

**REPORT OF THE
RHINO TASK FORCE**

**SUBMITTED TO
NATIONAL TIGER
CONSERVATION AUTHORITY**

MAY 2015

GOVERNMENT OF INDIA

Due to rampant poaching of the great Indian one horned rhinoceros in Kaziranga National Park of Assam, the National Tiger Conservation Authority, Ministry of Environment, Forests and Climate Change, New Delhi constituted a committee, called "Rhino Task Force", for suggesting measures for strengthening rhino conservation in Kaziranga, vide their O.M.No.1-3/2008-NTCA, dated 13th October, 2014.

The composition of the Rhino Task Force is as follows:

- | | | |
|-------|---|-------------------|
| (i) | Shri D.P.Bankhwal, IGForest, NTCA Regional Office, Guwahati | - Member |
| (ii) | Shri C.Behra, Deputy Director, Regional Office, Wildlife Crime Control Bureau, Kolkota | - Member |
| (iii) | Dr.P.C.Bhattacharjee, Retd. Professor, Department of Zoology, Gauhati University, Guwahati, Assam | - Member |
| (iv) | Shri Ravikiran S.Govekar, AIG, NTCA Regional Office, Nagpur | -Member Secretary |

Later, on 5th February, 2014, one more member, Shri Keshav Kumar, Joint Director, Central Bureau of Investigation, Bombay was added as Member of Rhino Task Force by the National Tiger Conservation Authority, vide their letter no.1-3/2008-NTCA (Vol.III), dated 5th February, 2015.

One of the members, Shri C.Behra, Deputy Director, Regional Office, Wildlife Crime Control Bureau, Kolkota was repatriated back to his State cadre on completion of deputation tenure on 2nd March, 2015. In his absence, the Rhino Task Force had been taking assistance of Shri Abhijit Roychowdhury, Assistant Director, Wildlife Crime Control Bureau, Sub-Regional Office, Guwahati.

The terms of reference of the Rhino Task Force are as below:

- (i) Measures to strengthen rhino protection in the Kaziranga Tiger Reserve vis-à-vis intelligence based enforcement.
- (ii) Measures to improve field monitoring of rhino with the state-of-art technology.
- (iii) Measures for proactive safeguards to rhino and wild animals to prevent mortality during flood.
- (iv) Measures for special monitoring of rhino and other wild animals in corridor along NH-37
- (v) Measures for involving local community in rhino protection.

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Contents

Introduction	<i>vi</i>
Executive Summery	<i>viii</i>
Chapter 01: About Kaziranga: Area, Infrastructure and Issues	1
1.0 Introduction to the Area	2
1.1: Location	2
1.2: Kaziranga National Park and Tiger Reserve	2
1.3: Staff Strength	4
1.4: Wireless Communication System	6
1.5: Firearms with the Kaziranga N.P.	6
1.6: Speed Boats and Other Boats	7
1.7: Vehicles	7
1.8: Departmental Elephants	7
1.9: Dog Squad	7
1.10: Neighbouring Forest Divisions	8
1.11: Funding Issues	8
1.12: Manpower Training	9
1.13: People and Development Issues	10
1.14: Current Crisis	10
1.15: Anti-poaching measures taken by the State government so far	11
1.16: Measures for better management of Kaziranga suggested by Director, Kaziranga N.P. in his report submitted to Hon'ble Gauhati High Court in PIL No.66/2012	13
Chapter 02: ToR No.1: Strengthening Rhino Protection through intelligence-based Enforcement	15
2.0: Meaning of intelligence	16
2.1: As given in the Report of Kaziranga Management	16
2.2: Observations and Views of Rhino Task Force	25
Chapter 03: ToR No.2: Field Monitoring of Rhino with the state-of-art technology	31
3.1: As Given in the Report of Kaziranga Management	32
3.2: Observations and Views of Rhino Task Force	36

Chapter 04: ToR No.3: Proactive safeguard to rhino and wild animals to prevent mortality during floods	39
4.1: As Given in the Report of Kaziranga Management	40
4.2: Observations and Views of Rhino Task Force	45
Chapter 05: ToR No.4: Special Monitoring of Rhino and other wild animals in corridor along NH-37	47
5.1: As Given in the Report of Kaziranga Management	48
5.2: Observations and Views of Rhino Task Force	51
Chapter 06: ToR No.5: Measures for involving local community in rhino protection	57
6.1: As Given in the Report of Kaziranga Management	58
6.2: Observations and Views of Rhino Task Force	61
Chapter 07: Putting it all together	65
7.1: Taking ecosystem approach of management	66
7.2: Governance issues having impact on performance	66
7.3: Major Drawbacks in Management	67
7.4: Committees constituted for Kaziranga National Park	72
7.5: Analysis of poaching of rhino done by the Rhino Task Force:	75
7.6: Securing the long term future of rhinoceros of Kaziranga	80
Chapter 08: Recommendations	83
8.1: General	84
8.2: Rhino Protection through Intelligence-based Enforcement	90
8.3: Improving Field Monitoring of Rhino with the State-of-Art Technology	91
8.4: Measures for Proactive Safeguards to Rhino and Wild Animals to prevent mortality during flood	94
8.5: Measures for Special Monitoring of Rhino and other Wild Animals in Corridor along NH-37	92
8.6: Involving Local Community in Rhino Protection	92

09 Annexure	95
9.1: <i>Table -1: GPS co-ordinates of places of occurrence of Rhino poaching during 2013 in Kaziranga National Park</i>	96
9.2: <i>Table-2: GPS co-ordinates of places of occurrence of Rhino poaching during 2014 in Kaziranga National Park</i>	97
9.3: <i>Excerpts from Wild Life (Protection) Act, 1972</i>	98
9.4: <i>Animal mortality during floods in Kaziranga National Park and adjacent areas during 2012, 2013 and 2014</i>	99
9.5: <i>Administrative map of Kaziranga National Park</i>	100
9.6: <i>Map showing month-wise rhino poaching location in Kaziranga during 2013</i>	101
9.7: <i>Map showing month-wise rhino poaching location in Kaziranga during 2014</i>	102
9.8: <i>Map of Kaziranga anti-poaching camps and river islands</i>	103
9.9: <i>Map of Kaziranga N.P. with Additions and Buffer areas</i>	104
9.10: <i>Map showing river network inside Kazirang with Brahmaputra on north</i>	105
9.11: <i>Map of Kaziranga N.P. with adjacent forest areas, giving a perspective of landscape</i>	106
9.12: <i>Map showing islands of Brahmaputra River (Majuli to Orang)</i>	107
Source of Information	108

Introduction

In the annals of success history of wildlife conservation, it will never be a case that Kaziranga and the great Indian one horned rhinoceros are not there. Kaziranga has been heralded as a success story in bringing the one horned rhinoceros from the brink of extinction and building up a viable population during the last one century. Kaziranga has achieved this milestone by the sweated labour of its employees and conservation ethos of the people of Assam. This journey to success had not been always smooth. There had been impediments off and on. However, the biggest disruption has now come in the form of unremitting poaching of the rhinoceros of Kaziranga during the last few years. The crime has jolted the conscience of the wildlife lovers, conservationists and citizenry. It has manifested itself in widespread public furore and when the Union Minister for Environment, Forests and Climate Change visited Kaziranga and Guwahati in the first week of September, 2014, the debate was still raging on the ways and means to stem the descent of Kaziranga into chaos. In the aftermath of his visit, the National Tiger Conservation Authority constituted this Rhino Task Force with the terms of reference to suggest measures for monitoring and protecting rhinos in Kaziranga through various management strategies during normal times as well as flood times. The measures are supposed to give thrust on harnessing the latest electronic surveillance technologies, developing effective collaboration among law enforcement agencies and taking the active assistance of the village community around the Park in the protection and conservation efforts.

In order to tease out solutions for problems of rhino protection and management of Kaziranga National Park, the members of the Rhino Task Force adopted the following approach.

1. Field visits to Kaziranga National Park and adjoining areas, like Golaghat Forest Division, Diphu, Burachapori, etc.
2. Interaction with officials and field personnel of Forest Department, Community groups of fringe areas, NGOs and other stakeholders
3. Visit to the Eco-development committees
4. Consultation of documents

Now the need was to go into the ramifications, nuances, tangles and threads of the crime and the apparatus for crime prevention. *There is need for understanding the context of the crime. There is an epidemic theory of crime. It says that crime is contagious. The impetus to engage in a certain kind of behavior does not come from a certain kind of person but from a feature of the (social) environment. The epidemic*

can be reversed, can be tipped, by tinkering with the smallest details of the immediate environment. Environmental tipping points are things that we can change: we can change the signals that invite crime in the first place. Crime can be more than understood. It can be prevented. [Malcolm Gladwell (2000)]

The prevailing situation in Kaziranga moved the Hon'ble Gauhati High Court, who took up a *suo motu* PIL No. 66/2012 in Gauhati High Court and directed in its order dated 4th March, 2014 the Director of Kaziranga National Park to submit a detail report on the effective and remedial steps for implementation to curb poaching of rhinos in the Kaziranga National Park. The Court advised the Director of Kaziranga National Park to be at liberty to take help of all stakeholders, organizations and parks all over the world for preparation of report. In compliance of the directive, the management of Kaziranga held stakeholders' meetings involving wildlife managers, wildlife biologists, veterinarians, researchers, villagers, overseas' experts, etc. The report had been published on 5th August, 2014. One of the members of the Rhino Task Force, Dr.P.C. Bhattacharjee, was also actively involved in the said stakeholders' meetings in Kaziranga. The Rhino Task Force has also drawn extensively from this report of Kaziranga management.

Meanwhile, the Comptroller and Auditor General of India has also come up with "Performance Audit of Kaziranga National Park – Issues and Challenges" (*report no.3 of 2014*). The Task Force has also found the report handy in reinforcing its own findings on some of the issues that are constraining the functioning of Kaziranga National Park, although most of these issues being like the self-inflicted injuries.

The Rhino Task Force has tried to understand the context of the crime of unabated poaching of rhinos in Kaziranga, despite killing and arrest of many poachers. The team has tried to analyse the environment enabling the crime to thrive over the years, and has suggested remedies to reverse the trend. Most of the recommendations in the report are easily implementable. It requires sincerity of purpose and aligning the goals of all levels of State administration to achieve the purpose.

Executive Summary

This Rhino Task Force report has been brought out in the backdrop of prolonged and frequent poaching of the great Indian one horned rhinoceros in Kaziranga National Park. The unabated killing of rhinos made the Gauhati High Court to file a *suo motu* PIL (number 66/2012) in its own Court. In its order dated 4th March 2014, the High Court directed the Director of the Kaziranga National Park to submit a detailed report on the effective and remedial steps for implementation to curb poaching of rhinos in the Kaziranga National Park. In compliance of the order of the court, the Director of Kaziranga National Park took a perspective on various facets of managements from wildlife managers, international experts, researchers, scientists, NGOs, villagers etc., and submitted the compiled report to the court on 5th August 2014. This report of the Rhino Task Force has also drawn extensively from the report of Kaziranga management.

To deal with the mounting crisis, the state government posted 430 personnel of Assam Forest Protection Force with two 200 SLRs and rest .303 rifles, and amended the Wildlife (Protection) Act, 1972 by enhancing penalty for the offence committed on any animal in Schedule-I or Part II of Schedule II of the Act. In addition, immunity was given to the forest staff in using firearms by bringing them under the provisions of section 197 (2) of CrPC, 1973. The State government also constituted an “Anti-Rhino-Poaching Task Force” with an Additional Director General of Police at its command. [See: Para: 1.15]

Dimensions of the problem:

Various reports of central and state government agencies have pointed to the factors responsible for increase in the instances of poaching of rhinos in Kaziranga during the last few years. Common among them are: (i) growing disposable income in countries consuming rhino horn, (ii) infestation of the region around Kaziranga and neighboring States with militants and unlicensed fire arms, (iii) limited capacity of state government to deal with criminals and militants, (iv) poor investigation of wildlife crimes and lack of conviction of poachers and traffickers in court of law, and (v) lack of coordination among law enforcement agencies. Each of these sources of problem has many strands, all of which need to be unraveled for reaching a lasting solution.

To deal with the situation, there is need for diagnosing the malaise in all its roots, including the adventitious ones. While the consumption points of rhino horns are mostly believed to be outside the country, the lust for the lucre also lies within the country. Reports have suggested involvement of armed militants and other criminals from Assam, Nagaland and Manipur in the poaching of rhinos in Kaziranga. Gaining entry into Kaziranga is not a difficult task, as there are many chinks in the boundary of the Park. On the eastern and northern flank of the Park there are many river islands, where the surveillance and control of the Kaziranga management is not matching to the level of threat. The northern side, called Sixth Addition, has not yet

been handed over to the management of Kaziranga. On the western side are Burapahar Range, Kukurakata Reserved Forest and Bagser Reserved Forest areas. All these areas are very vulnerable, as they are entry points for poachers from Karbi Anglong and Nagaon areas. Kaziranga management has not taken control of Bagser R.F. so far, although it has been notified as buffer area of Kaziranga Tiger Reserve. Karbi Anglong hills are important part of Kaziranga landscape, but they are being managed by different administrative entity, the Karbi Anglong Autonomous District Council. The hills of Karbi Anglong near the Kaziranga Park are part of the habitat of rhino and other wild animals. But, these hills are under the dominance of Karbi militants. As a result, Forest Department of the District Council is rendered dysfunctional, and militants and poachers are wreaking havoc in Kaziranga. Analysis of poaching of rhinos during the last few years shows that most of them have taken place in Eastern Range, Burapahar Range and Western Range (mostly in area close to Burapahar Range). These are the areas where the entry and exit are easy for the poachers. The need is to ensure dominance over these areas by raising infrastructure, surveillance mechanism and rapid response team of armed personnel.

Like other crimes, rampant rhino poaching in Kaziranga is also fallout of poor governance and weak institutional structures. Manifestations of these can be seen in the following: encroachments on revenue lands around Kaziranga Park, mushrooming of *dhabas* and hotels along NH-37 (on the southern boundary of Park), some of these *dhabas* and hotels being on government land through encroachment, recruiting staff in the name of Kaziranga and later transferring them outside the Park, release of funds under CSS (Project Tiger) at the end of financial year by the State government (sometimes the release is only partial), and lack of co-ordination among various law enforcement agencies.

The solution lies in disentangling the strands of the problems and reversing the signals in social environment as well as in government set-up that are contributing to the each of these problems. This report prescribes the remedial measures as per the five terms of reference and general issues cutting across all of them.

1. Strengthening rhino protection through intelligence –based enforcement
2. Improving field monitoring of rhino with the state-of-art technology
3. Measures for proactive safeguards to rhino and wild animals to prevent mortality during flood
4. Special monitoring of rhino and other wild animals in corridors along NH-37
5. Involving local community in rhino protection
6. Addressing general issues of governance and policy

Intelligence-based enforcement:

An actionable intelligence is the product of collection and analysis of information related to crime and conditions that contribute to crime. As the consumption of rhino horn is outside India, the intelligence also needs to be developed for both unraveling rhino poaching and horn trafficking inside India and trafficking of horn outside India up to its final hubs of trade in foreign countries. For inside India, there

is need for forging strong coordination for gathering and sharing intelligence among state Police, Police of the neighboring states, Customs, Assam Rifles, Sashastra Seema Bal (SSB), CBI, Wildlife Crime Control Bureau, Border Security Force and State Forest Departments. For gathering intelligence on hubs of trade outside India, there is need for taking help of CITES agencies, Interpol, etc. In addition, there is need for creating database of DNA of all the rhinos in India and gathering intelligence about traffickers on the international boundary of India with Southeast Asian countries. Armed with clinching evidence about the source, at least international pressure can be brought to bear on these countries to crack down on wildlife criminals in their countries.

For averting poaching and nabbing the criminals after the crime, the management of Kaziranga should do the following on regular basis.

- (i) A wildlife crime control cell or intelligence cell should be created at Kaziranga
- (ii) Forensic science should be used in prevention and investigation of crimes
- (iii) Coordination meetings of all related law enforcement agencies should be regularized and progress assessed regularly for identifying loose ends and gaps.
- (iv) Intelligence should be gathered from all the fringe areas. For this, the gap between the villagers and Park management should be bridged immediately.
- (v) Awareness and skills for gathering intelligence need to be given to majority of staff

In addition, there is need for improving the effectiveness of Wildlife Crime Control Bureau of Government of India for dealing with the wildlife crimes in the region.

Leveraging State-of-Art Technology in Management:

As the poachers are taking to the latest technologies very fast and their networks are getting bigger, there is need for casting surveillance net all over the area of the Park and beyond into the *chapories* (river islands). With the help of NTCA, the management of Kaziranga is already on the verge of commissioning of “electronic eye”, an electronic surveillance device taking the whole Park under its cover. [Para: 3.12]. Another highly useful device is Unmanned Aerial Vehicle (UAV), which was given a test flight also in Kaziranga in April, 2013. [Para 3.17, 3.18]. As Kaziranga is open from all sides and human habitations on the periphery are increasing by the day, the Park needs surveillance towers at vantage points on the boundary on hills overlooking the Brahmaputra plains. However, absorption of technology and maintenance of the devices are limiting factors in an organization which is ridden by traditional management culture and is faced with financial crisis quite often. They should use “electronic eye”, UAV and night vision telescopes in tandem with simple devices for measuring effectiveness of daily patrol, like MSTRIPES. [Para: 3.2; all details in chapter-3]

Proactive safeguards to animals during floods:

Being in floodplains of mighty Brahmaputra River, floods in Kaziranga National Park are a recurring feature. The wild animals have to move towards a few highlands inside and highland provided by the NH-37 and beyond to hilly areas of Karbi Anglong. While the animals come physically drained and panic-stricken on the highway NH-37, they confront vehicular traffic there. While the management of Kaziranga drafts not only its own employees but also youths from fringe village communities and NGOs for round-the-clock regulation of traffic and vigil on the NH-37, heavy mortality of animals do take place during a severe flood. Small animals like hog deer bear the brunt of the flood fury. But, large animals, like rhinos, also die in the flood, particularly the calves. For reducing the mortality of animals during the flood, the management of Kaziranga essentially needs to do the following.

- (i) Build more highlands inside the Park.
- (ii) Re-assess the advance preparation in all the anti-poaching camps for speed boats, rescue vehicles and trained manpower. Chief Wildlife Warden should get the infrastructure and preparedness audited from State Disaster Management Authority.
- (iii) Get the capacity and infrastructure of Centre for Wildlife Rehabilitation and Conservation (CWRC) improved for rescuing and rehabilitating the animals during the flood.

The management should put in place mechanism for keeping track of wild animals leaving Park during the floods.

Video film of rescuing wild animals from the flood and rehabilitating them should be prepared for learning lessons and removing shortcomings. [**Details in chapter-4**]

Monitoring animals in corridors along NH-37:

There are a few corridors for movement of wild animals from Kaziranga to Karbi Anglong. But, the functionality of most of these corridors have been very badly affected by rampant growth of human settlements and building structures. The presence of hotels and *dhabas* is not only blocking the movement of animals, but also causing a lot of disturbance to animals by light and noise. The situation is same all along the highway NH-37.

The safe passage of animals through these corridors requires monitoring through 'electronic eye', when commissioned, constructing watch towers at strategic locations near the corridors and getting some of the barriers to animal movement removed. The corridors near NH-37 connecting the Kaziranga Park to the Karbi Anglong forest are meaningful only when the animal moving to Karbi Anglong can move freely into Karbi Anglong area. The blocks on Karbi Anglong side also need to be removed.

In addition to corridors on NH-37, there are many other corridors connecting Kaziranga with neighboring forest areas. Most of these are in the river islands. All these corridors need to be brought under regular surveillance, secured and

adequately protected from any harm to the wildlife from human beings. In addition, a map of all the islands (*chapories*) of Brahmaputra around Kaziranga, where rhinos stray off and on, is also given in the report [**Annexure**]. All these areas are corridors, which connect the Kaziranga Park to the next forest divisions. [**details in chapter-5**]

Role of local community:

During the last few years, there had been a wide gap between the villages surrounding Kaziranga and the management of the Park. The Park should be in constant engagement with the village community. The villages are part of the ecological continuum of the Kaziranga landscape. Being one of the important stakeholders, they need to be kept in loop in all the initiatives and changes that are to take place in Kaziranga. The current sense of alienation should be gradually erased.

Kaziranga Park has not yet prepared micro plans for the villages. They should be prepared without delay and assistance should be taken from various sectors of development in implementation of the micro plans. In the jurisdiction of Northern Range, there are no eco-development committees created so far by the Park. They should be created and people taken on board in the protection of rhino and other wildlife.

Meanwhile, at the initiative of the Union Ministry, an effort for involving local youths in the protection of rhinos is underway. In the initial phase, it will be carried out in villages of 33 eco-development committees and later it will be spread to all the fringe villages around the Park, including those falling under Karbi Anglong autonomous district council.

Wildlife conservation initiatives awareness, like the one launched by a consortium of Assam NGOs by holding **every year** a 3-day nature camp in Kaziranga to school-going children from Class-III to Class-IX, should be made widespread in the fringe areas of Kaziranga National Park. [**Details in chapter-6**]

Looking into the Future:

While the immediate and short term measures have been recommended in the report, long term management of the rhinoceros lies in not only protection of the species, but also dealing with the impending challenge of population reaching the carrying capacity of the existing area under the National Park. Increase in number of all the herbivores, loss of habitat due to river erosion and loss in quality of habitat due to weeds are making effective area reduced in size. More areas surrounding the Park, mentioned earlier and in **para 7.6**, should be added to the Park.

Immediate Steps needed:

- 1) Make policy changes related to land use, militants and illegal arms
- 2) Change the profile of human resource in Kaziranga: keep field personnel of age upto 45 years and give them training in jungle warfare and effective patrolling

- 3) Change the management structure of the Park by having two more Deputy Directors, one ICT-trained person and one dedicated veterinarian
- 4) Improve surveillance and protection mechanism on East, West and North boundaries.
- 5) Forest department should carry out scientific investigation of wildlife crimes
- 6) Institutionalize co-ordination among State and Central law enforcement agencies
- 7) Give responsibility for rhino protection to all Forest Divisions surrounding Kaziranga, **including Karbi Anglong Forest Department**
- 8) Bridge gap between Kaziranga Park and villagers on the fringes. **[details: Chapter Eight- Para 8.1 to 8.6]**

Chapter 01

About Kaziranga: Area, Infrastructure and Issues

1: Introduction to the Area

1.1: Location

1.2: Kaziranga National Park and Tiger Reserve

1.2.1: Area as per Tiger Conservation Plan

1.2.2: Ranges, Beats and Anti-poaching Camps

1.2.2.1: Ranges of Kaziranga National Park

1.2.2.2: Beats and Anti-poaching Camps

1.2.2.3: Floating Camps

1.3: Staff Strength

1.3.1: The Assam Forest Protection Force

1.3.2: Home Guards

1.3.3: Participatory Protection

1.3.4: Exposure to risk and adversity

1.3.5: Staff Welfare: Kaziranga Welfare Society

1.4: Wireless Communication System

1.5: Firearms with the Kaziranga N.P.

1.6: Speed Boats and Other Boats

1.7: Vehicles

1.8: Departmental Elephants

1.9: Dog Squad

1.10: Neighbouring Forest Divisions

1.10.1: Forests in North Karbi Anglong

1.11: Funding Issues

1.12: Manpower Training

1.13: People and Development Issues

1.13.1: People on the fringe of Kaziranga

1.13.2: Eco-Development Committees

1.14: Current Crisis

1.15: Anti-poaching measures taken by the State government so far

1.16: Measures for better management of Kaziranga suggested by Director, Kaziranga N.P. in his report submitted to Hon'ble Gauhati High Court in PIL No.66/2012

1. Introduction to the Area:

All over the world, Kaziranga Protected Area is identified with the great one horned Indian rhinoceros (*Rhinoceros unicornis*). The rich faunal diversity of the area has made it earn many appellations. It is a World Heritage Site, a Tiger Reserve and an Elephant Reserve. It also harbours the largest populations of eastern swamp deer and water buffalo in India. Rampant killing of animals during British *raj* did not leave rhino also; so much so that during her visit to Kaziranga in January, 1905, Lady Curzon was moved to see the number dwindling and set in motion the government machinery of the day to protect the animal. As a result, Kaziranga was made a Reserved Forest by M. Carter, Conservator of Forests, Eastern Assam Circle, in 1908. It was notified as Game Sanctuary in 1916. It was opened to visitors in 1938. P.D. Stracey, senior Conservator of Forests, constituted it as a Wildlife Sanctuary in 1950. In the year 1968, Assam National Park Act came into existence. Meanwhile, in 1972 central Wildlife (Protection) Act also came into existence. Kaziranga was notified as National Park in 1974 with an area of 429.93km².

An area of nearly 43.79 km², known as First Addition to Kaziranga, was added to the National Park in 1997. There were five more additions made to the area of Kaziranga, but except for the Fourth Addition of nearly 0.90 km², all other Additions (Second, Third, Fifth and Sixth) are either partly or fully out of the control of the management of Kaziranga. The Tiger Reserve is an extended area which includes three Reserved Forests, viz. Panbari, Kukurakata and Bagser, and two Wildlife Sanctuaries under Nagaon Wildlife Division. They are given with their notification date and area details in para 1.2.1.

As for the habitat, Kaziranga is a dynamic and fertile floodplains ecosystem with mosaic of habitats, which can nurture diversity of fauna.

1.1: Location:

The National Park is located east of Guwahati, between Jakhlabanda and Numaligarh (a stretch of nearly 54 km.). On north, it is bound by river Brahmaputra and on south by Karbi Anglong Hills. National highway no.37 forms partly the southern boundary of the Park. Its coordinates are 26°28' to 26°49'N and 92°35' to 93°42'E. As per the biogeographic classification, the area falls in North East Brahmaputra Valley (9A) [Map No.1 in Annexure].

1.2: Kaziranga National Park and Tiger Reserve: Area Details, Infrastructure and Manpower Status

1.2.1: Area as per Tiger Conservation Plan:

In the year 2007, the Kaziranga area was declared as Tiger Reserve, having a Core Area and a Buffer Area. The latter includes the two sanctuaries under Nagaon Wild Life Division under it. The tiger reserve straddles Golaghat, Nagaon and Sonitpur districts of Assam State. The details of notified core and buffer areas are given below:

(i) Core Zone:

Name	Notification No. and Date		Area (km ²)	District
Kaziranga National Park (KNP)	FOR/WL/722/68	11 th Feb, 1974	429.930	Nagaon and Sibsagar
1 st Addition to KNP	FRS.253/90/198	28 th May, 1997	43.788	Nagaon and Sonitpur
2 nd Addition to KNP	FRS.89/2002/112	12 th July, 2010	6.470	Golaghat
3 rd Addition to KNP	FRS.101/85/3	31 st May, 1985	0.70	Golaghat
5 th Addition to KNP	FRS.126/15/2	13 th June, 1985	1.15	Golaghat
TOTAL			482.04	

(ii) Buffer Zone:

Name	Notification No. and Date		Area (km ²)	District
4 th Addition to KNP	FRS.89/2002/129	10 th April, 2012	0.90	Nagaon
6 th Addition to KNP	FRS.89/2002/13	22 nd Dec, 2008	401.50	Sonitpur
Kukurkata R.F.	48	23 rd Nov, 1989	15.93	Nagaon
Panbari R.F.	677R	22 nd Feb, 1913	7.66	Golaghat
Bagser R.F.	5310F	15 th July, 1919	33.67	Nagaon
Laokhowa WLS	FRS.863/78/Pt1/17	12 th Sept, 1979	70.14	Nagaon
Burachapori WLS	FRW.31/92/Pt/15	11 th Oct, 1995	44.06	Nagaon
TOTAL			573.86	

As mentioned earlier, except for the 1st and 4th Additions, other additions have not been handed over to the Kaziranga authorities.

Bagser R.F. is under the control of the Nagaon Territorial Forest Division.

Laokhowa Wildlife Sanctuary (WLS) and Burachapori WLS are buffer areas of Kaziranga Tiger Reserve and they are part of Nagaon Wildlife Division, being managed by a separate Divisional Forest Officer (at present by a Conservator of Forest level officer). As both the areas do not have any rhino for the last 30 years, they are not being discussed in this report for the purpose of management of rhinos in Kaziranga, except that both of them are considered for re-introduction of rhinos in future under Indian Rhino Vision programme. Both of them had been bearing rhinos until mid-1980s.

Excepting the Laokhowa WLS, Burachapori WLS and Bagser R.F., the rest of the area falls under Eastern Assam Wildlife Division headed by a Divisional Forest Officer. The Director of the Park is overall manager for Eastern Assam Wildlife Division and Nagaon Wildlife Division, as the two together make up the Kaziranga Tiger Reserve. Bagser R.F. is also notified as buffer of Kaziranga Tiger Reserve, but it is under the control of Nagaon Territorial Forest Division.

1.2.2 Ranges, Beats and Anti-poaching Camps:

1.2.2.1: Ranges of Kaziranga National Park

There are 5 Ranges:

1. Eastern Range with head quarter at Agaratoli
2. Central Range with head quarter at Kohora
3. Western Range with its head quarter at Bagori
4. Burapahar Range with its head quarter at Ghorakati
5. Northern Range with its head quarter at Bishwanath (established in 2010 to cover areas of 6th Addition), which is located in the northern bank of river Brahmaputra. This range includes the area covered by river Brahmaputra and islands therein.

1.2.2.2: Beats and Anti-Poaching Camps:

There are two notified account beats in the Eastern Assam Wildlife Division (EAWL) Division, namely (i) the Burapahar Beat under Bagori Range and (ii) Bokakhat Beat at the Divisional HQ. In addition to these two, there are a number of Beats/ Sub-Beats under whom 174 anti-poaching camps function, the number of which was only 45 in 1980. Apart from this there are 9 floating camps supported by speed boats and country boats.

1.3: Staff Strength:

There are 465 staff in Kaziranga National Park, out of the sanctioned strength of 562. Among the field personnel, nearly 41 are physically incapable of performing protection duties in the Park. These persons have either sustained injuries in the attack from either poachers or wild animals, which is very common in the Park, or are victims of major illness.

1.3.1: The Assam Forest Protection Force

Though all the frontline staff of the Park are mostly armed, and the Government of Assam has enabled them to use of fire-arms, the fire power is limited. Kaziranga has got about 430 personnel of Assam Forest Protection Force (AFPF) deployed along with the frontline staff. Nearly 200 of them are armed with carbines and SLRs, and rest with .303 rifles.

