred within a few days of treatment with a single dose of diclofenac and severe kidney damage and extensive visceral gout (accumulation of the excretory product uric acid) were observed post mortem. The kidneys of vultures that died in these experiments showed similar pathology to that found in the majority of vulture carcasses collected from the wild since the declines began. A large-scale survey of the amount of diclofenac in liver tissue from carcasses of domesticated ungulates available as food to vultures in India in 2004 – 2005 showed that the prevalence and concentration of the drug at that time was more than sufficient to cause the observed rapid population declines which were occurring then.

There are important differences between Southeast Asia and the Indian subcontinent in the problems faced by vulture populations. Cambodia still supports small but stable remnant populations of oriental white-backed vulture, slender-billed vulture and red-headed vulture (*Sarcogyps calvus*) numbering hundreds of individuals in total. Diclofenac appears not to be widely used for veterinary purposes in the Southeast Asian countries where surveys have been conducted, including Cambodia and Myanmar. Most recorded vulture deaths in Cambodia are attributed to accidental poisoning. Hunters use poisoned bait to catch and kill quarry species such as waterbirds and poisoned bait is also used to kill problem dogs or cattle. Cambodia's vultures are also thought to be chronically food limited. Populations of wild ungulates on whose carcasses they previously relied upon have undergone severe declines. The free-ranging herds of domestic bovids that replaced them are now also declining, as a result of mechanisation of agriculture. Infrastructure development and illegal logging are increasingly bringing people into remote areas where vultures remain.

Conservation Responses

Soon after research had indicated the severity of the effects of diclofenac on vulture populations, the governments of India, Pakistan and Nepal commenced actions to prevent the contamination of vulture food supplies with the drug. India's National Board for Wildlife recommended a ban on veterinary use on 17 March 2005. In May 2006, a directive from the Drug Controller General of India was circulated to relevant officials, requiring the withdrawal of manufacturing licences for veterinary formulations of diclofenac. This directive was further strengthened in 2008, when it was made an imprisonable offence to manufacture, retail or use diclofenac for veterinary purposes. Similar measures were introduced in Pakistan and Nepal at about the same time. Veterinary use of diclofenac was banned in Bangladesh in 2010.

Action to prevent the extinction of *Gyps* vultures in South Asia is coordinated by Saving Asia's Vultures from Extinction (SAVE), a consortium of eleven organisations with established expertise in vulture conservation, which was established in 2011. The national and state governments of the four vulture range states in the Indian subcontinent are engaged in conservation measures through national action plans, and are linking their activities through the Regional Steering Committee for Vulture Conservation (RSC), set up to implement

the recommendations of the inter-governmental Declaration on Vulture Conservation within the region in May 2012. For more details of the composition and function of SAVE see Appendix I.

Conservation actions undertaken so far, in addition to the restrictions on diclofenac use, include surveys to measure the effectiveness of the ban on veterinary diclofenac, regular surveys of vultures to measure their population trends, awareness raising to make the ban more effective, advocacy for enforcement of the ban, contact with the pharmaceutical industry, testing to establish which veterinary drugs are safe and which are harmful to vultures, the creation of Vulture Safe Zones in which intensive campaigns are undertaken to remove toxic NSAIDs from the food supply of the remaining small populations of wild vultures, and conservation breeding to provide a secure captive population and a surplus of captive-bred birds for reintroductions.

Vulture conservation measures in Cambodia differ from those employed in the Indian subcontinent because the threats are different, especially in the absence of a significant threat from diclofenac. Conservation actions taken so far include monthly supplementary feeding at up to seven sites in the north and east of the country, nest protection and advocacy against inappropriate use of agricultural chemicals as poisons.

There is Hope for South Asia's Vultures

These conservation actions have achieved substantial success and have resulted in the following major achievements.

1. All vulture range states in the Indian subcontinent have banned the veterinary use of diclofenac.
2. Regular monitoring of NSAID residues in cattle carcasses shows that the level of diclofenac contamination of the vulture food supply has fallen substantially.
3. Safety testing identified a safe alternative drug, meloxicam, and monitoring of NSAID residues in cattle carcasses shows that its use has increased markedly in India. Veterinary meloxicam has become widely available in Nepal and Bangladesh.
4. Vulture Safe Zones, which were pioneered in Nepal, are being introduced in other states, expanded, tested and developed.
5. Population monitoring in Cambodia indicates that the small populations of vultures there are approximately stable.
6. Captive populations of all three of the endangered *Gyps* species have been established. The captive birds are surviving well and juveniles of all species have been bred in captivity.
7. In India, regular monitoring of vultures using the repeatable survey method of road transect counts shows that vulture declines have slowed or ceased. Evidence from vulture monitoring in Nepal, Pakistan and Bangladesh also indicates that the population declines there have slowed or reversed.

What remains to be done?

These are all hopeful signs, but the following serious concerns remain.

1. Vulture populations are precariously small and will remain vulnerable to adverse events until numbers have increased substantially. This vulnerable period will be lengthy because the low natural reproductive capacity and long duration of immaturity of vultures means that, even under the most favourable conditions, the shortest period in which a wild vulture population can double in size is about ten years. The rate of the recent population decline was much more rapid than the most rapid possible rate of increase, with the population of the species most strongly affected by diclofenac halving every year in India and Pakistan. Even when diclofenac has disappeared, conditions may not permit the maximum possible rate of recovery because of other problems caused by the vulture decline (see points 2 and 3 below) and effects of other NSAIDs (see points 5 - 7 below).

