ANNUAL ACTION CALENDAR FOR MANAGEMENT OF KAZIRANGA NATIONAL PARK

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FOREWORD

A Management Plan is a pre-requisite for identifying management needs, setting priorities and organizing the approach to the future for a protected area. A Management Plan provides direction for management of a protected area for a specified period of time. Though in India, the Forest Working Plan has a history of about 125 years, the first wildlife management plan was formulated in the year 1970.

A strict code of practice of preparing and implementing management had not been set up in Indian wildlife management. Consequently like most other protected areas in India, the routine affairs of the Kaziranga National Park are being managed on the basis of Management Action Plan written by Sri P. Lahan, IFS. As the preparation of the management plan for Kaziranga National Park- a time consuming process- has been taken up very recently, an annual action calendar of operations has been developed for implementation in the protected area as an interim arrangement.

A large number of practical aspects of wildlife management planning adopted in the Annual Action Calendar of operations have emerged from the tenets of wildlife conservation methods practiced in Kaziranga since the beginning of this century.

The goals and objectives of the Annual Action Calendar of operations from the framework for determining what actions to take, when they will be taken and personnel required to implement them. The Annual Plan of operation is subject to modifications as new information is obtained and feedback of the actions taken in the Annual Plan of operation shall be incorporated with appropriate weight in the Management Plan under preparation.

I also acknowledge the assistance rendered by Sri A. Dey, ACF for preparation of the 'Annual Action Calendar of Operations' as well that of Ms. Gitanjali Kalita, LDA & Sri M.K. Bordoloi for computerizing the same.

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MANAGEMENT PRACTICE OF KAZIRANGA NATIONAL PARK THE ACTION CALENDAR & ITS OVERVIEW

BASIC INFORMATION

The name "Kaziranga National Park", bounded by the mighty Brahmaputra on the North and verdant hills of Karbi Anglong on the South, conjures up visions of animals, birds, flowers and vast rolling expanses of wild grasslands. Kaziranga is unique among Indian Wildlife habitats in that no visitors fails to see its most important residents, Rhino and Wild Buffalo, even if he makes but a single trip into it. Besides he will come across many other animals and avifauna too.

The Park is of rough oval shape, approximately 50 km (31 miles) long and 16 km (10 miles) wide at his broadest point, and of 430 sq. km (166 sq. miles) area. It lies on the south bank of the Brahmaputra, and its south side boundary follows for the most part the Mori Difaloo River which is close and parallel to National Highway No.37, the main arterial highway in Assam. Two other rivers, Difaloo and Bhengrai, flow through it, and a number of small streams originating in the Karbi Anglong Hills drain into these rivers or the *beels*. The whole area is one of vast swamps interspersed with great expanses of high, coarse grasses, often collectively called 'elephant grass' 5 m. (16 ft.) or more high, open forest, waterways, *beels* and reed beds. A feature of many of the *beels* is the excessive growth of the water-hyacinth, a plant exotic to the Park but introduced into it for some unknown reason. South of the highway are the Karbi Anglong Hills rising to 1,220 m. (4,000 ft.) which have a special significance to the park, as the wildlife seek refuge on the hills when virtually the whole park becomes inundated by the flood waters of the Brahmaputra and the other rivers during the monsoon. Much wildlife is lost at this time.

Some of the outstanding universal conservation value of Kaziranga National Park are enumerated below:

a) The world's largest population of Indian One-horned Rhinoceros (65% of total world population).

b) The world's largest population of Wild Buffalo (50% of total world population) and Eastern Swamp Deer (65% of world population).

c) The largest non-disturbed and representative area of Brahmaputra Valley flood plain grassland and forest with associated large herbivore, waterfowl and wetland values (including turtle, dolphins).

d) Significant population of Tigers and Elephants.

e) Transitional and successional examples of grassland to forest and flood plain to hill evergreen forest communities.

f) Considerable research, education and recreation value.

