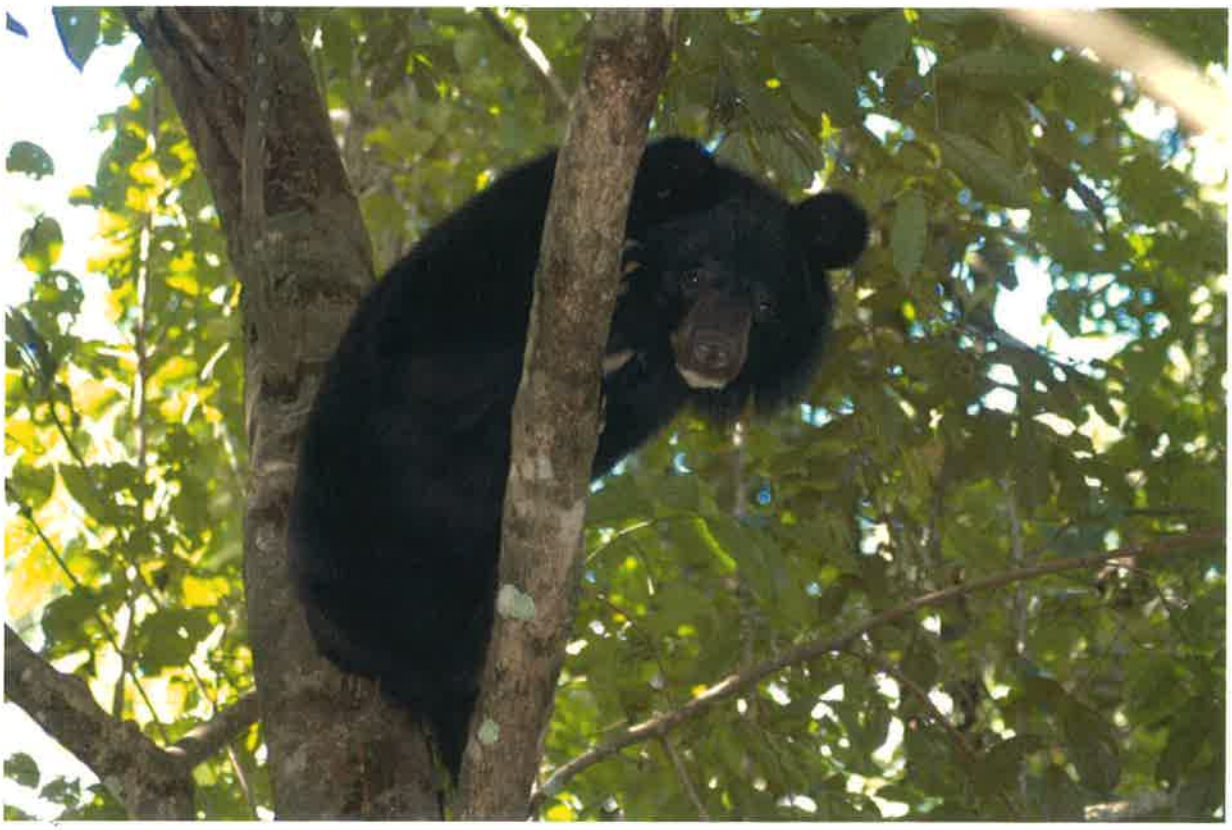
Revised dt. 8/4/10 428

approved

Centre for Bear Rehabilitation and Conservation (CBRC)

MASTER PLAN
(2010 - 2020)



Wildlife Trust of India

Government of Arunachal Pradesh

Document submitted to the
Central Zoo Authority

Wildlife Trust of India

Ref. No: WRC/CBRC-Corresp/WTI-2010

April 6, 2010

To

Shri B.S. Bonal
Member Secretary
Central Zoo Authority
Annexe-6, Bikaner House
New Delhi – 110011

Sub: Submission of revised Master Plan of the Center for Bear Rehabilitation and Conservation (CBRC), Pakke, Arunachal Pradesh
Ref: Your letter, F.No. 22-10/2004-CZA(428)(M), dated 9-3-10

Dear Sir,

With reference to the modifications sought in the CBRC Master Plan by the Expert Group on Zoo Designing, we hereby submit three copies of the Master Plan with all the following points being incorporated into it:

1) Restricting the holdings to only bears and not for species like deer, goose, hornbills etc.
2) Removal of the plans to have a canopy walk
3) Extending the master plann period to 10 years
4) Earmarking specific area for nursing cubs at the field camp

We hope this revised version would meet the requirements of CZA.

Yours faithfully

N.V.K. Ashraf
Director-Wild Rescue

Encls:
1. Three copies of the Master Plan

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Centre for Bear Rehabilitation and Conservation (CBRC)

MASTER PLAN
(2010 - 2020)

Wildlife Trust of India

Government of Arunachal Pradesh

Document submitted to the
Central Zoo Authority

February, 2010

Name of Rescue Centre	**Centre for Bear Rehabilitation and Conservation**
Address	Pakke Tiger Reserve, Seijosa
City/ Town	Seijosa
District	East Kameng
State	Arunachal Pradesh
Area of Rescue Centre	Present Area: 1.11 Hectares (2.74 Acres) Proposed Extension Area: 0.93 Hectares (2.29 Acres)
Year of establishment	2002
Controlling Authority	**Department of Environment and Forests, Govt. of Arunachal Pradesh and Wildlife Trust of India**
Director/ Officer in charge	Dr. N.V.K Ashraf, Wildlife Trust of India
Telephone No.	
DFO, Pakke WLS & Tiger Reserve	03778-234629
Dy. CWLW & Project Leader, CBRC	0360-2244416
Fax No *(Dy. CWLW & Project Leader, CBRC)*	0360-2244416
E-mail	soumya@wti.org.in
Web site	wildlifetrustofindia.org.in
Curator	None
Senior Veterinary Officer	None
Junior Veterinary Officer	None
Wildlife Biologist	Soumya Dasgupta
Annual Visitor to the Zoo	Does not apply
No of endangered species at the Rescue Centre	-
No of endangered animals at the Rescue Centre	-
No of species in the Rescue Centre	1
No. of animals in the Rescue Centre	4

Visiting hours
Summer starts: Does not apply Ends: Does not apply
Winter starts: Does not apply Ends: Does not apply

