

# WHITE-BELLIED HERON STRATEGIC PLAN

2019-2039



Bhutan Trust Fund  
for Environmental Conservation



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2019-2039**



**Royal Society for Protection of Nature**



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# CHAPTER 1 BACKGROUND

## I. INTRODUCTION

White-bellied Heron (WBH), (*Ardea insignis* Hume, 1878) is the world's second-largest Heron and is categorized as critically endangered in IUCN species red list (IUCN 2008). It is the rarest heron in the world and was first spotted in Bhutan by His Majesty the Fourth King in 1975. Under His Majesty's command, the Royal Society for Protection of Nature (RSPN) has since 2003 carried forward the conservation and protection of this species. Today, the conservation of WBH is central to RSPN's core mandate and program objectives.

While a complete and simultaneous population census has never been conducted, the estimated global population initially was assumed to be fewer than 250 mature individuals (D. Wilson and J. Eames in litt. 2006). However, the WBH international workshop held in Bhutan in December, 2015 reported less than 60 confirmed individuals distributed among four range countries of India, Myanmar, Bhutan and China. The extremely low and shrinking population of WBH across the region is attributed to human exploitation and natural disturbance of the bird's riverine habitat, especially through rigorous developmental activities in core breeding habitat.

While Bhutan hosts the highest number of White-bellied Heron population encompassing more than 45% of the current global population, the very small genetic pool is of immediate concern. There is perhaps fewer than five breeding pairs in Bhutan. WBH is almost completely associated with freshwater, at altitudes of 100m to 1500m. Herons are elusive and mostly inhabit the undisturbed river, ponds and lakes. It is found that most of the WBH habitats are highly vulnerable to man-made and natural disturbances that may eventually lead to the bird's extinction if timely action is not taken.

## **1.2 PAST EFFORTS**

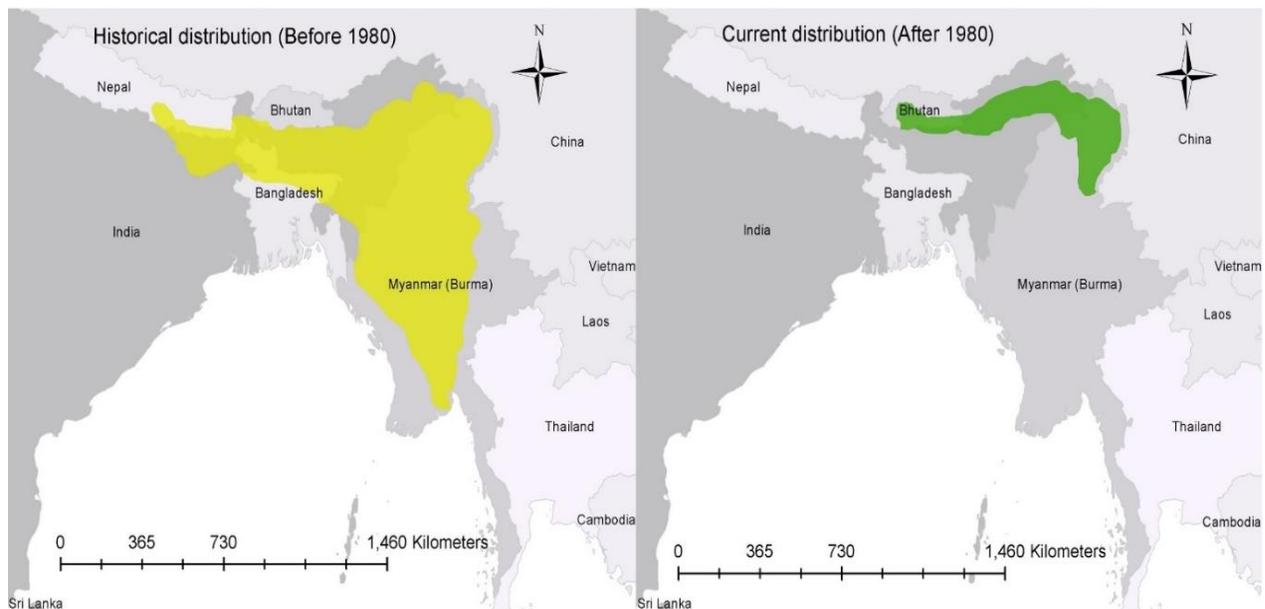
RSPN's engagement in conservation of White-bellied Heron started as early as 2003 with the first sighting of Heron's nest in Zawa (under Wangdi Phodrang Dzongkhag) by a local resident. Since then, consistent research and surveys associated to nesting, feeding, energetics, threats, distribution, movement and habitat needs have been conducted along with documentation of information. Besides research activities, RSPN has been making some major efforts to recover the bird's population. In 2011, RSPN in collaboration with San Diego Zoo undertook the first ever captive rearing of WBH. Two eggs were collected from wild Herons and managed to hatch one egg. The chick was carefully reared and released successfully in the wild with a satellite and radio transmitter attached.