Additional manpower strength of about 70 personnel was deployed on 2nd May, 2014 with a reserve of 30 personnel at Secconee, the HQ of the recently created 2nd Battalion of Assam Forest Protection Force. In case of injury or incapacitation, an AFPF jawan is withdrawn to the Head Quarter and normally replacement is provided. But, in case of Forest Guards and Foresters, replacement is rarely given.

1.3.2: Home Guards

To deal with the formidable situation in Kaziranga, as on now there are 117 Armed Home Guards deployed to assist the other field personnel in the Park. The actual strength of the Home Guards deployed varies from time to time.

1.3.3: Participatory Protection

The Park has been engaging youths from the fringe villages as casual workers and tourist guides. As on now, there are 163 casual workers and 25 tourist guides in the Park. The Tourist Guides take the tourists inside the Park during visiting hours and thereafter carry out protection duty along with the frontline staff of the Park. Besides these, to guard the areas outside the Park from potential intruders and also to keep watch on large mammals crossing over to the human habitations and tea gardens, Village Defence Parties (VDP) of a group of 7 to 10 youths are organized in some villages. They are given the needed logistic support. During the floods, volunteers are recruited from the villages along the NH37 to avert accident of wild animals in vehicular traffic. They also keep a watch on the straying rhinoceros.

1.3.4: Exposure to risk and adversity:

As per records compiled by the management of Kaziranga since 1968, so far 27 members of staff of Kaziranga have died while on duty and 79 sustained injuries. Accidents and deaths due to attack by wild animals, bullet hits, drowning and other accidents are quite common in Kaziranga National Park. Normal duty hours of 8 to 12 hours extend beyond that up to 24 hours in case of some emergent situation. While there are challenging conditions of duty for the field personnel, they have to stay away from their families because of lack of facilities for stay, health care and schooling of children. Therefore, almost all staff and officers have to maintain dual establishment that is very costly.

1.3.5: Staff Welfare: Kaziranga Staff Welfare Society:

The success story of conservation of rhinoceros, tiger, swamp deer, wild buffaloe, etc. in Kaziranga has behind it untiring and selfless efforts of the field personnel of Kaziranga, who had indeed been the unsung heroes of the Park. They work in harsh conditions and are mostly deprived of the family and social life. Since the Park had always been running on shoestring budget, staff welfare fell through in the plan priority. However, in the year 1998, World Wildlife Fund (WWF) – Tiger Conservation Programme (TCP) announced a special award of Rs.2.00 lakh to Kaziranga National Park for excellent handling of exigencies during and after the devastating flood of the year 1998. The then Director of the Park, Shri B.S.Bonal, constituted a staff welfare society and opened its bank account with the prize money. As a result, Kaziranga Staff Welfare Society was born on 10th March, 1999. Half of this amount was deposited in savings bank account and half in fixed deposit. Later, the Director received another amount of Rs.2.00 lakh as “Millennium Award” for Kaziranga National Park in the year 2000 and he deposited this amount also in the accounts of

the Kaziranga Staff Welfare Society. With this corpus, the Society started helping the staff in emergency.

In addition to the amount of Rs.3.00 lakh (excluding the fixed deposit of Rs.1.00 lakh), member-fees at a nominal rate and a small part of the proceeds from the tourism fees contribute to the fund for Staff Welfare Society. Among its objectives, one is: *“to provide and supervise the fulfilment of human need or provide assistance to the members such as uniform, ration, drinking water, recreation, sanitation, medical aid, legal assistance, education of children, welfare of dependents, or any other benefits that the Society may deem fit and proper.”*

1.4: Wireless Communication System

Currently there are 266 handsets, 9 vehicular sets and 37 base stations in Kaziranga National Park. However, there are no repeater stations. The system is analog in nature and mainly due to low height of the towers, does not adequately cover the Park. There are several shadow areas. There are also challenges in maintenance of the handsets. The current position of the wireless system is shown below:

SI No.	Wireless Equipment	In Service	In need of Repairs	Total
1	Handsets	145	121	266
2	Base Stations	30	7	37
3	Vehicular Sets	9	0	9

1.5: Firearms with the Kaziranga National Park:

The Park has a mix of arms and weapons such as rifles (0.315 and 0.303), .32 Revolvers, Double Barrel Guns (DBBL) and Single Barrel Guns (SBBL) The total number of arms owned by the Park authorities is as shown below:

SI No.	Weapon	Quantity
1	0.315	498
2	0.303	200
3	0.32	12
4	DBBL	65
5	SBBL	33
	TOTAL	808

There are personnel of the Assam Forest Protection Force (AFPF) in the Park and they have the following arms with them.

SI No.	Weapon	Quantity
1	0.303	316
2	SLR	166

3	Carbine	20
	TOTAL	502

There are 129 Home Guards currently deployed. Their number keeps on fluctuating depending upon their retrenchment and new appointments. The Home Guards carry 0.303 rifles.

1.6: Speed Boats and Other Boats:

The Park has currently 11 numbers of speedboats including 4 modern semi-automatic front-drive speed boats procured in 2013-14, and two rubber boats. There are 3 mechanized boats (*Bhutbhuti*), and 3 are under construction. There are more than 150 country boats. Almost every camp has been provided with country boats.

1.7: Vehicles:

There are a total of 41 vehicles in Kaziranga, of which only 29 are in running condition; and 12 nos are beyond economic repair. Out of this, there are 16 nos of Maruti Gypsies, of which 12 are in running condition and 4 are beyond repair.

1.8: Departmental Elephants

The Kaziranga National Park has 55 departmental elephants. The range-wise break-up of elephants is given below:

Sl. No	Range	Male	Female	Calf	Total
1.	Eastern Range	6	3	2	11
2.	Kaziranga Range	16	14	3	33
3.	Western Range	1	8	2	11
	TOTAL	23	25	7	55

1.9: Dog Squad

Dog squad unit, named K-9, was used for the first time in Kaziranga National Park in 2013. It has proved to be of immense help to the managers. The Park authorities are using dog squad frequently since January, 2014. Currently, a dog trained as tracker dog, a member of the K-9 Dog Squad Unit, has been stationed at Kaziranga for investigating wildlife crimes in the Park. The use of dog has resulted in some successful outcomes in the form of either arrest of poachers or killing of them in encounters. The management of Kaziranga has proposed to have at least 3-4 Dog Squad and K-9 units placed at strategic locations for quick reaction. Two units are in the process of being raised at 2nd AFPP HQ.

1.10: Neighbouring Forest Divisions:

The territorial forest divisions adjoining Kaziranga National Park are the following. On the south: Golaghat Forest Division, Jorhat Forest Division and Nagaon Forest Divisions; district council side: Karbi Anglong (East) Forest Division; on Brahmaputra north bank side: Lakhimpur Forest Division, Sonitpur (East) Forest Division and Sonitpur (West) Forest Division. Support of these forest divisions is crucial for the meaningful protection of rhinoceros and management of wildlife in the landscape. There is urgent need for sensitizing and training field personnel of these divisions on management of wildlife and protection of rhinoceros.

1.10.1 Forests in the North Karbi Anglong:

The northern part of the Karbi Anglong, most of which falls in the **Karbi Anglong (East) Forest Division** has the following wildlife sanctuaries:

1. East Karbi Anglong WLS (221.81 km²) consisting of the entire Mikir Hills RF falling in the Dokmoka range of Karbi Anglong (East)
2. Nambor WLS (37 km²)
3. Garampani WLS (6 km²)
4. Karbi Anglong WLS (96 km²), which is adjacent to the south of Kaziranga National Park near Sildubi.

The total area under wildlife sanctuaries in the Division comes to 360.81 km².

In addition, the Division has the following Reserved Forests (RF) and District Council RF (DCRF) areas.

- (i) Reserved Forests: Kaliyani, Nambor (West), Jungthung, Sildharampur and Chelabor, having aggregated area of 461.35 Km²
- (ii) District Council RFs: Longit, Patradisa, Jamuna, Hidipi, Mahamaya and Khanbamon, having an aggregated area of 536.75 Km²

Thus, the total area of Karbi Anglong East Division comes to 1358.91 km²

Most of these areas are very important for management of wildlife in the landscape of Kaziranga. At present, there is need for firm control over these areas by the Karbi Anglong authorities in order to save the Kaziranga from marauding behaviour of militants controlling these lands.

1.11: Funding Issues

Other than salary component which comes to almost Rs. 13.65 crore annually, the financial support received from the Govt. of India and the State Govt. for last four financial years is given in the Table below:

Scheme	Amount (In Lakh Rupees)			
	2011-12	2012-13	2013-14	2014-15
Project Tiger	316.27	243.90	550.87	510.06
State Plan	39.55	34.86	36.06	32.00
Non Plan Scheme	218.95	180.13	260.89	158.06
TOTAL	574.77	458.89	847.82	700.12

However, for reasons not made clear by the State government, most of the times either there are inordinate delays in release of funds or they get lapsed. This is badly hampering the management of the Park.

The situation has been redeemed to some extent by the formation of the Kaziranga Tiger Conservation Foundation (KTCF) in 2007, as mandated under the Wildlife (Protection) Act, 1972. The Foundation now receives all the proceeds of the tourism entry fee. In times of crisis, the Park authorities resort to taking temporary interest-free loans from the Foundation and replenish it later when the funds from the Centre or State government reaches.

In addition, the Park receives support in cash and kind from NGOs such as WWF, WTI, WCT, Aaranyak, WWT, ATREE etc.

1.12: Manpower Training:

There are 23 trained Forester grade-I out of 31 in place, and 110 trained Forest Guards against 198 deployed. This training is just an academic training in Forester School and Forest Guard School. There is no training on skill development. Same is the case with the Assam Forest Protection Force personnel, who do not have any training in jungle warfare, and even better target practice. For working in a wilderness area, all the personnel should have the knowledge of the terrain and ecological acquaintance of the Park. This is also a severe inadequacy in the effective performance of the field personnel in Kaziranga. So far as arms training is concerned, during 2014, training sessions were organized for field personnel by Kaziranga management in batches of 20 at Seconee, the HQ of the 2nd AFPP battalion. Another training initiative was for imparting 10 day training on wildlife crime investigation to the field officers in the month of June, 2014. An international exposure on wildlife crime scene investigation was provided to field staff on the 29th May, 2014 at Kohora by the visiting experts from South Africa on using DNA for tracking rhino horns and making a genetic database of rhinos.

There is need for training to the field staff in many areas, most important of which are the following:

- (i) Target practice with firearms and building field combat strategies
- (ii) Gathering evidences on all kinds of offences in scientific way for forensic purposes
- (iii) Intelligence gathering from villages, fishermen, strangers, etc.

There is need for constant review of assessment of training and skill levels, and upgradation of skills to meet the emerging challenges.

1.13: People and Development Issues:

1.13.1: People on the Fringe of Kaziranga

Kaziranga is surrounded by human populations on all the sides. Bigger townships are Bokakhat and Jakhlabandha on the south and Biswanath Ghat on the north. Kohora and Bagori are largely tourist townships on the south side. The settlements are mostly close to NH-37. The Park falls in three districts, namely, Golaghat, Nagaon and Sonitpur and borders Karbi Anglong district. The two civil sub divisions, namely, Bokakhat and Kaliabor, and two Police Stations, namely, Bokakhat and Jakhlabandha control the whole civil area falling south of the Park boundary. On the north, the civil jurisdiction belongs to the Biswanath Sub Division, and there are seven Police Stations namely Gohpur, Helem, Behali, Gingia, Biswanath, Sootea and Jamuguri.

Since 6th Addition has not formally been handed over to the Kaziranga management, following information is only about the civil sub-division of Kaliabor and Bokakhat only.

Within Kaliabor sub-division, there are a total of 225 number of villages with 40,882 households and a population of 1,95,713 as per 2011 census. Of these, there are 34 villages in the Kaliabor Revenue Circle in the proximity of the Kaziranga National Park, with a population of 19,947. In Bokakhat sub division; if we take only the Bokakhat Revenue Circle alone which has relevance for Kaziranga, there are 40 villages with 9568 families and a population of 46,572 persons. The demographic constitution on Bokakhat side is mainly tribals, like Mishing and Tea Tribes, and non-tribal Hindu, Muslim, Bengali and Hindi speaking people. The demography on Kaliabor side is also similar with addition of Karbi tribes.

1.13.2: Eco-Development Committees (EDCs)

At present, there are 33 registered EDCs under the Eastern Assam Wildlife Division and 26 proposed EDCs which fall under Golaghat district and Koliabor sub-division. Joint Bank account has been opened in the name of president and member secretary of the EDC concerned. As of now, microplans of 10 EDCs are in the process of completion. EDCs work under overall administration of the Forest Development Agency (FDA). The FDA for Kaziranga was registered on 24th July, 2011.

The EDCs so far could not function smoothly due to mainly issues in registration and preparation of the micro-plans, collection of baseline data etc. Some of these works have now been initiated by the Kaziranga management.

1.14: Current Crisis:

Financial condition of Assam Forest Department has been very bad during the last three decades. It had serious impact on the management of Kaziranga, where it was difficult to manage fuel for vehicles and feed for departmental elephants. To

mitigate this situation in 1990s, the Government of Assam created an entity, Wildlife Areas Development & Welfare Trust (WWT), which started sourcing fund from various donor agencies. Slowly the financial situation improved as certain amount of resources started to come either in cash or in kind. The situation improved considerably after the park was declared a Tiger Reserve in 2007 and funding from the Government of India started coming under the Central Sector Scheme (Project Tiger). The hardship was further reduced after the Kaziranga Tiger Conservation Foundation (KTCF) was constituted in the year 2007 and the fees received from tourism were remitted to the KTCF accounts instead of being deposited in the Government treasury. While these were positive developments, there were many developments, which were precipitating crisis of another sort to the management of Kaziranga and hapless rhinoceros.

As the 2nd Addition, 3rd Addition, 5th Addition and the 6th Addition to Kaziranga, mentioned above, could not be handed over to Kaziranga authorities by the State government, large areas of these revenue lands have been encroached meanwhile. Besides these, there are some other revenue lands around Kaziranga, where numbers of huts have increased over the years. As a result, there is explosion in human population on the fringe areas of Kaziranga. This issue is yet to be addressed. To make the situation worse for the movement of wild animals, the land use around Kaziranga has changed very fast during the past few years extensively towards construction of *dhabas*, hotels and tourist resorts, resulting in blocking the path of movement of wild animals and fragmenting the corridors connecting the National Park with the neighbouring forest areas. Corridors are extremely important for movement of animals out of from the Park to the neighbouring forest areas.

The crisis mentioned above came in the form of unabated poaching of rhinos for the last few years. Demand for rhino horns in some of the South East Asian countries under the false belief of possessing curative value has spurred the poaching of rhinos in Kaziranga. Geographical location and chinks in the armoury of Kaziranga make the job of killing of rhinos and taking away horns easy for the criminals. Although many poachers have been nabbed and many killed in encounters by the Kaziranga management, it is learnt that still there are many criminal elements in the neighbouring human habitations looking for opportunities to poach rhinos. For them stakes have been raised very high by the consumers. For these criminals, it is like the game of Russian roulette, either you get lakhs of rupees or get killed. Despite some of them getting killed, it is not proving to be sufficient deterrent against poaching. The Park personnel have been exposed to high risk of encountering poachers armed with AK series assault rifles, as militants flushed with arms are part of the gangs involved in poaching. Although SLRs have been provided to the Assam Forest Protection Force and Special Task Force Personnel of Assam Police posted in Kaziranga, there is lack of training and tactical strategy that is failing them to have a control on the situation.

1.15: Anti-Poaching Measures Taken by the State government so far:

With the spurt in recent poaching incidents of rhinos in Kaziranga, following major initiatives have been taken by the Government of Assam:

- **Wildlife (Protection) (Assam Amendment) Act, 2009** has been legislated. The penalty for the offence committed relating to any animal in Schedule I or Part II of Schedule II of Wildlife (Protection) Act for second and subsequent offence has been raised to minimum seven years, but may extend to life imprisonment and fine not less than seventy five thousand rupees.
- Kaziranga Biodiversity and Development Committee has been constituted. It is chaired by Minister, Environment and Forest, Government of Assam and has members from other line departments, district civil and police administration and technical experts to examine the infrastructural development in holistic manner for better conservation in the fringe area of the KNP.
- The Government has engaged services of the elite investigation agency of the country, the CBI, to establish forward and backward linkages of a few rhino poaching cases.
- **Immunity to Forest Staff in Using Fire Arms:** By its order No. FRW.22/2005 Dt 14th July, 2010, the Govt. of Assam made the following provisions under the CrPC, 1973:
 - i. The provisions of section 197(2) shall apply to all forest officers including members of the AFPF who are charged with maintenance of public order relating to forest and wildlife protection, conservation and management.
 - ii. Only if it is held by an Executive Magistrate through an enquiry that use of fire-arms have been unnecessary, unwarranted and excessive and such report has been examined and accepted by the Government, then alone any proceeding, including institution of a criminal case, of any nature or affecting an arrest can be initiated by Police.
- **Posting of more armed personnel:** Assam Government raised 2nd Battalion of Assam Forest Force in 2007. From the two battalions of Assam Forest Protection Force, there are now 430 personnel deployed in Kaziranga along with the frontline staff of Forest Department. These AFPF personnel have nearly 200 SLRs and rest .303 rifles. An additional manpower of 70 personnel was deployed on 2nd May, 2014 with a reserve of 30 personnel at the head quarter of AFPF 2nd Battalion at Secconee, a place close to Kaziranga. Besides AFPF personnel, there are 125 Home Guards with .303 rifles posted in the Park.
- **Constitution of Anti-Rhino-Poaching Task Force:** By their order no.FRW.2/2014/2 dated 16th May, 2014, the Government of Assam constituted the Anti-Rhino-Poaching Task Force, a special task force under the overall supervision of the Additional Director General of Police, Special Task Force, Assam with four Superintendents of Police of Golaghat, Nagaon, Sonitpur and Karbi Anglong districts and Kaziranga Park authorities constituting the part of the task force. The task force has been successful in arresting some of the poachers and killing some poachers in encounter inside the Park. The Task Force is still operational in the field.

1.16: Measures for better management of Kaziranga suggested by Director, Kaziranga National Park in his report submitted to Hon'ble Gauhati High Court in PIL No.66/2012:

The report of the Director, Kaziranga National Park mentioned in the beginning of this report, has analysed the issues of management comprehensively and suggested immediate, short term and long term remedies to the existing problems and perceived threats. The prescriptions given in the report are the outcome of the perspective on the management issues taken from a wide cross section of wildlife managers, scientists, experts and NGOs, both from the country and abroad. Most relevant of the observations and prescriptions are distilled from the report, and they have been grouped in accordance with the terms of reference under this report.

Chapter 02

ToR No.1: Strengthening Rhino Protection through intelligence-based Enforcement

- 2.0:** *Meaning of intelligence*
- 2.1:** *As given in the Report of Kaziranga Management*
- 2.1.1:** *Intelligence*
- 2.1.2:** *Inter-agency coordination*
- 2.1.3:** *Protocol and Training for Enforcement Agencies*
- 2.1.4:** *Access to Mobile Subscribers' Data*
- 2.1.5:** *DNA Indexing of Rhinos for linking rhino horns with DNA database*
- 2.1.6:** *Dog Squad*
- 2.1.7:** *Fishing: Suspected collusion with poachers*
- 2.1.8:** *Improving efficiency and reliability in collection of intelligence within the Park boundaries: Need for "Re-alignment of Anti-poaching Camps"*
- 2.1.9:** *River Patrol*
- 2.1.10:** *Infrastructure under river patrol: proposed*
- 2.2:** *Observations and Views of Rhino Task Force*
- 2.2.1:** *Need for use of Forensic Science on daily basis*
- 2.2.2:** *Call Data Record from Cell Phone Service Providers*
- 2.2.3:** *Limited Intelligence and Limited Area Dominance at present*
- 2.2.4:** *Developing Protocols/ SoP for Rhino*
- 2.2.5:** *Intelligence related issues in Kaziranga as highlighted in Performance Audit Report of CAG (No.3 of 2014)*
- 2.2.6:** *Failure to convert many initiatives into outputs and outcomes*
- 2.2.7:** *Need for training*
- 2.2.8:** *Public Education*
- 2.2.9:** *Giving Fund for Intelligence gathering*

ToR No.1: Strengthening Rhino Protection through Intelligence-based Enforcement

2.0: Meaning of Intelligence:

In simplistic terms, “information plus analysis equals intelligence”. Generally, the definition of intelligence-based enforcement runs as follows. The collection and analysis of information related to crime and conditions that contribute to crime, resulting in an actionable intelligence product intended to aid law enforcement in developing tactical responses to threats and/or strategic planning related to emerging or changing threats.

Intelligence is seen as information that has been gathered and analyzed. The data may be analyzed by ICT tools, but it becomes intelligence only when it is analyzed by a trained analyst. The quality of intelligence will depend upon the reliability of source, reliability of information and analytical skills of the analysts.

Broadly, there are two types of intelligence:

1. **Tactical intelligence:** This contributes directly to the success of specific investigation.
2. **Strategic intelligence:** This deals with the “big picture” issues, such as planning and manpower allocation. It evolves over time and explores long-term, large-scope solutions.

Operational intelligence is also a frequently used term, which is concerned primarily with identifying, targeting, detecting and intervening in criminal activity. The experts categorize the intelligence process according to the following six steps: (a) Planning and direction, (b) collection, (c) processing/ collation, (d) analysis, (e) dissemination, and (f) re-evaluation.

While planning and collection is the most difficult part of the whole exercise, analysis is one of the most important parts. In law enforcement intelligence operations, data are analysed to provide further leads in investigation, to present hypotheses about who committed a crime or how it was committed, to predict future crime patterns, and to assess threats facing a jurisdiction.

2.1: (A) As Given in the Report of Kaziranga Management:

2.1.1: Intelligence:

(a) Inter-agency coordination is required in investigation of crime, finding traffickers and busting criminal gangs. CBI, Wildlife Crime Control Bureau, State Police, Police of neighbouring States, Customs, Assam Rifles and SSB are the organizations which can play crucial role in bringing the poaching under control.

(b) Intelligence and Trans-Boundary Issues is no denying that rhino poaching has international connotations, and there are long chains crossing many borders of states and countries. Action within the Park boundaries may result in only partially eliminating the menace of poaching by way of killing

poachers, seizure of arms or inflicting injury upon the poachers. The higher level players in the crime do not get affected. This leaves the main organizers of the crime still free to regroup, have new recruits, provide training, get new arms and make another attempt at poaching. The efforts inside the Park, must, therefore, be supplemented by equally strong action outside the Park boundaries.

Several key issues must be addressed for achieving successful intelligence from across the inter-State and international boundaries. Some of these issues are mentioned below:

- Inter-Departmental cooperation, say between Police and Forest, is not institutionalized and is based on individual relationships
- Inter-Government cooperation for wildlife crime is relatively new - without institutions and mechanisms for yielding positive outcomes.
- International border issues
- Institutionalized assistance from Interpol.
- Institutionalized cooperation between agencies such as CBI, Directorate of Enforcement, Customs, Bureau of Economic Offences, Army Intelligence
- Inter-Agency Coordination

2.1.2: Inter-Agency Coordination

Rhino poaching is an organized crime involving national and international gangs, who work in close coordination with one another. It has components of arms smuggling, money laundering, cross border smuggling, terrorism and international illegal wildlife trade. The rhino trade, as revealed in some interrogations of poachers arrested, is multi-layered and transnational. It is summarized as follows.

Level	Key Role	Activities	Area of Operation	Remarks
1	Poaching	Field Guide, Shooting, Hacking, Accomplices to cross river or spot a stray rhino	Park	Shooters mostly come from Nagaland, Manipur, Arunachal Pradesh
2	Organizing	Organize shooters, arms, escort weapons	Outside the Park, but within 15-20 km radius	Organizers themselves may not enter the Park, and send their key man to lead the team. The shooting arms are kept separately
3	1 st Level trade	Pick up the horn for smuggling	Small towns	Routing happens through private taxi, bus or train
4	2 nd Level trade	Pick up the horn for final destinations	Possibly Dimapur, Itanagar, Imphal	
5	3 rd Level	Horn moved out of country	Trans-border	

Therefore, it is clear from the Table above that people from the neighbouring states are involved in not only trade but also in shooting/ poaching of the animals. Several poachers shot dead inside the Park during encounters have been found to be unidentified Naga/ Paite/ Kuki / Arunachali tribesmen. They are engaged by the local organizers who on one hand either already have illegal/ smuggled weapons or hire weapons from militants by way of rentals on daily basis or buy weapons in markets such as Dimapur. The arms are handed over to the shooters at the time of the operation only when the team is inside the Park. Once the rhino horn is removed, it is kept with the leader of the team only. The leader is either himself the organizer or a confidant of the organizer.

Most of the activities take place outside the Park boundaries in civil areas. The most important observation is that if about 15 km area around the Park is sanitized of illegal arms, poaching would drop down to almost nil. However, in a state which is infested with so many active militant groups and many surrendered groups who have been allowed to retain their weapons with them, nothing much can be expected in this direction. The police, the para military forces and the armed forces also have to perform their duties and contribute their full might in controlling illegal arms movement around the Kaziranga Tiger Reserve. Should the forest personnel somewhere be blamed for their failure to protect the rhinos, more than equal share should also be passed onto Police, Para Military Forces and the Army along with other law enforcing agencies for their failure, and failure of their intelligence network to prevent the criminal elements who are constantly organizing poaching and trafficking rhino horn.

Following suggestions are put forth for effective crackdown on the rhino poachers and criminals involved in the illegal rhino horn trade:

1. The cooperation between the Police and Forest must continue for which a permanent institutional arrangement should be made
2. The Anti-Rhino-Poaching Task Force (ARPTF) should be strengthened with infrastructure and capacities.
3. The ARPTF personnel should be provided with high value insurance cover and incentives.
4. A system of awards should be introduced for the ARPTF personnel for carrying out excellent anti-poaching activities.
5. The process of engagement of the CBI, which handles cases only on recommendation of the State Govt. and the process seems to be long, ineffective and introduces delay in the system, needs to be overhauled. Such systems only delay the start of investigations and help the criminals who get sufficient time to obliterate all evidences and act clean, making investigations long-drawn and futile. Therefore, the following is suggested in respect of CBI:
 6. **Role of CBI:**
 - a. The CBI must be given the mandate to pick up all cases of rhino poaching automatically and suo motu in whichever case the rhino horn could not

be recovered within two days of poaching, unless there are confirmed intelligence inputs that the horn still could not come out of the Kaziranga Tiger Reserve.

- b. The mandate of CBI should be shifted to markets and levels 3 and 4, rather than confining to level 1 and 2. The level 1 and 2 should by and large be left to local Forest and Police personnel, unless the intelligence inputs say that the accused are absconding to territories beyond the jurisdiction of the local forces.
- c. The CBI should adequately equip itself for rhino poaching and must develop an independent manpower, infrastructure and capacities within a short period of time. Today rhino crime is one such crime where instant exchange of money is happening and the horn is being used as liquid cash of Rupees Seventy lakhs and above.
- d. The CBI should be able to attack the markets, modus operandi, money exchanges and bring the level 3 and 4 culprits to the book.

7. Role of Wildlife Crime Control Bureau (WCCB) :

- a. Wildlife Crime Control Bureau is another organization of the Govt. of India which has a key role to play in curbing rhino poaching. However, WCCB is currently not in a position to do much. The following is suggested in respect of WCCB:
 - b. The WCCB must set up a full-fledged (and this should be one of their biggest establishment) office at Guwahati with branches at Dimapur, Imphal and Itanagar.
 - c. The WCCB must equip itself fully with requisite infrastructure, manpower and capacities to play the role of CBI in wildlife crime.
 - d. The WCCB should also run a wildlife forensics and ballistic expertise laboratories geared to handle wildlife cases exclusively. Such facilities should be either set up at Kaziranga or Guwahati within a time bound manner
 - e. The WCCB must have a team of top-notch investigators who can use latest tools to crack down on criminals. These investigators must assist the field officers in conducting their inquiries, especially in capturing fingerprints and other clues to reach the criminals and assist in their prosecution.
 - f. The WCCB must also act as coordinating agency and rightly interface with CBI, the Army, CISF, GRP, Customs and the Enforcement Directorate.
8. The WCCB and CBI must join hands with each other in all wildlife crime investigations.
9. These two agencies must coordinate with Interpol to reach at levels 5 criminals across the Indian borders.

- 10.** These agencies must also maintain close links with similar wildlife crime/ crime investigating agencies such as in Nepal, Myanmar, Vietnam, Cambodia, China, Taiwan, Australia, South Africa etc.
- 11.** All criminals outside the borders of Assam must be brought to the trial courts in Assam that have taken up the rhino poaching cases.
- 12.** CBI along with Army intelligence and local police must curb the illegal arms menace, which is threatening the survival of rhinos. They must somehow crack down on the illegal arms market.

2.1.3: Protocol and Training for Enforcement Agencies

There are a variety of law enforcement agencies especially Customs, Central Industrial Security Force (CISF) and Government Railway Police (GRP) who guard the border points, airports and railway stations respectively. These are all central government agencies, which transfer their personnel frequently. The Govt of India has a norm of not keeping personnel in the North East India for more than two years in general. In such a situation, it is important to continue sensitizing the agencies of the Govt of India about rhino horn trade, and the ways in which they can help the local authorities in apprehending culprits. Therefore, it is proposed that a protocol be developed for checking/ identifying/ detecting rhino horn in X-ray machines and baggage scanners. All the staff should be regularly trained using replica. Baggage scanner systems should be deployed in all the important railway stations of the North East Region.

2.1.4: Access to Mobile Subscribers' Data

The poachers have been found to use mobile phone very often to keep in contact with their accomplices and often carry mobile phones to the scene of crime. They have been found to contact their support groups outside, as they enter and leave the National Park. Access to mobile subscribers' data, call records, locations etc. are very vital to conduct successful investigation and bring the poachers to book. The mobile service providers refuse to part with the data on the pretext that forest officers are not authorized to get any data in respect of mobile subscribers. Therefore, as a matter of policy, the forest officers should be allowed access to all mobile data, as is permissible for the other intelligence branches of the Police.