Wildlife Trust of India

Government of Arunachal Pradesh

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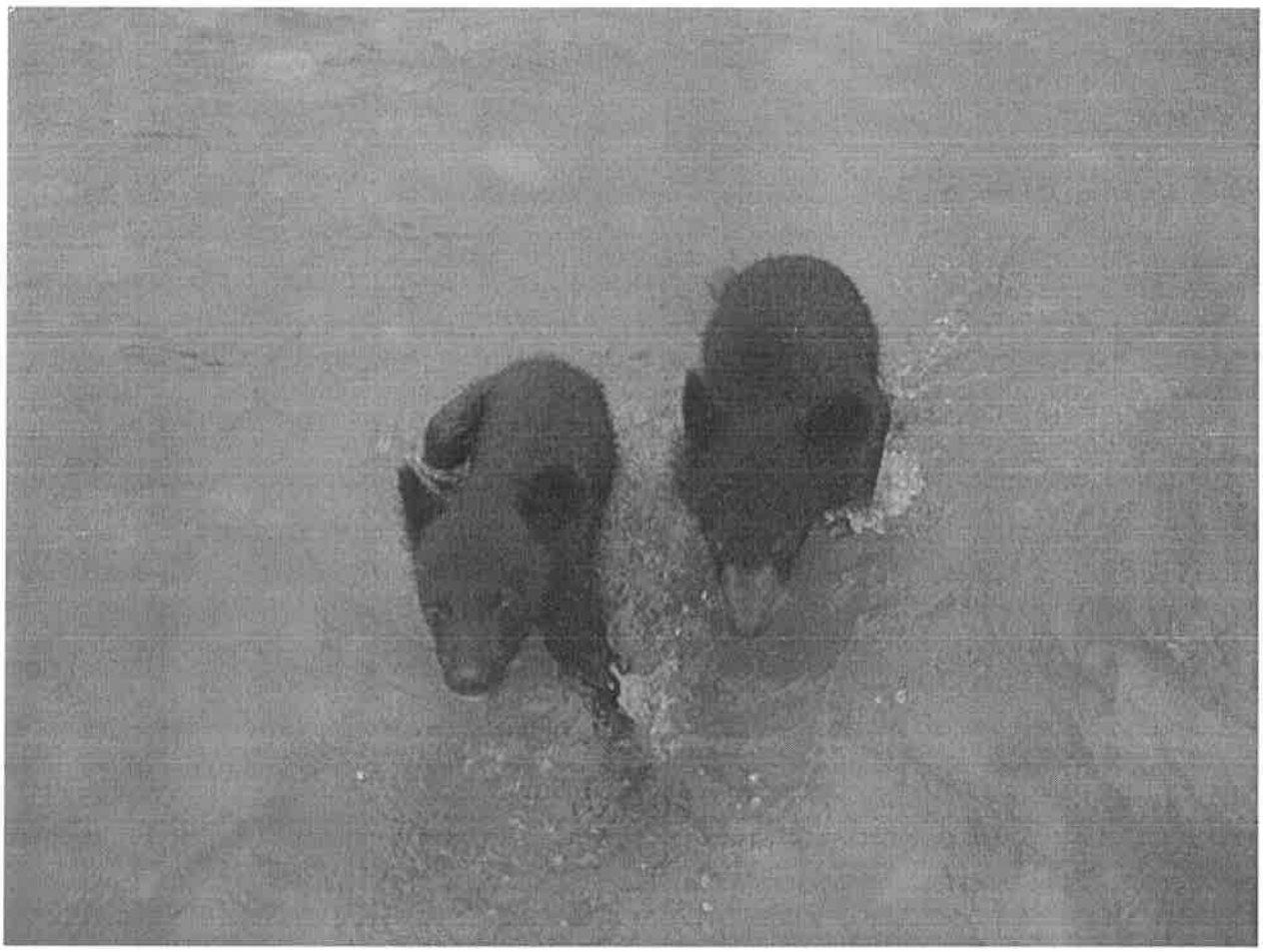
Annexures to the Master Plan

Part – I

The Present



1. Introduction

The forests of the Northeastern state of Arunachal Pradesh support a rich floral and faunal diversity. Gifted with 75% forest cover and extremely rich flora and fauna, the state is struggling to retain its forest cover owing to increasing demand for development activities. In the last three decades, population growth, agricultural practices (*jhuming*) and the development of towns have led to rapid fragmentation and degradation of forest and forest resources of the state. Many mammalian and avian species are threatened due to habitat loss and hunting. One among these is the Asiatic black bear (*Ursus thibetanus*), which has its distribution almost throughout the state. There is evidence of killing of Asiatic black bears in northeast India, for meat and the sale of body parts in medicinal preparations. Bear cubs that end up in captivity, after the killing of their mothers, are maintained as pets for some time until they are grown up. At this time they are either confiscated by the Forest Department or voluntarily handed over to zoos for further care.

According to the IUCN Bear Conservation Action Plan, the bear populations at great risk include Asiatic black bear, sun bear, giant panda, sloth bear, brown bears of Mongolia, Tibet, France, Spain and Italy and the spectacled bear of Venezuela, Columbia and the Desert population in Peru (Servheen *et al* 1998). Asiatic black bear (*Ursus thibetanus*) is classified as Vulnerable (VU - A1cd) on the IUCN Red List 2002 and listed on Appendix I of CITES since hunting for bear parts has been perceived as a major threat to their survival. The species is listed under Schedule II, Part II of the Indian Wildlife Protection Act (1972).

1.1. Bear rehabilitation worldwide

In many temperate countries, where licensed hunting of bears is legal, rehabilitation of orphaned bear cubs goes hand in hand. In tropical countries like India, where hunting is widespread though illegal, rehabilitation of bears has never been taken up as a project. Though 'surplus' captive bears have been occasionally released to the wild, no record of the success or failure of such attempts has been maintained. The Asiatic black bear (*Ursus thibetanus*) rehabilitation project, taken up jointly by the Department of Environment and Forests, Arunachal Pradesh and the Wildlife Trust of India (WTI) in partnership with the International Fund for Animal Welfare

(IFAW), is the only one of its kind to have been initiated in India. The project was largely an initiative of the Deputy Chief Wildlife Warden of the state Mr. C. Loma, who was earlier the Divisional Forest Office of Pakke Wildlife Sanctuary where the centre was finally established in 2003.

Internationally, Wildlife Rehabilitation is an emerging discipline in the science of wildlife conservation, with both conservation and welfare issues being intricate components. The International Wildlife Rehabilitation Council defines Wildlife Rehabilitation as "the treatment and temporary care of injured, diseased, and displaced indigenous animals, and the subsequent release of healthy animals to appropriate habitats in the wild". The fact that bears are solitary animals leading solitary lives make them ideal candidates for rehabilitation (Maughan, 2004). Bear rehabilitation is a major conservation and animal welfare activity practiced throughout the world (Fig below). Bears have been successfully rehabilitated and released back to the wild in many countries (Table below).

No	Species of bear	Countries
1	European brown bear	Russia, Romania, USA, Canada
2	American black bear	USA, Canada
3	Spectacled bear	Peru, Ecuador
4	Malayan sun bear	Indonesia (Borneo)
5	Asiatic black bear	Russia

Fig: European brown bear (left), American black bear (centre) and the spectacled bear (right) are some of the species of bears rehabilitated worldwide.