2. In the Indian subcontinent, the disappearance of vultures has led to cattle carcasses being disposed of in ways, such as burial, that may restrict the availability of carrion as food for a recovering vulture population in the future. In Southeast Asia, low populations of wild and domesticated ungulates continue to limit the small vulture populations there.
3. Increases in populations of feral dogs and other predators, caused by enhancement of their carrion food supply in the absence of vultures, may be increasing the frequency of predation of livestock and, as a response, the deliberate placement of poison baits in carcasses to kill the predators. This in turn leads to unintended poisoning of vultures. Large populations of feral dogs and other species of scavengers give rise to other problems, such as an increased risk of dog bites and rabies in humans and other types of disease and public nuisance. Dealing with these problems imposes substantial extra costs on government agencies and charities.
4. Contamination of cattle carcasses with diclofenac has declined, but it has not been eliminated yet. Diclofenac intended for human use is easy to obtain, and easy to misuse for the treatment of livestock because pharmaceutical companies market the drug in larger vials than are required for human medicine. Consequently, carcasses of wild vultures continue to be found with traces of diclofenac in their tissues and post-mortem findings continue to indicate that diclofenac poisoning was the cause of death.
5. The veterinary use of another NSAID (ketoprofen) known to be toxic to *Gyps* vultures is legal and has increased. Other NSAIDs are also in legal use which may be harmful to vultures, but have not yet been tested.
6. Aceclofenac, an NSAID that is likely to be metabolised into diclofenac after being administered to cattle, is beginning to be used. It is likely to kill vultures that feed on contaminated carcasses.
7. There is no coordinated, well-established and efficient regulatory mechanism by which legal restrictions are imposed upon veterinary drugs known to cause harm to vultures or on those whose effects have not yet been studied.
8. In some areas, the sparse remaining populations of vultures are threatened by loss or disturbance of nest sites through tree-felling or development.

Actions for Advocacy, Awareness raising and Regulation at the national level (AD)				
Action Codes	**Country**	**Actions**	**Lead Partner**	**By (end date)**
AD1	**Achieve the removal from the market of vials of diclofenac supposedly intended for human medicine in excess of 3 ml capacity.**			
AD1	India	Propose restrictions on large vials to the Regional Steering Committee, National Vulture Recovery Committees (NVRCs), governments and pharmaceutical industry. Establish the restrictions.	BNHS	Done
AD1	India	Proactive involvement (including providing technical assistance) in court case brought by Indian pharma company to uphold 2015 ban.	Arulagam	Done
AD1	India	Approach appropriate agencies accredited /recognised by concerned governments to undertake pharmacy surveys and produce reports related to the multi-dose vial issue		Done
AD1	India	Monitor availability of larger (<3ml) diclofenac vials	BNHS, Arulagam, Corbet Fndn, Neohuman Fndn, State Govts.	2020
AD1	Nepal	Seek ban	BCN	Done
AD1	Nepal	Monitor availability of larger (<3ml) diclofenac vials	BCN	2020
AD1	Pakistan	Make contact & take steps to prevent licensing through drug authorities.	WWF Pak SAVE	2020
AD1	Pakistan	Monitor availability of larger (<3ml) diclofenac vials	WWF Pak	2020
AD1	Bangladesh	Make contact & take steps to prevent licensing through drug authorities.	IUCN B'desh	Done
AD1	Bangladesh	Monitor availability of larger (<3ml) diclofenac vials	IUCN B'desh	2020
AD1	Cambodia	To achieve Govt. ban of veterinary diclofenac	CVWG	Done
AD1	Cambodia	Follow-up on the ban, Enforcement, collect baseline data, monitoring for large vial human diclofenac	CVWG	2020
AD1	Myanmar	Removal of diclofenac from the market and undercover survey for NSAIDs	MVWG	2020
AD1	Myanmar	Propose restriction on large vials of diclofenac to government	MVWG SAVE	2020
AD2	**Achieve the banning of the veterinary use of ketoprofen, aceclofenac, Nimesulide, Carprofen, and Flunixin in India, Pakistan, Bangladesh, Nepal, Bhutan, Cambodia & Myanmar - First step to stop Government purchase or supply of all 5 NSAIDS**			
AD2	SAVE	Discuss the issue with the Regional Steering Committee, all governments and pharmaceutical industry using research results.	SAVE	2020
AD2	SAVE	Make/update materials available on website specific to these NSAIDSs	SAVE RSPB	2020
AD2	India	Seek bans for all 5 drugs for veterinary use – follow-up on process already initiated.	BNHS IVRI	2020

AD2	India	Approach State Drug Controller/Animal Husbandry Director to stop Govt. supplies to vets and prohibits use by Govt vets. (refer to 2012 Delhi Declaration) – at least all VSZ initiatives to do this	BNHS Arulagam Corbet Fndn Neohuman Fndn	2020
AD2	India	Chase aceclofenac ban in 2020	BNHS	2020
AD2	India	Formally approach Drug Controller Gen (India) through IVRI. Request IVRI to provide technical input for joint recommendation with BNHS to prompt an advisory from DCGI on this as interim measure	BNHS IVRI	2020
AD2	India	Provide technical assistance and advice on the operation of the ban, using information from monitoring.	SAVE RSPB	2020
AD2	India	State level advocacy targeting Govt authorities including all state/provincial Animal Husbandry Depts to stop purchase target NSAIDs for vets	BNHS	2020
AD2	Nepal	Seek bans of all 5 drugs for veterinary use – follow-up on process already initiated. Approach State Drug Controller/Animal Husbandry Director to stop Govt. supplies to vets and prohibits use by Govt vets. (refer to 2012 Delhi Declaration) – at least all VSZ initiatives to do this	BCN	2020
AD2	Nepal	Provide technical assistance and advice on the operation of the ban, using information from monitoring.	SAVE RSPB	2020
AD2	Bangladesh	Seek bans for all 5 drugs for veterinary use – follow-up on process already initiated. Enforce ketopfofen/aceclofenac ban within VSZ as first step. Extending bans to whole-country bans is target for ketoprofen/aceclofenac in 2020. - Make contact and meet with pharmaceutical companies which are supplying target NSAIDS. - Hold meetings with Bangladesh DGDA to reinforce & extend ketoprofen ban to national level by 2020	IUCN B'desh	2020
AD2	Bangladesh	Provide technical assistance and advice on the operation of the ban, using information from monitoring.	SAVE RSPB	2020
AD2	Pakistan	Seek bans for all 5 drugs for veterinary use – follow-up on process already initiated. Enforce ketoprofen and aceclofenac ban within VSZ as first step. Extend these bans to national bans for ketoprofen and aceclofenac and expand on ban in VSZ to include all 5 drugs	WWF Pak	2020
AD2	Pakistan	Provide technical assistance and advice on the operation of the ban, using information from monitoring.	SAVE RSPB	2020
AD2	Pakistan	Approach Pakistan drug authorities requesting ban (even though not in use) Build on Provincial-level ban to extend to Federal level.	WWF Pak	2020
AD2	Cambodia	Removal of 5 target NSAIDs from the market and seek a ban / prevent licensing prior to entry to the market	CVWG	2020
AD2	Cambodia	Monitor availability and use of target NSAIDs	CVWG	2020
AD2	Myanmar	Removal of target NSAIDs from the market and seek a ban / prevent licensing prior to entry to the market	MVWG	2020