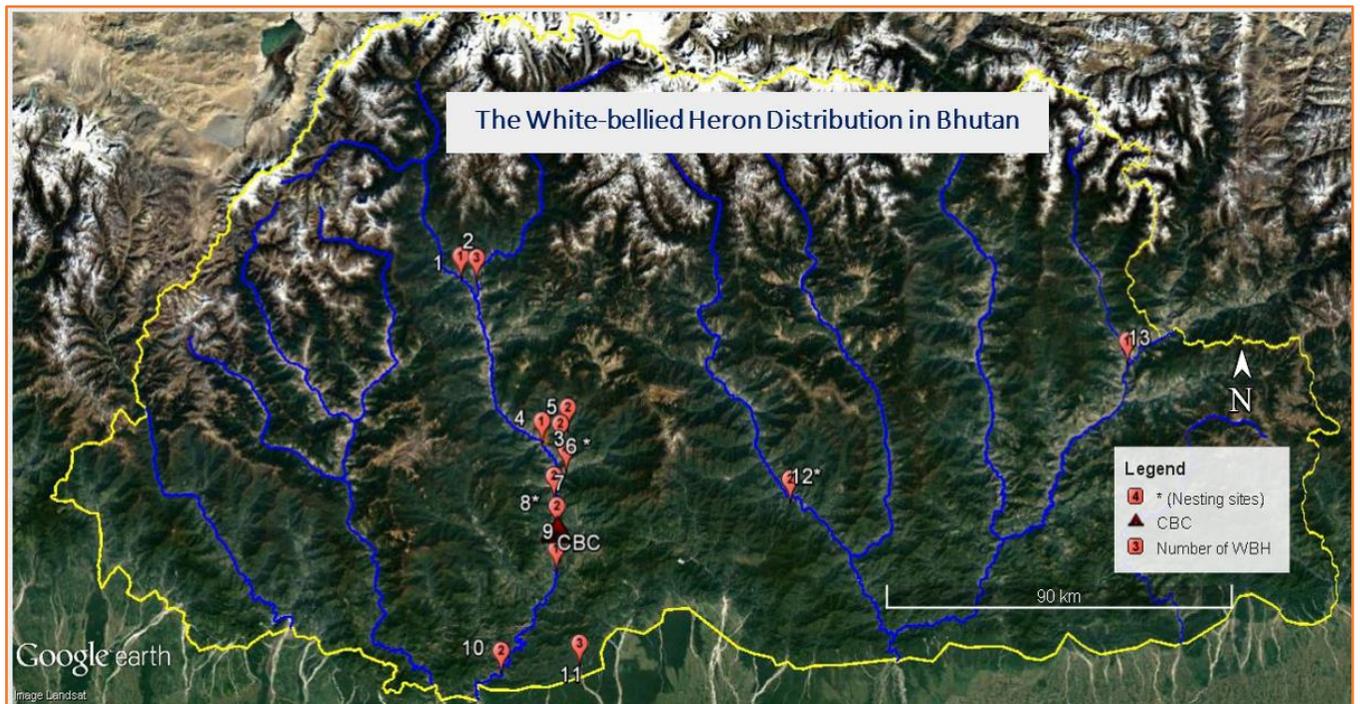
Similarly, in 2016, two juveniles from a nest in Burichu was tagged with satellite transmitter - T1 and T2, with the help from Synchronicity Earth, United Kingdom, to monitor their movement. However, the information from the transmitter could be received only for a short period of time, (both in the case of 2011 and 2016) as the type of satellite transmitter used was not appropriate for WBH. RSPN plans to attempt another tagging using a more advanced technology that is most suitable for WBH. As a means to garner community support and engagement in WBH conservation, activities offering alternative livelihood opportunity for the communities in the habitat areas were also implemented. Awareness, education and advocacy have been carried out consistently as an integral part of WBH conservation.