Blanford's fruit bat (*Sphaerias blanfordi*). Several species of birds, reptiles and amphibians have also been reported in this region. The park is well known for its several species of hornbills.

Pakke has two ranges: Seijosa (540.79 km^2.) and Tipi (321.16 km^2.). Prior to 1980, the west bank of the Pakke River was leased to the Armed forces for firing practices and the east bank for settlement of retired army personnel, although currently the area has no leases.

1.4. Memorandum of understanding

Considering the tremendous potential that exists for rehabilitating bears back to the wild in Arunachal Pradesh, Wildlife Trust of India (WTI) signed a Memorandum of Understanding in March 2002 with the Department of Forests and Environment, Arunachal Pradesh, to establish a rehabilitation centre to address the issue of displaced bear cubs (MoU, 2002). The centre was planned to provide food, shelter, veterinary care and other rehabilitation measures to them until they are fit to be released back into their habitat. The Centre also planned to treat injured/sick temporarily displaced bears with the aim of returning them to the wild. The centre has been established in an area of 1.11 hectare of moist-deciduous mix and semi-evergreen forest in Pakke Tiger Reserve, Seijosa. The center has a quarantine facility, apart from the main complex consisting of shelters (0.97 hectare) in the forest and a field camp (0.14 hectare) on the bank of Pakke river.

The Asiatic bear rehabiltation project was officially launched on the 15th of March 2002, following the signing of a Memorandum of Understanding (MoU) between the Department of Environment and Forests, Arunachal Pradesh and Wildlife Trust of India. As per the MoU, the project is governed by a Governing Council, headed by the Forest Secretary of Arunachal Pradesh. While the Department provides all the logistics for the establishment and smooth running of the Centre in Arunachal, WTI ensures that the project is successfully run. The project has a Project Leader designated by the Forest Department and a point person appointed by WTI. The Governing Council members meet once a year and take review of the project's progress at the Governing Council meeting.

In March 2002, WTI submitted a proposal to the Animal Welfare Division, Ministry of Statistics and Program Implementation, Government of India, seeking funds for establishing a rehabilitation centre for Asiatic black bear cubs confiscated in Arunachal Pradesh. To expedite the initiation of the project, a temporary enclosure was built and two bear cubs were moved from Itanagar Zoo. The ministry meanwhile approved the project and released the first installment of fund for construction in 2002. With additional support received from IFAW, the basic structures came up in 2003 and by 2004, most of the structures were complete. For the running of the project, the first year 2003-04, the British High Commission came forward with financial support, followed by IFAW who has remained a steadfast supporter through the next several years. Though the MoU was signed in 2002, the centre was officially inaugurated only in February 2005 by Shri Newlai (Fig below).

Fig: CBRC being officially inaugurated by the Forest Minister of Arunachal Pradesh Shri Newlai Thingkhatra.

1.5. The layout plan

A conscious effort was made to keep the support facilities away from the animal enclosures. CBRC was thus built in two complexes:

(A) Animal shelters and
(B) Field camp

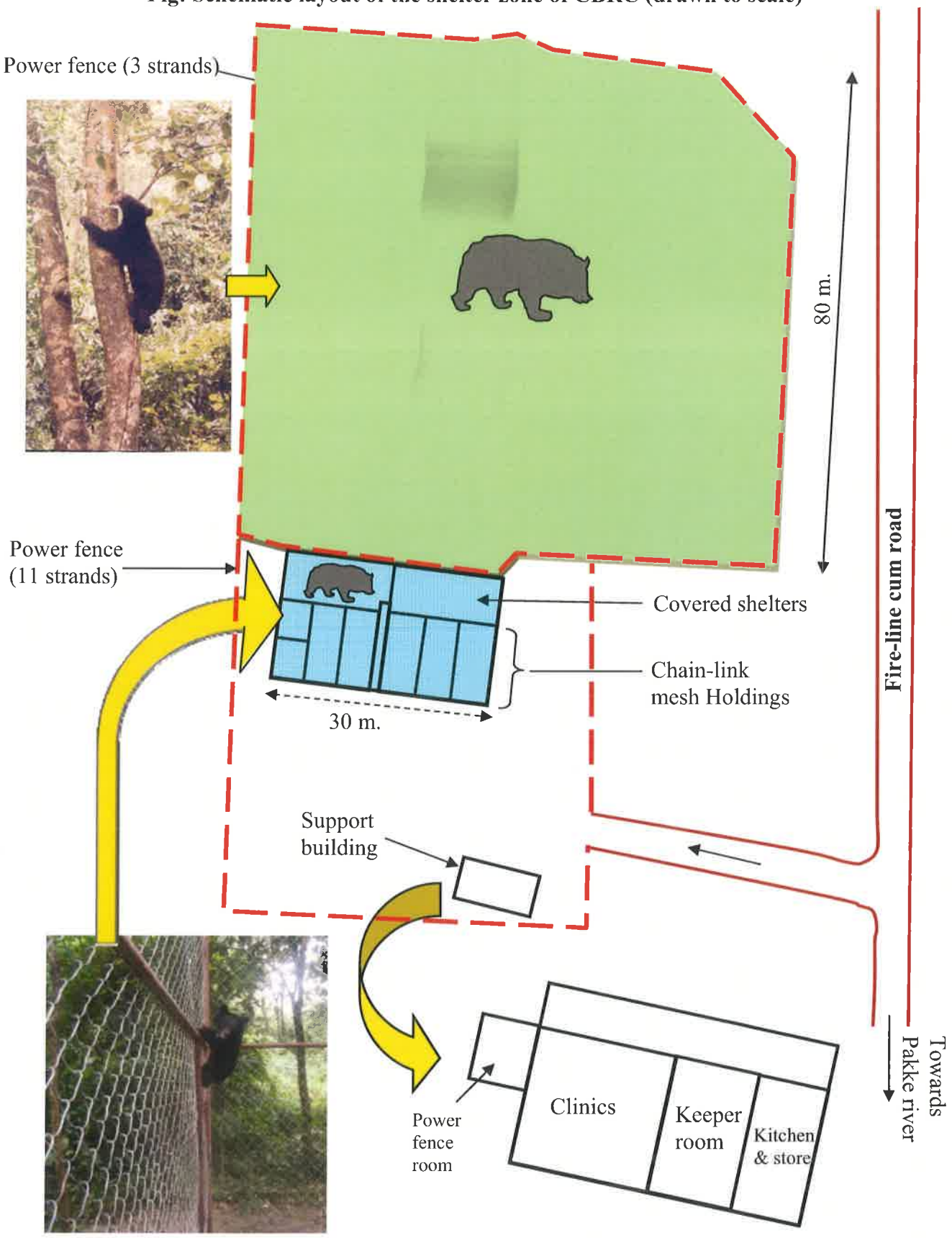
Detailed architectural schematic drawings of the shelters and field camp have been provided in Appendix I. Human and animal areas have been placed apart to prevent the bears from getting acclimatized to people. The site chosen for building the hospital cum residential area lies on the West Bank of the Pakke River in Pakke Tiger Reserve, Seijosa, Arunachal Pradesh. This residential area within the park has the office and residence of the Forest Range officer and other department staff. The site chosen for the animal shelter lies about 600 meters from here inside the semi-evergreen forests of Pakke Tiger Reserve.