AD2	Myanmar	Monitor availability and use of target NSAIDs	MVWG	2020
AD3/4	**Establish system and procedures by which veterinary drugs with unknown effects on vultures have their approval for veterinary use withheld or withdrawn until scientific testing on Gyps vultures establishes their safety at maximum likely exposure levels.**			
AD3/4	SAVE	Initiate discussions with Regional Steering Committee, National Vulture Recovery Committees (NVRCs), govts and pharmaceutical industry. Establish procedures	SAVE	2020
AD3/4	SAVE	Write protocol and make this available on SAVE website. Provide and update technical assistance and advice on the operation of the procedures, using information from monitoring.	SAVE RSPB	2020
AD3/4	SAVE	Discuss with NVRCs and at Regional Steering Committee (RSC). Approach medicines regulatory authorities to request that any new veterinary medicine should be tested for safety to vultures prior to registration/release to market. [NB to amend wording here after discussion with drug authority representatives/experts]	SAVE	2020
AD3/4	SAVE	Explore the possibility of a moratorium on new (veterinary) NSAIDs	SAVE	2020
AD3/4	India	Explore the possibility of a moratorium on new (veterinary) NSAIDs	BNHS	2020
AD3/4	Nepal	Explore the possibility of a moratorium on new (veterinary) NSAIDs	BCN	2020
AD3/4	Bangladesh	Explore the possibility of a moratorium on new (veterinary) NSAIDs	BNVRC	2020
AD3/4	Pakistan	Explore the possibility of a moratorium on new (veterinary) NSAIDs	WWF Pak	2020
AD3/4	Cambodia	Explore the possibility of a moratorium on new (veterinary) NSAIDs	CVWG	2020
AD3/4	Myanmar	Explore the possibility of a moratorium on new (veterinary) NSAIDs	MVWG	2020
AD5	**Work with both the pharmaceutical industry and governments to identify, by a robust safety testing and approval process, NSAIDs that are safe for vultures. Currently meloxicam is the only such drug.**			
AD5	India	Promote funding of IVRI safety testing and discuss revision of the list of drugs to be tested. Provide encouragement and technical advice.	SAVE BNHS RSPB IVRI	2020
AD5	SAVE	Agree on best approach to achieve robust safety testing, and to acknowledge any progress - through relevant national partners.	SAVE TAC	2020
AD5	SAVE	TAC with IVRI to promote next priority NSAIDs for testing [add agreed NSAIDs here tbc] [Letter to European drug company producing Flunixin from BL or SAVE on impact of Flunixin] – Vinny and Mark to provide further input	SAVE TAC BNHS IVRI RSPB	2020
AD5	SAVE	Complete testing, confirm and promote safety of tolfenamic acid [add to another action]	IVRI	2020

AD6	**Contribute, with government agencies and pharmaceutical companies, to maintaining pharmacovigilance and regulation of veterinary drugs, to prevent their negative effects on wild vultures.**			
AD6	India	Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.	BNHS	2020
AD6	Nepal	Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.	BCN	2020
AD6	Bangladesh	Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.	IUCN B'desh	2020
AD6	Pakistan	Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.	WWF Pak	2020
AD6	Cambodia	Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.	CVWG	2020
AD6	Myanmar	Initiate discussions with Regional Steering Committee, national committees, governments and pharmaceutical industry. Establish procedures.	MVWG	2020
AD6	SAVE	Proposed procedure/s to be developed and shared.	SAVE	2020
AD7	**Establish a SAVE alert web-based system for veterinary drugs which combines information of levels of use from pharmacy surveys and analyses of cattle carcasses with results from safety testing to draw attention of govts to potentially hazardous drugs.**			
AD7	SAVE	Operate system and provide advice to the Regional Steering Committee, governments and pharmaceutical industry	SAVE	2020
AD7	SAVE	Establish system within SAVE. (System established 2016.) Operate system and provide advice to the Regional Steering Committee, governments and pharmaceutical industry.	SAVE TAC	2020
AD7	SAVE	Add SAVE website feature on this (include updates on pharmacy surveys) All partners to alert SAVE of any changes & post on website	SAVE	2020
AD7	SAVE	SAVE: Improve prominence on SAVE website & update information.	SAVE	2020
AD8	**Improve the availability of more effective vulture-safe drugs and formulations thereby facilitating take up by veterinary practitioners**			
AD8	India	Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam. Share and publicise good practice examples among SAVE and more widely for companies (e.g. Bangladesh) able to demonstrate better (e.g. neutral pH etc.) meloxicam formulations and alert Govts to this aspect. Sensitise more companies on this.	BNHS SAVE	2020