## II. THE CONTEXT

### 2.1 Distribution

The White-bellied Heron is the world's second largest heron. Historically, the bird occupied reasonably confined area in Nepal, Bhutan, India (West Bengal, Assam, Arunachal Pradesh and Nagaland), Bangladesh, Myanmar and Tibet (Baker 1922–1930, Ripley 1982, Hancock and Kushlan 1984, Grimmett et al. 1998). The first verified sighting in Bhutan dates back to 1976, but the species has been widely being listed as occurring in the country since long time ago. There are no observation records before 1990 from Bhutan. The most recent surveys indicate that the fragmented population in Bhutan, Namdapha Tiger Reserve (India), and Northern Myanmar are only surviving populations in the world. The bird is believed to be extinct from Nepal, and there are no recent records from West Bengal, southern Myanmar, and Bangladesh (see map 1 and 2). Furthermore, numerous former areas of the species are no longer occupied, suggesting that the overall range has dwindled considerably. The total population in Bhutan is estimated to be between 14 and 30 individuals based on annual simultaneous surveys from 2003 – 2017. Based on the monitoring, one to five active nests have also been recorded from 2003 to 2017.





Map2: Map showing the distribution of White-bellied Heron in Bhutan

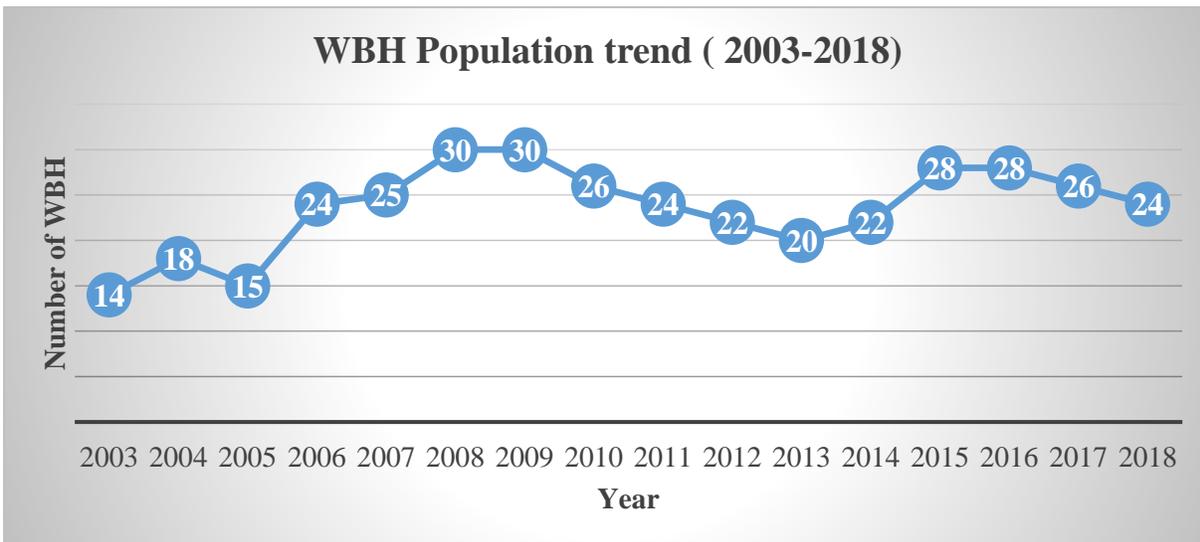
Note: White numbers indicate name of the locations, colored numbers indicate number of White-bellied Herons.