(A) Animal Shelters

The shelter area comprises a series of bear enclosures, a support building and a perimeter fence or wall encompassing a free ranging area for orientation of bears before release (see illustration next page). This area is about 0.97 hectare. The enclosures are made of chainlink mesh and MS pipes with sliding doors for moving animals from one section to another and swing doors for keepers to enter. The support building is an Assam type RCC construction with an animal examination room, retiring room for animal attendant, an animal kitchen and a small control room. The perimeter fence encompasses all these structures. It is an eleven-strand power fence with all the poles grouted in concrete.

The enclosures were so designed with the idea of keeping bears for two years in captivity and putting them through different stages of the rehabilitation process. The basis for this design was the bear rehabilitation protocol made available to us by various expert bear rehabilitators in temperate countries. Accordingly, smaller holdings, larger covered shelters and an open air pre-release orientation yard were planned and built.

Fig: Schematic layout of the shelter zone of CBRC (drawn to scale)



(i) Bear enclosures

The bear rehabilitation facility has ten enclosures of varying sizes, the smallest ones being the cub enclosures (5x4.5x5 meters dimension) in the holdings and the largest one being the orientation yard (80x70 meters dimension) which is open to the sky. The cub enclosures were designed to hold suckling bear cubs and the five holding cages (10x4.5-4.7x5m dimension) for accommodating them after the weaning period. The roles of these cages have now been redefined in the "Action Plan for the future" in Part-II of this document. The two large covered enclosures (15x10x8) (Fig below) and the orientation yard hold all the four bears now. A series of sliding doors permit the movement of bears from one section to another. The 5600 square

Fig: A bear in the orientation yard with the large covered enclosures in the background.

meter pre-release orientation yard has a five feet tall chainlink mesh sandwiched between a 11-line power fence outside and a 3-line live wire inside. However, no live wires have been used in any of the covered enclosures. In order to prevent the bears from getting habituated to the keepers and veterinarians, the entire facility used to be cordoned off with nylon netting screens. Visitors were once not allowed entry into the shelter area, but no such restrictions are in place now as none of the bears with rehab potential are housed here.

(ii) Support building:

The support building, located within the shelter complex is meant solely for the caretakers to prepare food for the bears and for the veterinarian to treat bears in case of emergency (Fig below). It has an animal examination room, retiring room for animal attendant, a kitchen and a small control room to monitor the solar power fence. Each room is approximately 8 feet by 12 feet in dimension, while the treatment or examination room is double this size (16 feet by 12 feet).

Fig: Support building with stores, kitchen, keeper room and examination room.

All the bears at the time of their admission are taken to the examination room before being moved to the quarantine enclosure or hand-raising section depending on the age of the bear on arrival. A ramp has been provided to facilitate movement of crates with wheels. The quarantine cages are located away from the main shelters amidst the jungle. The control cabin houses all the solar power fence accessories, like the lightning arrester, batteries and energizers.

Water supply to the shelter area is ensured through a pipeline that draws collected water from an upstream deep inside the forest. Since the holdings are fairly large the natural earth substrate soaks up all the urine. The keepers have to enter the enclosure only to remove the faeces.

(iii) Perimeter fence

The perimeter fence is roughly 340 meters in length encompassing all these shelters and the support building. The fence has a six feet high 3x3 inch chainlink mesh of eight gauze thickness.

Fig: The solar fencing around the shelter area.

Since live wires are required on either side of the fence, specially fabricated 10 feet high L-angles with 2½ feet overhang has been used at a distance of every five meters (Fig left). The corner poles are strengthened by supporting poles on either side in order to withstand the tension of live wire strings. There are nine strands of live wires outside and three strands of live wires inside. The inside wires discourage bears from climbing on the fence and escaping from the pre-release orientation yard, while the live wires outside help to prevent leopards and tigers from entering in and also to prevent large animals like elephants from damaging the fence.

The solar power fence system comprises three solar panels, three energizers, three batteries and a lightning arrester.

(B) Field camp

Located about 600 meters from the shelter area in the forsest and right on the edge of the West bank of river Pakke, this building functions as the office for the project staff. This campus is

encompassed within a barbed wire fence to keep livestock off. The building is an Assam-type construction with corrugated galvanized iron sheets as the roofing material. The camp has two rooms designated as office space, a dispensary where all the medicines and medical equipments are stored, a kitchen, two retiring rooms for the staff on duty, a lounge for guests and a toilet (Fig below). The western side of Pakke river does not have the luxury of any power supply. The field camp is therefore provided with a generator that is put into use whenever power is required, either to draw water from the well or to work at night. Figures on page 23 show the site before and after the construction of this field camp.