AD8	India	Request Director of IVRI to recommend Tolfenamic Acid to MoEFCC and Veterinary Council of India. Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier). Check on Tolfenamic acid formulations that they are being used and accepted by vet community all countries	SAVE BNHS	2020
AD8	Nepal	Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.	BCN	
AD8	Nepal	Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier)	BCN SAVE	2020
AD8	Nepal	Check on tolfenamic acid formulations that they are being used and accepted by vet community all countries	BCN	2020
AD8	Bangladesh	Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.	IUCN B'desh	2020
AD8	Bangladesh	Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier)	IUCN B'desh	2020
AD8	Bangladesh	Check on tolfenamic acid formulations that they are being used and accepted by vet community all countries	IUCN B'desh	2020
AD8	Pakistan	Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.	WWF Pak	2020
AD8	Pakistan	Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier)	WWF Pak	2020
AD8	Pakistan	Check on Tolfenamic acid formulations that they are being used and accepted by vet community all countries	WWF Pak	2020
AD8	Cambodia	Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.	CVWG	2020
AD8	Cambodia	Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier)	CVWG	2020
AD8	Cambodia	Check on Tolfenamic acid formulations that they are being used and accepted by vet community all countries	CVWG	2020
AD8	Myanmar	Contact and sensitisation of pharma industry (approach major companies for support). Sensitise drug regulation authorities to take appropriate steps to favour production of well formulated veterinary meloxicam.	MVWG	2020
AD8	Myanmar	Publicise results of main report on tolfenamic acid (available on MoEFCC website/SAVE dossier)	MVWG	2020

AD8	Myanmar	Check on Tolfenamic acid formulations that they are being used and accepted by vet community all countries	MVWG	2020
AD9	**Develop wider awareness-raising initiatives to highlight NSAIDs concerns and provide incentives acknowledgement of those taking positive steps.**			
AD9	India	Initiate system to support e.g. cattle shelters & dairy cooperatives that ensure only vulture-safe NSAIDs are used. (e.g. kite-mark/certification system).	Arulagam SAVE Associates	2020
AD9	India	General national awareness programme perhaps using a celebrity as a front person	BNHS SAVE Associates	2020
AD9	Bangladesh	Initiate system to support e.g. cattle shelters & dairy cooperatives that ensure only vulture-safe NSAIDs are used. (e.g. kite-mark/certification system).	BNVRC	2020
AD9	Bangladesh	Develop/promote progress achieved in Bangladesh (labelling) & Tamil Nadu (District ketoprofen bans) initiatives	SAVE SAVE Associates	2020
AD9	Myanmar	Consider initiatives generating awareness with pharmacies, drug distributors, vets, farmers	MVWG	2020
AD9	India	Dialogue with drug companies identified producing good formulations (meloxicam, tolfenamic acid)	BNHS SAVE	2020
AD9	Bangladesh	Dialogue with drug companies identified producing good formulations (meloxicam, tolfenamic acid)	BNVRC	2020
AD9	SAVE	Establish SAVE pharma working group involving initially companies that produce good formulations or showing interest in supporting	SAVE	2020
AD10	**Develop SAVE positions on key issues as highlighted by the CMS Vultures MSAP**			
AD10	SAVE	Circulate position statements and report at annual meeting [Note Research needs also to be added in research and survey section]	SAVE TAC	2020
AD10	SAVE	update CMS annually on SAVE/Blueprint Updates	SAVE	2020

Actions for Conservation Breeding (CB)				
Action Codes	**Country**	**Actions**	**Lead Partner**	**By (end date)**
CB1	**Conservation breeding of OWBV, LBV and SBV at VCBC Pinjore (India).**			
CB1	India	Maintain the captive population in good health. Produce as many fledglings as possible of all three species, using artificial intervention as appropriate, but with less emphasis on OWBV and more on SBV and LBV, using artificial incubation for those species if appropriate. Transfer of surplus immatures to release programme.	BNHS	2025
CB1	SAVE	Propose optimum vulture numbers to be held at centre for each species	SAVE TAC	2020
CB2	**Conservation breeding of OWBV, LBV and SBV at VCBC Rajabhatkhawa (India).**			
CB2	India	Maintain the captive population in good health. Produce as many fledglings as possible of all three species (subject to sufficient aviary space). There should be special emphasis on SBV, using artificial incubation for that species if appropriate. Transfer of surplus immatures to release programme.	BNHS	2025

CB2	SAVE	Propose optimum vulture numbers to be held at centre for each species	SAVE TAC	2020
CB3	**Conservation breeding of OWBV and SBV at VCBC Rani (India).**			
CB3	India	Maintain the captive population in good health. Produce as many fledglings as possible of both species (subject to sufficient aviary space). There should be special emphasis on SBV, using artificial incubation for that species if appropriate. Transfer of surplus immatures to release programme.	BNHS	2025
CB3	India	Complete second and add third colony aviary in Assam centre	BNHS	2020
CB3	SAVE	Propose optimum vulture numbers to be held at centre for each species	SAVE TAC	2020
CB4	**Conservation breeding of OWBV at VCC Changa Manga (Pakistan).**			
CB4	Pakistan	Maintain the captive population in good health. Produce as many fledglings as possible by natural methods and artificial incubation as necessary. Transfer of birds to release programme as appropriate. Maintain target of 5 to 10 fledglings per year aimed for release.	WWF Pak	2025
CB5	**Conservation breeding of OWBV at VCBC Chitwan (Nepal).**			
CB5	Nepal	Maintain the captive population in good health. Produce as many fledglings as possible by natural methods. Transfer some captive-reared birds to release facility	NTNC	2023
CB5	Nepal	Update the release plan (ongoing) in consultation with national partners, with plans to release captive-bred birds when less than 2 years old, maintaining best breeding birds but releasing others. All this subject to ongoing safety-evaluation of the environment and annual review. Continue with above for new release plan (5 year plan).	DNPWC BCN	2020
CB5	SAVE	Propose optimum vulture numbers to be held at centre for each species	SAVE TAC	2020
CB6	**Conservation breeding of OWBV and LBV at CZA centres (India).**			
CB6	India	Training of staff and preparation of facilities Transfer of captive-bred OWBV and LBV from VCBC Pinjore.	BNHS	2020
CB6	India	Maintain the captive population in good health. Produce as many fledglings as possible by natural methods.	MOEFCC CZA	2020
CB6	India	Transfer captive-bred birds to release facility or other centres.	CZA	2025
CB6	India	Update release plan annually.	CZA	2025
CB7	**Conservation breeding of OWBV in Bangladesh.**			
CB7	Bangladesh	Consider the development of a VCBC in Bangladesh. [This has been considered, and decided not to do so]	BNVRC	Done
CB8	**Conservation breeding of OWBV & LBV at VCBC Bhopal (India)**			
CB8	India	Establish & maintain a captive population in good health – primarily through supply and exchanges of subadult birds from other existing centres.	BNHS	2020
CB8	SAVE	Propose optimum vulture numbers to be held at centre for each species	SAVE TAC	2020