## 2.2 Population in Bhutan

The annual population survey of White-bellied Heron in Bhutan started since 2003. The annual survey is conducted at the beginning of the courting season; February to the beginning of March. The WBH are found in the regular feeding areas during the courting season. The number of habitats and drainages covered through survey increased remarkably over the years. Initially the survey started in few streams and rivers along Punakha and Wangdue Phodrang, and the gradually covered entire central and southern Bhutan, more specifically Punatsangchu and Mangdechu basins. The surveys are conducted periodically nationwide engaging local communities, Local Conservation Support Group (LCSG) members, forestry officials and researchers.

The survey results indicate that the population in Bhutan ranges from 14 to 30 birds. Despite the

significant increase in a number of habitats, population has remained critically low. Annual nest survey that is carried out from March through July (Graph 1) by RSPN found up to 5 breeding pairs rearing up to 10 chicks in a year, but there is no annual recruitment to the existing population.



### 2.3 Migration

The seasonal movement and altitudinal migration of WBH is not very clear. Ali and Ripley were of the view that, it is resident with within range post-breeding dispersal (Ali & Ripley, 1968) while, Kushlan and Hancock suggests movement from higher breeding areas into marshy lowlands seasonally (Kushlan & Hancock, 2005). In Bhutan, the breeding and non-breeding WBH is occasionally sighted at the main river during the peak monsoon season when feeding habitat is submerged. WBH breeding pair moves to the smaller stream, which is an observed behavior because the flood water recede within one to two hours.

### **III. ISSUES OF CONCERN**

While white-bellied Heron is listed as critically endangered under IUCN red list very little study is done on this bird worldwide and awareness at large remains relatively low. The bird was known to exist in the foothills of the eastern Himalayas, however it is no longer reported in majority of its range countries where it had historical record, such as Nepal. The recent record indicates only about 60 individuals remaining worldwide, with the highest number in Bhutan (24 birds in 2018). With fewer than 5 breeding pairs existing in Bhutan, the small genetic pool may be one of the greatest threats to the existence of this species. Because White-bellied Herons are associated with freshwater rivers, the conversion of entire river or river sections or tributaries into hydroelectric projects is a threat to the heron and its habitat. Associated developments like grid electrification and infrastructure development cause disturbance and even pose risk to the bird's existence. Significant alteration of the bird's habitat have sometimes lead to displacement of the bird population that can have significant negative affect.

Increasing fishing pressure is also a concern, although the effect has so far been unquantified. Mountain rivers and streams inhabited by the WBH are also inhabited by humans heavily dependent on the forest and natural resources for living and are therefore vulnerable to overfishing. Foraging is affected by all types of bank-side development, particularly those that result in human trafficking on banks. WBHs are also very sensitive to nesting sites, where they are intolerant of any human presence nearby.

Predation of nest content is known or strongly suspected to have been an important factor in nest abandonment based on the experiences of the last 15 years. Predation may be by birds or mammals and there is circumstantial evidence suggesting that predation pressure may increase as predators are forced away from areas of intensive infrastructure development.

WBH habitat have always remained vulnerable to human disturbances considering its location along the riverine ecosystem. In most cases, foraging and nesting habitats of WBH are disrupted by human activities such as logging, sand, and boulder mining.

Human induced /accidental forest fires have also become a growing concern and risk for WBH. In the past, there has been incidences of casualties and loss of nest due to forest fire adding to the population decline of the species.

In terms of management, most of the WBH bird habitat are fragmented and dispersed across the country without contiguous conservation measures. This makes WBH conservation even more difficult. For long term solution to the WBH conservation issue, there is a need for a concerted effort that considers and tackle the issue from environmental, social, economic and policy perspective.