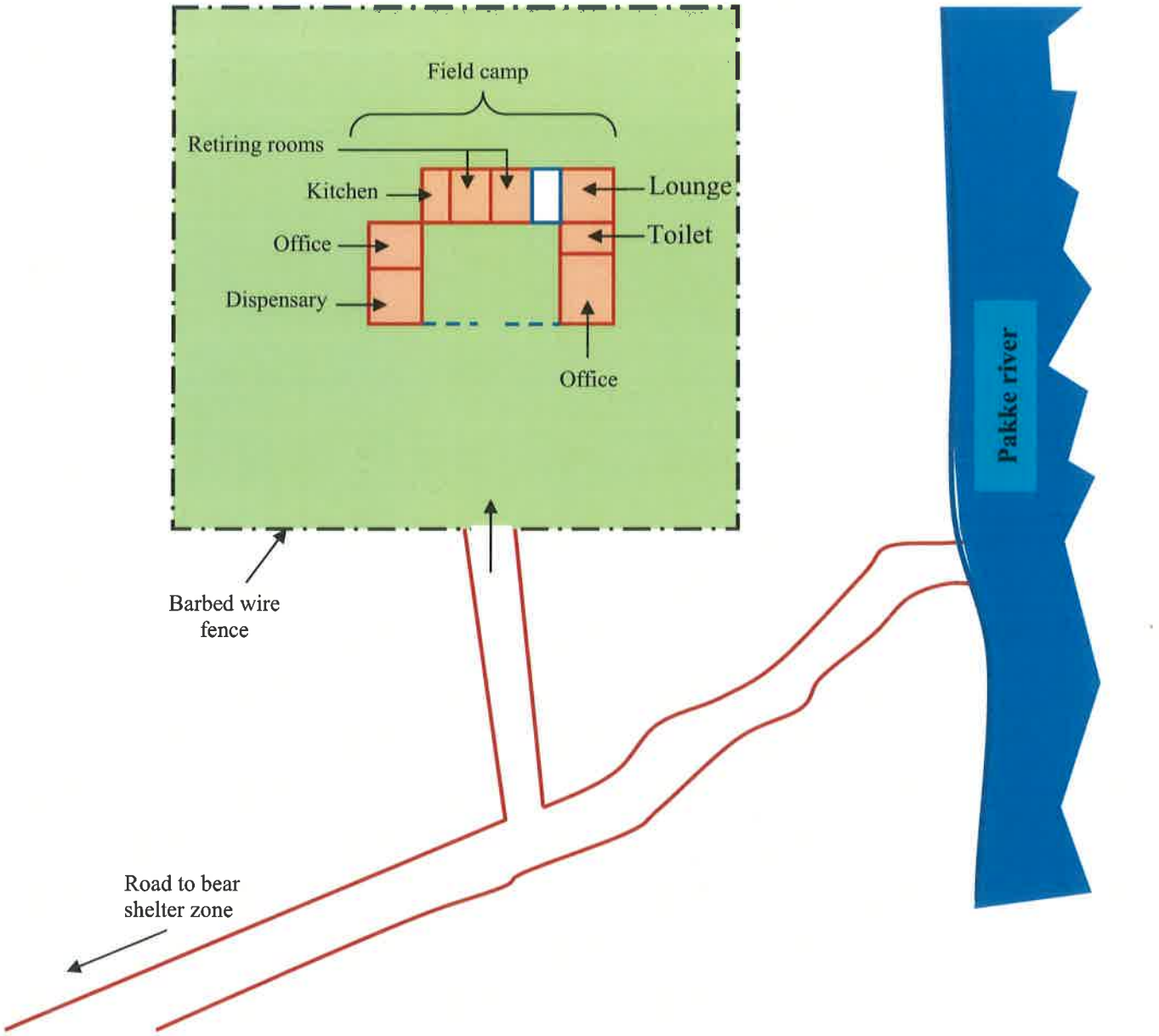


Fig: A schematic layout of the field camp of CBRC on the west bank of Seijosa

Fig: The land on the West bank of Pakke river in Pakke WLS (above) where the Field Camp has now been built (below)

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2. Present arrangements and constraints

2.1. Present functionaries of CBRC

a) Animal section

CBRC is designed to hold only four to six bears under lifetime care. The four bears at the centre were brought as young 6 to 11 month old bear cubs with the objective of rehabilitating them back to the wild. When the bear rehabilitation protocol (Annexure 7) was modified in 2004 and a new methodology was instituted, these bears were not considered young enough to be subjected to this revised method. As a result, they have ended up in lifetime care at CBRC. Besides these bears, any individual bear that fails to get rehabilitated will be added to the lifetime care collection.

Animal management at CBRC revolves around the management of the following three categories of animals: (i) Bears at the shelters under lifetime care, (ii) Bear cubs at the rehab site being acclimatized in the forest for release, and (iii) Other species of temporarily disadvantaged animals rescued by the mobile veterinary unit (Fig below). The bears under lifetime care are those animals brought into CZA records. Most of the rescued wildlife species are released within a week and those individuals requiring long-term care are moved to the nearest rehab centre (e.g. CWRC, Kaziranga, Assam) or to a lifetime care centre. Bear cubs undergoing rehabilitation at the release site are managed by a set of keepers supervised by a biologist. Veterinary care to these bears and rescued animals are provided by the mobile unit veterinarian stationed at CBRC.

Fig: Animal management at CBRC includes these three groups: (i) Bears in shelters (left), (ii) bears cubs under rehab in the forest, and (iii) rescue and release of temporarily displaced.

While cubs are hand-raised with a suitable milk formula for up to 5 months of age, adults are fed on concentrate mix supplemented with fruits, vegetables and tubers collected from the forest. The concentrate mixture comprises a porridge of cereal and pulse cemented together with *jaggery* and broken eggs. Nutritional supplements are added whenever the need arises.

Records of all animals brought to the centre for rehabilitation are maintained in the following registers:

(i) Animal entry register
(ii) Treatment register
(iii) Feeding register
(iv) Anesthesia records
(v) Laboratory investigation register
(vi) Release register
(vii) Carcass disposal register
(viii) Mobile rescue register
(ix) Individual animal register for bears

These records are in turn entered in the online software as well; those of the bears, as well as those of every animal rescued and released by the mobile veterinary unit.

b) Stores and feed section

There are two stores and a kitchen at CBRC, one at the field camp and the other in the support building in the shelter area. As mentioned earlier in the Introduction section, these two zones are separated by about 500 meters which was deliberately planned to keep humans away from the rehabilitation zone. The keeper who stays at the shelter zone prepares the concentrate mix, collects fruits and bamboo and cane shoots from the forest for feeding the bears. Food and feed for any rescued animal requiring protracted care is also stored and prepared here.

Fig: Orphaned cubs being fed at CBRC

For orphaned bear cubs, milk formulas are prepared at the field camp kitchen (Fig right). Milk for any mammalian orphan rescued under the mobile veterinary unit division is

also prepared here. Since perishable items like meat is not involved in the feeding management of animals admitted to the centre, the need for any deep freezer has not been felt. For feeding rescued insectivorous birds and small mammals, insects are collected from the open grasslands and forests nearby. A separate keeper is in charge of this facility and he keeps the campus clean, prepares milk and looks after the orphans.

c) Construction and maintenance

All construction activities are undertaken by the officer in-charge in consultation with the Project Leader in Itanagar and the DFO, Pakke. Since no new facility has been built after the completion of the shelters in 2003-04 and after CZA recognition, construction activity has been redundant since then.

The maintenance of CBRC shelters and buildings could be classified under the following heads: (i) Periodic replacement of biodegradable materials like the enclosure furnishings, (ii) painting of corrosive non-galvanized iron structures, (iii) maintenance of the solar power fence at the shelter zone, and (iv) maintenance of the field camp on the west bank of Pakke river.