2.1.5: DNA Indexing of Rhinos for linking rhino horns with DNA database:

The Rhino DNA Index System (RhoDIS) has been developed over a period of almost nine years starting from the year 2000 by the Veterinary Genetics Laboratory (VGL) at the Faculty of Veterinary Science of the University of Pretoria. The project finally matured in 2009, providing a method to obtain an individual DNA profile from any part of the rhino horn, so that it can be linked at any point of time to the animal that it was taken from. The method has been successfully tested to detect many horn components in small quantities and finally bringing the criminals involved in the crime to the successful prosecution in the court of law. Already several convictions have happened with the help of RhoDIS. The RhoDIS maintains a clean database of all rhino DNA profiles, which is based on the CODIS system (“Combined DNA Indexing system”, blending forensic science and computer technology) of human DNA profiles maintained by the FBI. The advantage is that the DNA profile of the poached rhino can be collected during the first wildlife crime scene investigations itself. The samples are sent to VGL for DNA profiling and indexing. Whenever a rhino horn or any other object having some parts of rhino horn are caught by the investigators, the DNA profile of that object is also done. Thereafter, the new profile is matched in the database for possible matches of any record of a poached rhino. On successful matching, it is established that this rhino horn came from that specific rhino that was poached, or the object contains parts of the horn which ultimately came from that particular rhino. RhoDIS is able to establish direct link between the horn and the poaching incident. In addition, if such matching of the DNA of your poached rhino occurs with the horn recovered in another country, you can at least shame them publicly on the basis of genetic proof.

A team of experts on RhoDIS, namely Rodrick H Potter and Cindy Harper, came to Guwahati and Kaziranga on 26th to 29th May, 2014, and gave training to the wildlife staff on wildlife crime scene investigations and the use of RhoDIS. In its report, Kaziranga management has suggested the following:

1. A Genetic Analysis laboratory should be officially recognized for carrying out RhoDIS related works.
2. The Staff of the laboratory should be well trained in RhoDIS
3. The Wildlife Crime Control Bureau (WCCB) or the NTCA should maintain the Indian RhoDIS database

2.1.6: Dog Squad:

As mentioned earlier, Dog Squad has been successful in Kaziranga. The Dog Squad Units have been named as K-9 Units. The management of Kaziranga has proposed to have at least 3-4 Dog Squads and K-9 units placed at strategic locations for quick reaction. Two units are in the process of being raised at 2nd AFPF HQ at Secconee, a place close to Kaziranga.

2.1.7: Fishing: Suspected collusion with poachers:

Fishing is prevalent in all parts of the 6th Addition areas, Burapahar Range (along the NH-37), along the banks of the Mora Dhansiri and Mora Diffaloo rivers in the Eastern, Central and Western Ranges wherever there are villages near the boundary. Fishing on the north bank of Brahmaputra is more organized, commercial in nature and on a bigger scale, while on the south bank, it is for household consumption and local markets. Another phenomenon that has been noticed, of late, is community fishing by the fringe villages on certain festive occasions such as Magh Bihu, Bohag Bihu etc. In such community fishing, people join from certain remote areas beyond Kaziranga, such as Rupohi, Laokhowa, Puranigodam etc. who come in hired trucks with fishing nets and baskets. There have been at least two skirmishes with such fishermen and on both the occasions, it was followed by burning of anti-poaching camps, blockade of the NH-37 and demand of arrest/ transfer/ suspension of the Burapahar Range Officer. These are being done allegedly to exert the community's traditional fishing rights. *Further, it has been observed that in most cases the poachers take the shelter of these fishing communities for getting in and out of the Park. Especially in the north bank, it is the fishermen who use their country boats to cross the river with the team of poachers.*

Possible solutions may be:

1. Take legal recourse to the habitual offenders
2. Constant river patrolling to act as deterrent
3. Seizure of boats, nets and arrest of offenders
4. Awareness campaign through EDCs on the south bank
5. Formation of EDCs on the north bank
6. Alternate livelihood options, including creation of fisheries through EDCs

2.1.8: Improving efficiency and reliability in collection of intelligence within the Park boundaries: Need for “Realignment of Anti-Poaching Camps”

With automation and technology introduction, it would be possible for Kaziranaga management to monitor an area of 5 km² effectively per anti-poaching camp (APC), with added appendage of one or two watch towers (locally know as Tongi). For 24x7 duty, 8 personnel and one cook will be needed at each anti-poaching camp. Thus, for existing area of nearly 880 km², the Park needs 176 anti-poaching camps. At present, the Park has 174 such camps. Still the coverage of many vulnerable areas is not good. Hence, following additional camps are suggested.

1. Bhumoraguri APC under Northern Range
2. Ghahigaon (Gohpur) APC under Northern Range
3. Melbazar APC under Northern Range
4. Silghat Riverside APC under Burapahar Range
5. Hatimura APC under Burapahar Range

6. Kaliabhomora APC under Burapahar Range

7. Rohita Chapori APC under Burapahar Range HQ

However, it is seen that against 5 sq km area per camp, there are camps where it's more than 10 sq km per camp and there are camps where it is less than 5 sq km per camp. Most importantly, what is lacking is camp to camp visibility, access, patrolling paths and clear demarcation of lines of responsibility.

Therefore, the following strategies are suggested for making effective use of the anti- poaching camps:

1. A sensitivity map of the Tiger Reserve needs to be prepared and updated at regular intervals.
2. Based on historical knowledge, all pathways which have been used in past by poachers are to be identified and mapped.
3. Based on the current locations of the camps, gaps should be identified.
4. All camps which are in dilapidated condition should be reconstructed afresh based on well-thought strategy, keeping in mind gaps, sensitivity and outreach.
5. Each new site of a camp should have maximum visibility all around.
6. No new camp should be constructed unless its strategic requirement is high or it fills a gap.
7. All the camps on the border (either northern side or southern side) shall be identified as "Border camp", and shall be so designated.
8. Each of these border camps shall implement two lines of defence: firstly, how to stop trespassers right at the border, and secondly, the second line of defence which a trespasser should not be able to cross.
9. All such lines of defence should be clearly demarcated on map for each of these camps based on ground configuration, terrain, water bodies and vegetation.
10. Based on the line of defence and ground strategy, each of the border camps shall be equipped with adequate and appropriate technology to detect trespass.
11. Direct lines of sight would be established, in all feasible areas, by setting up watchtowers/ *Tongi* at least 20 to 30 ft high. Such towers would be managed 24X7, each with at least two staff to ensure that no trespass happens.
12. The strategy could be a mix of towers/ equipment based on ground feasibility conditions.
13. Behind the border camps, a line of inner camps would be identified who would see that in case the 2nd line of defence is breached, trespassers are not allowed to cross beyond the third line, which shall be maintained, wherever possible, by the inner camps.

14. Each camp may operate a set of remote camera traps, motion sensors, night vision devices and thermal scanners, depending upon terrain and need.
15. At least two camps shall be identified and designated as “Beats” in each Range.

2.1.9: River Patrol:

For strengthening river vigil and to stop poachers from entering from the North Bank, the following strategies are suggested:

- i. The Brahmaputra river shall be mapped immediately after the floods every year
- ii. The mapping methodology could be UAV/ Quadcopter/ Helicopter based payload
- iii. An analysis of areas lost and gained would be carried based on the air reconnaissance
- iv. Doppler sounding of the river channel shall be done after the floods.
- v. Maps would be prepared for river patrol showing possible navigation pathways
- vi. Lines of defence (first and second) would be drawn on map with possible patrolling combinations to ensure that no trespasser can cross the river by boat or otherwise
- vii. Each floating camp and patrol boat/ speed boat shall be equipped with instruments such as night vision devices, thermal scanners (long distance scanners as well), binoculars etc. for easy monitoring of the river lines.
- viii. River patrol shall be in constant touch with the nearest border camps.
- ix. As a long term measure it is proposed to erect a series of permanent watch towers in the river Brahmaputra to create a line of defence. Each tower may cost about Rs1.00 crore to Rs3.00 crore depending upon platform width and utility.

2.1.10: Infrastructure under river patrol is proposed as below:

- i. Floating camps: 2 additional
- ii. Vehicle launch: 2 additional
- iii. Speed boats: 4 per Range
- iv. Rubber boats: 2 per Range
- v. Mechanized boat: 1 per Range
- vi. Country boats: 3 per Camp

2.2: (B) Observations and Views of Rhino Task Force:

2.2.1: Need for Use of Forensic Science on Daily Basis:

An initiative was taken by NTCA to make the Tiger Reserves develop forensic science capabilities and use scientific techniques in picking up signs from tiger reserve areas on daily basis and after the crime. Joint Director of CBI, Shri Keshav Kumar, who is member of this task force also, had conducted workshop in Kaziranga in 2013. But, Assam Forest Department did not take their cue from there and developed the kind of skill in the Park. However, it is not late even now. Field workshop and trainings can be organised, including at the premier Gujarat Forensic Science University, Gandhinagar. For investigation of crime, following signs can be gathered by the field personnel and database created. This will improve crime conviction rate and will prove deterrent for the criminals.

1. **Scene of crime:** The field personnel should look for bullets, cartridges and weapons. They should take ballistic signature of each to match against old cases. We must have a database of all the previous cases for matching. The cartridge can have the fingerprints of the accused.
2. One should look for body fluids for developing DNA. Bidi butts, packets of Guthka, etc. can lead to DNA extraction. Finding of matchbox can lead to the culprits. Matching of DNA strands against old strands, if in existence, is required. We must build a database of DNA of all the accused arrested and of the suspects. We must extract the bullet from the dead body.

Buccal swab from all the suspects can be taken for matching of the DNA.

There could be shoe prints and footprints at the scene of crime. We should lift them for matching when the accused are arrested, with their shoes and footprints.

Cell phone tower dump of the scene of crime needs to be analysed to locate the cell phone numbers, which were operational at the time of crime.

3. **Route of retreat:** We should look for shoe prints, foot prints, etc. On the way back, the track can lead to bidi butts, matchboxes, body fluids, some clothing of the accused, etc. Blood of rhino could also be found. Clothing of the accused could also be found. The clothing can have hair etc. clinging, which can help to develop DNA from it. DNA of the rhino needs to be preserved for matching, once the accused are arrested. Slippers also could be found. From slippers we can match the marks on the slippers with the footprint of the accused. The slippers can have the blood of the rhino.

The flora of the area of retreat could be found on the clothes of the accused.

Tyre marks could be found, if vehicle is used. Tyre marks could be lifted for matching.

4. **From the carcass:** During post-mortem, bullet must be extracted. Hand-held metal detector should be used during post mortem to help look for the bullet. Even portable X-ray could be used.
5. **Clothes of accused:** Clothes of the accused will have blood, hair, etc. of the rhino

2.2.2: Call Data Record from Cell Phone Service Providers:

Taking Call Detail Records (CDR) or Cell Phone Tower Dump Records from the service providers for apprehending criminals involved in wildlife crimes is difficult for Kaziranga management. But, two years back, the DFO of Mangaldoi Wildlife Division, looking after Orang National Park of Assam, succeeded in securing the CDR from the service provider under the proviso of Section 50(7) and (8) of Wildlife(Protection) Act, 1972.

In Melghat Tiger Reserve, Maharashtra, it is the management of tiger reserve, which is taking CDR from service providers and carrying out the investigations, making use of such data.

2.2.3: Limited Intelligence and Limited Area-Dominance at present:

There are many *chapories* (settled islands) around Kaziranga which are staging point for poachers. It is suspected that there are some villagers who are colluding with the poachers. There are some, who would not share any information with the Park authorities on the pain of reprisal from well-armed poachers at a later date. However, the management of Kaziranga does not have any penetration into villages to gather intelligence from there. One of the many reasons is that there is palpable lack of trust of the local people on government in general and forest department in particular. There is need for building the trust with the villagers on the one hand and securing speedy conviction of criminals on the other hand. However, trust building will take time and there may be some chaur areas under the feudal control of an individual, who does not allow any information to leak out of the village. Hence, there is need for pushing the boundary of area-dominance by the Kaziranga management. As on now, the management of Kaziranga does not have any control over its buffer area of Bagser RF, having an area of 33.67 km² falling under Nagaon Territorial Division. There is urgent need to take over the control of this RF from Nagaon Division and have dominance over the land, as poachers are suspected to be using this area for entry into Kaziranga for poaching rhinos. Equally alarming is the situation from the side of Kukurakata R.F. under the jurisdiction of Burapahar Range on the western flank of the Park. Similarly, there is need for taking possession of all the Additions to Kaziranga, particularly the 6th Addition, which has an area of 401.50 km². These areas should be under the firm control of management of Kaziranga. There is need for keeping a close watch on all those moving near the Park for fishing, grazing and such other activity in an unobtrusive way.

The management of Kaziranga will have to spy on all such fishermen, including some of their own employees of dubious character, to stem the flow of input on rhino

location, staff movement, etc to the potential poachers. There is need for training of honest, well-meaning and dedicated employees of Kaziranga on intelligence gathering and undercover operations.

It goes without saying that if one has large chunk of area beyond one's active control, it is difficult to mobilize one's contingent of armed personnel to avert an impending crisis in an area which is far off and difficult to reach. **The way out is to extend dominance over all areas which are being used by rhinos and poachers.** With the increase in population and degradation of the quality of the habitat, the rhinos are going into outside chauras also. For the long term survival of rhinos in Kaziranga, there is need for extension of habitat and ensuring effective surveillance and dominance over the added areas.

2.2.4: Developing Protocols/SoP (Standard Operating Procedure) for Rhino:

The management of Kaziranga has also mentioned about some of the SoP/ protocols that they think need to be developed. We think there is urgent need to develop standard operating procedure and protocols for the following issues of management, which will not only define the accountability of different individuals and units of Kaziranga National Park, but also neighbouring Forest Divisions, Police Department and private property owners.

- (i) For Strayed Rhino:** There is need for developing a standard operating procedure for location, protection and rehabilitation of a strayed rhino for all through the year. During flood season, its importance becomes all the more obvious. Although, the Government of Assam has constituted a committee in February, 2014 to develop a Protocol for Rescue of Stray Rhinos, but the committee has not given any recommendation so far.
- (ii) In case of poaching:** At present, the management of Kaziranga management is not launching any scientific investigation on poaching of a rhino. There is urgent need to develop a standard operating procedure for investigation of a poaching scene and tracking of the trail of the crime. It is very important for flood times also, as the potential for poaching increases during those distressing moments.
- (iii) For horns:** Horns of rhinos may be available with the Kaziranga management authorities either from the rhino poached (but horn recovered by Kaziranga management) or from rhinos dying natural death. All such horns are to be kept in safe custody. They may be ultimately burnt publicly by the State government, if they decide so. But, till the burning of horns, taking horns from the site of death of animal (or from the site of recovery in other cases) to the place of safe custody and protecting the horn from theft and tamper, there is need for developing a protocol based on proven administrative and technological principles. The work should begin immediately.

2.2.5: Intelligence-related Issues in Kaziranga as highlighted in Performance Audit Report of CAG (Report No.3 of 2014) :

10.3.2. 'Audit scrutiny revealed that only 2.50 lakh was allocated for intelligence gathering to the park authorities during 2010-11 to 2012-13. This was despite the fact that there was an increase in poaching incidents as well as arrests of poachers during these three years ..'

10.3.4. " It was further observed that the department had not put in place a system of suitably rewarding the informers in case where the information leads to nabbing/killing of poachers"

10.3.5 "A system of suitable rewarding and ensuring financial security of the family members of informers would have been definitely beneficial for the park authorities in receiving timely inputs about the movement of the poachers"

10.4.3 " ... KNP did not take any action to obtain call detail records (CDR) of communication exchanges within and around the park as part of its intelligence gathering efforts. Incidentally the DFO Mangaldoi in-charge of R. G. Orang National Park has exercised the provisions of Section 50 (7) & (8) of the act and obtained CDR and other information from the service providers based on which several poachers/ linkmen were apprehended."

10.4.4. In view of the above and the fact that the ROs/ ACF in-charge of the Ranges are hard pressed with the protection duties and day to day functioning, a special cell needs to be put in place at the head quarters of the KNP with personnel drawn from intelligence agencies of the Centre/State Police, Army and para-military forces specially trained in intelligence gathering from the public as well as use of ICT (CDR analysis and call tracking). The cell should have requisite mandates to gather intelligence as well as handle investigation of the cases having inter-state linkages.

Gujarat has constituted a 'Wildlife Crime Cell' to adeptly deal with wildlife crimes through intelligence gathering, exchange information with Gol, various central agencies etc. and suggest measures to mitigate/ curb wildlife crime. The Cell includes personnel from Wildlife Crime Control Bureau (Gol), state police, forest, coast guards and the customs department.

2.2.6: Failure to convert many initiatives into outputs and outcomes:

There have been some good initiatives taken by State Forest Department and Central Government in the past. But, many of these initiatives have not been taken forward by the Assam Forest Department to convert them into tangible outputs and favourable outcomes. There was initiative taken by Assam Forest Department in 2001 to institutionalize coordination among various law enforcement agencies of central and state government departments for protection of rhinoceros and other wildlife. But, sadly, it was abandoned on the way, only to be revived in the year 2013 when on 30th October, 2013 an inter-agency co-ordination meeting on prevention of rhino poaching and smuggling of rhino horn was held in Guwahati under the chairmanship of Additional Director General (Wildlife), Government of India. The meeting was attended by the senior officials of Assam Rifles, Central Industrial Security Force (CISF), Sashastra Seema Bal (SSB), Intelligence Bureau, Assam Police

Department, National Tiger Conservation Authority, Wildlife Crime Control Bureau and Assam Forest Department. In the meeting, it was decided that the Chief Wildlife Warden of Assam would work out the training needs of Assam Forest Protection Force (AFPF) personnel and take up a proposal with the DG, Assam Rifles, for their training by Assam Rifles at Diphu (Assam), for consideration and requisite action. Now, it is more than one and half year and no such training have been organized by the Assam Forest Department.

Similarly, in the same meeting, it was decided that the State Chief Wildlife Warden would take up the proposal for security assessment of Kaziranga National Park by a team of CISF experts. But, it has also not been done so far.

2.2.7: Need for training:

There is need for promoting intelligence-based law enforcement through a common understanding of criminal intelligence and its usefulness. Appropriate training should be given to all levels of field personnel on criminal intelligence concepts and information sharing systems. All levels should be involved; otherwise intelligence could become solely the focus of a small unit within the organization, rather than being part of the core mission in which all levels are involved. The training should equip the personnel to use all kinds of technologies, conventional as well as new.

2.2.8: Public Education:

Public Education is critical for effective intelligence-based law enforcement. Assam Police Department has involved community members in "Village Defence Party". To a small extent, Kaziranga management is also taking help of members of Village Defence Party. There is need for providing public education to various constituent groups of the community for sensitizing them about conservation of wildlife, gathering and sharing information about violators of law, spotting suspicious characters in their locality, looking for change in money spending behaviour of some person(s) in the village, or sudden increase in assets of someone, etc. A relationship of trust and mutual dependence should be built with them in order to promote the participation of local community in intelligence gathering and sharing.

2.2.9: Giving Funds for Intelligence gathering:

In an atmosphere where villagers are disaffected with the Forest Department, intelligence about the crime and criminals is hard to come by. There is need for repairing the impaired trust between the Forest Department and villagers. It requires sustained effort and it will pay dividend in the form of many rhino-loving people sharing vital information, which will be helpful for the protection of rhinos. Collecting information by villagers, or any other person, involves money and risk. Hence, for them incentives should be enough to share actionable information. For gathering meaningful information, the State government should give fair share of fund to Kaziranga management every year. As on now, they have almost no fund for it.

Chapter 03

ToR No.2: Field Monitoring of Rhino with the state-of-art technology

- 3.1:** *As Given in the Report of Kaziranga Management*
- 3.1.1:** *Use of modern sensitive instruments in anti-poaching and surveillance works*
- 3.1.2:** *Electronic Eye*
- 3.1.3:** *Customization of Electronic Equipments*
- 3.1.4:** *Stealth Vehicles and Boats*
- 3.1.5:** *Perimeter Security and Virtual Fencing*
- 3.1.6:** *Ground Surveillance Radars*
- 3.1.7:** *Unmanned Aerial Vehicle and Air Surveillance*
- 3.1.8:** *Quad-Copters*
- 3.1.9:** *Sensor Communication Networks*
- 3.1.10:** *Aerostat*
- 3.1.11:** *Vehicle-mounted Mobile Surveillance*
- 3.2:** *Observations and Views of Rhino Task Force*
- 3.2.1:** *Surveillance cameras on hillocks*
- 3.2.2:** *Smart patrol*

ToR No.2: Field monitoring of rhino with the state-of-art technology

3.1: (A) As Given in the Report of Kaziranga Management:

3.1.1: Use of modern sensitive instruments in anti-poaching and surveillance works:

In their report, the management of Kaziranga has highlighted the need for induction of following modern electronic gadgets for anti-poaching and surveillance works in the Park.

- (i) "Electronic eye" for surveillance
- (ii) Modifying camera trap systems (used for tiger estimation) to achieve surveillance during night
- (iii) Stealth vehicles and boats
- (iv) Perimeter security and virtual fencing
- (v) Ground surveillance radars for searching intruders
- (vi) Unmanned Aerial Vehicle
- (vii) Thermal and visual cameras
- (viii) Sensor Communication Network
- (ix) Vehicle mounted mobile surveillance

3.1.2: Electronic Eye

Electronic Eye is a novel initiative of the NTCA, Ministry of Environment, Forests & Climate Change, Govt. of India, New Delhi. The surveillance device was first deployed in Corbett National Park. Soon afterwards the scheme was decided to be implemented in Kaziranga National Park for anti-poaching activities at the request of the Government of Assam. The initial phase of the project was sanctioned during 2013-14 by the NTCA for an amount of Rs 3.00 crore. The work was initiated towards the end of the last financial year. The project in its current phase consists of 9 numbers of 45 m tall towers (one of which shall be the control tower), each mounted with a very high resolution optical and thermal camera. The resolution of the optical camera is such that about 6 to 8 km radius around the tower would be visible in day light, while at least 3 km visibility would be available using thermal cameras at night. The images would be beamed to the control panels located at the Central Control Room (being developed at Kohora). Arrangements are being made also to enable viewing at the respective Ranges and the Beat Camps where the strike forces would be made available. The camera systems would be interconnected through wiMax connectivity. The electronic eye towers would also double up for hosting wireless and wi-fi infrastructure within the Park.

3.1.3: Customizing existing electronic equipments for Anti-poaching and Surveillance

For effective surveillance of the Park area, there is need for customizing some of the electronic equipments in use and developing some according to the requirements of Kaziranga. They are mentioned below.

1. To develop low cost sound sensors, sound amplification and gunshot locators with the help of Electronics and Electrical Department of the IIT Guwahati: Trial for some of the gadgets would be started in the Park.
2. To modify camera trap systems (used for taking photographs of tigers and other wildlife) to achieve surveillance during night:

It has been observed that while camera traps with white flash are deployed for tiger estimations, they are subject to damage by poachers as they flash at night. As a result, considerable information about poachers and illegal entrants in the Park has been lost already. Further, the current camera trap models do not have communication system and one needs to collect data physically over regular intervals. Thus, currency of information and its relevance is lost for anti-poaching strategies. A new set of cameras with dual flash system (black flash and also white flash) have been obtained for trial purposes. The issue is that photographs blur at night in low IR flash, and a slight reddish glow also emerges. These issues are being addressed. Additionally, trials to convert these cameras by coupling with wi-fi devices, solar charging, IR flood lights etc are being experimented. It is expected that shortly working assemblies could be deployed in the Park. If successful, bulk deployment would be resorted to.

3. To develop ambush gadgets for night patrol:

Though considerable success has been achieved using Night Vision Device (NVD) coupled with IR torches, there are issues to be sorted out to reduce the red glow of the IR beam which is discernible from a distance. A solution on this front is also expected within a month or two.

3.1.4: Stealth Vehicles and Boats

It is often necessary to move manpower and equipment in interior areas to reinforce strike efforts when some infiltration/ trespass have occurred. In such situations, movement of staff is closely monitored by the poachers, and they are easily able to escape following the bright lights emanating from search lights and head-lights of the vehicles. In such a situation, use of any visible spectrum light becomes totally unwarranted. Therefore, there is a requirement to develop vehicles and speed boats with high stealth capabilities using heavy silencers, IR lights etc.

3.1.5: Perimeter Security and Virtual Fencing

Surveillance towers of 25 to 30 feet height at vulnerable and strategic locations for 24x7 surveillance using suitable optical and thermal cameras, motion detection sensors, binoculars, wireless communication system and the like, with two persons

on duty at ever eight hour interval, will keep a large perimeter of boundary under surveillance.

3.1.6: Ground Surveillance Radars (GSR):

Ground Surveillance Radars are unique products that provide intruder detection capabilities under the most difficult terrain and weather conditions. These are field-proven and have been used in a variety of protection models. These radars can operate in varying ranges, over land and water, rapidly searching for intruders as small as a crawling person, ensuring that intruders/movements are detected, identified and intercepted before they reach critical areas.

3.1.7: Unmanned Aerial Vehicle (UAV) and Air Surveillance

The Unmanned Aerial Vehicles (UAV) or Drones are small to medium sized aircrafts, supported by programmable auto-pilot and telemetry systems, capable of on-board recording and live transmission of information. UAV can be used in surveillance in strategic places and remote areas, night patrolling using thermal cameras, radio-tracking of animals and habitat monitoring. In April 2013, test flight of a small aircraft known as 'Maja' was undertaken in Kaziranga Tiger Reserve, but subsequent training and integration could not be done due to refusal of permission from the Ministry of Defence (MoD). However, MoD has given permission for Panna Tiger Reserve until June 2014, and it is expected to be extended for further years, as there is support from MoD for conservation and research activities. Advanced models of UAV known as 'Caipy' and 'Vanguard' with better aerodynamics and stability are being field tested in Panna Tiger Reserve, with the permission of MoD.

In order to offer effective solutions to various problems encountered by the Forest Officials and Researchers, Wildlife Institute of India and National Tiger Conservation Authority (NTCA), in collaboration with World Wildlife Fund -International (WWF), Conservation Drones, Indian Institute of Information Technology, Allahabad (IIITA), Ohio State University, USA and State Forest Department have taken up R&D projects to integrate advance technologies such as use of Drone or Un-Manned Aerial Vehicles and Sensor Communication Networks (SCN). These tools and techniques are currently being experimented in Panna Tiger Reserve, Madhya Pradesh.

These UAVs carry GoPro video camera, and other form of data collection units could be integrated. The flight paths could be programmed by marking way points and can also be controlled manually through telemetry modem. Currently, video system is used and in few months time, thermal and mapping cameras would also be used. Usefulness of these is further enhanced by manual launching in the field - even in remote places, and powered by rechargeable batteries that could be charged even with car batteries. Other models of UAV that are also effective for short-distance but long duration hovering are 'Quadcopters and Hexacopters' which can carry more payloads and can be effective in documenting events from a static point with high quality information. Tentative cost of each unit of UAV is Rs. 6-8 lakhs, including transportation and taxes, and will likely be less or more depending on the kind of onboard units required.

3.1.8: Quad-Copters

Quad-copter, also called quadrotor helicopter, is a multi-rotor helicopter that is lifted and propelled by four rotors. Recently quad-copter designs have become popular in UAV. Quad-Copter is a heavy lift multi-rotor, powerful and versatile solution for aerial surveillance of the forest areas with autonomous flight capability powered by batteries. Quad-Copter comes with most advanced autopilot system combined with a precise GPS navigation, built-in advanced processor and sensor technology and real-time operating system, The Autopilot delivers incredible performance, flexibility, and reliability for autonomous flight. With a plug-and-play gimbal compatibility, its swept-back front arms and stability in high winds; it is an ideal aerial platform for capturing stable and clear imagery in the forest under harsh weather conditions. A robust and easy-to-fly copter with flexible payload options can take off and land anywhere. The Quad-Copter is fully configured for portable, and can be readily launched anywhere.

3.1.9: Sensor Communication Networks:

This aims to use sensor and communication networks for setting up virtual fences as well as identifying and monitoring selected regions of the forest where the inhabitants of the forest or the environment are threatened. Several sensing modalities are being explored such as Pulse-Doppler Radar (PDR), Passive Infra-Red (PIR), and Acoustic and Buried cable. These sensors and communication networks could cover sensitive region or the whole area of the reserve. Each of the sensors placed at 1km apart is capable of receiving signals of any intrusion or animal activities and transmitting the information to base station that could be either at Beat level, Range level or at the Head Quarters. There are sensors that can detect sound, including gunshots, and could be transmitted to base station, which can be Range Office and to Head Quarters, if connected with GSM network. This technology has multiple functions from day-to-day monitoring of activities and for quick response to deal with offences.

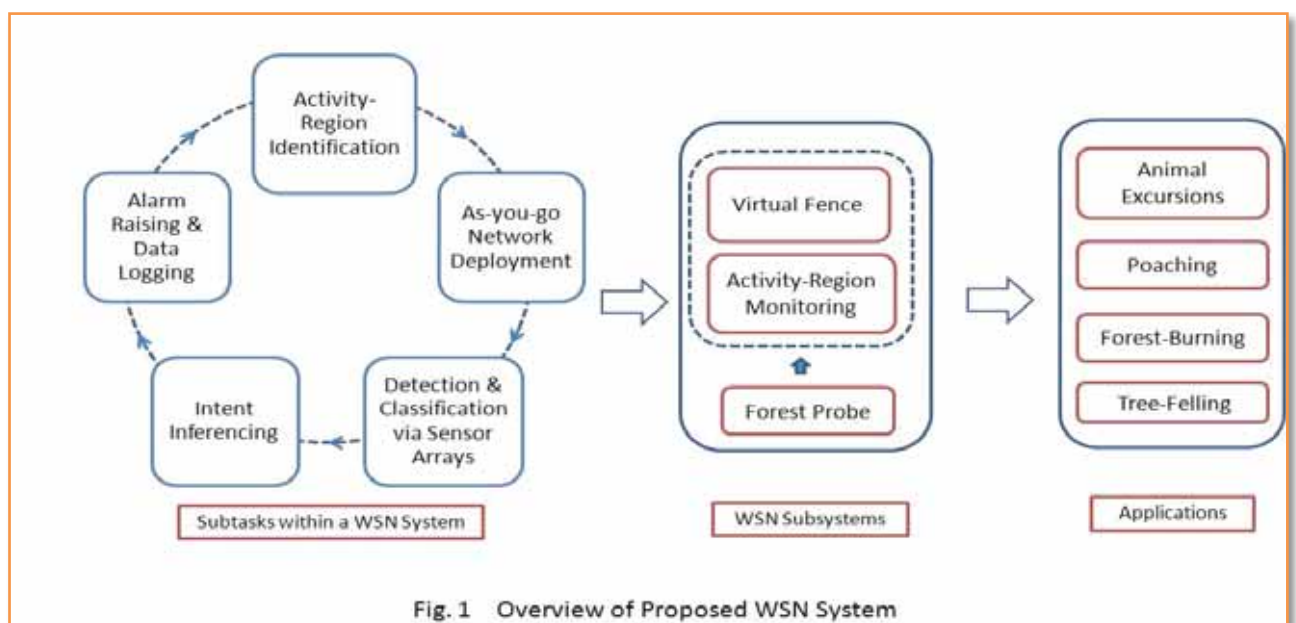


Fig. 1 Overview of Proposed WSN System

3.1.10: Aerostat

Aerostat has already been demonstrated in India during the opening ceremony of the Commonwealth Games, 2010 at New Delhi. This device can keep itself afloat in the air and can carry payloads for aerial observations. Also known as Observation Balloons, these are mobile tactical surveillance systems, consisting of a stabilized day/night electro-optical payload suspended from a helium-filled aerostat that is tethered to a ground control system. By providing an elevated platform, well above the ground/field of operations, the system offers an indispensable, dominating view of the scene below. It is prolonged and medium-range surveillance coverage. These systems are field proven, easily deployed and serve both for surveillance and deterrence. Since they are visible from a distance, their deterrence effect is tremendous.