CONSTRAINTS OF MANAGEMENT

FLOOD

Floods are always considered to be a dreaded period for Kaziranga National Park and its animal life but since last decade the increasing level of multi-wave flood is really threatening the future of the Park and not only the rhino. Due to various reasons, mainly deforestation in the upper catchment area of the Brahmaputra, the intensity of the flood is continuously on the rise. During flood most of the animals including the rhinos have to migrate from the Park and take shelter on the adjacent high grounds in Karbi Anglong Hills or wherever they may find shelter. These areas are populated and protection of the animals during the period of migration from and back to the Park becomes an uphill task as enforcement network is almost non existent in such areas. Many animals, especially the deer and

particularly the young, old and infirm lose their lives by drowning, poaching or are run over by vehicular traffic on the National Highway.

Flood is also necessary and beneficial for maintaining the ecology of the grasslands and forests though it has some adverse effect. The gradual rising of the water level and quick recession is undoubtably beneficial but floods of severe intensity which submerge the entire Park for a prolonged period, deprive the animals of food and shelter.

EROSION

The Brahmaputra River along the northern boundary is well known for bank erosion as also huge accretion that is caused by depositing of silt during annual floods. These accretions gradually get established in the form of large and small islands and are colonised by grass thus forming ideal rhino habitat. But the land in the National Park is also eroded by floods and has already been reduced considerably, specially during the last three decades. The present area of the Park, taking into account the erosion as well as accretion, during a period of thirty years, as computed from analysis of remote sensing data is 408 Sq. Km. On the other hand the population of all the mega-herbivores have increased manifold during the same period. Therefore, to attain the goal of progressive increase in the population of rhino as well as other species, it is essential that additional area are included in the Park by way of finalisation of the proposal for Six Addition areas to Kaziranga National Park which are pending for a protracted period due to legal, administrative and financial reasons.

POACHING

Poaching of rhinos has been the major theat to the Kaziranga National Park and will continue to do so as the superstitious belief regarding the aphrodisiac and medicinal value attributed to the rhino horn persists. It has been observed and experienced that the intensity of poaching increased mainly due to escalation in high value of the horn consequent to imposing ban on its trade. The last sale of rhino horns in Assam took place during 1978 and though tenders were invited during 1980 but sale was stopped. That marked the beginning of greater intensity of poaching in Kaziranga National Park as well as other rhino inhabited areas. However, in recent past the onslaught of poachers in Kaziranga had been contained to considerable extent.

CROP RAIDING

The animal depredation on crop and property and occasional cattle lifting by large predators cause considerable hardship to the poor people who reside on the fringe of the National Park. These people depend on their crop for a living and most work their land with plough animals. When their crops are destroyed by animals or their plough animals killed by predators, their economy is shattered. Antagonism towards wildlife is a natural reaction. No amount of preaching and education on conservation can retrieve the situation. Thus, it is essential for the Department to provide some material help to these people through compensation for crop losses and loss of livestock because of animal predation.

FISCAL DEFICIT

Though the current infrastructure of Kaziranga National Park to counter the menace of poaching is inadequate the field personnel have exhibited remarkable resilience to minimize poaching incidents. The budgetary allocations for maintenance and creation of infrastructure for anti-poaching is inadequate to fulfil even the minimum requirements. Consequently, it might result in profoundly detrimental impact on the management of Kaziranga National Park in the long run.

ACTION CALENDER

NEED FOR ACTION CALENDER

The management of Kaziranga National Park is conservation oriented and has two main components viz. anti-poaching surveillance to counter the threat from poachers and to maintain the ecological status of grasslands, to provide an optimum habitat for rhinoceros. Conservation of resources can only be achieved by competent management of those resources, the habitat component that sustains the resources and of biotic pressures that affect the resources. A good Management Plan is, therefore, pre-requisite for good management. Since the preparation of a Management Plan for Kaziranga National Park is under process, an Action Calender for management of the Park has been prescribed as an interim measure. The Action Calender, presents strategies and operational schedules for achievements of objectives of Management within a time bound frame work of one year. The importance of various operational schedules are summarized below.

Action Calender showing action to be initiated, continued and to be completed during the specified period as indicated in calender as Annexure.