Actions for Vulture Safe Zones Implementation (VS)				
Action Codes	**Country**	**Actions**	**Lead Partner**	**By (end date)**
VS1	**Identification and selection of new provisional Vulture Safe Zones (pVSZs) in India, in particular for LBV.**			
VS1	India	Collect information and select pVSZs. Completed	BNHS	Done
VS2	**Capacity building & local advocacy of prov. Vulture Safe Zones (pVSZs) India.**			
VS2	India	Develop capacity in pVSZs.	BNHS NeoHuman Fndn Arulagam	**2020**
VS3	**Selection of pVSZs in India suitable for conversion to full VSZs.**			
VS3	India	Selection and conversion of pVSZs to full VSZs based upon undercover pharmacy monitoring data and monitoring of fates of tagged vultures. Focus on proposed release areas & transboundary areas VSZs and review current emphasis (prioritise Haryana, UP, Bihar, Gujarat, Tripura, Meghalaya, W Bengal, Jharkhand	BNHS NeoHuman Fndn Arulagam SAVE	2020
VS3	India	Review selection/process & then again review in 2019, 2021. (2017 MP Reviewed)	BNHS SAVE	2020
VS4	**Maintenance and review of VSZs in India**			
VS4	India	Continue VSZ implementation. Potential removal of VSZ status if monitoring shows that conditions have changed.	BNHS SAVE TAC	2020
VS5	**Release of captive-bred vultures in VSZs in India.**			
VS5	India	Transfers of captive-bred vultures to holding aviaries in VSZs.	BNHS, Indian State Govts	2020
VS5	India	Releases of first captive-bred vultures in VSZs.	BNHS, Ind State Govts	2020
VS6	**Maintenance and review of VSZs in Nepal.**			
VS6	Nepal	Continue VSZ implementation and expansion	NNVRC, BCN	2020
VS7	**Release of captive-reared & captive-bred vultures in VSZs in Nepal.**			
VS7	Nepal	Releases of captive-reared OWBV not likely to breed from VCBC.	NNVRC, BCN, NTNC	Done
VS7	Nepal	1-2 Releases of captive-bred OWBVs each year. Numbers released subject to annual review, taking release success & numbers of birds bred into account.	NNVRC, BCN, NTNC	2023
VS8	**Identification & selection of additional pVSZ Pakistan.**			
VS8	Pakistan	Develop capacity	WWF Pakistan	2020
VS8	Pakistan	Continuing: progress, monitoring and meetings with provincial wildlife department to declare as pVSZ. Identified as AJK. 2020 One more could be identified (Changa Manga)	WWF Pakistan	2020
VS9	**Maintenance & review of VSZs in Pakistan.**			

VS9	Pakistan	Continue VSZ implementation and expansion. [Fundraising still required 2020 to support, in process]. Activities underway. 2020 continue implementation and expansion – currently smaller than standard VSZ.	WWF Pakistan	2020
VS10	**Release of captive-bred vultures in VSZs in Pakistan**			
VS10	Pakistan	2022 Pakistan: Releases of captive-bred vultures in VSZs	WWF Pakistan	2024
VS11	**Livestock management and husbandry training in pVSZs and VSZs in Pakistan**			
VS11	Pakistan	Continue to implement training programme.	WWF Pak Parkar Fndn	2020
VS12	**Free veterinary camps in pVSZs and VSZs in Pakistan.**			
VS12	Pakistan	Continue to implement programme. [Ongoing] 2020 reinforce links with UVAS in Lahore	WWF Pak ICI Pakistan, Lahore Uni Vet School	2020
VS13	**Community-led vulture-based tourism in pVSZs and VSZs in Nepal and Pakistan.**			
VS13	Nepal	Continue to implement programme in Nepal (after ensuring viability and ensuring no disturbance).	BCN	2025
VS13	Pakistan	Creating nature clubs at schools. [Rather than tourism, emphasis is on outreach around breeding centre. Progress with nature clubs in VSZ at Nagar Parkar] Ongoing Sindh. Proposed for AJK	WWF Pak	2020
VS14	**Identification and selection of pVSZs and VSZs in Bangladesh.**			
VS14	Bangladesh	Identify and select pVSZs.	BNVRC	Done
VS15	**Implementation of pVSZs in Bangladesh.**			
VS15	Bangladesh	Continue to implement VSZ programme for two main VSZs.	IUCN B.desh BNVRC	2020
VS16	**Identify pVSZs in Cambodia**			
VS16	Cambodia	2019: develop VSZ concept with areas proposed or decide if this approach is not relevant for Cambodia at CVWG meeting(s)	CVWG SAVE	2020
VS17	**Implementation of pVSZs in Cambodia**			
VS17	Cambodia	Continue to implement VSZ programme. [to add specific actions here in future] 2020: TAC to support define VSZ criteria for Cambodia	CVWG SAVE	2020
VS18	**Identify pVSZs in Myanmar**			
VS18	Myanmar	Myanmar: collect information and select sites for pVSZs	MVWG	2020
VS19	**Maintenance & review of VSZs in Myanmar**			
VS19	Myanmar	Continue VSZ implementation and expansion.	MVWG	2023
VS19	Myanmar	Proposal submitted to government for formal nomination of VSZ	MVWG	2020
VS20	**Livestock management and husbandry training in pVSZs and VSZs in Tamil Nadu**			
VS20	India	Implement training programme.	Arulagam	2022