3.1.11: Vehicle Mounted Mobile Surveillance

These are mobile watch towers about 25-30 ft high with an observation post at the top, which can be mounted on a vehicle such as 4W drive Maruti Gypsy or Scorpio. The tower would be collapsible, and can be erected manually/ hydraulically wherever required. Observation vehicles are compact systems that dramatically increase the surveillance and protection capabilities of a mobile operational unit. These systems consist of a stabilized day/night payload lifted by a telescopic mast and can be installed on suitable vehicles, as required, to enable a vital "look-up and see" capability to wide area of security operations. These systems include a simple, smart operator interface with digital map display, recording, GPS targeting etc, and may feature a real-time data link communication. These also could be used for manual scanning and look-up, while the mast provides extra height for electronic surveillance of the area.

3.2: (B) Observations and Views of Rhino Task Force:

The list of technologically advanced gadgets given by Kaziranga management is quite exhaustive – some of them being costly from the standpoint of installation and maintenance. NTCA has already funded commissioning of electronic eye in Kaziranga. It is about to be operational very soon and will be a great tool in enhancing the monitoring and surveillance capability of the management. Earlier, NTCA had taken initiative to fly Unmanned Aerial Vehicle (UAV) over the territory of Kaziranga National Park. Although, its operation has been stalled due to objections from Ministry of Defence, but, the issues can be sorted out and UAV can be used in Kaziranga for monitoring and surveillance. These two technologies in tandem with watch towers on perimeter and crucial locations, like hill ridges, human habitations, corridors, etc., of the Park, staffed with personnel equipped with night vision telescopes and other surveillance devices, can play very important role in dealing with the current crisis in the Park.

Technology as a tool is helpful only when the human resource is highly responsive to the intelligence generated through the technology tools. There is need for training the staff of Kaziranga in use of various technologies that are gradually gaining entry

into the management of Park. Electronic eye and UAV are two such important tools. The collation and analysis of data from these devices should not remain solely confined to a technology-savvy senior officer. There is need for training a set of people who have aptitude and passion for learning and who will serve there for longer time. Same holds true for officers at senior level. Tomorrow, if the State government posts some Director or Deputy Director who has phobia of technology, the use of technology will not be made by the management. The long term solution lies in creating one post or two for ITC-trained person(s) in lieu of such number of posts of ACF. In addition, there is need for developing a work culture for rapid response to an alert created by the technological tools. The management of Kaziranga should develop capabilities to mobilise the manpower quickly to avert an impending crisis pointed out by the technological tools. Failing to do so, it will squander the dividend provided by the technology.

Electronic Eye, UAV, Night Vision Telescopes at strategically located watch towers, and camera traps (used for tiger estimation) in their modified forms as suggested by Kaziranga management to capture clear pictures of poachers without using flash lights, and a few other data analysis tools can collectively improve surveillance and monitoring to a large extent. Excessive use of technology may prove counter-productive, because of limited absorptive capacity of employees working in Kaziranga and high maintenance cost of equipments vis-à-vis regular financial crisis in the Park. Ultimately, there is no substitute for rapid response teams on the ground and footfalls in all the nooks and corners of the Park. Moreover, there is limitation of surveillance through cameras high in the sky in Kaziranga, as grasses are very tall there and any criminal can sneak into the Park under the thick cover of grasses.

On daily basis, the following two also need to be made part of the management.

3.2.1: Surveillance camera on hillocks:

Kaziranga management has many vantage points on the hills of Karbi Anglong, Bagser R.F. and Kukurakata R.F. First of all, these areas should be secured firmly under the control of Kaziranga management and then on all the vantage points on the hills, surveillance cameras should be mounted. They will provide a large field of view and will be very helpful in supplementing the information gathered from other surveillance devices.

3.2.2: Smart Patrol:

This is not the state-of-art technology. But, daily patrol should be registered in an electronic device showing GPS locations, track traversed, speed, etc. This is not being done in Kaziranga at present. But, this is essential for monitoring of the coverage of all vulnerable areas of the Park by the patrol parties at Range level. The movement should not be in a pattern, as that will lead to predictability of movement of staff by poachers. It needs intelligent movements and meaningful analysis of the patrol outcomes on periodic basis at senior level. The Range Officers and Assistant Conservator of Forests should plan the movements on daily basis. Any software like

MSTripES (Monitoring System for Tigers' Intensive Protection and Ecological Status), developed by WII, or SMART (Smart Monitoring and Reporting Tool), developed by WWF, or any customized for Kaziranga should be used. It will make patrolling of all areas inevitable and make the higher management aware about the gaps and loose ends in the patrol regime.

Chapter 04

ToR No.3: Proactive safeguard to rhino and wild animals to prevent mortality during floods

- 4.1:** *As Given in the Report of Kaziranga Management*
- 4.1.1:** *Flood and Wild Animal Mortality*
- 4.1.2:** *NH-37 as a Highland*
- 4.1.3:** *Importance of NH-37*
- 4.1.4:** *National Green Tribunal and NH-37*
- 4.1.5:** *Long Term Solution: Construction of Underpasses and Overpasses on NH-37*
- 4.1.6:** *Involvement of Public in Rescue and Rehabilitation during flood times*
- 4.1.7:** *Rescue and Rehabilitation of animals: Upgradation of existing facility*
- 4.2:** *Observations and Views of Rhino Task Force*
- 4.2.1:** *Disaster Management Plan*
- 4.2.2:** *Crucial role of Centre for Wildlife Rehabilitation and Conservation (CWRC)*
- 4.2.3:** *Auditing of Preparedness on the ground*
- 4.2.4:** *Keeping record of all animals passing through the corridors*
- 4.2.5:** *Sensitizing community for protection and rescue*

ToR No.3: Proactive safeguards to rhino and wild animals to prevent mortality during flood:

4.1: (A) As Given in the Report of Kaziranga Management:

4.1.1: Flood and Wild Animal Mortality:

High intensity of floods causes inundation of large area of the Kaziranga National Park. Before reaching the high ground, some of the animals are drowned in rapidly increasing level of water. Some of the animals make it to some highlands inside the Park and others try to move to highway NH-37 and Karbi Anglong hills. During the last five years, it is seen from the mortality figures that the year 2012 was the most devastating (Annexure). Impact of flood is different at different points of the Park due to varying elevations of the sectors of the Park.

Some of the animals get severely injured in road accidents, and even after rescue and treatment, they succumb to the injuries.

The biggest victims of the flood are hog deers who are small in size, although large in number inside the Park. But, the figures of year 2012 also show that in a very high intensity flood, even large animals like rhino, elephant, wild buffalo and sambar are also not safe (Annexure). To deal with such a catastrophe, there is need for raising as many highlands at multiple locations as possible. The infrastructure of rescue and rehabilitation needs to be upgraded and made highly efficient.

The year 2014 had the least number of road accidents, despite floods. The reasons for this have been given by the management of Kaziranga in the following measures enforced by them during the flood season.

1. Large number of staff deployed on the NH-37 with equipment, torches and safety jackets
2. Time card system enforced more effectively
3. Convoy system of vehicle implemented during peak of the floods
4. Cameras were fitted at several points on the corridors on the NH-37
5. Squads of local youths and members of Eco-Development Committees (EDC) were deployed

4.1.2: NH-37 as a Highland:

Kaziranga needs a large number of well-designed highlands inside and on the periphery where animals can take shelter during floods. NH-37 is an excellent highland. The strongest argument to make it a 6-10 lane highland, what to speak of 4 lane, is that NH37 has a lot of potential to save the animals during floods. If the highway is broadened beyond 4-lane to 6-10 lane, rest of the width can be used by the animals during floods.

4.1.3: Importance of NH-37:

The NH-37 from Jakhlabandha to Bokakhat/ Numaligarh touches upon the southern boundary of the Kaziranga National Park at certain places, especially from Amguri to Panbari. The NH-37 is the lifeline of the local people. The highway has been there even prior to declaration of the Kaziranga RF in 1908. Population was then very sparse. Today more than 5.00 lakh people reside in these areas. The highway has become the nerve centre of development leading to opening of shops, markets, road-side dhabas, hotels, institutions, commercial establishments and residential houses. These unplanned and uncontrolled activities have today broken down the Kaziranga - Karbi Anglong landscape. There are several important and identified corridors for animal movement on the NH-37 which are used by the animals almost all the times.

During the flood season, there is a heavy migration of wild animals from the Kaziranga National Park to highlands in the Karbi Anglong through these corridors and some other areas along the NH-37. As the camera trap records show, during night times, the animals use “off corridor” areas also to cross the NH-37.

During flood season, the corridors on the NH-37 from Jakhlabandha to Bokakhat are regularly patrolled by forest personnel of the Kaziranga National Park. The staff posted on the highway often act as “Traffic Police” by halting traffic on either side whenever animals, such as elephants and rhinoceros, cross the road.

4.1.4: National Green Tribunal and NH-37:

There has been a case filed in the National Green Tribunal (M.A. No. 687 of 2013, M.A. No. 1070 of 2013 and M.A. No. 142 of 2014 in O.A. no. 174 of 2013, Rohit Choudhury Vs. Union of India and Others), praying the Hon’ble Tribunal to get one of the conditions stipulated in the environmental clearance given by the Ministry of Environment & Forests, Govt. of India, New Delhi for setting up of the Numaligarh Refinery implemented from the State government. The condition was that the NH-37 should be de-notified as a national highway, and secondly that since lot of animals get killed on the highway during the flood season, the highway ought to be closed forthwith. After hearing all the parties, the Hon'ble Tribunal has passed a series of orders speaking, inter alia, about short term and long term measures for protection of wild animals. The short term measures include methods by which killing of animals on the highway could be avoided totally. Some of the suggested measures include putting of rumble strips for speed control, putting cameras and speed guns etc. The long term measures include diversion of the highway on the north bank of the river by building another bridge over the Brahmaputra River near Numaligarh.

As directed by the Hon'ble National Green Tribunal, rumble strips have been put all along these corridors by the State government. It is during floods when animals get killed by speeding vehicles. Due to alertness of staff, there has been no death on the highway so far.

The National Tiger Conservation Authority vide its Office Memorandum Mo. 12-5/2013-NTCA, Dated: 18th December 2013 constituted a committee to review the proposal submitted by the Government of Assam in compliance of the Order of the Hon'ble NGT to 'Suggest Mitigation Measures in the Interest of Wildlife Conservation with respect to National Highway 37'. The Committee submitted its report to the Ministry in the early part of 2014. The Committee argued that speed breakers are not advisable, as they allow vehicles to be more time on the road, leading to greater risk of accidents. The Committee proposed a series of flyovers on the NH37. The Director, Kaziranga National Park has given his opinion on rumble strip as follows.

The method of speed breakers/ rumble strips does not appear to be scientific in helping the animals cross, as the vehicles now spend more time on the road; and given the increasing volume of traffic, and, therefore, these vehicles virtually make an impregnable wall, due to their proximity and sheer noise levels, which the animals hesitate to cross. This has resulted, on the other hand, to confinement of big animals such as elephants, who have almost become resident in the Park this year. Further the screeching noise caused by speeding vehicles over the rumble strips are heard very far within the National Park boundaries, especially the noise of loaded trucks, that it would frighten any animal and prevent it from crossing the road. Therefore, the rumble strips should be removed. The State Govt. has already placed Interceptor vehicles in this stretch to apprehend and bring to book speeding vehicles.

For wide-ranging large mammals, like elephant, confinement within Park limits is fraught with risk of food scarcity and vulnerability to pathogen attack. The confinement of large mammals have been further aggravated by putting up solar power fencing by the Park authorities to secure the life, property and crop of the fringe village populations. It has got further worsened due to rampant construction activities along both sides of the NH-37 from Jakhlabandha to Bokakhat, due to which the corridors are virtually getting blocked for good.

Therefore, rumble strips are no solution to the problem, and hence, must be removed. It is suggested that "Wild animal Traffic Light" pairs be put at each of the identified points on the NH-37, and be manned on 24X7 basis in 8-hourly shifts. These traffic lights would also hold the cameras for speed monitoring and overloading. "Green" light would mean, no animals in sight on either side of the road, and traffic can move as usual. "Amber" would mean animals approaching, and may cross; so only emergency vehicles may pass, such as ambulances. "Red" light would mean animals about to cross/ crossing, so no traffic to move between the light posts on either side of the corridor. Further, heavy penalty be levied on those jumping the "amber" and "red" lights. Entire corridor shall be "No Horn" zone. This would ensure that animal crossings are not only safe, but also the animals have the "First Right of Way". These posts would also be used for automated traffic volume/ number counts, checking of pollution levels, emissions of all the vehicles passing through the corridors. Alternatively, instead of traffic lights, gantry structures could be set up at appropriate places with camera on top for 24X7 monitoring and

stationing of staff in shifts with communication equipment to ensure safe crossing of animals.

The wildlife traffic light system, in a slightly advanced and automated form has been operational in several parts of the world by the name of "Roadside Animal Detection System", noted among them being the Preaching Canyon cross-walls for the elks. The system consists of thermal scanners with military grade target acquisition software that is "trained" to detect wildlife, but "miss" small animals such as rabbits. Depending upon the status of detection, it displays different messages including silhouette of an elk when the elk comes on road, along with a message "Elk Crossing". The system operates on a 24X7 basis. The proposed traffic lights can also be automated in a similar way using thermal scanners and target acquisition software.

The traffic rule violators would be fined heavily, and the entire amount collected would be deposited in the account of the "Kaziranga Tiger Conservation Foundation".

This monitoring will be carried out throughout the year. But, its impact will be highly visible during the times of flood, when large number of animals leave the Park for highlands towards Karbi Anglong and are forced to cross the highway NH-37.

4.1.5: Long Term Solution: Construction of Underpasses & Overpasses on NH37:

The Committee constituted by NTCA has suggested construction of specially-designed flyovers along the corridors. The total length would be about 25 km including the approach road on a total road length of about 52 km. The proposed structures would be pre-fabricated, and would take minimum time to build and commission. It is expected that once these flyovers are through, there would be no road kill of wild animals. The estimated cost is about Rs.2000Crore.

The only issue here is that the most of the corridors are blocked, and construction of flyovers would just solve only one of the problems, i.e. crossing of the road by the wild animals. However, the other vital question i.e. whether animals are in a position to reach the highway, and if they reached and crossed, are they in a position to secure their way to the other side. This question is being raised here as because, development and growth are a continuous process, and in course of time, there would be more and more construction, thereby, blocking the passage of the animals for good, despite the flyovers. Therefore, along with the flyovers, one has to adopt a clear-cut policy of "Corridor Retrofitting", especially the areas under the flyover and their connects to Kaziranga and Karbi Anglong Hills. All obstacle would have to be removed, if necessary by removing existing construction, buying of land, including tea garden lands at market prices, relocating buildings etc. [*While interacting with certain local stakeholders, it was apparent that in certain areas, such retro-fitting would be possible, especially at Amguri, Deosur, Kanchanjuri, Sildubi and Haldibari. It may be difficult in Hatikhuli and Panbari as these are very old habitations*]

For connectivity of animals with Bagser RF on the western part of the Kaziranga Tiger Reserve, there will be need for three new corridors, one of which Amguri have been taken care of by the NTCA-constituted Committee and two more, for which Kaziranga may have to buy parts of Amguri Tea estate and some private lands. These are areas where rhino crossing is very high all the times, and current practice is to chase them back. Elephants also create havoc frequently during cropping times. The two additional corridors are: one opposite Kathalcham camp and one opposite Rangalu Camp. For these two areas, Kaziranga may need two additional fly-overs. This would also need, surely a road skirting the Bagser RF from behind, for keeping the poachers at bay.

4.1.6: Involvement of Public in Rescue and Rehabilitation during flood times:

All the local people surrounding Kaziranga National Park should be made aware about the value of the wild animals of Kaziranga. A group of volunteers from each village or township should be identified, given training about the rescue of wildlife during flood and each of these groups should be tagged to a member of Kaziranga field staff or a member of NGO who has the experience and knowledge of handling a distressed animal looking for a refuge during flood.

4.1.7: Rescue and Rehabilitation of animals: Upgradation of existing facility:

To address the welfare needs of the wildlife in and around Kaziranga, especially during floods, the Center for Wildlife Rehabilitation and Conservation (CWRC) was established in 2001 for attending and executing rescue and rehabilitation of wildlife in Assam. CWRC is a joint initiative of Assam Forest Department, Wildlife Trust of India and International Fund for Animal Welfare (IFAW). CWRC and its Mobile Veterinary Service (MVS) units attached to the centre has so far handled more than 3,500 cases in Assam and around 60% of them have been released back to the wild. CWRC has successfully hand-raised many orphan animals, including elephant calves, rhino calves, tiger cubs, leopard cubs etc. and rehabilitate them back in the wild. CWRC is recognised by Central Zoo Authority (CZA) and is considered as a unique facility of rescue and rehabilitation in the country now. CWRC has formulated protocols for long term rehabilitation of species like Asian Elephants, Greater One Horned Rhinoceros, Clouded Leopards, Hoolock Gibbon over the last 10 years and more. It is run by the donations mainly from individual donors. WTI-IFAW partnership has put some tireless efforts to gather the funding requirements to run the facility. The current annual budget of CWRC is about Rs.90 lakhs. CWRC has not got any Government fund except nearly Rs.20 lakhs in 2001 for land and to start the construction in Panbari. The Centre requires further upgradation with improved and some new infrastructure so that the services offered by it can continue to benefit the cause of wildlife rehabilitation.

4.2: (B) Observations and Views of Rhino Task Force:

4.2.1: Disaster Management Plan:

Flood is a disaster and is almost a regularity in Kaziranga, and hence, Kaziranga management should prepare a Plan for dealing with the situation. The plan should spell out the kind of tools, logistic requirements, advance preparedness of men and machinery, training to staff and volunteers, development of early warning system and proactive protection measures for protecting animals from very low lying areas, creation of more number of highlands, aerial surveillance device (like UAV launched from a large water vessel) for monitoring real-time during floods, awareness and training in villages nearby including that of Karbi-Anglong District Council, technical and financial support from donors and NGOs, advance preparation for tranquilising equipments, drugs, crates, treatment, etc. The State Disaster Management Authority should also be involved in formulating the Disaster Management Plan and execution of the Plan in the event of flood. *For the whole park, video film of rescue, rehabilitation, etc. should be prepared, so that the lessons can be learnt from the experience.*

4.2.2: Crucial role of Centre for Wildlife Rehabilitation and Conservation (CWRC):

As mentioned in para 4.1.7, during the flood times the Centre for Wildlife Rehabilitation and Conservation (CWRC) plays crucial role in rescuing, treating and releasing the wild animals back into the wild. Not only the capacity of its main centre at Panbari area of Kaziranga should be increased, but also those of its satellite centres at Diphu (Karbi Anglong) and North Bank satellite centres. They are also important for Kaziranga. The organisation needs strengthening of human resource base, induction of modern equipments and machinery, development of expertise in rescue and rehabilitation, and fund support. They should prepare an expansion and development plan and get that implemented.

4.2.3: Auditing of the Preparedness on the ground:

Before the onset of every rainy season, the management of Kaziranga, State Disaster Management Authority and skilled scientists and veterinarians of Centre for Wildlife Rehabilitation and Conservation (CWRC) should collectively assess the state of preparedness for dealing with impending flood-generated crisis. During this time, the plan mentioned above should be reviewed for improving operational sharpness and better outcome.

4.2.4: Keeping record of all animals passing through the corridors

Till the construction of regular surveillance towers near corridors, the management of Kaziranga should construct temporary watch towers there during the flood times and keep record of all animals, species-wise, crossing the corridor. They should keep account of all animals crossing the corridor and staying safely in Karbi Anglong. They should also keep account of the animals returning back to Kaziranga after the flood. As on now, it is happening in a limited way. This can be supplemented by regular monitoring by installing cameras. Only problem with camera is that the information

may be lost if the camera is stolen or vandalized by somebody. Otherwise also, many animals may not be captured in the camera.

4.2.5: Sensitizing community for protection and rescue:

All around, the Kaziranga Park has many villages and human habitations. At the time of the flood, many animals go to the nearest safe haven, which may happen to be a village field or courtyard of a local community member. There is need for giving training to the village people, located at identified vulnerable points, on awareness about the animal behaviour and rescuing animals in the times of floods. This has been mentioned in para 4.1.6 above also. Youths of the villages should be identified for voluntary service. They may be given the minimum logistic support for keeping vigil and communicating with the Park authorities. A toll-free number should be installed in the control room of Kaziranga and should be made known to the people around the Park. The animal rescuers should be given prizes and certificates for their public service in a public function.

Chapter 05

ToR No.4: Special Monitoring of Rhino and other wild animals in corridors along NH-37

- 5.1:** *As Given in the Report of Kaziranga Management*
- 5.1.1:** *Barrier Effect*
- 5.1.2:** *Animal Mortality on NH-37*
- 5.1.3:** *Fragmentation of Corridors*
- 5.1.4:** *Corridor Retrofitting Strategies*
- 5.2:** *Observations and Views of Rhino Task Force*
- 5.2.1:** *Removing constructions on encroached government lands near NH-37*
- 5.2.2:** *Biotic issues in Kaziranga as highlighted in Performance Audit Report of CAG (No.3 of 2014)*
- 5.2.3:** *Expediting demarcation of Eco-Sensitive Zone*
- 5.2.4:** *Tea gardens working as Corridors*
- 5.2.5:** *Special Focus on corridors used by elephants also*
- 5.2.6:** *Important Corridors on NH-37 and their dimensions*
 - 1.Panbari Corridor: Through Panbari R.F.*
 - 2.Haldibari Corridor: Haldibari to North Karbi Anglong Proposed Wildlife Sanctuary*
 - 3.Amguri corridor complex: Kukurakata RF – Kamakhya RF, Kukurakata RF- Bagser RF, Kanchanjuri – Ghorakati complex*
- 5.2.7:** *Special monitoring on corridors*
- 5.2.7.1:** *By using camera*
- 5.2.7.2:** *Watch Towers*

ToR No.4: Special monitoring of rhino and other wild animals in corridors along NH37

5.1: (A) As Given in the Report of Kaziranga Management:

Following are the figures from Kaziranga on mortality of animals for the whole year on NH-37 between Amguri and Panbari corridors.

Year	Nos of deaths of wild animals due to accidents
2010	24
2011	10
2012	38
2013	26
2014	7
Total	105

5.1.1: Barrier Effect

The NH-37 which runs on the south of the Kaziranga National Park has, of late, become a zone of mushrooming developmental activities, such as hotels, dhabas, shops and commercial space for use of the local population as well as the tourists coming from the outside. The traffic on the highway has also increased manifold. There are several identified corridors for animal movement, which have become almost dysfunctional due to anthropogenic activities. Further, several of the villages have demanded installation of power fencing along the Park boundaries. This will further lead to restriction in the movement of the large mammals such as the rhinoceros, elephants, buffalos, tigers, leopards and deer species.

5.1.2: Animal Mortality on NH-37:

Kaziranga National Park has been maintaining records of accidents of wild animals on NH-37 on the corridors of the Park since the year 2000. The road accidents can be thought of as “On Corridor” and “Off Corridor” from Amguri in the west to Panbari in the east. Recorded accidents can also be visualized as happening during day or night. The number of accidents are also linked with intensity of the floods. There is need to examine the accidents from the point of view of types of animals such as large herbivores, big cats, small cats, primates, reptiles and small animals.

From the records of Kaziranga, it is seen that 105 cases of accidents of wild animals occurred from 2010 to 2014 on NH-37 between Amguri and Panbari corridors. Of these, 40 incidents occurred during day time and 65 incidents occurred during night time. Of the 105 incidents, the analysis shows that 57 incidents took place “on corridor” and 48 incidents took place “off corridor” sections of the NH-37. These can be further sub-divided into day and night incidents as given below.

Number of incidents	On Corridor		Off Corridor	
	Day	Night	Day	Night
105	27	30	13	35

The table above shows that the number of incidents are almost equal during day and night on the “on corridor” sections, whereas night incidents are more on the “off corridor” sections. This shows clearly that during night when human disturbance is least, animals also use the “off corridor” areas of the Park to come out and cross the NH-37.

Among the 105 animals dead in accident on NH-37, large mammals were 87 and primates were 11 in number. Hence, there is need for effective means of controlling this mortality on NH-37.

5.1.3: Fragmentation of Corridors

Though there are recognized six numbers of corridors, they have been further broken down into smaller units here for better understanding of the land use and issues on the corridor. The WWF has prepared a detailed report on the animal corridors of Kaziranga in 2014. The report was based on camera traps results of animal movement. Findings of the report also corroborate mostly the facts and issues mentioned below here.

Anguri Corridor: This has been a very important elephant corridor in the past, but now rendered defunct by human activity. The connection between Bagser RF and Kukrakata RF is lost due to construction of a series of hotels and dhabas right next to the highway. A proposal may be moved to remove the dhabas and hotels from this corridor.

Ghorakati Corridor: This is a corridor between 1st Addition and the Chirang Hill (otherwise known as Burapahar), mostly used by elephants. Now this corridor stands blocked by the Assam Tourism and GL Resorts. As per records, the Chirang Hill was proposed for reservation as RF in 1979.

The entire hill should be resurveyed and made a part of Kaziranga

Deosur Corridor: This is a very active corridor for all animals, especially during floods. Now it is fully encroached and agricultural activities are seen in full swing. What was a bunch of huts in 1990s is today a settled hamlet with shops and electricity connection. Part of the area along the NH-37 from the bridge upto Palkhowa seems to be under Bagser RF. It needs urgent eviction (at least the RF part of the area), and the rest of the area must be brought under a “Purchase Plan”.

Malani-Burapahar Corridor: This beautiful corridor starts from Maloni Anti-poaching Camp and runs upto the Burapahar Beat Office (which is the old limit of Kaziranga and from where the 1st Addition areas start). It faces the Burapahar Tea Garden immediately on the other side of the highway. The Tea Garden authorities have fenced up the tea garden with barbed wire, rendering the corridor fruitless at places. There are three Tea gardens in the area, namely Burapahar TE, Jagdamba TE

and Sag Motee TE. These three gardens may be proposed for immediate purchase at market rates.

Kanchanjuri Corridor: This is a vital corridor where to the south the 4th Addition to KNP is located. The corridor starts from the bridge over Deopani River on NH37 and ends on the west to the end of the 4th Addition area. The corridor, barring the 4th Addition area, is completely fragmented on the south of NH-37.

Harmoti Corridor: This once was a very active corridor. However, due to several constructions/ buildings on the south of NH-37 on Karbi Anglong side, it is now almost abandoned by wild animals.

Sildubi Corridor: This is the area comprising of the proposed 5th Addition and the south of NH-37. The 5th Addition areas were encroached as late as 2013 by making makeshift camps by certain motivated groups. On the south there is extensive Jhumming. This is also the northern part of the proposed North Karbi Anglong Wildlife Sanctuary. Of late, hotels and habitations have come up to the south of the NH-37.

Haldibari Corridor: Currently this is one of the two functional and largely undisturbed corridors. To the north of the NH-37 and eastward lies the part of the proposed 2nd Addition to KNP, which so far has not been handed over to the Assam Forest Department. To the east of the Corridor is Hatikhuli TE, part of which may be purchased at market rates to make the corridor more robust.

Panbari Corridor: This corridor is the only one existing today for wild animals on the eastern side of the Park and measures about 4.30 km in length along the NH-37. North side of the corridor, except the 3rd Addition areas (measuring 900m in length along the NH-37), is quite thickly inhabited. On the south side, it is broken at several places with Tea gardens and human habitations. Between the Kaziranga National Park, and Panbari, there is thick habitation upto 500-800 m on the north of NH-37, barring the proposed 3rd Addition to KNP. Methoni TE, its factory and labour lines break the corridor at different points. The Tea Garden areas falling between the Panbari RF and the NH-37, and those falling to the north of the RF may be proposed for purchase at market rates. Since Panbari is the last corridor on the eastern side providing safe passage to wild animals of the Eastern and Central ranges, this corridor needs a very special retrofitting attention.

5.1.4: Corridor Retrofitting on NH-37

The corridors on the NH-37 between Jakhlabandha and Bokakhat fall in a different category all together, as they are subject to the various orders that may be passed in the matter before the Hon'ble National Green Tribunal. As of now, as per the current orders, the PWD (National Highway), Govt. of Assam would prepare a DPR for the flyovers that would pass through these corridors giving exact alignments. Thereafter, the next main work would be to study each of the alignments and carry out detailed survey on the ground. The park authorities and the PWD(NH) teams must be in constant interaction during the DPR preparation process so that corridors

structurally connect well both sides of the NH37 and ensure safe passage to the wild animals.