I) ANTI POACHING INFRASTRUCTURE

a) CREATION & REPAIRING OF ROADS AND BRIDGES

The extent of damage of the roads and bridges in Kaziranga depends on the intensity of floods. Speed and mobility being the paramount factors in combating the threats of poaching the restoration of roads and bridges must be accorded top priority immediately after the receding of water.

b) CLEARING OF PATROLLING PATH

With the onset of the monsoon the grasses grow luxuriantly and obliterate the patrolling path. The patrolling paths constitute the life line of anti-poaching and therefore it is imperative that the patrolling paths are cleared of vegetation before the onset of, and immediately after, the monsoon to facilitate anti-poaching surveillance.

c) REPAIRING OF CAMPS

The camps are located inside and on the fringe of the National Park in strategic areas to pre-empt entry of poachers and to prevent poaching and enable the staff to react immediately in case of any unwarranted eventuality. The camps are the smallest administrative units for anti-poaching surveillance. As majority of the camps are semi-permanent structures, constructed of thatch, *ekora* and timber, these are often ravaged by the vagaries of weather specially during the monsoon. Therefore, it is essential to undertake repairing of the camps before the onset of monsoon to provide congenial work environment to the anti-poaching staff.

d) ELEPHANT HEALTH CAMPS

The fleet of elephants are an effective means for transportation of supplies to camps during monsoon and also render immense support in patrolling of areas, inaccessible by vehicles, boat and foot. The elephants, if overworked and under-nourished, are prone to a variety of disease. Periodic checks on the health of the elephant are essential for their proper upkeep.

e-f) SERVICING OF WIRELESS EQUIPMENTS AND RIFLES/GUNS

The VHF transceivers are a potent medium through which information is exchanged among staff on anti-poaching activities and rifles/ guns provide the staff with requisite fire-power to combat the poachers besides scaring away of wild animals encountered during patrolling. Therefore, it is essential in the interest of protection of the Park that the VHF trans-receivers and the rifles/ guns are inspected periodically by authorised technicians to obtain proper service from the equipment.

g) INFORMATION NETWORK

Receiving advance information on the activities and movement of poachers is extremely important to apprehend the criminals including in such nefarious activities. Therefore, a clandestine channel of information collection system should be maintained to assist the anti-poaching staff and a process of purchasing information by providing secret fund be Implemented.

II) PRE & POST FLOOD MEASURES

a) BOAT-LINE CLEARANCE

During flood, communication between camps and Range Headquarters becomes very difficult. Some camps can be reached only by boats by long detour. During such time patrolling is done mainly by boats. Therefore, to facilitate patrolling by boat, the clearing of waterway clogged by vegetation should be done before the onset of monsoon.

b-c) CONSTRUCTION OF COUNTRY BOATS & REPAIRING OF COUNTRY BOAT/ SPEED BOAT/ OBM

With the passage of time, some of the country boats used by the patrolling staff are damaged beyond repair. Some country boats are also damaged by wild animals inside the Park. Inspection and replacement such damaged country boats is essential for smooth functioning of anti-poaching surveillance during monsoon. Irreparable Country Boats should be replaced immediately by new boats for the safety of the staff. Besides country boats/ speed boats/ OBM, that require minor repairing should be restored well ahead of monsoon so that these may be pressed into service effectively when required.

d) NATIONAL HIGHWAY PATROLLING

When the areas within the Park are inundated, animals during the course of crossing over to the hills of Karbi Anglong, are often run over or knocked down by speeding automobiles on the National Highway 37. This is particularly true in case of smaller animals like deer. The purpose of highway patrolling by the staff is to reduce such cases of animal mortality besides regulating the speed of the vehicles.

e) SHIFTING OF CAMPS FROM INSIDE TO OUTSIDE THE PARK AND VICE VERSA

A number of camps inside the Park are abandoned by the staff during high flood due to inundation. Such camps are usually relocated outside the Park in fringe areas or the foothills on the South and the service of the staff are utilised in highway patrolling or to keep track of the stray animals that take shelter in the high ground outside the Park.

f) REMOVAL OF WATER HYACINTH, MIMOSA AND MIKENIA

These plants together constitute a major factor in ecological degradation of the Park. Though water hyacinth is eaten by some herbivores during pinch period, their excessive growth in wetland inhibits the avifauna from visiting such areas. Mikenia, a straggling climber and Mimosa have also started invading the grassy areas in patches thus reducing the area ecologically suitable for wild animals. It is imperative that these plants be eradicated manually to restore the habitat as use of weedicides or any chemicals is undesirable in a natural ecosystem. The removal of water hyacinth may also be achieved by judicious manipulations of the current while the water recedes from the Park.