- The shelter area has a stretch of *netlan* that has to be replaced every three years. Asiatic black bears being highly arboreal, are known to cause damage to trees as they climb and descend frequently along the tree trunks. The furnishings also need replacement frequently.
- MS pipes, corrugated sheets, chainlink mesh and angles are prone to get rusted in time. In December 2009, pieces of chainliink mesh and pipes had to be replaced as they deteriorated quickly due to contact with bear urine.
- Another sort of maintenance being carried out at the shelter area is the minor improvements done to the enclosures. Recently two sliding food-troughs were fabricated and installed in the two holding cages (Fig right).
- The solar fence system at CBRC is one of the complex and yet successfully functional primary barriers ever employed

Fig: Sliding food-trough for bears at CBRC.

in a captive facility for bears. A simple three line strand running in the middle of a five feet high chainlink mesh barrier prevent the bears from climbing up (Fig right). The system needs constant maintenance which includes replacement of batteries, constant charging of the batteries, repositioning of the support poles if damaged by wild elephants and fallen tree branches etc.

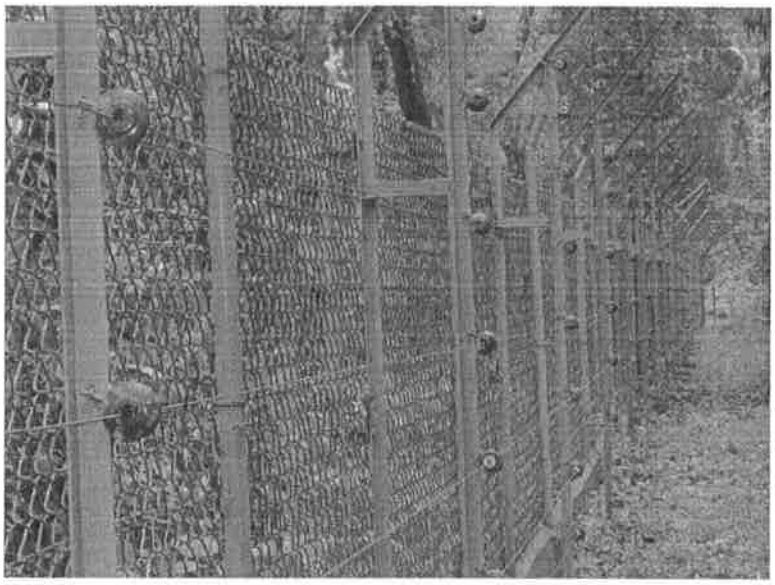

Fig: Three live wires reinforcing the chainlink mesh.

- The field camp maintenance is also taken up by the officer in charge. The campus area is less than 1000 square meters, with the building occupying less than one tenth of this space.

d) Solid and liquid waste disposal

As there are only four bears occupying an area of about 6,000 square meters, with 5x10x5 meter multiple holding areas as extra space, the need for a separate animal waste disposal system was not realized. The solid wastes are collected, once a week from the scat-piles in the free ranging open enclosure and on a daily basis from the covered shelters. The earthen soil soaks up the urine. The soil inside the holdings and covered shelters are fumigated and replaced once a year.

However, both the kitchens at the shelter zone and field camp zone have a drainage system that drains either into a choke-pit or into a dry *nullah*. The caseload is also very meager to demand for a dedicated drainage system for the bear rehab centre.

e) Veterinary section

The veterinary section of CBRC is the Mobile Veterinary Service (MVS) unit that attends to wildlife emergencies in the state. The unit's veterinarian provides the health care to cubs being hand-raised for rehabilitation and to the subadult and adult bears being held under lifetime care. The veterinary unit has the basic utilities like the ambulance for bringing orphans confiscated by the forest department and

attending to rescue cases, a Dist-Inject pneumatic gun for drug-immobilization of bears and an examination room for the medical treatment and examination of wildlife patients.

Mobile Veterinary Service:

The all terrain MVS unit's ambulance is pressed into service for bringing confiscated bears, for attending to conflict animal management, and providing disaster and emergency relief to wildlife in crisis and distress. The vehicle has attended to cases in far away places like Tawang, Itanagar, Eagle Nest WLS, Roing, Maiyodia etc. The MVS unit comprises a vet and a driver cum keeper.

Veterinary equipments and supplies:

The principal veterinary equipment available at CBRC is the remote delivery system for chemical capture. The drug-immobilization kit is employed for the restraint of not only bears but also other forms of wildlife that the veterinarian attends as rescue cases. There is a need to upgrade this equipment to a gas or powder charged rifle so that mega-herbivores can also be drug-immobilized.

Additional responsibilities of the vet:

Apart from being responsible for the upkeep of bears in captivity and bear cubs being rehabilitated in the wild, the veterinarian is also in charge of radio-collaring the bears after drug immobilization. Once collared and released, the bears are monitored for about eight months. The vet is a standby when the CBRC biologist is one leave or when he goes on for other responsibilities assigned to him.

f) Security section

There is a full time security guard deployed at the bear shelter zone. Though the facility has a live wire fencing, the system is not foolproof against vandalism, and so the need for a night security guard was realized in the beginning itself. He reports to the veterinarian as he is the one who looks after the bears in the shelters. The other site, the field camp does not need a security as officer and keepers on duty stay in the premises.

g) Sanitation and water supply

There are keepers dedicated to keep the shelter and camp premises clean. Water supply to these areas is ensured by the natural spring water collected from an upstream in Pakke Tiger Reserve and brought in through a series of underground pipelines. This pipeline supplies water not only for CBRC but also the entire forest department establishments like staff quarters and range office located on the west bank. Besides this, the CBRC field camp also has a well, a water tank (Fig left) and a motor pump that can be pressed into service during emergencies by using the generator.

Fig: Water tank for the field camp near Pakke river

h) Visitor amenities, gardens and landscaping

The animal shelter area at CBRC was originally built as a rehabilitation centre where visitors were disallowed. This was to increase the rehabilitation potential of the bears by preventing them from getting habituated to more people. Now that the rehabilitation protocol has been changed (see Annexure 7), the bear cubs are directly taken to the forest where they are acclimatized and fed for at least eight months before they could be considered for independence. The shelter area on the west bank is meant only for non-releasable bears that will spend their lifetime in captivity. They will either be moved to a suitable zoo or retained right there. The idea is to convert this facility into an interpretation center of CBRC's rehabilitation project. As of now, the rescue centre does not indulge in landscaping and gardening as it is established in the forest area.