Actions for Vulture Safe Zone Monitoring (ZM)				
Action Codes	**Country**	**Actions**	**Lead Partner**	**By (end date)**

ZM1	**Monitoring movements, survival and causes of death of wild vultures with GPS PTTs in pVSZs and VSZs**			
ZM1	India	Seek permits for OWBV capture and tagging of wild vultures in VSZs. Initial tagging trials & monitoring/ recovery system in place for any mortalities for autopsy.	BNHS Nat Vult RC	2020
ZM1	Nepal	Seek permits for OWBV capture and tagging of wild vultures in VSZs. Initial tagging trials & monitoring/ recovery system in place for any mortalities for autopsy.	DNPWC BCN	2020
ZM1	Bangladesh	Seek permits for OWBV capture and tagging of wild vultures in VSZs. Initial tagging trials & monitoring/ recovery system in place for any mortalities for autopsy.	BFD IUCN B'desh	2020
ZM1	Pakistan	Seek permits for OWBV capture and tagging of wild vultures in VSZs. Initial tagging trials & monitoring/ recovery system in place for any mortalities for autopsy.	WWF Pak	2020
ZM1	Cambodia	Initiate monitoring with tagging as option in future (with support from TAC)	CVWG SAVE TAC	2020
ZM1	Myanmar	Initiate monitoring with tagging as option in longer-term future	MVWG	2022
ZM2	**Monitoring of survival and causes of death of released vultures with GPS PTTs in pVSZs and VSZs.**			
ZM2	India	Tag all captive-reared and captive-bred vultures prior to release with GPS tags. Monitor to identify foraging sites, recover corpses and establish cause of death.	BNHS	2020
ZM2	Nepal	Tag all captive-reared and captive-bred vultures prior to release with GPS tags. Monitor to identify foraging sites, recover corpses and establish cause of death.	BCN	2020
ZM2	Nepal	Plan further releases to 2024. Ongoing.	DNPWC BCN	2023
ZM3	**Monitoring of movements, survival and causes of death of released vultures with GPS PTTs in pVSZs and VSZs in Pakistan.**			
ZM3	Pakistan	Tag all released captive-bred vultures. Monitor to identify foraging sites, recover corpses and establish cause of death.	WWF Pak	2024
ZM4	**Monitoring of availability of NSAIDs for veterinary use in representative samples of pharmacies and other outlets in pVSZs and VSZs.**			
ZM4	India	Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.	BNHS Arulagam NeoHuman Fndn	2020
ZM4	Nepal	Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.	BCN	2020

ZM4	Bangladesh	Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.	IUCN B'desh	2020
ZM4	Pakistan	Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.	WWF Pak	2020
ZM4	Cambodia	Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.	CVWG	2020
ZM4	Myanmar	Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and vial size of diclofenac and date of manufacture offered for veterinary use.	MVWG	2020
ZM5	**Monitoring of wild vulture populations and breeding success in pVSZs and VSZs in India, Pakistan, Bangladesh, Nepal, Myanmar & Cambodia.**			
ZM5	India	Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.	BNHS Arulagam NeoHuman Fndn Corbett Fndn	2020
ZM5	Nepal	Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.	BCN	2020
ZM5	Bangladesh	Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.	IUCN B'desh	2020
ZM5	Pakistan	Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.	WWF Pak	2020
ZM5	Cambodia	Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.	CVWG	2020
ZM5	Myanmar	Conduct surveys over representative areas of the zone, including nest counts and/or road transect surveys, as appropriate.	MVWG	2020

Actions for Research and Monitoring (RM)				
Action Codes	**Country**	**Actions**	**Lead Partner**	**By (end date)**
RM1	**Develop method for GPS PTT vulture tracking and corpse recovery in VSZs.**			
RM1	India	Complete tagging and recovery tests on RHV and LBV. Evaluate corpse recovery using simulated tagged corpses. Test tag attachment methods on captive Gyps.	RSPB BNHS	Done
RM1	India	Begin tag deployment on Gyps vultures in pVSZs and VSZs.	RSPB BNHS	Done

RM1	Nepal	Complete tagging and recovery tests on RHV and LBV. Evaluate corpse recovery using simulated tagged corpses. Test tag attachment methods on captive Gyps.	RSPB BCN	Done
RM1	Nepal	Begin tag deployment on Gyps vultures in pVSZs and VSZs.	RSPB BCN	Done
RM1	SAVE	Produce harnessing and wing-tagging guides.	RSPB	2020
RM1	SAVE	Continue development of corpse recovery method.	BNHS BCN RSPB	2020
RM2	**Road transect surveys of vulture numbers in India. (NB South India isn't included here. Needs action to follow-up)**			
RM2	India	Conduct surveys using same methods as in previous surveys.	BNHS RSPB	Annually
RM2	India	Extend surveys to include South India	tbc	2020
RM2	India	Publish results of the survey done in the previous year.	BNHS RSPB	Annually
RM3	**Road transect surveys of vulture numbers in Nepal.**			
RM3	Nepal	Conduct survey using same methods as in previous surveys. Western lowland surveys annually. Midhills and East-West highway survey every four years (done in 2018). 2020: Next annual survey to be conducted.	BCN RSPB	Annually
RM4	**Vulture population monitoring in Pakistan, Bangladesh, Cambodia and Myanmar.**			
RM4	Bangladesh	Conduct annual surveys.	BNVRC IUCN B'desh BFD	Annually
RM4	Pakistan	National survey planned for 2018 (but funds not available) Hoped for in 2019, but still funding dependent. Follow up from 2010 survey. 2020: compartmentalize annual surveys in specific areas instead of National survey	WWF Pakistan	2020
RM4	Cambodia	Conduct annual census. Quarterly coordinated feeding counts continued.	CVWG	Annually
RM4	Myanmar	Establish methodology and ensure baseline surveys carried out.	MVWG	2020
RM5	**Monitoring of NSAID contamination of ungulate carcasses in northern India and Nepal.**			
RM5	India	Complete current round of sample collection in several states. Measure concentrations of all NSAIDs potentially hazardous to vultures	BNHS IVRI	2020
RM5	India	Publish NSAID monitoring results and expected effects on vulture death rates.	RSPB BNHS	2020
RM5	Nepal	Complete current round of sample collection in several states. Measure concentrations of all NSAIDs potentially hazardous to vultures.	RSPB BCN	2020
RM5	Nepal	Publish NSAID monitoring results and expected effects on vulture death rates.	RSPB BCN	2020
RM6	**Monitoring of causes of death and NSAID contamination of wild vultures in India, Pakistan, Nepal, Cambodia & Bangladesh.**			