g) REPAIRING/CREATION OF HIGHLANDS

After the devastating flood of 1988, some artificial highlands were created inside the Park to enable the animals to take shelter during high flood. However, the recurrent floods have caused considerable deterioration of these highlands every year. Hence the repair of these highland should be done as a corrective measure every year. Besides, some new highlands should also be created to cope with the emergent situation during flood.

h) ASSESSMENT OF AREAS AFFECTED BY EROSION

Large chunks of areas along the northern boundaries of the Park are lost every year due to cut bank erosion. The extent of the area eroded away is usually determined by taking offsets from well defined reference points in locations vulnerable to erosion, prior to, and immediately after, the receding of water and subsequent comparison of the available data. The method also help in identifying the pattern of channel migration of the Brahmaputra over the years.

III) HABITAT MANIPULATION

a) GRASSLAND BURNING

The annual burning of grassland is a well established management practice and apparently has very little adverse impact on the flora and fauna of Kaziranga National Park. Fire is the most important factor in arresting the natural progress of vegetational succession from grasslands to tree forests. The new shoots that come up after burning attract the herbivores and consequently there is greater frequency of sighting of animals in burnt patches. The burning also enhances visibility and facilitates anti-poaching surveillance, especially in detection of pits that might remain out of sight among tall grasses. Though, ideally, burning should be done between December and February, it usually extends till April due to climatic factors.

b) BUND CONSTRUCTION TO RETAIN WATER IN WETLANDS

This is done during November/December mainly with a view to attract the avifauna which are of great interest to the visitors to the Park.

c) DE-SILTATION

Brahmaputra is one of the largest sediment load carrying rivers in the world. The receding water of Brahmaputra leaves behind large quantities of silt and mud, which gradually silt up the wetland. This is a continuous process that reduces the depth and gradually reduces the area of wetland which, in turn, diminishes the ecological area available to aquatic fauna. As wetlands are an all important constituent of the eco-system of Kaziranga, de-siltation of wetlands would contribute immensely towards eco-restoration of the Park.

d) CUTTING AND UPROOTING OF SAPLINGS OF TREES

This is an important factor to preclude the invasion of grassland by tree species. It has special significance for the fire hardy tree species that regenerate profusely and colonise the grassland.

IV) AMENITIES TO STAFF

a-b) SUPPLY OF UNIFORM, JERSEY, RAINCOATS, FLASH LIGHT, KEROSINE, ETC. TO STAFF

These articles constitute the basic necessity of the staff deployed in anti-poaching operation. The uniforms, besides inculcating a sense of unity and discipline amongst the staff, also prevent any unwarranted clashes due to mistaken identity which might be fatal as most of the personnel inside the Park are equipped with rifles/guns. Similarly, the raincoats and jersey provides comfort to staff in execution of duties during monsoon and winter, respectively. Flashlights are necessary for patrolling at night, as encounters with wild animals are very frequent. The batteries for the flashlights remain serviceable for a month, at the most, and must be replaced with regular supply of new batteries. The camp staff carries out regular camp activities e.g. cooking, writing of reports at night with the help of lamps lit by kerosine oil. Therefore, to ensure effective surveillance of the park, a regular supply of the articles is mandatory.

V) AWARENESS PROGRAMME

a) DEPLOYMENT OF CROP-PROTECTION SQUADS

Crop raiding by elephant, buffaloes, rhinos and deer in the villages located on the periphery of the Park is a common problem. It is not always possible to deploy armed Forest Staff in such areas to scare away the wild animals due to prevalent shortage of personnel. Therefore, some local youths are engaged to scare away the animals from the crop fields by providing with firecrackers, kerosine, flashlights etc. and also to assist the staff from the nearest forest office in cases of severe depredation. The measure minimizes the extent of crop damage of local villagers and at the same time provides employment opportunities to local youths.

b-c) FREE MEDICAL/VETERINARY CARE CAMPS

These are organised by the Park authority in collaboration with NGOs and local Government Agencies for the benefit of the residents of villages located in the fringe area of the National Park. Such camps are mainly organised with the objective of attracting the good will of the local populace towards conservation efforts.

d-e) WILDLIFE WEEK CELEBRATION MEETING

Wildlife week is celebrated all over the State every year in the first week of October to generate mass-awareness on the need to conserve wildlife and their habitat. Public meeting and film shows are arranged from time to time in adjacent villages of the National Park to mobilize public opinion against poaching of rhinos and involve the locals in conservation of wildlife at grass root level.