2.2. Other functionaries of CBRC

a) Collection plan

Admission for rehab: The CBRC, as the name suggests, was established primarily for the rehabilitation and release of orphaned Asiatic or Himalayan black bears. Consequently, the plan of the centre is to only admit bear cubs, which have rehabilitation potential. Bear cubs are often confiscated from villagers who keep them when young for various reasons. Usually the cubs are handed over to the government after keeping them in captivity for periods that may range from less than a week to more than two years. Following are the guidelines for accepting bear cubs mentioned in the rehab protocol (see Annexure 7):

1. The center will not accept bear cubs that have spent considerable length of time in captivity. Any cub above four months of age will not be considered for rehab, unless the cub is found to be suitable for a soft release programme.
2. All confiscations will be done by the Forest Department and the CBRC ambulance can help in the transportation of the animal to the centre with the permission of the Forest Department.
3. All new arrivals will be subjected to 21 days of quarantine period, during which they will be examined for behavioral aberrations and infectious diseases.
4. All cases of admission will be registered in appropriate databases. Ideally, all cubs will be micro chipped with transponder implants.
5. No cub with deformities (mental or physical) diseases that cannot be cured in a short period of time shall not be considered for admission

The cubs are hand-raised for up to five months of age, screened for infectious diseases, then moved to the rehab site for acclimatization, released and monitored (see Fig next page).

Admission for lifetime care: While the cubs at the time of weaning are moved straight to the forests for acclimatization and release, the non-releasable bears are brought into the shelters and retained there for lifetime. Only these animals are brought into the records of CZA and thus get reflected in the CZA inventory (refer Annexure 2). The collection strategy here is in quite contrast to what is mentioned above. Here the bears are more than 8-12 months of age,

behaviorally or physically disadvantaged or too habituated to humans that they cannot be left to themselves on their own when released after acclimatization. All the four bears at the shelters were above six months of age when they were admitted and therefore failed to qualify for the 'walk the bear' program which follows an assisted release method of rehabilitation. Since then no bear has been resigned to captivity so far for having failed to get assimilated to the habitat even after eight to nine months of gradual acclimatization.

Fig: At times cubs less than 15 days old are admitted, hand-raised at the field camp, carried in crates to the rehab site after weaning and acclimatized for nearly 9 months before they are evaluated for leading an independent life. The centre has so far released & monitored 10 bears successfully.

The list of non-releasable bears will be communicated to the Project Leader and the Chief Wildlife Warden of the state and will then be brought into the stock of resident animals at CBRC. According to the Wildlife Protection Act (1972), Amendment of Section 11 (section 11 of the principal Act, in sub-section 1), it is mentioned that no captured animal shall be kept in captivity unless the Chief Wild Life Warden is satisfied that such animal cannot be rehabilitated in the wild and the reasons for the same are recorded in writing. True to the spirit of this wildlife law, no animal shall be resigned to captivity without making every effort to rehabilitate it back to the wild. The priority at CBRC is to return the animals to the wild following the standard protocols that are available. According to the IUCN guidelines on the placement of confiscated

animals, there are three options for confiscated species: (i) Return to the wild, (ii) Captivity, (iii) Euthanasia (IUCN, 2002). The same principle is applied while dealing with rescued animals by the MVS unit. Since CBRC at present has its focus on bears, no other species other than bears have been accommodated in the lifetime care centre. Other species of animals that are rescued for treatment of injuries or chicks rescued for hand-raising are held in portable and makeshift enclosures before they are released. Non-releasable animals and individuals that require intensive and critical care (e.g. elephant calves) are moved to the Centre for Wildlife Rehabilitation and Conservation (CWRC), Assam after obtaining the transit permit (Fig below). However the possibility of holding some of them at CBRC itself is being considered by utilizing some of the enclosures originally meant for bears. (see Part-II, The Future).

Fig: While bear cubs are moved to the release site at 4-5 months of age (top left), non-releasable bears are housed in the enclosures and brought into CZA records (bottom left). Rescue cases requiring critical care are moved to CWRC, Assam (top right), while those requiring temporary care are housed in small enclosures and released later (bottom right).

b) Administration section

CBRC is a joint venture of the Department of Environment and Forests, Arunachal Pradesh and the Wildlife Trust of India (WTI). The Project Leader is Shri C. Loma, the Deputy Chief Wildlife Warden of the state. The Governing Council of CBRC, chaired by the Secretary and PCCF of the state, oversees the progress of the project. Since the project is entirely run by WTI, funded largely by the International Fund for Animal Welfare (IFAW), the entire administration of the centre is the purview of WTI. The staff is appointed by WTI in consultation with the state government and their transfers intimated in advance. While the officer in charge of CBRC takes the decisions relating to the day to day management of the centre, all major administrative decisions are taken from the headquarters in Noida in consultation with the Government of Arunachal Pradesh. The biologist and the veterinarian attend monthly meetings held during the first week of every month at Guwahati and submit the cash flow for the anticipated expenses of the next month. This is to avoid the delay in remittance of the cash into the account in Guwahati. The officer in charge receives the approved cash flow for the month when he comes for the monthly meeting and is able to spend the same when he returns to the field. The different heads and budgets of the cash flow are, Project Running, Animal Care, Capital Equipment, Construction, Maintenance, Travel and Subsistence, Local Conveyance and Others.

Salaries are disbursed through two means: While the officers and above receive their salaries directly into their bank accounts, animal keepers and field assistants are paid in cash directly in the field.

c) Research & Breeding

Since CBRC is neither a zoo nor a conservation breeding centre, no planned breeding program has been taken up so far. There is also no record of any accidental breeding at the centre. Though CBRC is not a research oriented project, a scientific approach is adopted in all procedures whether it is hand-raising, acclimatization in the wild, choosing the release site, deciding on the placement of an animal or studying the survival of bears released in the wild. Active data

collection is an integral part of the bear rehabilitation project throughout the different stages of rehab:

(i) milk consumption and growth rate of all cubs are recorded periodically to assess the weight gain and well being of the cubs

(ii) different species or categories of food items consumed by the bear cubs in the wild during the acclimatization process is recorded to study their feeding strategies (Fig below)

(iii) post-release survival of the bears is studied by radio-tracking the released animals for 6 to 8 months.

Fig: Assisted release method provides the biologist to study the feeding habits (left) and the range utilization of bears after 'release' (right).

Besides these studies on bear rehabilitation, another research study that was taken up in 2005 was on captive bears, where their behavior and enclosure was studied (Akhtar *et al*, 2005). In the coming years, WTI is planning to study the large carnivore ecology in Pakke Tiger Reserve with special reference to Himalayan black bears, considering the fact that, different locations in the park have been chosen as release sites for the bears.

d) Education and awareness

The operation of the MVS unit attached to the bear center in key areas of Arunachal Pradesh has not only helped in attending to wildlife emergencies in the surrounding areas, but has also had

the effect of spreading conservation awareness and the message of humane treatment of wild animals amongst the rural populace. Considering the fact that bear-hunting is still rampant in the state, there is an urgent need to increase conservation awareness among local people so that no more bear cubs end up in captivity. This project is in the pipeline and will be taken up once funding is made available. The bears housed in the orientation yard make a good display to public as it is natural and a perfect setting for display.

e) Other unique activities

- The biologist at CBRC, being a trained wildlife professional, also takes active participation in the tiger census program in Pakke tiger reserve.
- The MVS veterinarian regularly provides veterinary support to the captive elephants of the forest department.
- The MVS veterinarian is also called upon for wildlife disease investigation operations whenever the death of a schedule-1 species is reported in the park.