The following strategies are suggested for this set of corridors:-

1. To carry out a complete survey of the corridor area right from the Park boundary to the forested tracts of Karbi Anglong, and prepare a detailed map of the corridor
2. All habitations, tea gardens, agricultural fields, *dhabas*, hotels, and other obstacles in the corridors such as deep fishery, boundary walls, long fencing etc. must be identified and recorded in the map of the corridor.
3. All land parcels that would be required to retrofit the corridor structurally on both sides of the NH37 should be identified along with ownership and class of land.
4. While doing the survey, representatives of Forest, Civil Administration, and Karbi Anglong Autonomous Development Council should be present.
5. Consultation with local stakeholders, Gaon Panchayats, EDCs, citizenry in general and local public representatives should be carried out while delineating the corridor.
6. A detailed plan and estimate of retrofitting the corridor should be prepared once the geographic limits are finalized.
7. Due compensation rates, if required, as per prevailing rates, should be obtained from the Concerned Deputy Commissioner.
8. The final plan should have cost estimates and methods of restoration of the corridor including afforestation activities, if so required.

It is suggested that the NH37 corridors should be made an integral part of the Kaziranga National Park.

5.2: (B) Observations and Views of Rhino Task Force:

The task force fully subscribes to the issues raised and measures prescribed by the management of Kaziranga. In addition, the following suggestions are made.

5.2.1: Removing constructions on encroached government lands near NH-37:

In the vicinity of NH-37, there are many resorts and *dhabas* which have been constructed without any authority, because the revenue officials did not raise objection and Kaziranga management did not join the issue. Following excerpts from the report of CAG (report no.3 of 2014) have brought up the issue to the notice of all concerned.

It is a good decision on the part of Kaziranga Biodiversity Conservation and Development Committee, constituted by the Assam Government, in its meeting on 31st August, 2009, to make it mandatory that all sales of lands in and around

Kaziranga National Park now require “No Objection Certificate” from the Director of the Park

5.2.2: Biotic Issues in Kaziranga as highlighted in Performance Audit Report of CAG (Report No.3 of 2014) :

14.2.3: In Bokakhat Circle, 29 Resorts/ dhabas have been running for periods ranging upto 40 years on land falling within 2- 3 km of the KNP boundary, majority of which belong to Agriculture class. **Of these, in two cases (Ekora Resorts and Resort Borgos) the land pattern had already been changed as “Commercial Land” from “Agriculture Land”.** In five other cases of Resorts/ dhabas namely Bonhobi Resorts, Wildgrass Resorts, Kaziranga Wilderness, Emerald Hotel and Resort and Maa Kamala Tourists Lodge - the application for change in land use pattern are under process in the civil administration. **It was further noticed that the Dhansiri Eco Camp had been constructed over 19 bighas, 2 katha and 10 lecha of Government land.**

14.2.4: **Thus the conversion of land use pattern and further processing of applications for conversions are in stark contrast of the Affidavits obtained from the purchasers and also decisions/ actions proposed as discussed above**

- In Kaliabor Circle, 71 resorts/ dhabas/ commercial establishments had been running (as of 2014). In none of the cases NOC from park authorities had been obtained while in a number of cases **licences were found to have been issued by the Kuthuri and Amguri Gram Panchayats.** It was noticed that **62 of the above units were functioning within 1km** of the boundary of the Park while the remaining 9 were within 3 km.
- Further verification of the report revealed that in four cases Government land had been encroached by the dhabas/ hotels, one resort namely Wildlife Reach Eco Resort had been established purely on Government land while in three cases (Grassland, Diphlu River Lodge and G.I.Resorts) Government land had been encroached to set up the resorts.
- As regards the position of the land adjacent to NH-37 falling under both the Circle Offices, it was observed that the offices did not have a ready database to show the position of patta land, Government land and the extent of encroachment. On being requested by Audit, the Circle Officer, Kaliabor assured (11 July, 2014) that the survey would be carried out within a month. The officials of Circle Office, Bokakhat stated that it may take considerable time.

5.2.3: Expediting demarcation of Eco-Sensitive Zone:

The Government of Assam should expedite demarcation of Eco-Sensitive Zone (ESZ), which is an important requirement for the management of all the Tiger Reserves, National Parks and Wildlife Sanctuaries. Government of India has issued guidelines in this case and the matter is an important priority of the Ministry of Environment, Forests and Climate Change. Demarcation of ESZ will stop blocking the movement of wildlife to connected habitat by the commercial interest groups.

5.2.4: Tea Gardens working as Corridors:

There are nearly 14 tea estates within the landscape, having collectively an area of nearly 7,400 Ha (74 km²). Many of these gardens are sandwiched between the National Park and Karbi Anlong hills. They are important corridors for movement of wild animals, but many deer and small mammals may be trapped inside the tea estates by either the tea garden labourers or by the barbed wired fences put up by the gardens. There is need for assessing the status of these areas as corridors for movement of animals. Some of them are important throughout the year, but they become crucial in importance during flood times. As suggested by the management of Kaziranga, some of these gardens should be purchased for the long term survival of wildlife in Kaziranga-Mikir hills landscape. Feasibility study for purchase of whole or part of such tea gardens needs to be initiated as early as possible.

5.2.5: Special Focus on corridors used by elephants also:

In the report published jointly by Wildlife Trust of India and Asian Elephant Research and Conservation Centre on “Elephant Corridors of India”, the survey team has identified following three corridors important for movement of elephants in the landscape of Kaziranga.

1. Kaziranga-Karbi Anlong corridor at Panbari with length 1km and width 0.85 km
2. Kaziranga-Karbi Anlong corridor at Kanchanjuri with length 2 km and width 0.5 km
3. Kukurakata – Bagser corridor at Amguri with length 0.8 km and width 0.5 km

There is need for taking over tea garden at Kanchanjuri corridor and removing obstructive man-made structures at other corridors. The same goes for the corridor at **Deosur**, immediately after Burapahar hills, where lot of human settlements, some of them encroachments perhaps, are completely blocking the movement of animals. These settlements should be re-located at a place relatively less harmful to the wildlife.

5.2.6: Important Corridors on NH-37 and their dimensions:

All the corridors on NH-37 will be serving their real purpose only when the wild animals reach safely on the other side and move around safely. Just crossing NH-37 can be likened to crossing a small bridge. The corridor should be such that even after crossing the bridge the animal lands itself into larger habitat which is well protected and can sustain the animal. It is with this real meaning of corridor, following three corridors on NH-37 are depicted. In the description about these 3 corridors, word ‘passageway’ has been used for small crossing area. There is need for securing these real corridors and the forest areas around them, as it is believed that on the other side there are some barriers to the movement of animals and protection levels are very poor.

1. Panbari Corridor: Through Panbari RF

The **Panbari-Dolamara RF** corridor complex is connected with Kaziranga National Park by a small passageway of around 700 m width and 500 m length (which has now become agriculture field). Further, the **Panbari-Dolamara RF** corridor complex is contiguous with hill forest of Karbi Anglong. **Panbari RF** is around 10 sq km and has an altitudinal range between 90m - 350m, under the jurisdiction of Golaghat District. **Dolamara RF** is around 7 sq km under Karbi Anglong jurisdiction. The northern range, Dolamara of Karbi Anglong East division is situated here. This corridor complex is able to provide very good shelter for the stray animals during flood.

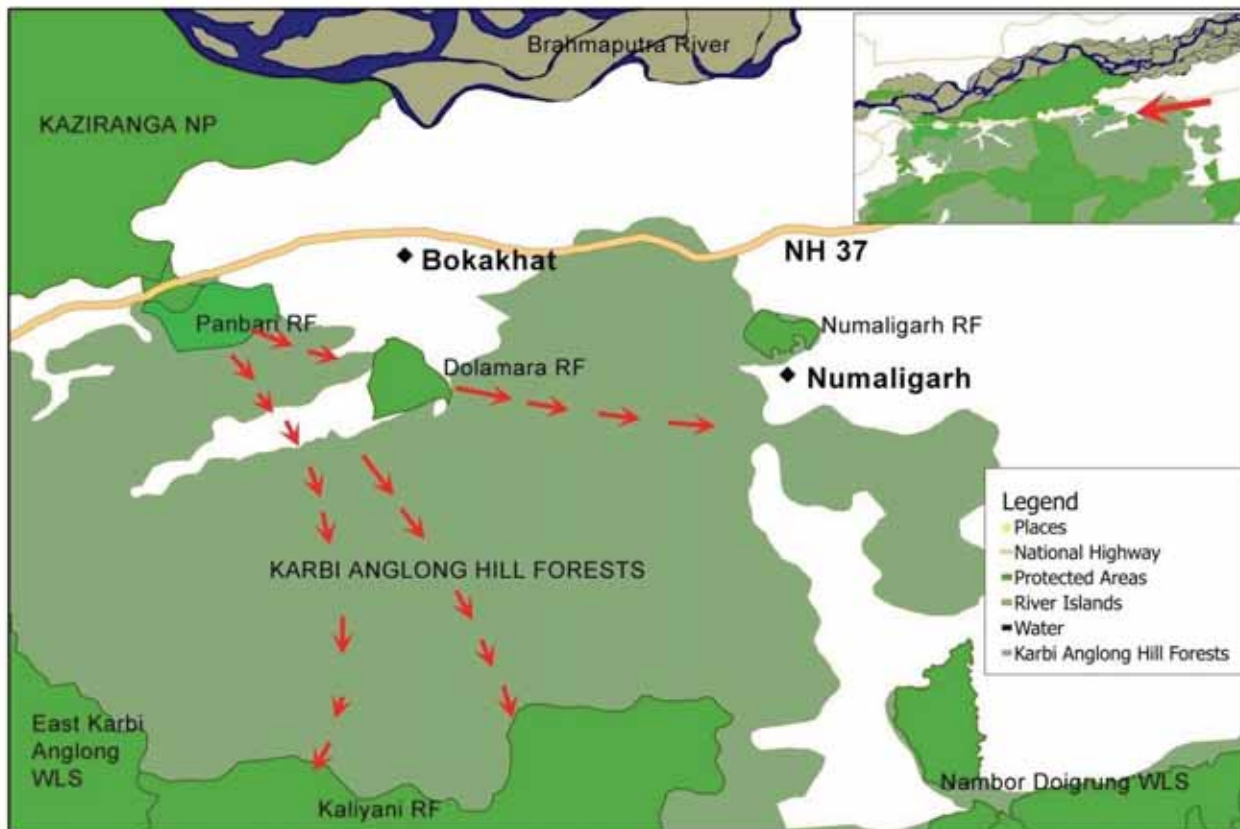


Fig: Panbari Corridor

2. Haldibari Corridor: Haldibari to North Karbi Anglong Proposed WLS

There are three passageways in this corridor between Kaziranga National Park and the hill forest of Karbi Anglong District of which two passageways namely **Harmoti** and **Sildubi** are in vulnerable condition due to anthropogenic activities. The **Haldibari passageway** is functional and directly connected to the proposed **North Karbi Anglong WLS**. North Karbi Anglong WLS is around 124 sq km in area and with high elevation hill forest. The North Karbi Anglong WLS is contiguous with **East Karbi Anglong WLS** which is 228 sq km in area in the south, and further, several RF (like **Kaliyani RF**) and District Council R.F. areas of Karbi Anglong are present towards south, east and west sides.

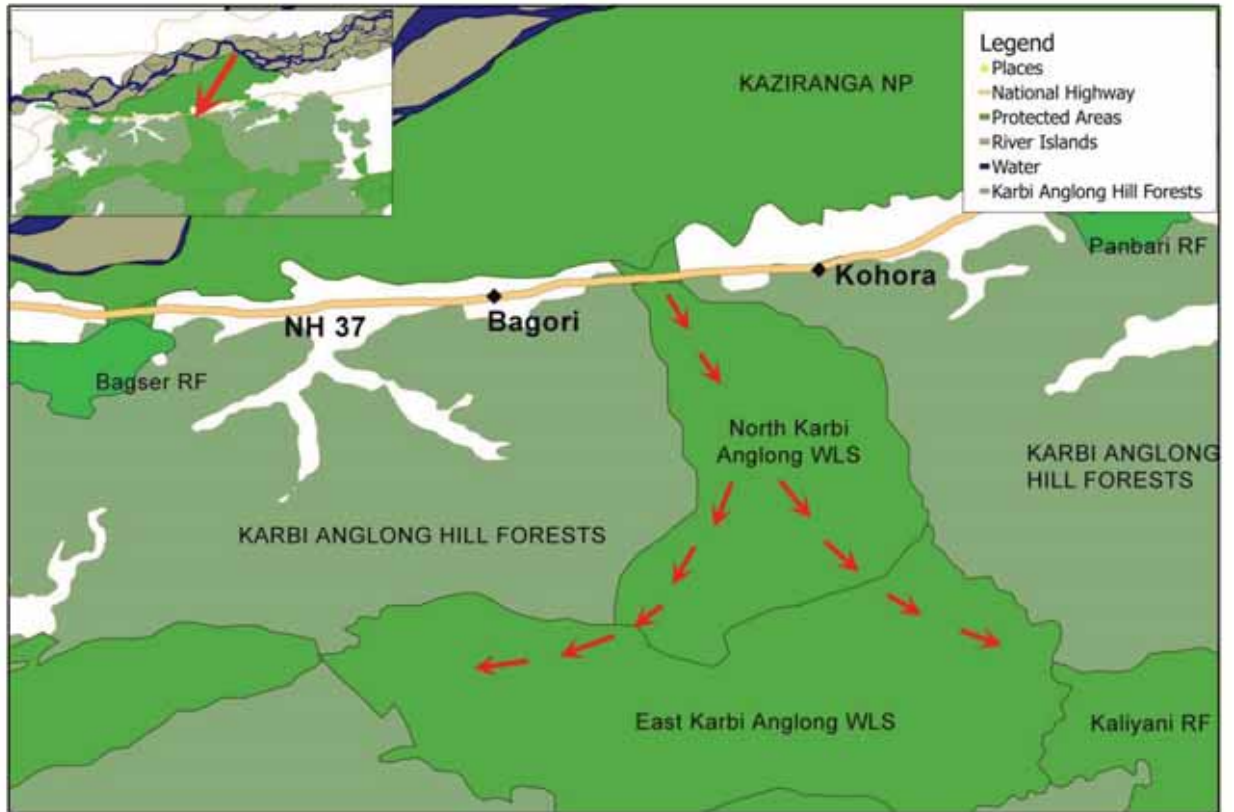


Fig: Haldibari Corridor

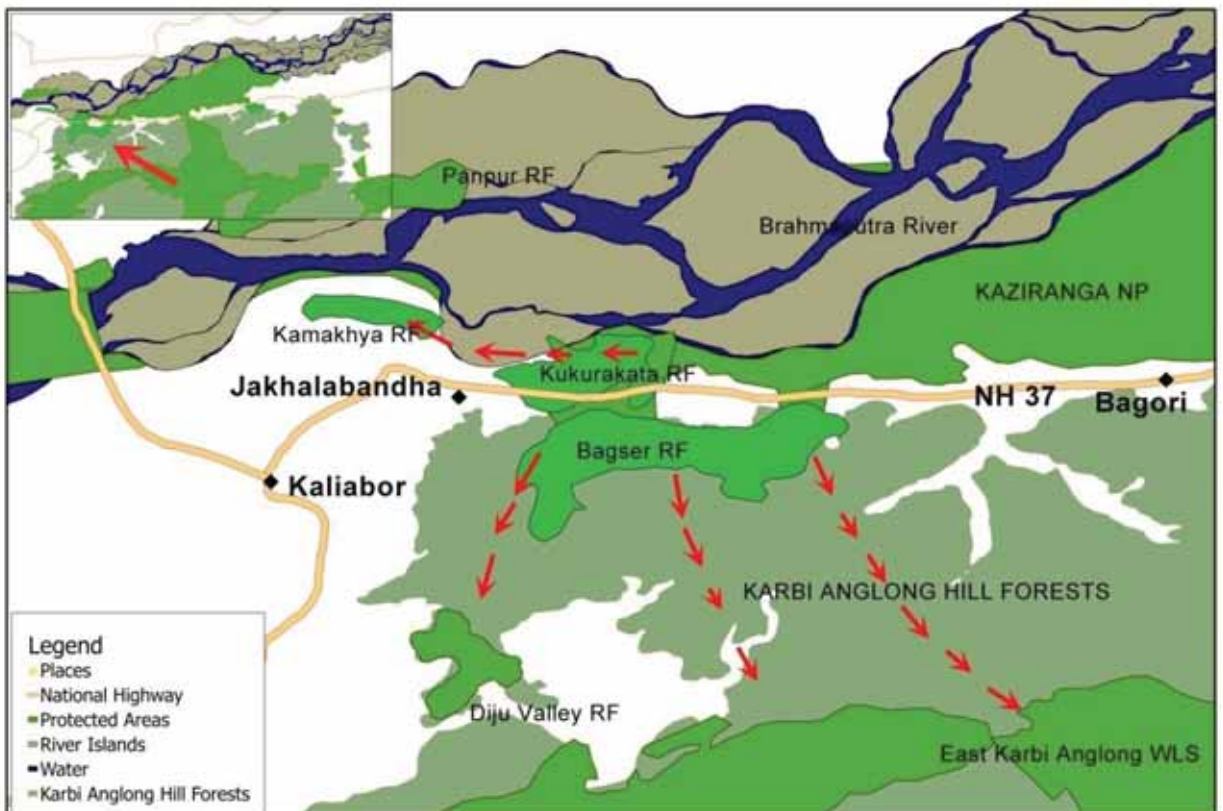


Fig: Amguri Corridor

3. Amguri corridor complex: Kukurakata RF-Kamakhya RF, Kukurakata RF -Bagser RF, Kanchanjuri-Ghorakati complex

There are number of passageways present in this corridor complex of which **Amguri passageway, Ghorakati Passageway, Deosur passageway, Malani-Burapahar passageway, Kanchanjuri passageway, Kukurakata- Kamakhya passageway** are notable. These passageways are under increasing anthropogenic activities.

Bagser RF (34 sq km, around 80 m to 750 m in elevation range), **Kukurakata RF** (13 sq km, around 70 m to 300 m in elevation range) and **Kamakhya RF** (6 sq km, around 80 to 250 m in elevation range) are present in Nagaon District. They have high potential to shelter the wild animals of Kaziranga National Park straying during flood and other seasons. However, all other passageways **and Bagser RF** are contiguous with the Hill Forests of Karbi Anglong District.

This complex includes **Kanchanjuri** area also.

5.2.7: Special monitoring on corridors:

The management of Kaziranga should carry out status survey of all the corridors mentioned above. The status survey should examine all the parameters related to current usage, potential, rehabilitation and restoration plan, enforcement and monitoring plan. They should hold workshops on the issues and adopt best practices, after taking assistance from all stakeholders - government departments, NGOs, researchers, scientists, Karbi Anglong authorities, community groups, etc.

5.2.7.1: By using camera:

First, there is need for knowing the species of animals, number of animals, seasonality, time, frequency, etc. that are making movement across the corridors. This can be done by making use of quality cameras, taking animal hair, DNA material, dung/scat/pellet, pug mark/hoof mark etc. Now, as electronic eye is being commissioned in Kaziranga, it can be used to monitor the movement of animals on the corridors. After this, priority should be set for protecting and restoring the corridors on the basis of their importance.

5.2.7.2: Watch Towers:

In order to ensure that the movement of animals is safe on the corridors, there is need for raising watch towers at vulnerable corridors for keeping vigil on safe passage of animals. The watch towers may be manned during high risk hours and flood times. The personnel posted there should be equipped with needed electronic equipments for observing in darkness and sending alerts to the field units for dealing with emergent situations.

Chapter 06

ToR No.5: Measures for involving local community in rhino protection

- 6.1:** *As Given in the Report of Kaziranga Management*
- 6.1.1:** *Human-Wildlife Interface*
- 6.1.2:** *Challenges faced by the fringe village communities*
- 6.1.3:** *Involvement of Eco-development Committees in wildlife protection*
- 6.1.4:** *Sources of financial assistance to the local community*
- 6.1.4.1:** *Tourism*
- 6.1.4.2:** *Provisions of the Sarai Act, 1867: sharing earning with the local community*
- 6.1.4.3:** *NTCA guidelines on Ecotourism: Charging Conservation Cess and helping local community*
- 6.1.4.4:** *Jeep safari*
- 6.2:** *Observations and Views of Rhino Task Force*
- 6.2.1:** *Fostering “Friends of Rhino”*
- 6.2.2:** *Spreading conservation education among children and youths*
- 6.2.2.1:** *Joining hands with consortium of NGOs in creating conservation awareness*
- 6.2.3:** *Involvement of local N.G.Os and College Students in protection and management*
- 6.2.4:** *Formulating Eco-development Plans and bringing development through other sectors*

ToR No.5: Measures for Involving local community in rhino protection:

6.1: (A) As Given in the Report of Kaziranga Management:

As per the report of the Kaziranga management:

- There are 74 villages in the vicinity of the Kaziranga National Park with a population of about 65,000 persons.
- There are 33 registered Eco-Development Committees (EDCs), and 26 proposed EDCs in the vicinity of the Park.
- EDC baseline survey is currently going on.
- About 85% of the families are found to be marginal and landless farmers
- More than 55% of the households are daily wage earners.
- The fringe village populations have been facing many challenges including lack of amenities.
- Wild animal depredation is very common, and almost every household is affected by it.
- Tourism is steadily increasing and touched all time high of more than 1,28,000 visitors in 2013-14.
- There are 208 registered jeep safari vehicles operated by local populations.

6.1.1: Human- Wildlife Interface

Population of all the wild animals is on the rise in the Park. Due to anthropogenic activities, spurt in development and economic activities, Kaziranga is fast becoming an island in the sea of humanity. Explosion of population in surrounding areas has led to fast degradation of natural habitat outside the Park in the Kaziranga landscape. Therefore, the spills over population of wild animals from Kaziranga regularly come in contact with humans. As a result, life and property of the people on the fringe of the park have been adversely affected. There have been several incidents of loss of life, accidents and crop and property damages by wild animals. These incidents are steadily on the rise. During the year 2013, there were reports of 246 incidents of cattle depredation by tiger alone. During the last 10 years, 22 persons have lost their lives due to elephant depredation. During 2012-13 financial year, crop damage compensation paid was Rs. 8,23,000.00.

In the meeting with the local communities, it was observed that not only the procedure of paying crop compensation was cumbersome; the amount of compensation paid was much less compared to the monetary loss suffered by the villagers.

It was found from the survey that 720 households were affected by elephant depredation. This constitutes almost 47% of the households. 35% of the households admitted that they were affected by wild buffalo. Wild boar affected 12% of the

households. However, tiger depredation affected just about 22 households which is just little more than 1%.

6.1.2: Challenges Faced by the Fringe Village Communities

As can be seen from the field survey, most communities are very poor, landless and have little or no means of survival. Some of the key challenges faced by them are:-

- Limited or no access to clean drinking water, power and LPG.
- Lack of amenities such as school, hospital, veterinary centre.
- Since more than 55% families are daily wage earners, livelihood options are very limited.
- Almost all the households are affected by animal depredations and crop damage.
- On average, land holdings are 3 bighas or less.
- There are little options for alternate livelihoods.

6.1.3: Involvement of Eco-Development Committees in wildlife protection:

Kaziranga management has created 33 eco-development committees in four out of five Ranges. But, so far, they have not involved local people in a systematic way in the protection of wildlife. They are in the process of collecting socio-economic data and writing micro plans in coming months.

6.1.4: Sources of financial assistance to the local community:

6.1.4.1: Tourism

There has been almost 7 times increase in inflow of tourists from 1996-97 to 2011-12. Equally, there has been spurt in number of private accommodations over the last decade, and no doubt the overall infrastructure has become better. However, this has led to increased construction, blocking of corridors, mushrooming of hotels, *dhabas* and restaurants. The pollution levels also seem to have gone up, with increased garbage. None of the hotels follows the system of solid waste management. The carrying capacity of the park needs to be evaluated, and tourism needs to be regulated, along with strict enforcement of regulations for hotels, restaurants, etc. The number of visitors and the amount of revenue earned during 2011-12, 2012-13 and 2013-14 are given below:

Year	Number of visitors		Total	Revenue (Rs.)
	Indian	Foreigner		
2011-12	1,17,411	7,521	1,24,932	1,49,46,171.00
2012-13	93,747	7,418	1,01,165	2,05,76,098.00
2013-14	1,21,513	6,922	1,28,435	2,68,65,775.00

6.1.4.2: Provisions of the Sarai Act, 1867: sharing earning with the local community

The Sarai Act, 1867 is an Act for the regulation of public Sarais and Puraos. "Sarai" under the Act means any building used for the shelter and accommodation of travelers. Keeper of sarai includes the owner and any person having or acting in the care or management thereof. The District magistrate is required to keep a Register of sarais as per the section 4 of the Act, and as per section 5 of the Act, lodgers cannot be received in sarais until registered. If a keeper of the sarai is punished three times for violations under this Act, he is barred from running the sarai until he is given a written permission from the Magistrate to run the sarai.

It appears that none of the hotels and dhabas in and around Kaziranga National Park is registered under the Sarai Act, nor is there a register of the sarais with the concerned Deputy Commissioner. If the Act is applicable to Assam, then, even the paying guest accommodations and eco-tourism accommodations would be required to be registered under the Act.

A part of the earnings from these hotels, lodges and dhabas should go the local community for the opportunity of development foregone by them in favour of wildlife.

6.1.4.3: NTCA guidelines on Ecotourism: Charging Conservation Cess and helping local community:

NTCA has issued guidelines on ecotourism in October, 2012. The guidelines suggest for charging conservation cess from those hoteliers who are earning from ecotourism on account of the tiger reserve. Part of this cess receipts is to be spent on the village community, which is living on the fringe of the tiger reserve. The excerpts from the guidelines are given below.

Since the tourism industry in and around tiger reserves is sustained primarily from the non-consumptive use of wildlife resources and the local communities are the ones that bear the brunt of conservation, the State Governments may charge a conservation fee from the tourism industry for eco-development and local community upliftment works. The conservation fee shall be decided on the number of beds in a facility, the duration of operation of the facility (seasonal or year round) and on a luxury classification system such as home stay (fee for which will not be charged up to a 6 bed facility), to high end (which will have the maximum quantum of the fee). The suggested fee structure may range between Rs. 500 to Rs. 3000 per room per month. The rate of conservation fee and tourist facility strata shall be determined by the State Government, and the fund thus collected shall be earmarked to address local livelihood development, human-wildlife conflict management and conservation through eco-development and not go to the State Exchequer. The fund shall be administered by the Tiger Conservation Foundations with the Tourism Industry having a say in how and where this fund is to be utilized, and mechanisms for which need to be worked out at specific tiger reserves. The fund shall be used for all the villages located within or adjacent to the tiger reserves. Every State Government shall notify the rate of local conservation fee within a year

from the date of notification of these Guidelines. The rate of fee shall be revised periodically taking into consideration the cost of operation. The rationale for a local conservation fee should be clearly explained to the public at large, through clear signposts at local tourist facilities. The State Government shall put in place a transparent mechanism for utilisation of these funds involving the tiger reserve management through the Tiger Conservation Foundations and Gram Sabhas.

So far, the Government of Assam has not moved any distance in tapping this revenue for the welfare of the Park and village communities surrounding the Park. It should be done as early as possible, as the fringe villagers are the primary stakeholders in the conservation and protection of Kaziranga, and they deserve some compensation for the sacrifice they have undergone.

6.1.4.4: Jeep safari:

There are a total of 208 vehicles registered with the Kaziranga management for running as jeep safari inside the Kaziranga National Park. Local people are making a earning from the visit of tourists. However, this is an area where the number of vehicles has to be kept within the limits of the carrying capacity of the vehicles mentioned in the Tiger Conservation Plan of the Park.

6.2: (B) Observations and Views of Rhino Task Force:

6.2.1: Fostering “Friends of Rhino”:

For institutionalizing the participation of villagers living on the fringe of Kaziranga National Park in protection and management of the Park, the Union Minister for Environment, Forests and Climate Change has proposed the idea of fostering groups of village community members and named them as “Friends of Rhino”. This is indeed very good institutional arrangement to bridge the large gap between the local communities and Kaziranga management. A proposal for involving volunteers from co-development committees of 33 amalgamated villages (some eco-development committees have members from more than one village) is already under consideration of senior authorities. The “Friends of Rhino” will be voluntary organisation, in the sense that it will be not-for-profit organization and will carry out benefit for the wider community instead to its own members. It will consist of ten (10) members from each village/ Eco-Development Committee.

Management of Kaziranga will work as enabler and catalyst in the birth of such association in the chosen villages. The requisite logistic and administrative support, as well as training, to the group will be provided by the Kaziranga management. The group will be playing very important role of providing help to the Kaziranga authorities on intelligence gathering, passing information about stray rhinos and other wild animals, doing patrolling duty, assisting Park personnel in surveillance in the fringe areas, maintaining round-the-clock vigil during the flood season, etc. The functioning and progress in achievement of desired objectives will be reviewed periodically at different levels of management of Kaziranga.

In the next phase and without much delay, the “Friends of Rhino” should be brought into existence and nurtured in many villages adjoining Northern Range of the Park, having head quarter at Vishwanath ghat and Karbi Anglong area having interface with Kaziranga National Park. These areas are very important for protection of rhinos and movement of spillover population from existing core area to these extended habitats.

The “Friends of Rhino” will also help in protection and rescue of wild animals during the time of floods.

It takes constant investment to build trust. Hence, the management of Kaziranga should engage the local community constantly in the process of wildlife conservation and the development of the villages. They should take the help of local NGOs and colleges/universities in making inroads into the minds of the local people for developing a relationship of mutual trust, assistance and commitment.

6.2.2: Spreading conservation education among children and youths:

- 1) Eco-clubs should be raised in all the village schools where the wildlife experts, naturalists, foresters and sociologists drawn from Kaziranga management, N.G.Os and visitors coming to Kaziranga will interact with the children using effective means of communication.
- 2) Students should taken inside the Park to make them learn nature and wildlife first hand.
- 3) The students as well as the youths of “Friends of Rhino” should be invited on special occasions like wildlife week, world environment day, wetland day, etc. to participate in nature and wildlife awareness programmes.

6.2.2.1: Joining hands with consortium of NGOs in creating conservation awareness:

A consortium of Non-Governmental Organisations, namely, Aaranyak, WWF, local (Kaziranga)-based N.G.O. “Bhoomi”, Laokhowa-Burachapori Wildlife Conservation Society, N.G.O. “Otters” from Orang area and N.G.O. “Prakriti” from Orang area have been holding 3-day wildlife conservation awareness camps for children studying in class-III to class-IX levels in Kaziranga every year from 31st January to 2nd February. All these students are drawn from fringe villages of Kaziranga and in one camp there are 40 to 45 students. The organizers keep the children engaged after the 3-day camps also and monitor the initiatives they are taking in their villages. They are planning to give some of these children higher level of input in conservation education, so that their interest is whetted and later they launch some mission for protection of wildlife and conservation of nature.