VI) TOURISM

a,b,c) MAINTENANCE OF ELEPHANT GEARS, WATCH TOWERS, ETC

The Park usually remains open to visitors from the month of October to April. Therefore, to provide the visitor with requisite facilities for Park visit, it is essential that repairing of elephant gears and watch towers are completed well ahead of the commencement of tourism activities in the Park.

VII) MISCELLANEOUS

a) ANIMAL CENSUS

The estimation of the number of a particular species provides an idea about the population dynamics of species and appropriate strategies may be formulated by the Park Manager for conservation of the species. This can be achieved only if the census for the animals are conducted periodically to monitor the emerging trends in their population over a prolonged period. The month of March is most suitable for such census Operation due to burning of grasslands which increases the visibility considerably.

b) SURVEY AND BOUNDARY DEMARCATION

This is an important aspect of management to initiate effective action against encroachment, unauthorised fishing and grazing inside the National Park that may arise from time to time and pose a serious problem if not tackled immediately. The matter also assumes significance in view of the fact that there are six proposed addition to Kaziranga National Park which are under process of annexation.

C) REVIEW OF ANTI-POACHING STRATEGIES

Monitoring and evaluation of anti-poaching strategies is an integral part of dynamic management to contain the menace of poaching. This enables the Park Managers to eliminate the deficiencies of strategies that fail to deliver the desired goals and put into practice, the strategies that might be more result oriented.

d) COLLECTION OF SKULLS, ANTLERS

It is mandatory for the staff to collect rhino horn and ivory from dead animals, within their respective camp jurisdiction and deposit these articles to the concerned Range Office. The skulls and antlers of other animals are collected for display for education the public on Wildlife and ancillary matters.

e) ANNUAL REPORT

The annual report documents the multifarious activities in the National Park and the consequent impact on management. It is an useful record for future reference and reflect the achievement and deficiencies of Management during the year.

CONCLUSION

With more than two-thirds of the world's surviving population of Great Indian One-horned Rhinoceros concentrated in one place, Kaziranga has a special and unique role to play for Conservation of the species. The conservation of rhinos and also other wildlife, can be achieved through successful implementation of various activities included in the Annual Calender within the specified time frame and regular flow of funds is a pre-requisite to attain the goals. Unfortunately, the allocation of funds for the maintenance and creation of infrastructure to augment protection measures in the Park have not been commensurate with the requirements after transfer of the Central Sector Scheme, "Conservation of rhino in Assam" to State sector since 1992-93. This has ultimately resulted in an accrual of huge amounts as arrear, incurred by way of procurement of supplies and maintenance cost of assets on credit, for the protection of the Park. Thus, there is a regular cycle in which current year's funds are utilised to liquidate the arrears of previous year and the process continued with progressive accumulation of arrears over the years. It is, therefore, reiterated that the matter of providing sufficient finance for effective execution of various strategies prescribed in the Annual Calendar of operations be accorded top-priority to remedy the prevailing scenario in the interest of securing the protection and

survival of all the resident species in general and Rhinoceros in particular as well their habitat in Kaziranga National Park in perpetuity.