#### **IV PURPOSE OF THE STRATEGY**

This multi-year (2019 – 2030) strategic recovery action plan is a continuation of the conservation effort to save the critically endangered White-bellied Heron and its habitats in Bhutan. Despite the concerted effort of the Royal Society for the Protection of Nature (RSPN) with support of the Royal Government of Bhutan (RGoB), for the last three decades, White-bellied Heron (WBH) remains to be one of the rarest and globally threatened by extinction in the world. The strategy is therefore intended to provide clear focus and roadmap for continuing and enhancing the conservation effort of WBH in Bhutan for the next 20 years.

The strategic plan encompasses five broad themes:

1. In-situ conservation of White-bellied Herons
2. In-situ conservation of White-bellied Herons
3. Education, Awareness and Advocacy programs
4. Sustainable financing for long term conservation of WBH
5. Human resource development

Under each theme, there is an overall goal, objectives and actions to accomplish the goals.

## CHAPTER II STRATEGIES 2019-2039

### 2.1 STRATEGIC ACTIONS WITH OUTCOME AND INDICATOR

#### Theme 1: In-situ conservation of White-bellied Herons

For successful ex-situ conservation of the critically endangered WBH, in-situ conservation is crucial. This is because in-situ population will serve as important source of gene bank for the ex-situ conservation. In this respect, continuing the effort to protect and enhance the management of WBH habitats, addressing the unknown ecological and social parameters of the in-situ WBH conservation through further researches and exploration is seen crucial for saving this bird from extinction.

**GOAL:** Protect natural gene pool and secure healthy population of WBH

**Objective:** Conserve existing WBH and their habitats, and explore new habitats for detection of unrecorded birds

	<b>Strategic Action</b>	<b>Current Status</b>	<b>Expected Outcome</b>	<b>Indicator</b>	<b>Partners</b>
1.1	Maintain and protect existing WBH habitats	Punatsangchhu basin - 10 sites Mangdechhu basin - 2 sites, Phibsoo Wildlife Sanctuary – 1 site	Existing WBH habitats are protected	Number of WBH habitats maintained and their habitat status.	RSPN/DoFP S
1.2	Explore more habitats to find new unrecorded WBH	Surveyed 353 rivers, streams and lakes from 100 m to 1500 m	Up to date inventory of WBH in all potential new habitats along	Number of new WBH habitats identified and documented.	RSPN/DoFP S

			all river basins below 1500 m		
1.3	Nationwide annual population survey to maintain accurate WBH population count and trends	The WBH annual population count was started in 2003, and it is conducted annually at the beginning of the courting season (end of February to beginning of March)	Knowledge on WBH population trend and up to date population data.	Number of surveys conducted annually and its documentation.	RSPN/DoFP S
1.4	Studies on WBH and human interactions and other social aspects of WBH conservation.	Few short term studies on anthropogenic threats to WBH has been carried out.	Findings on the social dimension of WBH conservation available.	No of areas identified for the study and no of field visits made for carrying out the study.	RSPN/DoFPs/LCSG /local communities
1.5	Studies to understand anthropogenic pressure on dispersal of WBH within its range.	Monitoring has been done on human induced disturbance in the habitat areas, but more comprehensive studies needs to be done.	Findings on the anthropogenic drivers and nature of pressure affecting dispersal of WBH within its range available with recommendation for measures to address the pressures.	No of areas identified for the study and no of field visits made for carrying out the study.	RSPN/DoFPs /LCSG/local communities

1.6	Assessment and identification of threats to WBH and its habitat.	Few short term studies on anthropogenic threats to WBH carried out.	Nature of threats to WBH and its habitat ascertained with recommendation for measures to address the threats.	No of areas identified for assessment and no of field visits made for assessments.	RSPN/DoFPs/LCSG /local communities
1.7	Research studies on genetic diversity of WBH.	Two stages of genetic study has been carried out so far.	Recommendation for genetic management of the WBH.	Number of times genetic samples submitted for analysis.  Status of Genetic samples collected.	