The management of Kaziranga should spread this initiative for conservation outreach all around the Park. After a few years, these sensitized children will work as advocates for wildlife conservation.

6.2.3: Involvement of local N.G.Os and College Students in protection and management:

There are many local N.G.Os and college-going students who are keenly involved in wildlife conservation and are conversant in use of internet tools in trawling and disseminating information. Not only during the flood times, but all through the year they can be drafted into the task of management and protection of wildlife, particularly rhino, in Kaziranga. The management of Kaziranga will have to provide the college-going students necessary training to be able to provide meaningful assistance.

6.2.4: Formulating Eco-Development Plans and bringing development through other sectors:

Some of the financial assistance to the local community can be through eco-development plans. This financial assistance will be in the form of creation of community assets, like schools, health centres, community resource centres, water supply, value addition of agriculture produce, etc. The management of Kaziranga should formulate eco-development schemes and formulate micro-plans for the village communities.

There is need for integration of various sectoral initiatives by the Government departments and other developmental agencies. The management of Kaziranga should play leading role in persuading such agencies to implement schemes for income generation and human skill development in all those villages that are sacrificing their income opportunities for the conservation of wildlife. Better, if the youths are given skills related to service sector jobs and entrepreneurship, so that they get properly settled in life and be a beacon light for many who are indulging in wildlife poaching. The management of Kaziranga should mediate in doing so with the technical and financial assistance from the Skill Development Corporation, Government of India, their partners in the State and sector-wide development departments of the State Government and Central Government. Leadership of Kaziranga management in economic welfare of the local villagers should be demonstrably visible to the local people. This will develop and sustain local people's stake in the conservation of wildlife in Kaziranga.

6.2.5: Reviving old institutions related to the public participation:

Between two disparate groups, it requires constant investment in terms of time by both the parties and creation of virtuous cycle over the years for working on the shared objectives. Nearly fifteen years back, the management of Kaziranga had developed two joint groups with the local community – one named as “**Parivesh Samanvaya Samiti**” and another named as “**Saku**” (Assamese word for “**Watch/Vigil**”). *Parivesh Samanvaya Samiti* was a joint group of influential members of village communities surrounding Kaziranga National Park and some representatives of the National Park. It came into existence during 1993. The *Samiti* was particularly effective in protecting the wild animals during the flood season,

mostly the deer, which were otherwise mostly being eaten up by the people during the mayhem of flood.

“Saku” was a group representing owners of hotels, resorts and *dhabas* near Kaziranga Park entrusted with the responsibility of ensuring implementation of ecotourism-related rules and guidelines of the Government. In addition, the members of *“Saku”* were required to keep a close watch on the activities of persons staying in their lodges and persons visiting the tourists. This group was created in the year 2008. Apparently, the group was not nurtured by the Kaziranga management and as on now, it is not visible there.

There was need to institutionalise *“Parivesh Samnvayak Samiti”* and *“Saku”* and evolve them into sharpened tools of management. But, the reverse happened. The mechanisms governing them were gradually dismantled and the groups have gone into the oblivion, so much so that the Kaziranga management does not have any record of them now.

This is one glaring example that should remind the management of Kaziranga that building of good institutions and documentation of records to sustain institutional memory are essential ingredients of modern management.

Chapter 07

Putting it all together

- 7.1:** *Taking ecosystem approach of management*
- 7.2:** *Governance issues having impact on performance*
- 7.3:** *Major Drawbacks in Management*
- 7.3.1:** *External Factors*
- 7.3.2:** *Internal Factors*
- 7.3.3:** *Policy Issues*
- 7.3.4:** *Issues related to infrastructure*
- 7.4:** *Committees constituted for Kaziranga National Park*
- 7.5:** *Analysis of poaching of rhino done by the Rhino Task Force*
- 7.5.1:** *Poaching and its trend*
- 7.5.2:** *Modus operandi of poaching*
- 7.5.3:** *Anti-poaching strategy of the department and its operation*
- 7.5.4:** *Deployment of Assam Forest Protection Force*
- 7.5.5:** *Patrolling schedule and process*
- 7.5.6:** *Weapons, tools and facilities available with Anti-poaching Camps*
- 7.5.7:** *A simplified analysis of anti-poaching system – qualitative and quantitative*
- 7.6:** *Securing the long term future of rhinoceros of Kaziranga: Extension Areas and Larger Issues of Corridors*

Putting it all together:

7.1: Taking ecosystem approach of management:

The measures suggested by the management of Kaziranga National Park in their report submitted to Hon'ble Gauhati High Court in PIL No.66/2012 are comprehensive and futuristic in coverage and outlook. The Rhino Task Force fully subscribes to the measures suggested by the Director, Kaziranga N.P. with the critical view that there are many measures which can be implemented without need of large sum of money by (i) better governance, (ii) effective inter-agency co-ordination among law enforcement agencies, and coordination with revenue agencies, (iii) improving human resource, (iv) improving management of forest department and police department, (v) dealing militants of all hues with iron hand, (vi) spreading conservation awareness among communities that are traditional hunters and poachers, (vii) garnering support of fringe villages in protection and conservation of rhinos, (viii) taking help of CBI and NIA in catching criminals and gangs at the hubs of crime like Dimapur, Churachandrapur, More, etc. (ix) maintaining case diaries, carrying out sincere and scientific investigation of crimes, securing fast conviction of criminals, etc. In addition to the prescriptions suggested by the Kaziranga management, the Rhino Task Force gives its observations, analysis and recommendations in the following paragraphs.

All the measures suggested above can be implemented effectively only if the implementing agencies, mainly the Assam Forest Department, take bold step of changing their mission, structure, people, performance measures, incentives, accountability, processes and culture. Merely changing structure here and there, i.e. changing individuals and units, or bringing some technological change, will lead the department nowhere until all the above constituents, that define the character of the organization, are changed to deal with the new challenges.

7.2: Governance Issues having impact on performance:

In the hierarchy of management practice, Management by Results is more effective than both Management by Guesswork and Management by Objectives. But, even Management by Results can be improved, as is used by a number of advanced country governments, by using the approach of Total Quality Management - the management philosophy developed principally by W. Edwards Deming. Deming argues that once we learn about poor performance (or "quality", the term he uses), we do not necessarily know what is causing it. It might well be factors outside the control of the workers and the manager.

In Deming's view, only 15 per cent of the problems in most organizations are caused by the workers and managers involved. The other 85 per cent stem from the broader systems within which these people work – the budget system, the personnel system, and so on. Performance pay gives people an incentive to improve performance, but it does not give them the authority or the tools to change the systems that lie behind their problems. [David Osborne and Ted Gaebler (1992)].

The least leverage comes from changing people in an organization. The basic problem with government today is not its people, but its DNA (defined above). We will never fix our governments just by getting “better” people, because good people cannot make bad systems work unless they change those systems. Changing people’s habits, hearts and minds is a retail work; it happens one by one. Rarely does it force changes at other levels. In contrast, changing governing systems, administrative systems, and organizations forces many people to change. [David Osborne and Peter Plastrik (1997)]

This is precisely the case in Kaziranga National Park. Most of the problems are caused by outside factors. It is the reflection of a governance system which cannot deal effectively with the militants, illegal fire arms, government land encroachers, poorly functioning bureaucracy and corruption. If these negative externalities are removed, there will not be any problem in Kaziranga and rhinos can live happily in Kaziranga for decades to come.

7.3: Major Drawbacks in Management

Management of any organization is impacted by internal factors, external factors and policies governing the entity. In case of Kaziranga, the factors responsible for the current outcome are the following.

7.3.1: External Factors:

1. There are abundant number of illegal firearms and criminals of all hues in the region. There are armed criminals in Karbi Anglong hills, the backyard of Kaziranga. In addition, there are many insurgent outfits in Assam and neighbouring States, whose sole purpose is to find out easy money, and trading in rhino horn is one such lucrative avenue. Dimapur, which is supposed by many enforcement agencies as hub of crime, is in close vicinity of Kaziranga.
2. Reportedly high stakes are involved in trade of rhino horn. It is like Russian roulette – either you get a jackpot of millions of rupees or get killed. Hence, many unemployed criminal elements in the human habitations outside Kaziranga are strongly motivated to tempt their luck in killing rhino in Kaziranga. Without their collusion, poachers from faraway places cannot have the ease of poaching rhino that is being currently witnessed.
3. There are command and coordination issues. State government has poor command over its Karbi Anglong District Council arm and perhaps no coordination with police department of neighboring States and Central enforcement agencies. State government is presumably not getting any intelligence input for prevention of rhino poaching from neighboring States and even from its own District Council, Karbi Anglong. As a result, the management of Kaziranga is clueless about the impending poaching.

7.3.2: Internal Factors:

1. The advanced world and some parts of our country are talking of entrepreneurial and mission-driven government, where the conventional bureaucracy would yield way to modern way of management where effectiveness will be the measuring rod of the quality of management. It has not happened in the old bureaucratic functioning of Assam, which has its fallout in the functioning of Assam Forest Department and Kaziranga also.
2. The funds released from the Central government are not released to Kaziranga till the last quarter of the financial year and in some cases they lapse. Although, Kaziranga management scrapes through the Foundation money they receive from tourism, but the whole purpose of having activities under APO (Annual Plan of Operation) spread over the whole length of financial year is defeated. Despite requests from Central government for timely release of fund to the field implementing agencies, the problem persists in the State government.
3. The management of Kaziranga has not made efforts to investigate wildlife crimes, prepare case diaries, prepare a robust case in the court of law, monitor the progress of case and secure conviction of criminals. As a result, the provision in the law for enhanced punishment to repeat offenders is just on paper. They have not yet started using forensic science for making strong case against the criminals.

4. Human Resource Management:

- a. There are many works in the Park on daily basis. Some of these are: working on alerts and perceived threats of poaching all over the Park and its extended areas, rescuing and rehabilitating animals during floods, estimation of works, daily tiger protocols, research and training, creation of eco-development committees and plans, ecotourism, attending various delegations, office administration, preparing various reports, etc. All these works are being done by a Director and one D.F.O. The result is sub-optimal outcomes and delays. There is strong need for restructuring the organization.
- b. The age profile of field personnel in Kaziranga is not favorable for hard demanding duties. Many of these aged persons are suffering from one ailment or another. There is need for inducting young, but motivated and dedicated persons in Kaziranga.
- c. **Righting the incentives in the Assam Forest Department:** Transfer and posting in the State Forest Department has a major role to play in demotivating many sincere field employees at different levels. So far, merit, honesty, dedication and physical fitness have not been made as yardsticks for posting at middle and senior level management of Kaziranga. This has its impact on the functioning of Kaziranga also. For providing better management to Kaziranga, there is need for providing level playing field, honesty and transparency in forest administration.

Human Resource Issues in Kaziranga as highlighted in Performance Audit Report of CAG (Report No.3 of 2014) :

9.3.1 “.....this reveals that more than fifty percent of the staff in frontline categories was more than 45 years of age”

9.3.2 “ Audit observed that 100 freshly recruited frontline staff ... were deployed to the park by the government in December 2009. However, 73 of these personnel were transferred out of the park by the government...”

9.3.4 “During physical verification... at the anti-poaching camps it was observed that out of 165 camps 11 are manned by only 2 guards, 68 had more than 2 but less than 4, while the remaining 86 camps had 4 guards and above”

9.4.1 Audit had come across an instance where the DFO during his surprise visit to Burapahar Range found 21 out of 108 AFPF personnel absent without authority. The Audit has emphasized the need of the control of AFPF by local forest authorities, instead of their separate controlling authority. Scrutiny also highlights how AFPF syllabus does not square with the need of wildlife conservation and how it could have been overcome, had AFPF been raised as a Wildlife Force instead of Police Force and would have been under the control of a CCF rank official as envisaged in the AFPF Act.

9.10.3 About tiger allowance (the project allowance given by NTCA) AG writes. .. ‘AFPF jawans posted in the same camps carrying out similar duties are not getting the allowance.

5. Re-designing the organization:

- a. Design means holistic thinking about the organization - its mission, structure, quality of people, performance measures, incentives, accountability, processes and culture, and the way the whole operates in the environment. There is need for changing all the above constituents of the organization. Collectively, they are the DNA of the organization
 - b. With the changing operating context, there is need for new strategy and design.
6. People having passion and talent for wild life management jobs should be posted there. Better if the Range Officers, Deputy Directors and Director are trained in wildlife management from Wildlife Institute of India. If not at the time of posting, they should be given the requisite exposure and motivation to perform the task at hand.
7. **Providing skills to the field personnel:** The field personnel lack the requisite skills needed for effective management. While the middle and senior level needs skills relating to the latest means of wildlife management, use of ICT tools, public relations, negotiations, intelligence gathering, coordination, etc, the frontline staff needs training on patrolling strategy, weapon handling and jungle warfare, gathering field evidences including for forensic

purpose, garnering support of villagers, gathering intelligence about suspected and potential offenders, use of electronic gadgets (GPS, PDA, etc.), building team spirit, etc.

8. Coordination Issues:

- a. Apparently, there is not an effective coordination of Kaziranga management with the neighbouring forest divisions.
- b. There is woefully poor relation of Kaziranga management with the neighbouring village communities. Most of the villagers complain that in all the recruitments that took place in the Assam Forest Department, local people have been given raw deal. There is need for constant engagement with the villagers and providing possible assistance to them through various developmental agencies. Many of them have feeling of alienation.
- c. Coordination with other law enforcement agencies, particularly with State police and central agencies has also not been institutionalized so far, although efforts were initiated long back.
- d. Assam Police Department has not been giving much attention on investigation of crimes related to the poaching of wildlife. As a result, investigations of rhino poaching crimes have not been done diligently and conviction of criminals is almost nil. However, of late, Assam Police Department has decided to open a police station (*thana*) in Kaziranga exclusively for dealing with wildlife crimes.

9. Failure to institutionalize inter-agency coordination:

As mentioned in para 2.2.4, the co-ordination meeting among various law enforcement agencies of State and Central governments is not getting regularized and its decision implemented. While at times, central government and courts of law have been working as catalysts to improve the management practice in wildlife management, the response of the Assam Forest Department had been less than expected. There is strong need for improving the functioning of the office of the Chief Wildlife Warden.

The staff organization (office of Chief Wildlife Warden and Forest Department Secretariat) and line organization (Kaziranga Tiger Reserve) are strongly linked. The deficiencies in staff organization severely cramp the performance of line organization.

7.3.3: Policy Issues:

- a. Here policy includes legislation also. There is need for policy dealing with mushrooming growth of dhabas and commercial buildings around Kaziranga, leading to blocking of movement of animals even during the

peak flood season. At present, there is no remedy to this growing problem. As highlighted by the CAG in the report for Kaziranga (report no. 3 of 2014), many of these private lodges are on government land for the last many years. The revenue department has not made sincere effort to look into the status of land around Kaziranga. The encroachers need to be evicted forthwith.

- b. There is need for an effective policy to deal with surrendered militants and illegal arms.
- c. **Land-use policy:** There are many islands (chaurs) created and deleted by river Brahmaputra after every few years. These islands are important habitats for wildlife, particularly for the long ranging animal rhino. But, these islands get usurped by many people. They not only block the movement of animals, but become potentially the sanctuary for colluders in poaching of rhino and other animals.
- d. Many people are blocking movement of wild animals between Kaziranga and Karbi Anglong hills because of unplanned construction activities and fencing their lands. There is need for a policy to regulate all such so-called developmental activities in wildlife-dominated landscape.
- e. All the human habitations blocking the movement of wild animals should be removed – eviction in case of encroachments and relocation of people through purchase of their lands in other cases. It is suspected that many herbivores entering into human settlements accidentally, or in distress during floods, are being killed by most of the people residing there.
- f. Due to poor governance in Karbi Anglong Autonomous District Council, rhinos, elephants, tigers and other wild lives are not safe in that area. So far as management of wildlife is concerned, central government should make suitable amendments in the law to ensure unified command of management of wildlife using a landscape straddling two separate States (or State and District Council). There is no point in having better protection of wildlife at one place and killing in the neighbour's area. For the time being, there can be a legal instrument drawn between the State government and the Karbi Anglong Autonomous District Council for obligating the latter to protect the rhinos, tigers and other wildlife moving into their area.
- g. There is need for dealing with all kinds of encroachments strictly. Apparently, there is no holds barred situation on encroachment on government lands.
- h. Lot of weeds reach Kaziranga with flood waters from neighbouring non-forest lands. We do not have a policy to prohibit use of any such plants, which ultimately prove ruinous to the habitat of Kaziranga.
- i. The hills overlooking Kaziranga are being destroyed by unsustainable land use practices in Karbi Anglong. There were stone crushers running just behind the Panbari R.F. of Kaziranga Park. These are all leading to problems

in Kaziranga. We need to regulate all such activities, which are detrimental to the habitat and animals of Kaziranga.

Funding Issues in Kaziranga as highlighted in Performance Audit Report of CAG (Report No.3 of 2014) :

8.4.1. While highlighting the actual decrease in the allocation of funds for the wildlife sector in Assam despite the overall increase in the plan outlay of the state between 2008-09 to 2012-13, CAG comments “ *Thus despite the MoEF, Govt declaring the wildlife as a priority sector, the allocation of funds by the state government continued to be at negligible rates and actually decreased*”

8.6.1. CAG highlighted the delays in release of funds by the state government from 2 to 5 months, “*Due to these undue delays, majority of funds ultimately reached the park during February-March, i.e. the last two months of the financial years*”

8.9: CAG further observes, “ *Besides, there were inordinate delays on the part of the state government to release funds received from the central government. As a result, there was a wide variation between the activities envisaged in the management plan, those included in the APO and the works actually undertaken over the years. Thus, at present the park is managed purely on ad hoc basis without any linkage with the long term perspective or planning.* ” CAG has also cited good financial practices in the states of Karnataka and UP.

7.3.4: Issues related to Infrastructure:

The infrastructure of Kaziranga is not equal to the requirement of the day. Many anti-poaching camps do not have the basic amenities for the staff working there on 24x7 duty. The issues related to serious infrastructural deficiencies have been prominently highlighted by the report of CAG also.

Funding Issues in Kaziranga as highlighted in Performance Audit Report of CAG (Report No.3 of 2014) :

9.13.1 & 9.14.1 CAG highlights the poor conditions of camps especially with regards to water and power supply

10.2.7. While there are 143 Anti poaching camps manning the original core area of 429 sq. Km, including the 1st and 4th addition areas, there are only 22 camps in the sixth addition area which is about 376 sq. Km.

7.4: Committees Constituted for Kaziranga National Park

On different aspects of management of Kaziranga National Park/ Tiger Reserve, there have been many committees constituted by the State Government. Some of these committees are as follows.

1) Kaziranga Biodiversity Conservation and Development Committee:

This committee had been constituted on 1st December, 2008 to examine the matter of biodiversity conservation and development in holistic manner and also suggest in respect of infrastructural development for better conservation of wildlife along with further development and maintenance of biodiversity in world heritage site Kaziranga. The committee was headed by the Minister, Environment & Forest, Tourism, etc., Government of Assam and had 20 other members from revenue, forest, tourism departments and academicians with Botany and Zoology background.

A **sub-committee** of this committee was constituted on 19th June, 2009 for examining into issues related to the following: growth of tourism zone around Kaziranga National Park and related uncontrolled infrastructure development, other connected and / or incidental activities, their impact on Kaziranga National Park ecosystem and protection of its wildlife

The committee held its first meeting on 5th February, 2009 and the sub-committee held subsequent four meetings.

Outcome: The sub-committee of the Committee held its last meeting on 4th January, 2012 at Kaziranga National Park. In the meeting, members decided that creation of eco-sensitive zone around Kaziranga was not sufficient enough to deal with the various problems created in Kaziranga by haphazard growth of infrastructure and commercial land use, particularly between southern periphery of the Park and foothills of Karbi Anglong. The sub-committee proposed for seeking in-principle approval of the Government of Assam for bringing in draft legislation “Assam Land Use Regulation Act for Greater Kaziranga” and suggested ways and means for drafting legislation. However, nothing has happened on their proposal so far.

As per the decisions of the Kaziranga Biodiversity Conservation and Development Committee, all sale permissions in and around Kaziranga National Park require “No Objection Certificate (NOC) ” from the Director of the Park. Till the end of January, 2015, the Director had issued 24 NOCs, all within the Kaliabor Civil Sub Division. Out of these, 21 NOCs have been granted on condition of “no change of land-use”, while 3 NOCs were directly given to the developers and involved change to commercial land use, but it stated that “land has been used by wild animals”.

2) Local Advisory Committee for Kaziranga Tiger Reserve

In the aftermath of notification of ‘Comprehensive Guidelines for Tiger Conservation and Tourism’ under section 38 O (1)(C) of the Wildlife (Protection) Act, 1972 by the National Tiger Conservation Authority, Ministry of Environment, Forests and Climate Change and in compliance to order dt.16.10.2012 passed by Hon’ble Supreme Court of India in Special Leave Petition (C) No.21339/2011, this committee was constituted by the Assam government on 20th April, 2013. It is headed by Divisional Commissioner, Upper Assam Division, Jorhat and has 25 other members comprising of a local MLA, Presidents of Gaon Panchayats, representatives of NGOs,

Academicians, and officers of Government departments like revenue, forest, tourism and tribal welfare. The functions of the Local Advisory Committee are the followings:

- a. To review the tourism strategy with respect to Kaziranga Tiger Reserve and make recommendation to the State Government
- b. To ensure computation of reserve specific carrying capacity and its implementation through periodic reviews
- c. To ensure site specific norms on buildings and infrastructure in areas inside and close to Kaziranga Tiger Reserve, keeping in view the corridor value and ecological aesthetics
- d. To advise the local self government and State Government on issues relating to development of tourism in and around Kaziranga Tiger Reserve
- e. To monitor regularly (at least half yearly) all tourist facilities in and around Kaziranga Tiger Reserve vis-à-vis environmental clearance, area of coverage, ownership, type of construction, number of employees, etc for suggesting mitigation and retrofitting measures, if needed.
- f. To monitor regularly activities of tour operators to ensure that they do not cause disturbance to animals while taking visitors into the Kaziranga Tiger Reserve
- g. To encourage tourism industry to augment employment opportunities for members of local communities

Outcome: The committee held its first meeting on 6th November, 2013 at Kaziranga National Park and focused on following issues.

- (i) Connectivity with Karbi Anglong Hills in south through natural high grounds along National Highway 37 is important for maintaining the values of the Park for its World Heritage status. The land mass available between Kaziranga floodplains and Karbi Anglong is less and change in land-use pattern will adversely affect the conservation values. The areas along national highway in Nagaon district are more sensitive as flood waters reach close to the highway even under low flood condition due to back flow of water in Burapahar and Western ranges of the reserve
- (ii) The chairperson (Commissioner, Upper Assam Division, Jorhat) requested the concerned SDOs and DC, Nagaon to look into the matter and take necessary action relating to tourist facilities and other commercial establishment in the area between Kaziranga and Karbi Anglong hills as provided in the comprehensive guidelines of NTCA (No.15-3/2012-NTCA dated 15th October, 2012). The government land reserved for Kaziranga National Park, north of NH 37 in Nagaon district will be identified by the concerned revenue authorities and handed over to Kaziranga National Park for creating highlands and other use. The Chairperson also requested respective district administration to take up the matter with the local Panchayati Raj Institutions (PRI) regarding regulation of tourism and construction around Kaziranga National Park and sensitize local communities for its tourism and income generation sustainability.

- (iii) The committee also decided to constitute a sub-committee to formulate a strategy to stop the change of land use pattern and forward the suggestion to the Government to adopt the same.
- (iv) The members expressed serious concerns over mushrooming of *dhabas* and their barrier effect on animal crossing during floods. The chairperson suggested that concerned revenue authorities would examine legal aspects of their presence along NH 37 and take necessary action. He also advised to keep watch on activities in the *dhabas* to prevent and control any unethical activity.

Next meeting of the committee was proposed to be held in February, 2014, but it did not happen.

3) Anti-Rhino-Poaching Task Force:

By their order no. FRW 2/2014/2 dt.16th May, 2014, the Government of Assam constituted an “Anti-Rhino-Poaching Task Force” , a Special Task Force under the overall supervision of the Additional Director General of Police, STF, Assam with the Superintendents of Police of Golaghat, Nagaon, Sonitpur and Karbi Anglong districts and Kaziranga National Park authorities assisting him. The Director, Kaziranga National Park is a member of the Task Force. The Task Force is still in operation.

Outcome: The Task Force arrested many poachers. Some of the poachers were killed in encounters inside the Park. There was a lull in poaching for some time, but again it has picked up. Perhaps the task force is not able to reach to the operators of gangs. Apparently, stray killing of poachers inside is not proving deterrent, as there are many desperate youths to push their luck for earning a handsome amount of money they wouldn't have dreamt of. The tipping point in stopping the contagion of this crime has not yet arrived.

4) Committee constituted for development of protocol for strayed rhino:

This committee was constituted by the Government of Assam in February, 2014 to develop a ‘Standard Operating Protocol’ for Rescue of Stray Rhinos. But, the committee has not given any recommendation so far.

A few other initiatives, like use of forensic science in investigation of wildlife crime, did not get off the ground because of lack of follow-up from the responsible quarters in the Forest Department.

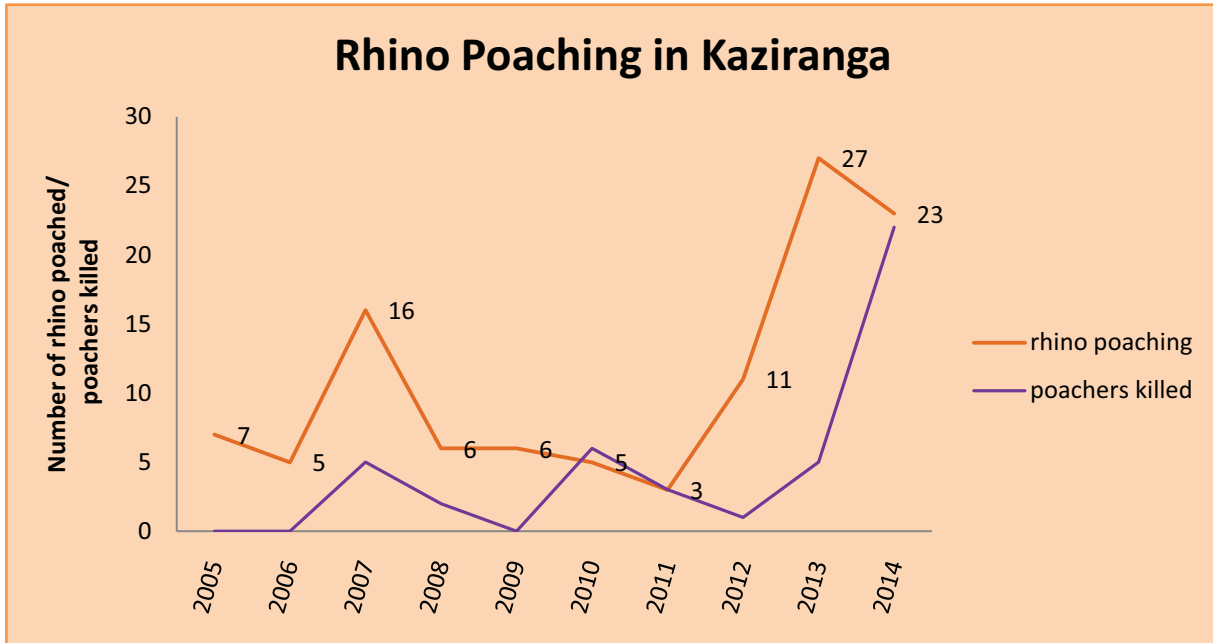
All these call for clarity on mission of Kaziranga and providing necessary means to Kaziranga management timely to achieve the mission.

7.5: Analysis of poaching of rhino done by the Rhino Task Force:

7.5.1: Poaching and its trend:

On analysis of the poaching incidents and their figures in Kaziranga, it becomes evident that poaching was almost stable from 2005 to 2011 and then it surged. The

modus operandi suggests that the poaching attempts are made with sophisticated weapons and in daredevil manner. Complex socio-economic issues, demographic changes around the Park and mushrooming of militant groups equipped with sophisticated illegal firearms have posed a serious challenge to the protection of rhino in a land which had almost deified the animal.



7.5.2: Modus operandi of poaching:

The rhino poaching in Kaziranag National Park is mainly done by gun shot. Other methods of poaching like Pit poaching, Electrocutation, Poisoning are rarely used now-a-days. A group of poachers consists of 4-6 persons. They use AK-47, AK-57 rifles, .303 Rifles, SBML guns, double barrel guns, tranquilizer guns, etc. for poaching. Sometimes silencers are used with the guns to reduce noise, thereby reducing the chance of getting apprehended. They use axe, chopper or haxo-blade to cut or extricate the horn from the rhino body.

As per reports of various agencies, there are large numbers of unlicenced guns available in the districts of Karbi Anglong, Sonitpur and Nagaon. Most of the arrested poachers during interrogation readily recognised Dimapur as the main trade centre for rhino horns and other wildlife articles. They also admitted that arms and ammuniton were brought from Dimapur in most of the cases. There is ready market for rhino horns at some hotels, and many Gun Shops are selling various types of arms & ammunitons, including sophisticated arms, at Dimapur. Even Guns are available on rental basis.

The rhino horns are transported by road in car/bus to Dimapur and then for onward destinations in a concealed way. As per information, transportation to other trade centres at Imphal, Churachandpur, Diphu, Kalimpong, Jaigaon, Siliguri and Moreh etc., besides other big cities in India, are being done by road or by rail by using different concealment techniques. Smuggling to the traditional trade centres of Rhino horns in some South East Asian countries are being done probably through

concealment by Air/Road etc. In one of the cases detected at Nagaon (Assam), the Rhino horn was found concealed behind the headlight of the vehicle in a novel way.