ACTION CALENDER FOR MANAGEMENT OF KAZIRANGA NATIONAL PARK

Sl.No.	Details of item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Remarks
I	**ANTI-POACHING INFRASTRUCTURE**													
	(a) Creation & Repairing of roads & bridges.	XXX	XX	XX	-	-	-	-	-	X	XX	XXX	XXX	
	(b) Clearing of patrolling path	-	-	-	X	XX	-	-	-	X	XX	XX	XXX	
	(c) Repairing of camps	X	X	XX	X	-	-	-	-	-	XX	XX	XXX	
	(d) Elephant Health Camp(Depttl.)	-	-	XX	-	-	XX	-	-	XX	-	-	XX	
	(e) Repairing & Check up of Wireless Set	-	-	XX	-	-	-	-	-	XX	-	-	-	
	(f) Servicing of Arms	-	-	XX	-	-	-	-	-	XX	-	-	-	
	(g) Information Net Work	X	X	X	X	X	X	X	X	X	X	X	X	
II	**PRE & POST FLOOD MEASURES**													
	(a) Boat-line clearance	-	X	XX	XX	X	-	-	-	-	-	-	-	
	(b) Country Boat repairing/ construction	-	X	XX	XX	-	-	-	-	-	-	-	-	
	(c) Speed boat/OBM repairing	-	-	X	XX	XX	X	-	-	-	-	-	-	
	(d) National Highway patrolling	-	-	-	-	-	XX	XX	XX	-	-	-	-	
	(e) Shifting of temporary Camps from & into the Park	-	-	-	-	X	XX	XX	-	-	XX	XX	-	
	(f) Clearance of (i)Water hyacinth (ii)Mikenia & Mimosa	-	-	-	-	-	-	XX	XX	X	XX	X	-	When the flood recedes from the flow of water hyacinth be canalized to ensure its removal
	(g) Highland construction/rep.	X	XX	XX	-	-	-	-	-	-	-	-	X	
	(h) Monitoring of erosion	XXX	-	-	-	-	-	-	-	-	-	-	X	
III	**HABITAT MANIPULATION**													
	(a) Grassland burning	XX	XX	XX	XX	-	-	-	-	-	-	-	X	Thatched must be burnt before February to avoid damage to nesting of Bengal Florican
	(b) Bund construction to retain water	-	-	-	-	-	-	-	-	-	-	-	X	
	(c) De-siltation	XX	XXX	XX	-	-	-	-	-	-	-	-	X	
	(d) Cutting and uprooting of saplings & tree species	-	-	XX	XX	-	-	-	-	-	-	-	-	
IV	**AMENITIES TO STAFF**													
	(a) Supply of logistic support (torch, battery & kerosine)	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	
	(b) Supply of uniform-													

	(I) Jersey	-	-	-	-	-	-	-	-	X	XX	-	-	
	(ii) Raincoat	-	-	X	XX	-	-	-	-	-	-	-	-	
	(iii) Others	-	-	XX	XX	-	-	-	-	-	-	-	-	
V	**AWARENESS PROGRAMME**													
	(a) Deployment of crop protection Squad	-	-	-	-	-	-	-	X	XX	XX	XXX	XXX	
	(b) Free Health Camps	X	-	-	-	X	-	-	-	-	-	-	-	
	(C) Veterinary Care Camps(Eco-Dev.)	-	-	-	-	-	-	XX	-	-	XX	-	-	
	(d) Wildlife Week celebration	-	-	-	-	-	-	-	-	-	XX	-	-	
	(e) Public Awareness Meeting/ Film Show	-	-	-	-	XX	-	-	-	-	XX	-	XX	
VI	**TOURISM**													
	(a) Maintenance of elephant gear (*Gaddi & Geddla*)	-	-	-	-	-	-	-	X	XX	XXX	-	-	
	(b) Maintenance of elephant riding tower/watch tower	-	-	-	-	-	-	-	X	XX	XXX	-	-	
	(c) Tourism activities (period)	X	X	X	X	-	-	-	-	-	-	X	X	
VI	**MISCELLANEOUS**													
	(a) Animal census	-	-	XX	X	-	-	-	-	-	-	-	-	
	(b) Survey & boundary demarcation	X	X	XX	-	-	-	-	-	-	-	-	-	
	(c) Training/briefing and debriefing of anti-poaching strategies	XX	-	-	-	-	X	-	-	-	-	-	-	
	(d) Collection of skulls antlers etc	X	X	X	XXX	XX	X	X	X	X	X	X	X	
	(e) Preparation of Annual report	-	-	-	XX	X	-	-	-	-	-	-	-	

N. B.
- **X** Denotes the intensity of activities - May execute
- **XX** Denotes the intensity of activities - Should be executed
- **XXX** Denotes the intensity of activity - Must be executed and completed