RM6	India	Create database to document circumstances of death of vultures. Collect as many dead wild and released vultures as possible. Conduct post-mortem examinations to determine causes of death. Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons. Trial methods to detect NSAIDs and other poisons in bone and other hard tissues. Retain carcasses frozen for future use. Publish the results periodically. 2020 develop methods for acquiring data for database (e.g. searching at roosts, sniffer dogs?)	SAVE BNHS RSPB	2020 Annually
RM6	Nepal	Create database to document circumstances of death of vultures. Collect as many dead wild and released vultures as possible. Conduct post-mortem examinations to determine causes of death. Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons. Trial methods to detect NSAIDs and other poisons in bone and other hard tissues. Retain carcasses frozen for future use. Publish the results periodically. 2020 develop methods for acquiring data for database (e.g. searching at roosts, sniffer dogs?)	BCN RSPB	2020 Annually
RM6	Bangladesh	Create database to document circumstances of death of vultures. Collect as many dead wild and released vultures as possible. Conduct post-mortem examinations to determine causes of death. Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons. Trial methods to detect NSAIDs and other poisons in bone and other hard tissues. Retain carcasses frozen for future use. Publish the results periodically. 2020 develop methods for acquiring data for database (e.g. searching at roosts, sniffer dogs?)	IUCN B'desh RSPB	2020 Annually
RM6	Pakistan	Create database to document circumstances of death of vultures. Collect as many dead wild and released vultures as possible. Conduct post-mortem examinations to determine causes of death. Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons. Trial methods to detect NSAIDs and other poisons in bone and other hard tissues.	WWF Pak THC	2020 Annually

		Retain carcasses frozen for future use. Publish the results periodically. 2020 develop methods for acquiring data for database (e.g. searching at roosts, sniffer dogs?)		
RM6	Cambodia	Create database to document circumstances of death of vultures. Collect as many dead wild and released vultures as possible. Conduct post-mortem examinations to determine causes of death. Take liver and kidney samples and determine concentrations of all NSAIDs known to be in veterinary use and pesticides and other poisons. Trial methods to detect NSAIDs and other poisons in bone and other hard tissues. Retain carcasses frozen for future use. Publish the results periodically. 2020 develop methods for acquiring data for database (e.g. searching at roosts, sniffer dogs?)	CVWG	2020 Annually
RM7	**Safety testing on captive vultures at Pinjore of NSAIDs of uncertain toxicity. Needs updating from previous discussion.**			
RM7	India	Obtain wild Himalayan griffon vultures and house in captivity for safety testing programme.	BNHS	2020 ongoing
RM7	India	Conduct testing of four NSAIDs. Apply to test four more NSAIDs.	IVRI BNHS	2020 Ongoing
RM7	India	Review safety testing programme and decide on testing needs.	SAVE TAC	Annually
RM7	India	Continue testing programme as NSAIDs posing potential hazards are identified by the SAVE alert system (see timeline AD6).	IVRI BNHS	Annually
RM8	**Monitoring of availability of NSAIDs for veterinary use in pharmacies and other outlets in India, Nepal, and Bangladesh other than in VSZs.**			
RM8	India	Complete current round of undercover and open pharmacy surveys linked with sampling of ungulate carcasses (see RM5)	BNHS	Annually
RM8	India	Publish NSAID availability monitoring results.	BNHS RSPB	every 2 years
RM8	Nepal	Complete current round of undercover and open pharmacy surveys linked with sampling of ungulate carcasses (see RM5)	BCN	Annually
RM8	Nepal	Publish NSAID availability monitoring results.	BCN RSPB	every 2 years
RM8	Bangladesh	Complete current round of undercover and open pharmacy surveys linked with sampling of ungulate carcasses (see RM5)	IUCN B'desh	Annually
RM8	Bangladesh	Publish NSAID availability monitoring results.	IUCN B'desh RSPB	every 2 years
RM9	**Monitoring of availability of NSAIDs for veterinary use in pharmacies and other outlets in Pakistan.**			
RM9	Pakistan	Conduct undercover surveys of outlets for veterinary drugs. Record NSAIDs offered for use for veterinary purposes. Identify the provenance and	WWF Pak HC	2020 Ongoing

		vial size of diclofenac offered illegally for veterinary use. [Pharmacy surveys ongoing]		
RM10	**Estimation of the former and potential future value of the ecosystem services provided by wild vultures.**			
RM10	SAVE	Conduct a survey of costs of cattle carcass disposal, feral dog control and other ecosystem service measurements. Based on IUCN India paper, VSG to have standard statement on role of vultures in disease ecology. Current best knowledge of role of vultures in ecosystem function is inconclusive. Update SAVE website with relevant publications.	SAVE	2021
RM11	**Investigate factors affecting use of vulture-safe NSAIDs by veterinarians, paravets and livestock owners.**			
RM11	SAVE	Conduct questionnaire studies, choice experiments and other investigations, as appropriate.	SAVE TAC	2020
RM11	SAVE	Exploit potential for collaboration with social scientists who could pursue some of this work. TAC identify means to achieve this, e.g. SAVE website, engage with pharma groups.	SAVE TAC	2020