**Theme 2: Ex-situ conservation of White-bellied Herons**

As a rigorous measure to save the White-bellied Heron from extinction and to maintain viable population in the wild, ex-situ conservation has been prioritized by RSPN based on its many years of experience in WBH conservation, notably the successful captive rearing in 2011. Ex-situ conservation is also expected help us understand and find answers to many of the questions related to WBH ecology which has been a challenge in the in-situ setting

**GOAL:** Increase the population of White-bellied Herons

**Objective:** Conserve ex-situ gene pool of WBH through captive breeding to increase WBH population

<b>No.</b>	<b>Strategic Action</b>	<b>Current Status</b>	<b>Expected Outcome</b>	<b>Indicator</b>	<b>Partners</b>
2.1	Establish White-bellied Heron captive Breeding Facilities	Construction of WBH-CBC at Changchey on the allocated land of 18.44 acres supported by Punatsangchu Hydropower Project Authority (PHPA I and II)	Breeding facilities established and operational.	Status of breeding centre construction.	PHPA I and II
2.2	Increase WBH population through captive breeding and release program	Successfully released one WBH through captive breeding at Tsekha, Phochu in 2011	Breed 4 WBH in the first year, increased breeding number every following year	Number of successful WBH breed	RSPN/DoF Ps
2.3	Identify suitable habitats to release WBH	Currently there are 13 natural habitats along Punatsangchu and Mangdechu basins and their tributaries.	WBH successfully released in the identified habitats.	Number of habitats to release WBH documented.	RSPN/DoF PS
2.4	Research on breeding ecology of WBH.	No information available on breeding ecology.	Knowledge on reproductive pairing, parenting behaviour of WBH documented and disseminated.	Level of data and result on WBH breeding ecology available for reference.	DoF/DoL/ DoFPs/International partners

**Theme 3: Education, Awareness and Advocacy programs**

Empowering with education, awareness and advocacy is critical for ensuring effective and meaningful engagement of people in WBH conservation. Support from community, stakeholder and policy makers in WBH conservation or any conservation initiatives for that matter can only come forth with proper understanding of its conservation importance. For this reason, education, awareness and advocacy has been an integral part of WBH conservation and shall continue to be a priority.

**GOAL 3:** Community support and engagement in WBH conservation strengthened through Education, Awareness and Advocacy programs.

**Objectives:** Empower the community, stakeholders and partners to partake in WBH conservation by carrying out Education, Awareness and Advocacy programs.

SI #	Strategic Action	Current Status	Expected Outcome	Indicator	Partners
3.1	Form LCSG and resource Groups for conservation of WBH	LCSG members-10 Resource group members-17 for all the existing habitats	Community outreach and support group strengthened.	Number of new LCSG and Resource groups formed.	RSPN DoFPS and community,
3.2	Capacitate LCSG and Resource Group members as custodian of WBH conservation in their respective area	Active LCSG members- 10 Adha-1, Berti-1, Burichu-1, Dagana-1, Hararongchu-1, Kamichu-1, Phochu-3, and Sunkosh-1,	LCSG and resource groups capacitated and actively participating in WBH conservation.	Additional 10 LCSG groups leading in the conservation efforts.	RSPN and DoFPS,

3.3	Sensitize, educate, and raise awareness among all sectors of society	Sensitized all the communities along Punatsangchu and Mangdechu basin but project workers and officials keep changing.	Communities along Punatsangchu and Mangdechu basin aware of of WBH conservation and extending support.	Number of individuals actively engaged in WBH conservation	RSPN DoFPS
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**Theme 4: Sustainable livelihoods for WBH conservation**

For conservation to be successful, community engagement and support is crucial. Conservation undertaken in isolation will not have long term impact and may fail to address social drivers of environmental issues.

Likewise, it is important that their livelihood practices do not hinder or hamper conservation. Considering this, integrating appropriate alternative livelihood program (sustainable livelihood program) that complements WBH conservation effort is considered important. In general, sustainable livelihood program is expected to provide enabling condition for implementing WBH conservation program.