Every year floods devastated Assam, and wild animals trying to escape the rising waters in Kaziranga National Park have fallen prey to hunters, poachers and speeding vehicles. But there is another threat, particularly to Rhinos, that won't recede with the water. It is from the armed militant separatist outfits in the Karbi Anglong area. The biggest clue to this came after the arrest of one Lyngdok Rongpi last year, who confessed before a Magistrate that he poached six Rhinos under the instructions of Songja Timung, self-styled Defence Secretary of Kuki National Liberation Front, one of the armed outfits from Karbi Anglong area in Assam.

Due to constant bank erosion and accretion in the form of riverine islands and sandbars a number of new chaporis (riverine islands and sandbars) have been originated which constitute numerous extended habitats for wild animals. After the monsoon season, new grasslands grown on these Chaporis attract Rhinos to migrate or stray into these areas for food. The numerous Sandbars and Riverine Islands of Brahmaputra have become the favourite hunting ground for poachers. With adequate supply of guns and ammunition from different insurgent groups, many youths have become criminals engaged in all sorts of illegal activities.

As per intelligence, some of the local people of Karbi, Mishing and Muslim villages around Kaziranga National Park have become poachers themselves over the years under the influence of Paites and they are considered as a threat to the Rhino population of KNP. There are Paite villages in other areas of Karbi Anglong also, like Jolin and Khonom village under Manza P.S. They are also believed to be involved in Rhino poaching and horn trade.

The involvement of some Forest Guards of Assam in the poaching of Rhinos is another problem. As learnt, two brothers of notorious poacher and gang leader Ganesh Doley have been employed in the Assam Forest Protection Force since 2011. One of them Sashi Doley was arrested by Bokakhat Police recently in a Rhino poaching case, vide Bokakhat PS case no.146/2012. Proper verification of their antecedents may not have been done before employing them as Forest Guards.

7.5.3: Anti-poaching strategy of the department and its operation:

Kaziranga is one of the well-equipped National Park in the country and its conservation efforts are based on sound rationale. The manpower and infrastructure are adequate, provided that it does not have to fight against armed poaching groups. There are 174 anti-poaching camps distributed all over the Park covering five Ranges. There are 461 frontline Staff besides 439 Assam Forest Protection Force Personnel, 110 Home Guards and 171 Daily Waged Labours deployed throughout the National Park for protection, surveillance and anti-poaching duties. The range-wise break-up of the existing anti-poaching camps (APC) in Kaziranga National Park is as follows –

Name of The Range	No. of anti-poaching camp	Area of the Range (Km ²)	Avg. Area /camp (Km ² /camp)
Burapahar Range	26	57	2.19
Bagori Range	37	110	2.97
Kohora Range	53	220	4.15
Agratoli Range	40	100	2.5
Northern Range	22	406	18.45

Some of the APCs have been found in good condition, whereas some are in bad condition and need renovation urgently. The deployment pattern of manpower is not uniform and there have been wide variations in the deployment pattern. It has been observed that the APCs are manned by Forester, Forest Guard, Casual Staff, Van Shramik, Game-watcher, Boatman, Mahout, Grass-cutter, Home Guard, Assam Forest Protection Forces (1st & 2nd Battalions). The composition of deployed manpower varies from camp to camp, depending upon the availability of manpower and nature of the particular camps. In general, minimum four Guards are being deployed per camp and the maximum number is up to six per camp. Each APC should have at least six to eight Guards for proper patrolling in two shifts. It is not possible for a Guard to perform round-the-clock duty every day. The APCs should be re-structured to accommodate more Guards with proper equipments and arms to combat the poachers effectively. As the field staff of Kaziranga has to perform 24 hour duty now-a-days, it is suggested that reserve of armed personnel be posted at Range head quarters to reinforce field strength in any anti-poaching camp or in any field operation.

7.5.4: Deployment of Assam Forest Protection Force:

7.5.5: Patrolling schedule and process:

The anti-poaching activities include patrolling (by foot, by boat, on Elephant back and on vehicle) along the Forest roads thrice in a day and night patrolling. Surveillance is done from the Watch Towers. All the APCs have been found to maintain Camp Diary or Duty/Patrolling Logbook and regular entries have been made by the Camp-in-charge date-wise.

Flood during the monsoon season is a unique phenomenon which calls for special attention in regard to protection. During the monsoon season, the whole of the National Park gets inundated under flood water and the animals cross over the NH-37 and move on to the forests in Karbi-Anglong District for food and shelter. Forest Department presses into service Elephants for the staff to monitor the animals leaving the National Park and also they try to drive the animals back to the safer areas in the National Park. Temporary check posts are established at corridors during the floods to monitor movement of the animals. The Forest Department counts the animals leaving the National Park during the floods. However, as a matter of practice, they don't ensure that all the animals left the National Park during flood are returned after the floods. Once the animals cross over to Karbi Anglong, which is

an autonomous area, jurisdictional issues also crop up and ultimately the poachers stand to gain. Section 144 Cr.P.C is also clamped along the NH-37 in order to safeguard the wild animals crossing over the road.

There is no seasonal variation of patrolling except in monsoon season when patrolling by foot is not possible. However, timing is changed deliberately. At night, patrolling is very difficult at zero visibility in pitch darkness and amid tall grasses. Most of the Guards have been posted in the Park for a long time and they need to be transferred to other Forest Divisions and fresh young Guards should be posted for anti-poaching duties on rotational basis. There is a centralized Control Room at Bokakhat to receive information from all Ranges and issue instructions for immediate action. *Smart patrolling with GPS devices* needs to be institutionalized in the daily patrol regime.

7.5.6: Weapons, tools and facilities available with APCs:

It has been observed that a few night-vision devices have been procured by Kaziranga. The APCs have been provided with .303, .315 and SLR Rifles with 50 rounds of ammunitions. Wireless sets of Motorola and HYT makes with solar charger, torch lights and in some camps search lights have been provided. ***However, it has been observed that individual mobile phone handsets are being used extensively as a communication network.***

The cause for failure during encounter with the poachers may be due to lack of motivation, inadequate combat training, old weaponry in comparison to latest sophisticated arms like AK-47, AK-56 used by the poachers, lack of proper equipments like night-vision devices and powerful search lights, inadequate mobility support, fear psychosis to combat armed poachers, lack of co-ordination, multiple entry and exit points used by the poachers as the Park is open from all sides, connivance etc.

7.5.7: A simplified analysis of anti-poaching system - qualitative and quantitative:

It needs to be analyzed whether the existing system has the infrastructure, manpower and capability to tackle the heightened level of threat of poaching, with changes in manner and quantum, both spatially and temporally. Examination is necessary to find the capability to thwart attempts at commissioning of crime during day time, in the night, in the rainy season or in Karbi Anglong hills during the migration of animals during floods.

Simplifying the various concomitant issues in the scenario, following situations emerge in Kaziranga:

- (1) On an average, 4 persons are deployed per anti-poaching camp, although nearly 80 camps were manned by less than 4 persons. The ratio of AFPF to Forest staff is 2.25 to 1.75. Forest staffs deployed are sometimes boat man, game watcher or casual labour, who are competent to gear up in difficult situation.

- (2) The poachers' groups consist of young boys, with the size of the group varying between 4 to 6 and are always equipped with AK-47, AK-56 and SLR. The argument of forest officials that 0.303 rifle is quite effective does not take away the fear of AK-47 from the staff. About 60 % of the weapons used by AFPF is 0.303 rifle and the rest is SLR, whereas Eastern Assam Wildlife Division has issued about 55 % of arms as SLR and the rest 0.303 to its staff.
- (3) Shooting effectiveness is within 300m radius, provided the target is clear visually, and the area of control of the shooter is say 0.3 sq.km centering around the shooter. The range is largely affected by visibility, which is dependent on light condition, terrain and canopy cover. In the night, the location of the poacher is guessed by sound, which is subject to deflection, reverberation and attenuation. Otherwise also, night patrolling is quite limited due to usual limitations of human beings.
- (4) The poacher has do-or-die psychology against the "avoidance and save yourself" tendency of many staff normally in such a situation. The poacher is also equipped with intelligence about the camp vis-a-vis no knowledge of them by the anti-poaching camp staff.
- (5) The effective area of control of 174 camps is quite small, leaving a large area with less effective control. The difficulty of a camp is manifold against a poacher who is ready to die because of high stakes for him.

The present situation makes it imperative for an intelligence-based enforcement, enhancing capability of staff either by training or inducting young forces and modernization of weapon and *communication system*.

7.6: Securing the long term future of rhinoceros of Kaziranga: Extension Areas and Larger Issues of Corridors:

None of the corridors on NH-37 has an uninterrupted width of 3 km as is mandated in the Tiger Conservation Plan.

The corridors should be as natural and as uninterrupted as possible. There should be least influence of human habitations in the form of block or barrier, vehicular or machine noise, lights, dogs, etc. All these human influences need to be addressed in making the corridors fit for movement of animals.

But, after crossing the small length of area across NH-37, the animals come across barriers in many forms on the side of Karbi Anglong and other areas. There are houses, fencing of lands, jhum cultivations, stone crusher units, buildings and criminals in forests. The concept of corridor has meaning only when the animal is safe on the other side.

Hence, there is need for having more corridors and more dispersal areas for the animals, as the usual causes of dispersal, like increasing density of animals inside the Park, degradation in quality of habitat, territorial nature of some animals and natural instinct for seasonal migration, will always remain.

For long term survival of the wildlife, there is urgent need to extend the suitable and connected habitats in contiguity of the Park boundary. The need for extension of rhino habitat for Kaziranga was also recommended by the Asian Rhino Specialist Group of IUCN. They had recommended for extension of areas into higher reaches that are not affected by annual floods. The Group had kept a provision of US\$90,000.00 for it, which may need revision now.

Following are the two categories of potential areas for increasing the size of habitat: (i) areas available with the Forest Department, and (ii) areas under State government but outside the State Forest Department. They should be added to the Kaziranga Tiger Reserve immediately in order to deal with the problems related to habitat and increasing population of herbivores mentioned above.

1. Chirang Pahar (in the west close to Burapahar): Based on the PRF notification of the area, fresh survey of the area should be done immediately and handed over to the Kaziranga Park. It is now under Nagaon Territorial Division
2. Kamakhya Hill RF (in the west): This area is also under Nagaon Territorial Division and should be handed over to the Kaziranga Park.
3. Other Areas:
 - a. Gakhirekhaiti Village near the Kaliabhomora bridge towards Kaliabor side
 - b. Areas between NH-37 and Kaziranga at certain places
 - c. Government land/ Village Grazing Reserves (VGR) / Public Grazing Reserves (PGR) between Sukhani to Japaripathar area in eastern side of the National Park
 - d. Government land north of embankment from Japaripathar to Dhanbari
 - e. Social Forestry Plantation area near Dwar Bagori
 - f. Government land near Harmoti camp
 - g. Encroachment on the south side of Deopnai Bridge to be removed and corridor restored
 - h. Government land in and around Banderdubi
 - i. All *Chapories* (islands) outside the 6th Addition, which can be made part of the extended habitat of the Park
4. Islands on western side of Brahmaputra River from Laokhowa WLS to Orang N.P. should be brought under the management of management of Nagaon Wildlife Division (buffer area of Kaziranga Tiger Reserve) and Orang National Park for better conservation of rhinoceros and other wildlife, including tiger. WWF in association with the Assam Forest Department conducted a detailed survey of the Brahmaputra river corridors for signs of tiger and other carnivores in February-March, 2014 using established techniques of sign surveys, presence-absence index etc. GPS locations of rhino sighting between Kaliabhomora and Laokhowa WLS from 2008 to 2013 showed that rhinos were located at 29 different locations within this

landscape. This clearly establishes that rhinos from Kaziranga do migrate to Laokhowa WLS and Burachapori WLS and from there to Orang.

5. There are many wild animal corridors scattered all around Kaziranga, important among them are chapories of Majuli and from there to Lakhimpur, Nambor-Doigrung-Garampani, river channels on the north bank such as Jia Bharali, Buroi, Gabharu, Borgang, towards west across Silghat, and the Kaliabhomora to Laokhowa and Orang National Park mentioned in above para. All these islands along Brahmaputra River are shown in the map in Annexure.

All these areas should be brought under the control of Kaziranga management, wherever possible. In rest of the areas, the land use should not be allowed to be harmful for and in hindrance to the movement of wildlife.

Chapter 08

RECOMMENDATIONS

- 8.1:** *General*
- 8.2:** *Rhino protection through intelligence-based enforcement*
- 8.3:** *Improving field monitoring of rhino through state-of-art technology*
- 8.4:** *Measures for proactive safeguards to rhino and wild animals to prevent mortality during flood*
- 8.5:** *Measures for special monitoring of rhino and other wild animals in corridor along NH-37*
- 8.6:** *Involving local community in rhino protection*

Recommendations:

8.1: General

(a) Administrative measures:

1. There is need for following three Deputy Directors and one independent Sub-DFO (at the rank of senior Assistant Conservator of Forests) for effective management of Kaziranga. All of them should be officers of proven competence and physically fit for performing arduous jobs.
 - i. Deputy Director for Eastern Range, Central Range and adjoining forest areas
 - ii. Deputy Director for Western Range, Burapahar Range and adjoining forest areas
 - iii. Deputy Director holding responsibilities exclusively for eco-development, eco-tourism, head quarter administration and liaising with organizations and public
 - iv. Sub-DFO (at the rank of senior Assistant Conservator of Forests) for managing the Northern Range, and working directly under the control of the Director of the Park.

All the above-mentioned Deputy Directors and sub-DFO will be assisted by equally competent Range Officers. Due care needs to be taken for posting a blend of young and experienced frontline staff in the Ranges.

2. All the above-mentioned four officers should be given powers of D.D.O.
3. Co-ordination among increased number of Deputy Directors should not be an issue, as officers at all levels should be governed by realistic performance measurements. The Director of the Park should play motivating and inspiring role in getting improved results from his Deputy Directors. His leadership and mettle will be reflected in creating leadership roles for all his Deputy Directors and deriving best results from them.
4. For dealing with any emergent situation, the management of Kaziranga should have at least two reserves of armed personnel.
5. Field staff more than 45 years of age and otherwise incapacitated to perform duty, should be withdrawn and replaced by suitable young employees.
6. Transfers and postings in wildlife areas, like Kaziranga, should be based on management needs rather than on serving the interests of somebody in authority. **In December, 2009, Assam Forest Department posted newly recruited frontline staff (34 Forester, grade-I, and 66 Forest Guards) in Kaziranga Park. But, the same Forest Department transferred 73 of them out of the Kaziranga Park, despite the Park being besieged by poachers from all the sides and young personnel being in short supply in the Park. To the big embarrassment for the government, now Gauhati High Court**

has ordered to post these people back into Kaziranga Park. CAG has also highlighted this issue in their report no. 3 of 2014.

7. **Righting the incentives in the Assam Forest Department:** Assam Forest Department does not have a transfer-and-posting policy for its field officers. For better management of Kaziranga, there is need for giving weight to merit, honesty, dedication and physical fitness in selection of managers at different layers of management. Moreover, the selection should be transparent and honest.
8. State government should ensure timely and adequate fund flow to Kaziranga management
9. The functioning of **line organisation** (Kaziranga National Park) is to a large extent dependent upon the efficiency of the **staff organisation** (Office of the Chief Wildlife Warden and Forest Department Secretariat). There is need to take up the slack in the staff organisation, as there are many issues, like lingering issue of “additions” to the Park, land use policy, coordination with neighbouring district council and States, which are outside the remit of the Kaziranga Park management and where only the staff organisation can bring about a solution.
10. All the Divisional Forest Officers of territorial divisions adjoining Kaziranga Park should be sensitized for the protection of rhino and other wildlife. They need to be given adequate training in wildlife management and take support from their joint forest management committees for monitoring and protection of rhinos straying outside the National Park

(b) Policy measures:

1. As recommended by the Kaziranga Biodiversity Conservation and Development Committee, legislation for regulating land use in the vicinity of NH-37 and in close proximity of the boundary of Kaziranga Park should be brought about. Until that takes place, no land use change should be allowed.
2. There are many resorts and *dhabas* near the Kaziranga Park, which are situated close to the Park boundary and blocking the movement of wild animals. Some of these resorts and *dhabas* are encroachers on government lands and some have managed to change their land use from “Agriculture land” to Commercial land”. The issue has also been highlighted by the CAG in its report no.3 of 2014. All the resorts and *dhabas* on encroached land should be evicted immediately and those close to the Park as well as those blocking the movement of wild animals should be separately dealt with on priority basis.
3. Similarly, on Karbi Anglong side, the blocking of movement of wild animals due to jhum cultivation, fencing of land pieces, etc. should be suitably dealt with.

4. As agreed by the Police Department earlier, a police *thana* exclusively for dealing with wildlife crimes should be opened at Bokakhat without delay.
5. Bagser Reserve Forest, one of the buffer areas of Kaziranga Tiger Reserve and under the control of Nagaon Territorial Forest Division, should be brought under the active control of Kaziranga management immediately.
6. Protection of rhinos and other wildlife should be ensured in Karbi Anglong Autonomous District Council through an instrument signed between the State government and the Council.
7. Eco-sensitive zone of Kaziranga should be finalized without delay.
8. Stone crushing units close to the Park boundary in Karbi Anglong district autonomous council should be closed down immediately after enforcement of eco-sensitive zone.

(c) Kaziranga Management level measures:

1. The management of Kaziranga should enter into constant engagement with the village communities on the fringes of the Park and develop meaningful eco-development committees. The eco-development committees should be assisted in creation of community assets, developing job-oriented skills of youths and income generation of households by liaising with the rural development agencies and national skill Development Corporation. One of the three Deputy Directors suggested earlier should be given this responsibility.
2. Building of trust between two different groups requires constant investment in terms of time and creation of virtuous cycle over the years for reaching on common objectives and working on them. Way back in 1993, the management of Kaziranga had created a "*Parivesh Samanvay Samiti*" (Environmental Coordination Committee), which was comprised of leading and influential members of village communities on the fringe of the Park. The *Samiti* was particularly effective in protecting the wild animals during flood times. It contributed significantly in saving distressed deer, which were being killed by the villagers during the mayhem of flood.

There was another civil society group, named "*Saku*" (Assamese word for Watch/Vigil) constituted by the Kaziranga management comparatively recently in 2008. This group comprised owners of hotels, resorts and *dhabas* near Kaziranga Park, and was entrusted with the responsibility of ensuring implementation of rules and guidelines on ecotourism. In addition, the members of "*Saku*" were required to keep a close watch on the activities of persons staying in their lodges and persons visiting the tourists.

There was need to institutionalise "*Parivesh Samanvayak Samiti*" and "*Saku*" and evolve them into sharpened tools of management. But, the reverse happened. The working mechanisms were gradually dismantled and sent into oblivion, so much so that the Kaziranga management does not have any record of these two committees now.

This is one glaring example, which calls for constant evolution of practices, institutionalising them, owning them by the whole Park and documenting all records. Institutional memory is lasting and provides way for further evolution of the practice.

3. Kaziranga Park should investigate all the crimes related to rhinos and other wildlife and contest the cases in court of law to the logical end of conviction of criminals. They should not leave the matter to the Police department.
4. There are many cases of rhino-related crime pending in different courts. There is urgent need to take stock of such cases and find out the reasons for delay. Simultaneously, critical analysis of the non-conviction or poor conviction needs to be made.
5. The Park management should adopt best practices in their management. A few which can be done immediately are:
 - a. Establishment of wildlife crime cell as done in Melghat Tiger Reserve
 - b. Systematic eco-development activities as in Periyar Tiger Reserve
 - c. Employment generation and skill development of surrounding people as in Tadoba-Andheri Tiger Reserve and Pench Tiger Reserve of Maharashtra
 - d. Online budget distribution system as in several other states, including Maharashtra, Chhatisgarh, Madhya Pradesh, Uttar Pradesh, for timely and periodical flow of funds to the Park.
 - e. Posting exclusive legal advisor for dealing with court matters, as in Maharashtra (for strengthening the legal base and increase conviction rate)
 - f. Appointing dedicated Veterinary officer in the Park as in Madhya Pradesh
6. With the consultation of Wildlife Institute of India, the management of Kaziranga should develop suitable method for estimation and monitoring of population of rhinos
7. The management should survey the actual status of all corridors, those on NH-37 and in other parts of the Park, in terms of their size, limitations imposed by human activities, usefulness, perceived threats for wildlife there, etc
8. Like corridors, the Park management should identify and survey all potential extension areas in the islands (*chaurs*) of Brahmaputra River and establish its presence there for monitoring movement of wildlife there. The territorial forest divisions closest to the *chaurs* should be given responsibility for securing such areas and they should be made accountable to the management of Kaziranga for ensuring protection of rhinos and other wildlife there.

9. Some of the *chaur* areas that are free from human settlements at present should be constituted as “Additions” (additional national park), under the Wildlife (Protection) Act, 1972 immediately and presence of Forest Department established there. In case, there is problem in constituting additional national park, the area may be constituted as Conservation Reserve under the Wildlife (Protection) Act, 1972.
10. The management should train all the armed personnel in jungle warfare as early as possible. It had been decided to do so during October, 2013, but it has not been done so far.
11. The management of Kaziranga should organize trainings for sensitizing and creating awareness about enforcement of Wildlife (Protection) Act, 1972 among the employees of Central Industrial Security Force (CISF), railway, road transport and airlines on regular basis until they put the checking of passenger baggage for wildlife product, like rhino horn, tiger body parts, etc. in regular practice.
12. The number and location of anti-poaching camps need to be rationalised by critical analysis of the ground realities. The manpower in each camp should be minimum 5 to 6 persons, as against the current situation of nearly 68 camps having less than 4 persons. The camps should use patrol-log software MSTripES in its daily patrol.
13. **Motivation of staff:** Job performance is considered to be a function of ability and motivation. While ability, which depends on education, experience and training, takes longer time in improvement, motivation can be improved quickly. Among the many strategies for motivation employed by the managers, effective discipline, fair treatment and satisfying employee needs are easier to practice. Essentially, there is a gap between an individual’s actual state and some desired state and the management should reduce this gap. The management of Kaziranga should take care of welfare and health related needs of its frontline staff, who are poorly paid and away from family environment. In this direction, Kaziranga has already taken a commendable step way back in year 1999-2000, when the then Director of the Park had created a “Kaziranga National Park Welfare Society” (**para 1.3.5**). The corpus under the society must be increased to meet many critical needs of the employees.

Group Health Insurance, or payment of the expenses of field personnel on medical treatment, is another facility that will spur the staff for better performance of their duties.

(d) Role for Central Government:

1. Under the Management Effectiveness Assessment Framework of IUCN, the National Tiger Conservation Authority, Ministry of Environment, Forests & Climate Change, has got all tiger reserves, including Kaziranga, assessed through multi-disciplinary team of experts during the last eight years at four-yearly interval. Now, as the old tiger reserves, like Kaziranga, have passed the nascent phase of induction into the category of tiger reserve,

the old criteria of performance measurement need to be replaced by the ones that are true measure of performance under difficult challenges. Kaziranga is pitted against many problems, both internal and external, as mentioned earlier. The exercise should not end in assessment of effectiveness. It should goad the management of Park and State government to set the best standards of management.

2. Regional office and sub-regional office (at Guwahati) of Wildlife Crime Control Bureau should be given more active role and the needed empowerment in dealing with wildlife criminals operating in different States of North-East.
3. A mechanism should be evolved to bust the criminal gangs dealing in wildlife crime in North-East India. We have rich biodiversity in this region. Not only Kaziranga, but other protected areas like Manas, Namdapha, Nameri, Pakke, Dampa, etc are under threat due to poor law and order situation in the region and lure of easy money among a section of people. Law and order is State subject, but collectively the State governments have not been effective in controlling the wildlife crimes in the region.

Crime Investigation and conviction:

As mentioned above, Kaziranga management is not investigating the cases of wildlife crimes as they are mandated to do under the Wildlife (Protection) Act, 1972. They have been filing FIR in the nearest Police Station and then not carrying out the investigation of the crime. Police department has not been giving much focus on wildlife crimes. As a result, the outcome is extremely poor. The status as brought out in **para 10.8.4 of the report of CAG (report no.3 of 2014) is reproduced below.**

- “ There is no register to show up-to-date position of the cases lying pending in various Courts depicting the numbers and names of accused, date of arrest/ filing of cases, police case reference numbers, number of hearings held till date, brief results of hearings, whether bail granted to the accused and present status of the case.
- Absence of such a system has denied the wildlife officers the tool to monitor the pending cases effectively. Further, monitoring the activities of known poachers had also hampered due to non-availability of the information on grant of bail to the accused.
- In the absence of the above, Audit had to rely on the information furnished (November, 2012) to the Criminal Investigation Department (CID) of Assam by the park authorities 2002 – 2012 (up to November 2012) 74 Rhino poaching cases were registered against which 59 arrests were shown to have been made. Of these, final reports have been submitted in 50 (i.e. 68%) cases and 16 cases dating back up to 2006 were under trial while only in eight cases (i.e. 11%) charge sheet had been filed. Further, information furnished by the park authorities to Audit on arrests made during 2008-09 to 2012-13 vis-à-vis conviction revealed that 251 persons were arrested while not a single case could be convicted.
- None of the Wildlife Officers had been trained in investigating techniques. Besides, there is no system of maintenance of case diaries in the Ranges. The absence of institutional memory makes it difficult to track cases which drag for years.

- Information obtained from the Superintendents of Police of four districts indicated that against 97 cases of Rhino poaching registered in various police stations during 2009-2013 under their jurisdiction, not a single case had been convicted. **In the absence of any conviction, the amendment made by the State Government in the Act to enhance the minimum imprisonment to seven and ten years remained on paper without being implemented in letter and spirit.”**

In para 10.8.6, the report of the CAG has suggested solutions, important of which are given below.

- “In exercise of the powers conferred under the Wildlife (Protection) Act, amendments may be made in the Act so that the statement recorded under Section 50 (8) of the Act can be regarded as ‘Evidence in chief’ to be treated as final and to make Section 51 of the Act self contained.
- A high Power Committee may be set up to examine the legal hurdles/ deficiencies in the existing provisions of the Statutes/ training needs within the Department hindering conviction of the accused in wildlife offences.
- Till the above materializes, making it mandatory for the wildlife officers to deal with the offence cases under the existing provisions of the Act instead of handing over the entire case to the Police authorities. Separate investigation may be made by the Police authorities in the case registered under Arms Act.”

8.2: Rhino Protection through intelligence based enforcement

1. A dedicated intelligence cell consisting of personnel drawn from CID/Intelligence Branch of State Police Department and Forest Department at a suitable location and with requisite logistic support should be made operational immediately.
2. Assam Forest Department and WCCB, New Delhi should ensure that co-ordination meetings of law enforcement agencies (Assam Police, Assam Forest department, SSB, Customs, BSF, CISF, Subsidiary Intelligence Bureau, WCCB and NTCA) take place every month or so, and concrete steps are taken towards concerted action. The law enforcement agencies should institutionalize these periodic meetings for prevention of crimes related to wildlife, sharing information on criminals, creating database, improving training and capacity for scientific investigation in Forest Department, nabbing poachers and traffickers, finding kingpins, busting hubs of crime, etc. The outcome of the coordination should be constantly improved. The Police Departments of adjoining States should also be taken on board in getting a lead on wildlife crimes related to poaching of rhinos and trafficking of rhino horns.
3. There is urgent need for sharing of data on criminals by all law enforcement agencies, so that the criminals who are **repeat** committers of crime do not get bail easily and they are awarded harsher punishment.

4. Through administrative apparatus or through High Court, Kaziranga Administration should put mobile phones operating in the vicinity of Kaziranga on surveillance and take Cell Phone Tower Dump Records from telecom service providers. They should adopt the practice of Melghat Tiger Reserve of Maharashtra in this regard. The field staff of Kaziranga should be asked to register their mobile phones with the Director of the Park, and they should be allowed to use only wireless service while inside Park.
5. There is need for preparing database of DNA of rhinos of Kaziranga and use the information for improving the rate of conviction of criminals. It has been successful in South Africa.
6. All law enforcement agencies should bust gangs of rhino-horn traffickers in Dimapur (Nagaland), Chura Chandrapur (Manipur), More` (Manipur) and such other known hubs of criminals.

8.3: Improving field monitoring of rhino through state-of-art technology

1. The work on commissioning of “electronic eye” is about to be over. Now, the management of Kaziranga should make best use of this high quality surveillance system, and train their field personnel in rapid and effective response to the alerts generated by the device.
2. Unmanned Aerial Vehicle (UAV) has not been allowed to operate in Kaziranga by the Ministry of Defence. After sorting out issues with them, it will be allowed by them, as they are already permitting flights of UAV in Panna Tiger Reserve. UAV will be a great help in keeping watch on far-flung areas and islands of Brahmputra. After fitting them with thermal scanners, they will be device for monitoring the area almost 24 hours.
3. Only requirement that is to be matched is ground response teams which are effective in putting up a deterrence on any alert
4. Efforts should be on to harness new technologies for prevention and detection of crime and fast conviction of criminals

8.4: Measures for proactive safeguards to rhino and wild animals to prevent mortality during flood

1. More highlands should be created, as floods are recurring feature and their severity may increase due to climate change
2. Public support in rescuing and protecting wild animals during floods should be assured by regular engagement with them and training volunteers in villages by a team of experts. The public support group like **“Saku” (Watch/Vigil)**, as mentioned in para 8.1 (c) 2, should be revived and their support enlisted for the protection of wild animals during flood times.
3. Capacity of Centre for Wildlife Rehabilitation and Conservation (CWRC) should be increased by improving human resource, rescue paraphernalia, stocking of tranquilising drugs in advance, financial support, etc. At present, the Centre has very little support base.

4. At the time of peak floods, highlands and quick passage of animals to highlands are two severely limiting factors. Given this recurring calamitous situation, there is urgent need to purchase some private lands and tea-garden lands that are impeding the movement of animals during the floods.