Actions for Fundraising (FR)				
Action Codes	**Country**	**Actions**	**Lead Partner**	**By (end date)**
FR1	**Develop stronger fundraising capacity.**			
FR1	SAVE	1. Identify national focal points for fundraising. 2. FACC to meet 4 times/year and develop further actions. Actions to be proposed and agreed through FACC during 2020.	SAVE	2020
FR1	SAVE	Develop sustainable funding approaches for each country/state. Identify broader set of fundraising opportunities (e.g. GEF regional multi-country)	SAVE	2020 Ongoing

Actions for Cambodia (CAM)				
Action Codes	**Country**	**Actions**	**Lead Partner**	**By (end date)**
CAM1	**Monthly supplementary feeding in at least four sites**			
CAM1	Cambodia	Provide at least one dead cow per month at vulture restaurants.	CVWG	2020 Ongoing
CAM2	**Improve population monitoring**			
CAM2	Cambodia	Census vulture restaurants in March, June, September and December.	CVWG	2020 Ongoing
CAM3	**Safeguard nesting areas from logging**			
CAM3	Cambodia	Check all known nest locations, improve law enforcement at key sites.	CVWG	2020 Ongoing
CAM4	**Protect vulture nests from human predation**			
CAM4	Cambodia	Evaluate effectiveness of nest protection across sites. Continue nest protection if found to be effective	CVWG	2020
CAM5	**Monitor sales of veterinary drugs at key sites**			
CAM5	Cambodia	Quarterly monitoring of veterinary drug sales at key sites.	CVWG	2020

CAM5	Cambodia	2020: Support government focal point on diclofenac ban implementation.	CVWG	2020
CAM6	**Increase sustainability of CVWG**			
CAM6	Cambodia	Integrate vulture conservation activities into other NGO activities. Develop sustainable financing where possible Evaluate CVWG activities and effectiveness Nationalize management of CVWG	CVWG	
CAM7	**Assess mortality due to non-NSAID threats**			
CAM7	Cambodia	Training workshop on poison baits Learning from other SAVE partners and African countries	CVWG	
CAM8	**Identify locations of WRV breeding sites**			
CAM8	Cambodia	Satellite tagging of 2+ WRVs to lead to breeding areas	CVWG	2020

Actions for Myanmar (MYA)				
Action Codes	**Country**	**Actions**	**Lead Partner**	**By (end date)**
MYA1	**Nesting site protection and law enforcement**			
MYA1	Myanmar	Nest site identification and protection.	MVWG	2020 - Ongoing
MYA2	**Public awareness raising**			
MYA2	Myanmar	Work with communities, develop media locally and nationally	MVWG	2020 - Ongoing
MYA2	Myanmar	2020 IVAD with Yangon Zoo	MVWG	2020
MYA3	**Restaurant site for environmental tourism**			
MYA3	Myanmar	Start restaurant	MVWG	2022
MYA4	**Threat assessment**			
MYA4	Myanmar	Questionnaires (mainly pharmacy focused), focus group discussion at two sites.	MVWG	2020
MYA5	**Update Myanmar vulture species action plan**			
MYA5	Myanmar	Plan to be updated and aligned with SAVE blueprint and Vulture MSAP Done	MVWG	2020
MYA6	**Regular meetings of MVWG**			
MYA6	Myanmar	2 meetings per year	MVWG	2020 - Ongoing

Annex 4. List of Acronyms and Abbreviations

BCN	Bird Conservation Nepal
BCam	BirdLife Cambodia
BFD	Bangladesh Forest Department
BNHS	Bombay Natural History Society
BNVRC	Bangladesh National Vulture Recovery Committee
CCF	Chief Conservator of Forests
CVWG	Cambodia Vulture Working Group
CWW	Chief Wildlife Warden
CZA	Central Zoo Authority (India)
DFO	District Forest Officer
DGDA	Directorate General of Drug Administration (Bangladesh)
DLS	Department of Livestock Services (Bangladesh)
DNPWC	Department of National Parks and Wildlife Conservation (Nepal)
FACC	Fundraising, Advocacy and Communications Committee (of SAVE)
HCT	Hawk Conservancy Trust (UK)
ICBP	International Centre for Birds of Prey (UK)
IFS	Indian Forest Service
IUCN Bng	International Union for the Conservation of Nature Bangladesh
IUCN India	International Union for the Conservation of Nature India
IUCN Nep	International Union for the Conservation of Nature Nepal
IVRI	Indian Veterinary Research Institute
LBV	Long-billed Vulture (Gyps Indicus)
MEF	Ministry of Environment & Forests (Bangladesh)
MoEFCC	Ministry of Environment, Forests &^ Climate Change (India)
MVWG	Myanmar Vulture Working Group
NTNC	National Trust for Nature Conservation (Nepal)
OWBC	Oriental white-backed vulture (white-rumped vulture, G. bengalensis)
PCCF	Principal Chief Conservator of Forests
RHV	Red-headed vulture
RSPB	Royal Society for the Protection of Birds (UK)
SBV	Slender-billed vulture (Gyps tenuirostris)
TAC	Technical Advisory Committee (of SAVE)
TPF	The Peregrine Fund (USA)
VCBC	Vulture Conservation Breeding Centre
WCS	Wildlife Conservation Society
WWFPak	WWF Pakistan
ZSL	Zoological Society of London