**Goal:** Community support and participation in WBH conservation enhanced.

**Objective:** Promote sustainable livelihoods programs in WBH habitats to offset the conservation cost and to support WBH conservation efforts.

SI#	Strategic Action	Current status	Expected outcome	Indicator	Partners
4.1	Needs assessment to identify appropriate livelihoods interventions	Few livelihoods activities like fish pond development, piggery,	Communities in the WBH habitat areas benefiting through selective livelihoods activities.	No and type of activities/programs identified.	Gewog Administration, Dzongkhag Administration, Park Management,
4.2	Design and implement appropriate livelihood programs based on needs assessment.	poultry were initiated in Berti, Hara-rongchhu, Sounkosh etc.		No of communities benefiting from livelihood activities.	

### **Theme 5: Sustainable financing for long term conservation of WBH**

Considering the global status of WBH and its extremely low and shrinking population, consistent conservation effort with impact-based long term intervention is seen necessary. Keeping this in mind, RSPN is in the process of building an endowment fund for sustaining WBH program. As of now USD 1.67 million has been generated and the effort will be continued until the target amount of USD 3 million is achieved.

**Goal:** Secure financial sustainability for WBH conservation programme.

**Objectives:** Raise UD\$ 3 million endowment funds for captive breeding and release Program until WBH population increases to more than 100 individuals

No.	Strategic Action	Current Status	Expected Outcome	Indicator	Partners
5.1	Raise additional US\$ 1.5 million to meet WBH endowment fund target of US\$ 3 million	Secured \$1.5 million through generous support of Mava Foundation. Funding proposal is being developed.	Financial sustainability for continuation of WBH captive breeding and release program	Secure additional US\$1.5 million	RSPN/Donors Since 2019-2030

### **Theme 6: Human Resource Development**

Capacity to implement and manage activities is imperative for the success of a program. Having adequate human resources with the right skills and knowledge entails prioritizing human resource development as an integral aspect of project/program development. With long term strategy in place, there is a corresponding need to enhance the capacity and size of the WBH staff so as to ensure effective and smooth implementation of the WBH program.

**Goal:** WBH conservation program staffed with adequately trained human resource.

**Objectives:** Develop and upgrade technical knowledge and skills of WBH conservation program staff.

No.	Strategic Action	Current Status	Expected Outcome	Indicator	Partners
6.1	Staff training in captive breeding protocols, technical knowledge and skills	One trained on basic knowledge on captive breeding and another one sent in June 2018	Staff acquire knowledge and skills in captive breeding	Number of staff trained	RSPN/Donors /DoFPS/LCS G/Resource Group
6.2	Recruitment of 4 additional staff for WBH captive breeding.	4 regular staff	Enhanced capacity in captive breeding and handling of WBH chicks	Number of captive bred chicks.	RSPN
6.3	Regularize 15% of basic pay as annual field allowance to WBH captive breeders for 6 months from March to August during the breeding period	No allowances of any kind	High staff motivation and enhanced work quality	95% success in captive breeding	RSPN

## 2.2 IMPLEMENTATION MECHANISM

WBH strategic plan will be implemented within the period of 20 years. The strategic focus areas and actions will guide the development of detailed action plans and proposals for specific projects related to WBH.

The activities will be implemented in the current and any new WBH habitat areas if identified. The implementation of the strategy will be led by RSPN in collaboration with the partners in the Department of Forests and Park Services, Department of Livestock, and other international partners as deemed necessary. These partners will mainly provide technical backstopping, policy support and activity implementation support.

Other stakeholders will include Dzongkhag and Gewog Administrations, Hydro Electric Power Projects, Schools and so forth that will also provide support and facilitate community mobilization, livelihoods programs and other WBH activities as relevant.

At the ground, the existing Local Conservation Support Groups and WBH resource group (Department of Forest and Park Services, Local Government) in the habitat areas will play an important role in terms of daily monitoring and providing ground information to the project and partners.

Further, the existing International WBH Advisory Committee instituted by RSPN shall provide technical guidance and strategic direction where necessary. The committee comprises of 6 members including two from RSPN.