8.5: Measures for special monitoring of rhino and other wild animals in corridor along NH-37

1. All corridors, big or small, should be surveyed for their size, animal-use value, potential for improvement in quality, etc. They should be mapped and animal movements monitored on them through cameras, indirect animal signs and surveillance towers.
2. All corridors, including those on NH-37, should be secured. The corridors are severely affected by uncontrolled human activities around. All the barriers, including those in neighbouring tea estates and nearby areas in Karbi Anglong, blocking the movement of wild animals, should be removed as early as possible and protection of animals ensured.
3. As given in the report of CAG, there are many *dhabas* near Kaziranga, which are built on government lands through encroachment. The revenue department of Assam should clear all these encroachments and hand over the land to Kaziranga Park for long term survival of wild animals in the landscape.
4. The pressure of tourism in Bagori area, which is leading to construction of lot of lodges and blocking of animal corridors, should be reduced. The ecotourism in the current form is harmful to Kaziranga, where lots of jeeps and private elephants are plying and there are private lodges of non-local people who are not sharing their profits with the Park. The quality and level of ecotourism should be made compliant with the guidelines of NTCA on ecotourism as well as the Tiger Conservation Plan of the Park.
5. There are some corridors, which are getting blocked by fencing on the perimeter of the tea garden boundaries. There is need for securing some of these corridors by purchasing a part of such tea gardens. Before reaching a conclusion, there is need for systematic and round-the-year ground survey for determining the importance of such areas as corridors.

8.6: Involving local community in rhino protection

1. There is urgent need for involving local village communities in wildlife protection by engaging in constant dialogue with them, creating meaningful eco-development committees and helping them through other developmental departments.
2. The management of Kaziranga should formulate eco-development schemes and prepare micro-plans for the village communities. The micro-plans can be financed from the funds of Kaziranga Tiger Reserve Foundation.
3. In addition to the above, the management of Kaziranga should facilitate integration of various sectoral initiatives carried out by various State and

Central government departments in the panchayat areas surrounding the National Park, so that they result in income generation for the villagers and improvement of skills of the youths in the region. As Government of India is about to carry out skill development in mission mode, there is good opportunity for getting the local youths benefitted.

4. Kaziranga management should give the compensation to the village community for death of human being, grievous injury and damage to crop by wildlife without any delay. This will improve the credibility of the Kaziranga management in the eyes of the villagers and will be an important first step in bridging the existing gap.
5. As mentioned in **para 8.1 (c) 2**, the management of Kaziranga should revive the local civil society groups like *“Parivesh Samanvaya Samiti” (Environmental Coordination Committee)* and *“Saku (Watch/ Vigil)”*. They were functional for a few years and then discontinued. They should be revived and evolved into improved variants now. The community-based institutions should be nurtured with kid-glove, lest public-spirited or environmentally conscious members of the local community get dispirited and disillusioned towards the cause of wildlife conservation.
6. Long term protection of rhinoceros in Kaziranga landscape is very difficult without the integrity of the habitat as well as the inculcation of love for rhino and other wildlife among the young generation. It is good that a consortium of Non-Governmental Organisations of Assam, **as mentioned in para 6.2.2.1**, holds a 3-day camp from 31st January to 2nd February of every year at Kaziranga on wildlife conservation awareness for children studying in class-III to class-IX level. Kaziranga management should organize more such programmes for school and college going students. The structure, content, quality and nature of the programme should be finalized by an expert team on environment outreach programme, which may be sourced from outside in the beginning.
7. “Friends of Rhino” should be fostered, **as mentioned in para 6.2.1**. To begin with, volunteers drawn from eco-development committees of 33 amalgamated villages will make up the “Friends of Rhino” and they should assist the management of Kaziranga in surveillance of fringe areas, maintaining round-the-clock vigil during flood season, gathering and sharing of intelligence, and similar other activities mentioned in **the para 6.2.1**.
8. Similar to the fostering of “Friends of Rhino”, the management of Kaziranga should foster **“wildlife-conservation clubs”** in areas around the Park. The youths in these clubs should be motivated through hands-on experience towards conservation of wildlife and saving rhino from poachers. The management of Kaziranga should guide and assist these clubs through the outreach programme of the Assam Forest Department, which are nominally being run through the Publicity Division of the Department.
9. Funds for eco-development and wildlife-conservation outreach programmes can also be met from **charging “conservation cess” from the**

hoteliers who are earning from the eco-tourism on account of the tiger reserve, **as mentioned in para 6.1.4.3 on NTCA guidelines on ecotourism.** As on now, the hotels and resorts are benefitting from Kaziranga, but they are not sharing the benefit with the fringe villagers who have been making sacrifices for the cause of wildlife conservation.

09 Annexure

- 9.1:** *Table -1: GPS co-ordinates of places of occurrence of Rhino poaching during 2013 in Kaziranga National Park*
- 9.2:** *Table-2: GPS co-ordinates of places of occurrence of Rhino poaching during 2014 in Kaziranga National Park*
- 9.3:** *Excerpts from Wild Life (Protection) Act, 1972*
- 9.4:** *Animal mortality during floods in Kaziranga National Park and adjacent areas during 2012, 2013 and 2014*
- 9.5:** *Administrative map of Kaziranga National Park*
- 9.6:** *Map showing month-wise rhino poaching location in Kaziranga during 2013*
- 9.7:** *Map showing month-wise rhino poaching location in Kaziranga during 2014*
- 9.8:** *Map of Kaziranga anti-poaching camps and river islands*
- 9.9:** *Map of Kaziranga N.P. with Additions and Buffer areas*
- 9.10:** *Map showing river network inside Kazirang with Brahmaputra on north*
- 9.11:** *Map of Kaziranga N.P. with adjacent forest areas, giving a perspective of landscape*
- 9.12:** *Map showing islands of Brahmaputra River (Majuli to Orang)*

9.1: Table-1: GPS co-ordinates of place of occurrence of Rhino poaching during 2013 in Kaziranga National Park

Sl no.	Date of detection	Range	GPS co-ordinate		Cause of death
			Latitude	Longitude	
1	28.01.2013	Burapahar Range	26°38'099"	93°48'091"	Gunshot
2	31.01.2013	Bokakhat Beat	24°42'46.2"	93°40'28.5"	Do
3	02.02.2013	Burapahar Range	26°34'53.0"	93°03'31.5"	Do
4	17.02.2013	Western Range	26°36'29.7"	93°10'14.9"	Do
5	25.02.2013	Eastern Range	26°43'27.1"	93°29'34.1"	Do
6	03.02.2013	Northern Range	26°45'16.25"	93°34'55.32"	Do
7	01.03.2013	Eastern Range	26°39'15.4"	93°29'31.5"	Do
8	23.03.2013	Burapahar Range	26°34'50.5"	93°05'06.6"	Do
9	27.03.2013	Western Range	26°35'03.5"	93°09'16.6"	Do
10	26.03.2013	Northern Range	26°47'00"	93°27'36.53"	Do
11	11.04.2013	Eastern Range	26°41'39.4"	93°30'09.0"	Do
12	09.05.2013	Western Range	26°35'08.4"	93°10'46.5"	Do
13	10.05.2013	Eastern Range	26°40'10.5"	93°31'39.3"	Do
14	24.05.2013	Western Range	26°41'20.4"	93°34'52.8"	Do
15	24.05.2013	Western Range	26°34'38.5"	93°10'42.1"	Do
16	02.07.2013	Burapahar Range	26°35'36.4"	93°04'18.3"	Do
17	21.08.2013	Burapahar Range	26°34'27.9"	93°05'53.6"	Do
18	21.08.2013	Burapahar Range	26°34'27.9"	93°05'53.6"	Do
19	01.09.2013	Western Range	26°34'38.4"	93°10'52.4"	Do
20	04.09.2013	Western Range	26°36'10.82"	93°10'18.75"	Do
21	17.09.2013	Burapahar Range	26°35'0.04"	93°04'42.7"	Do
22	06.10.2013	Eastern Range	26°44'03.7"	93°26'19.4"	Do
23	25.10.2013	Burapahar Range	26°34'33.33"	93°05'17.32"	Do
24	02.11.2013	Eastern Range	26°41'24.7"	93°32'55.37"	Do
25	23.11.2013	Western Range	26°59'3.84"	93°19'7.907"	Do
26	24.11.2013	Burapahar Range	26°34'42.8"	93°05'31.8"	Do
27	5.12.2013	Eastern Range	26°39'20.9"	93°30'36.1"	Do

9.2: Table 2: G.P.S location of places of occurrence of Rhino poaching under Kaziranga National Park during 2014

Sl No.	Date of Detection	Range	GPS co-ordinate		Cause of death
			Latitude	Longitude	
1	09.01.2014	Northern Range	26°44'56.0"	93°16'43.4"	Gun Shot
2	17.1.2014	Northern Range	26°39'0.21"	93°56'9.20"	Do
3	25.1.2014	Burapahar Range	26° 34' 38.2"	93° 08' 12.4"	Do
4	1.2.2014	Eastern Range	26°42'38.1"	93°31'12.3"	Do
5	14.2.2014	Northern Range	26°44'29.1"	93°34'46.1"	Do
6	15.2.2014	Kaziranga Range	26° 43' 5.50"	93° 25' 15.0"	Do
7	24.2.2015	Burapahar Range	26° 35' 06.8"	93° 04'18.2"	Do
8	26.2.2014	Burapahar Range	26° 34'45.6"	93° 02'00.1"	Do
9	19.3.2014	Kaziranga Range	26° 36'53.1"	93° 26'07.2"	Do
10	20.3.2014	Kaziranga Range	26° 43'27.02"	93° 26'10.6"	Do
11	23.3.2014	Kaziranga Range	26° 40'52.4"	93° 19'35.7"	Do
12	08.4.2014	Eastern Range	26° 40'01.1"	93° 29'39.0"	Do
13	30.4.2014	Burapahar Range	26° 35'44.6"	93° 04'25.8"	Do
14	2.5.2014	Eastern Range	26° 39'31.4"	93° 29'36.6"	Do
15	5.5.2014	Western Range	26° 38'28.4"	93° 16'16.4"	Do
16	18.5.2014	Eastern Range	26° 43'40.9"	93° 26'57.8"	Do
17	23.5.2014	Eastern Range	26° 41'01.7"	93° 31'56.9"	Do
18	1.6.2014	Western Range	26° 35'03.0"	93° 11'05.0"	Do
19	14.5.2014	Northern Range	26°41'15.7"	93°15'52.3"	Do
20	9.7.2014	Burapahar Range	26° 34'51.9"	93° 03'31.1"	Do
21	18.7.2014	Kaziranga Range	26° 38'28.9"	93° 29'34.7"	Do
22	2.9.2014	Burapahar Range	26° 35'5"	93° 03'41.3"	Do
23	20.11.2014	Kaziranga Range	26° 37'13.7"	93° 25'49.4"	Do
24	23.11.2014	Eastern Range	26° 41'58.1"	93° 33'44.97"	Do
25	29.11.2014	Eastern Range	26° 40'32.1"	93° 29'23.7"	Do
26	10.12.2014	Burapahar Range	26° 34'51.0"	93° 03'42.8"	Do
27	11.12.2014	Northern Range	26°38'18.4"	92°54'47.0"	Do

9.3: Excerpts from Wild Life (Protection) Act, 1972

THE WILD LIFE (PROTECTION) ACT, 1972

CHAPTER VI

Prevention and Detection of Offences

Section 50: Power of entry, search, arrest and detention –

- (7) Whenever any person is approached by any of the officers referred to in sub-section (1) for assistance in the prevention or detection of an offence against this Act, or in apprehending persons charged with the violation of this Act, or for seizure in accordance with cl.(c) of sub-section (1), it shall be the duty of such person or persons to render such assistance.
- (8) Notwithstanding anything contained in any other law for the time being in force, any officer not below the rank of an Assistant Director of Wild Life Preservation or an officer not below the rank of Assistant Conservator of Forests authorized by the State Government in this behalf shall have the powers, for the purpose of making investigation into any offence against any provision of this Act –
 - (a) to issue a search warrant;
 - (b) to enforce the attendance of witness;
 - (c) to compel the discovery and production of documents and material objects; and
 - (d) to receive and record evidence.

Section 51: Penalties -

Details about penalties on contravention of any provision of the Act.

9.4: Animal Mortality during Floods in Kaziranga National Park and Adjacent Areas

Species	2012			2013			2014		
	Drowned in water	Road accident	Total	Drowned in water	Road accident	Total	Drowned in water	Road accident	Total
Rhino	28	0	28	3	0	3	2	0	2
Swamp deer	12	2	14	2	0	2	1	0	1
Buffalo	10	0	10	0	0	0	2	0	2
Hog deer	615	32	647	4	13	17	18	2	20
Sambar	26	1	27	0	0	0	0	0	0
Wild boar	45	7	52	1	0	1	8	1	9
Porcupine	6	0	6	0	0	0	0	0	0
Hog badger	3	0	3	0	0	0	0	0	0
Python	0	2	2	0	0	0	0	0	0
Fox	0	1	1	0	0	0	0	0	0
Elephant	2	0	2	3	0	3	1	0	1
Barking Deer	1	0	1	0	0	0	0	0	0
Total	748	45	793	13	13	26	32	3	35

Sources of information:

A- Documents

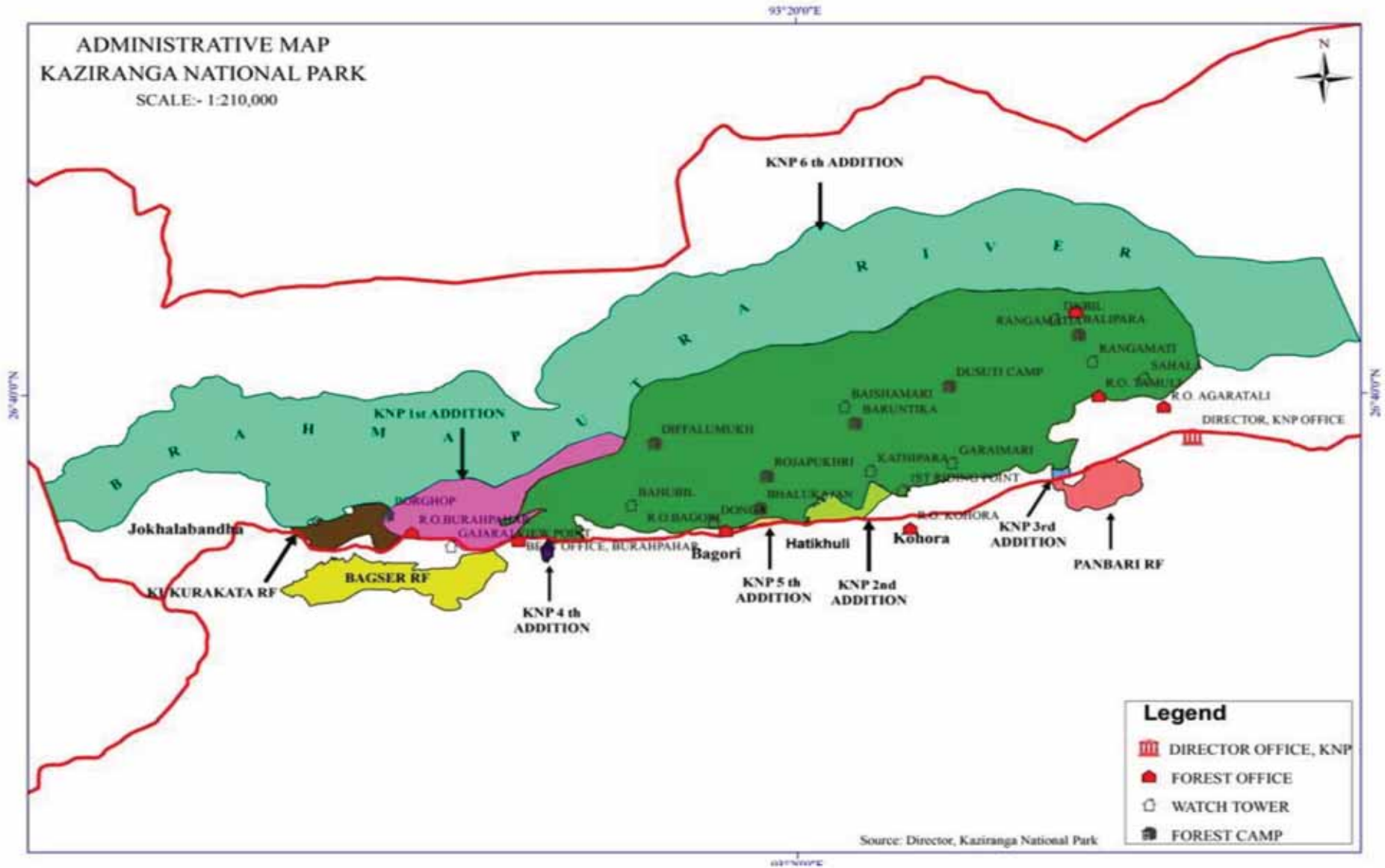
- 1) Detailed Report on “Issues and Possible Solutions for Long Term Protection of The Greater One Horned Rhinoceros in Kaziranga National Park - pursuant to the Order of The Hon’ble Gauhati High Court” dated 5th August, 2014
- 2) Official records of Wildlife Crime Control Bureau, Government of India, Regional Office, Kolkata
- 3) Official records of Kaziranga Tiger Reserve
- 4) Right of Passage- Elephant Corridors of India by Wildlife Trust of India & others (2005)
- 5) Guidelines, Protocols and SoPs of NTCA
- 6) “Connecting Tiger Populations for long-term conservation” by NTCA and WII, Dehradun (2014)
- 7) Performance Audit Report of CAG on Kaziranga National Park (Report No.3 of 2014)
- 8) Reinventing Government – how the entrepreneurial spirit is transforming the public sector by David Osborne and Ted Gaebler (1992)
- 9) Banishing Bureaucracy: Five strategies for reinventing government by David Osborne and Peter Plastric (1997)
- 10) The Tipping Point by Malcolm Gladwell (2000)

B- Persons

- 1) Shri M.K.Yadav, Director, Kaziranga Tiger Reserve
- 2) Shri S.K.Seal Sarma, D.F.O., Eastern Assam Wildlife Division, Kaziranga
- 3) Shri Kamal Azad, Biologist, NTCA Regional Office, Guwahai
- 4) Shri Ravindra Sarma, Research Officer, Kaziranga Tiger Reserve
- 5) Shri Shiv Kumar, Conservator of Forests, Nagaon Wildlife Division
- 6) Shri Muthu Kumavale, Conservator of Forests, Golaghat Forest Division
- 7) Shri Abhijit Rabha, Additional Principal Chief Conservator of Forests, Karbi Anglong Autonomous District Council, Diphu
- 8) Shri Shubhashish Das, DFO, Sonitpur East Division, Vishwanath Chariali
- 9) Dr. Firoz Ahmed, Researcher, Aaranyak (N.G.O.), Assam
- 10) Shri Rathin Barman, Scientist, Centre for Wildlife Rehabilitation and Conservation, Bokakhat, Kaziranga

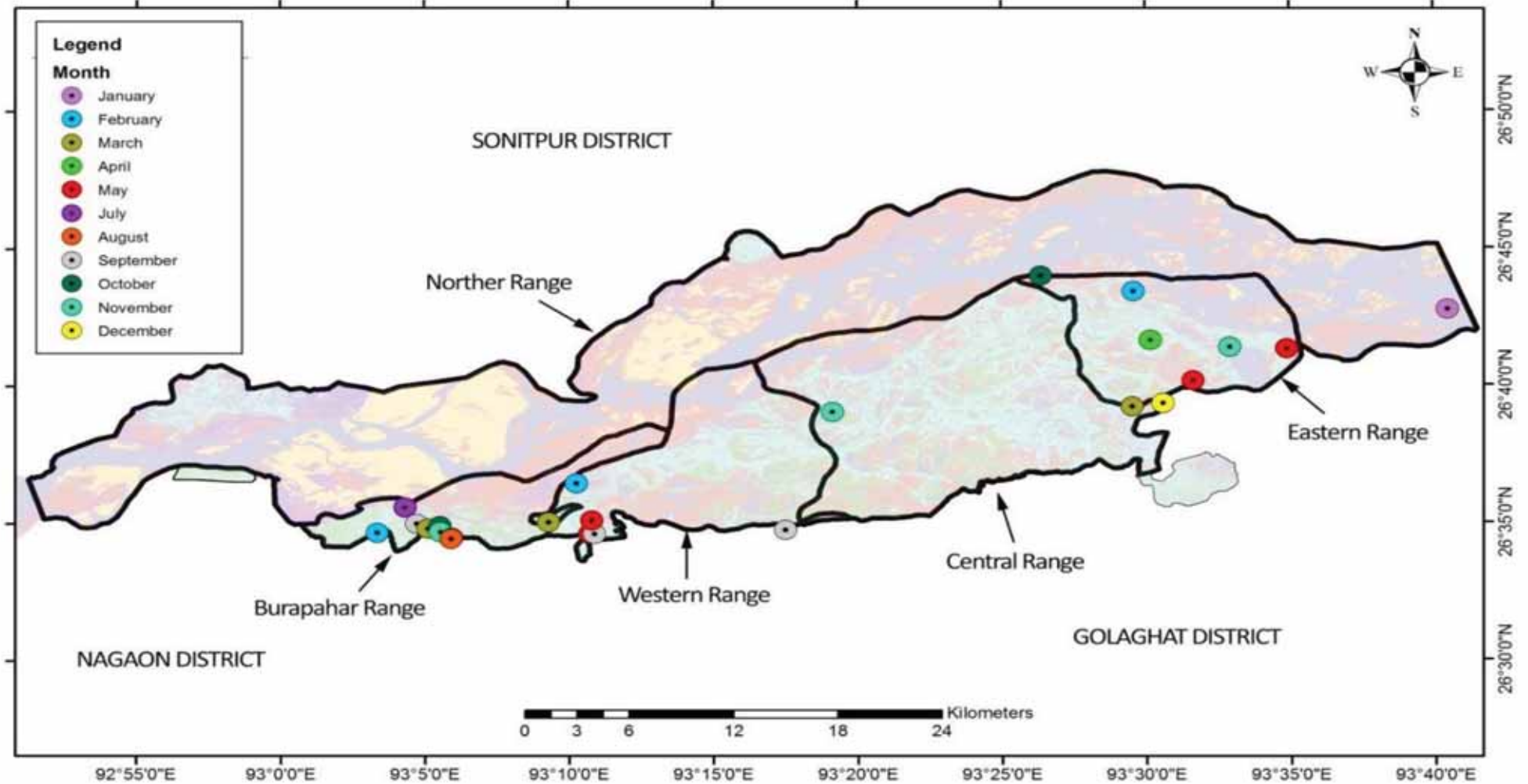
C- Areas Visited

- 1) All Ranges of Kaziranga National Park
- 2) Laokhowa and Burachapori areas of Nagaon Wildlife Division
- 3) Golaghat Territorial Forest Division: areas adjoining Kaziranga National Park
- 4) Silimkhowa Eco-development Committee in Burapahar Range of Kaziranga
- 5) Dhania Eco-development Committee of Burachapori Wildlife Sanctuary of Nagaon Wildlife Division (Buffer area of Kaziranga Tiger Reserve)

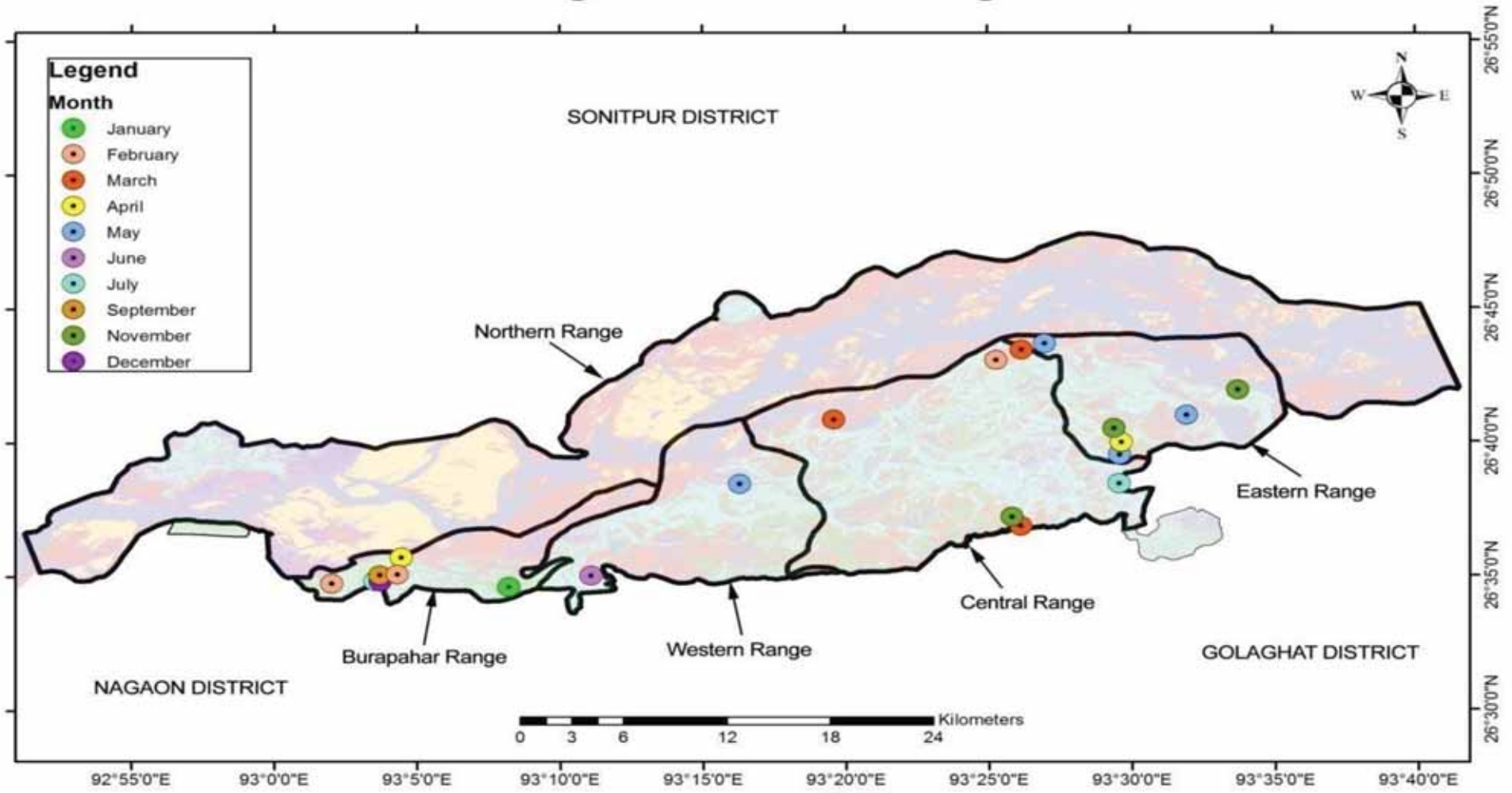


9.5: Map of Kaziranga National Park and Additions.

Map showing the Month-wise Rhino Poaching Locations in Kaziranga National Park in 2013



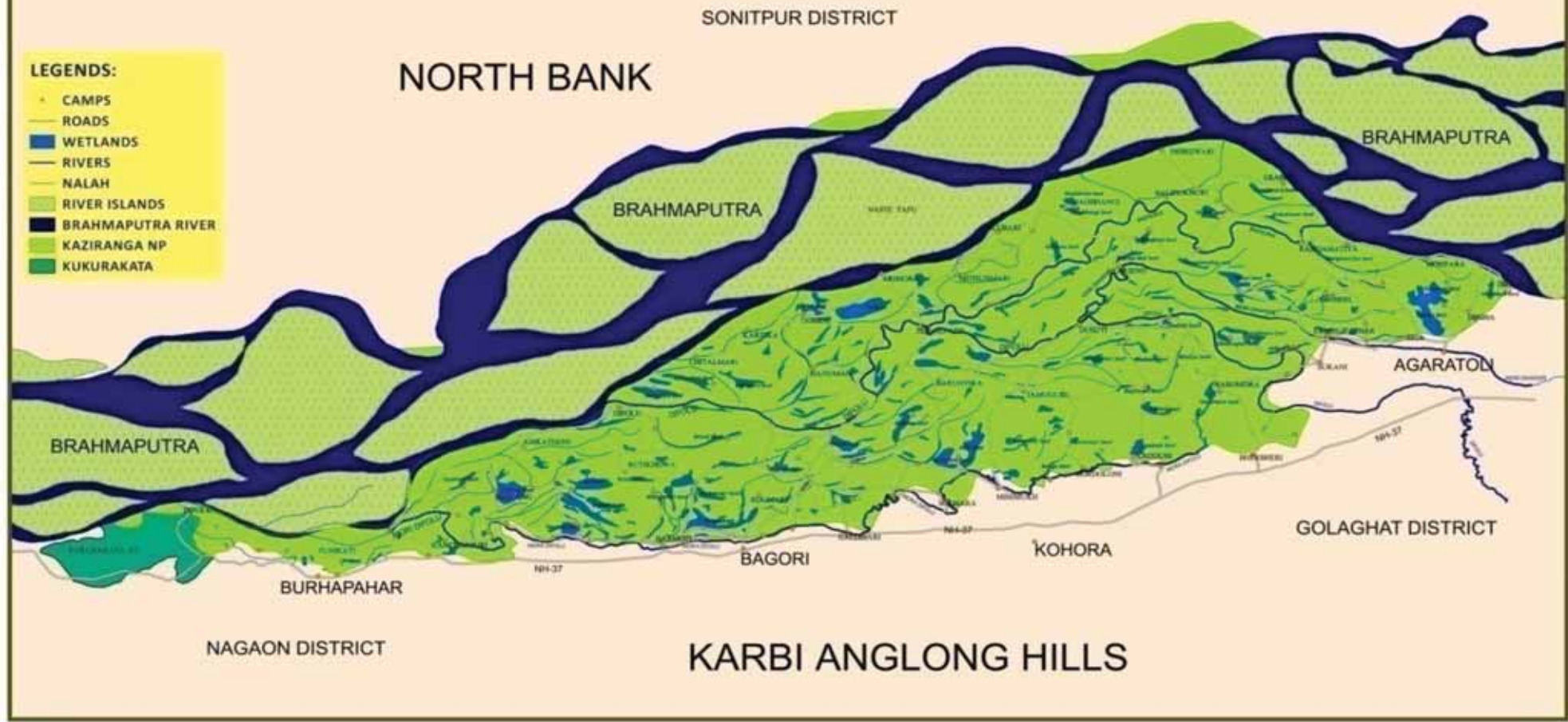
Map Showing the Month-wise Rhino Poaching Locations in Kaziranga National Park in 2014



MAP OF KAZIRANGA NATIONAL PARK



- LEGENDS:**
- CAMPS
 - ROADS
 - WETLANDS
 - RIVERS
 - NALAH
 - RIVER ISLANDS
 - BRAHMAPUTRA RIVER
 - KAZIRANGA NP
 - KUKURAKATA



By Kamal Azad, Biologist, NTCA