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Part – II

The Future

1. Mission, aims and objectives

Wildlife Trust of India's (WTI) partnership with the Department of Environment and Forests, Government of Arunachal Pradesh for the establishment and running of the Centre for Bear Rehabilitation and Conservation (CBRC) is a perfect example of realizing WTI's mission "***to conserve nature, especially endangered species and threatened habitats, in partnership with communities and government***".

CBRC is one of the several projects of the "Wild Rescue" program of WTI, which is recognized as the rehabilitation and veterinary skill unit of the organization. The centre at Pakke partakes in activities pertaining to rehabilitation as well as veterinary care. The goal of the Wild Rescue program is therefore "***to address the health and welfare needs of wild animals***". This goal is realized through the following three aims:

1. Provide emergency relief to wildlife in distress and rehabilitate displaced wildlife
2. Provide veterinary expertise to manage free living wildlife and
3. Provide ethical and humane treatment to wild animals in captivity

All these three aims are part of CBRC's project objectives as seen from the list of activities taken up by the biologist and the veterinarian:

1. Hand-raising orphaned bear cubs without compromising their rehabilitation potential
2. Screening all hand-raised mammals for infectious diseases before release
3. Providing appropriate cover, shelter and food to the captive bears as they would feel in the wild
4. Providing wildlife health support to all captive bears by adopting humane methods of capture and restraint
5. Swiftly responding to wildlife emergencies reported from different parts of the state employing the MVS unit
6. Providing veterinary expertise in the capture and translocation of wildlife for conservation purposes
7. Conducting health camps for captive elephants and carrying out disease investigation operations through the MVS unit

2. Action plan for the future

2.1. Proposed changes in collection plan, if any

CBRC being a rehabilitation centre, the idea is not to 'collect' species to place a diversity of species on exhibit like in a zoo. CBRC is not a lifetime care centre either, and for this reason only few bears that fail to get rehabilitated to the wild, are held captive and only till such time they can be moved to a lifetime care centre. Wildlife Trust of India (WTI) recognizes rehabilitation as the .....

"Treatment and temporary care of injured, orphaned and misplaced indigenous wildlife and the subsequent replacement of those cases back into the natural environment"

WTI therefore does not consider the keeping of wildlife for lifetime care in rescue centres as 'rehabilitation' as many organizations would refer to.

Not all animals succeed in returning to the wild due to the inherent or acquired impairment in some of their behavioural traits, or due to physical deformities that make them disadvantaged, or due to diseases that cannot be cured in time before they could be groomed for release. Such animals will have to be accommodated at CBRC till they are moved to a zoo, breeding centre or a lifetime care rescue centre. In keeping with the objective of establishing the rehabilitation centre, bears with no rehabilitation potential are not admitted to the centre. However, some animals may be given temporary refuge at the centre till the animal is moved to a suitable captive facility. To this category include other wildlife species 'rescued' by the mobile unit veterinarian, the records of which are maintained separately (see section "6. E-Governance" in Part-II).

Thus, as mentioned in the "Collection Plan" on page 16 of this document, only such non-releasable bears will be brought into the CZA collection plan since bears cubs are anyway moved straight to the release site after 4-5 months of hand-raising and thus never get accommodated in any of the shelters at CBRC. It is only when they fail to get acclimatized that they will be brought back to the shelters and added to the list of non-releasable animals in the shelter zone.

2.2. Layout plan of CBRC

As mentioned earlier in this report, the animal shelter zone is separated from the field camp or human zone by about 500 meters. Between these two extremes is a 5x4x3.5 meter quarantine enclosure where new arrivals can be kept. The shelter zone where all the main enclosures are located can be divided into two sections: (1) Holding and (2) Orientation sections (Fig right). The latter is simply an 'open to sky' free ranging enclosure of about 70x80 meter dimension. The barrier here is a 5 feet high chainlink mesh reinforced with three lines of live wires that prevent the bears from climbing on to the fence. Being built in a semi-evergreen forest environment, the section is completely wooded with tall trees, climbers and shrubs.

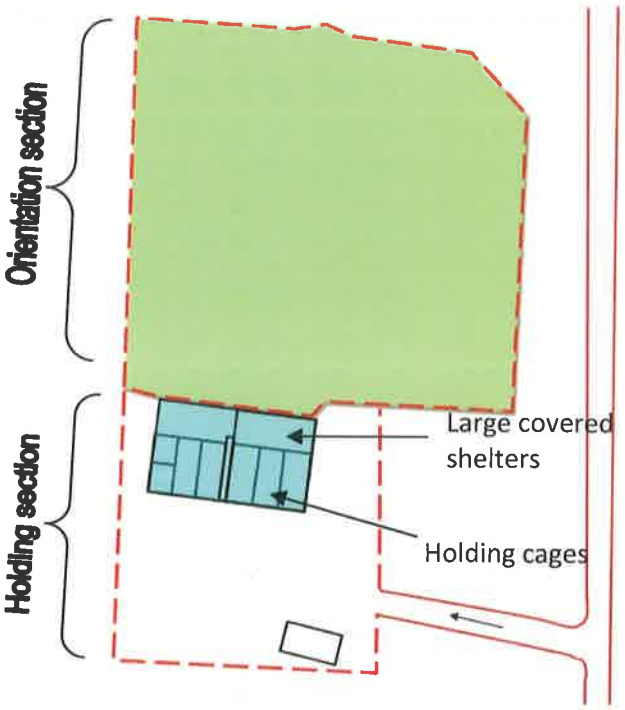


Fig: The layout plan of the shelter zone.

The holding section comprises the large covered shelters and holding cages encompassed in a power fenced enclave, which also has the support building where food is prepared and animals are treated. Every holding cage (five medium sized ones and two small ones) (see Fig left) is connected to the two large covered shelters via sliding doors. There is a separate corridor in the middle for the keeper to access the large covered shelters (see illustration next page). Only two of these five medium sized holdings have been covered with chainlink mesh as of now.

Fig: One of the covered medium sized holdings.

2.3. Proposals for the future

It is proposed to use the surplus enclosures as stabilization holdings for 'rescued' animals and also present the bears in the orientation yard to visitors as part of an organized visitor interpretation program highlighting the plight of Asiatic black bears.

a) **Accommodating rescued animals:** With the elaborate shelters no longer being part of the once envisioned rehabilitation process, it is proposed to utilize the holdings for the accommodation of non-releasable bears. At present only four of these holdings are covered with mesh (shaded blue, fig below).

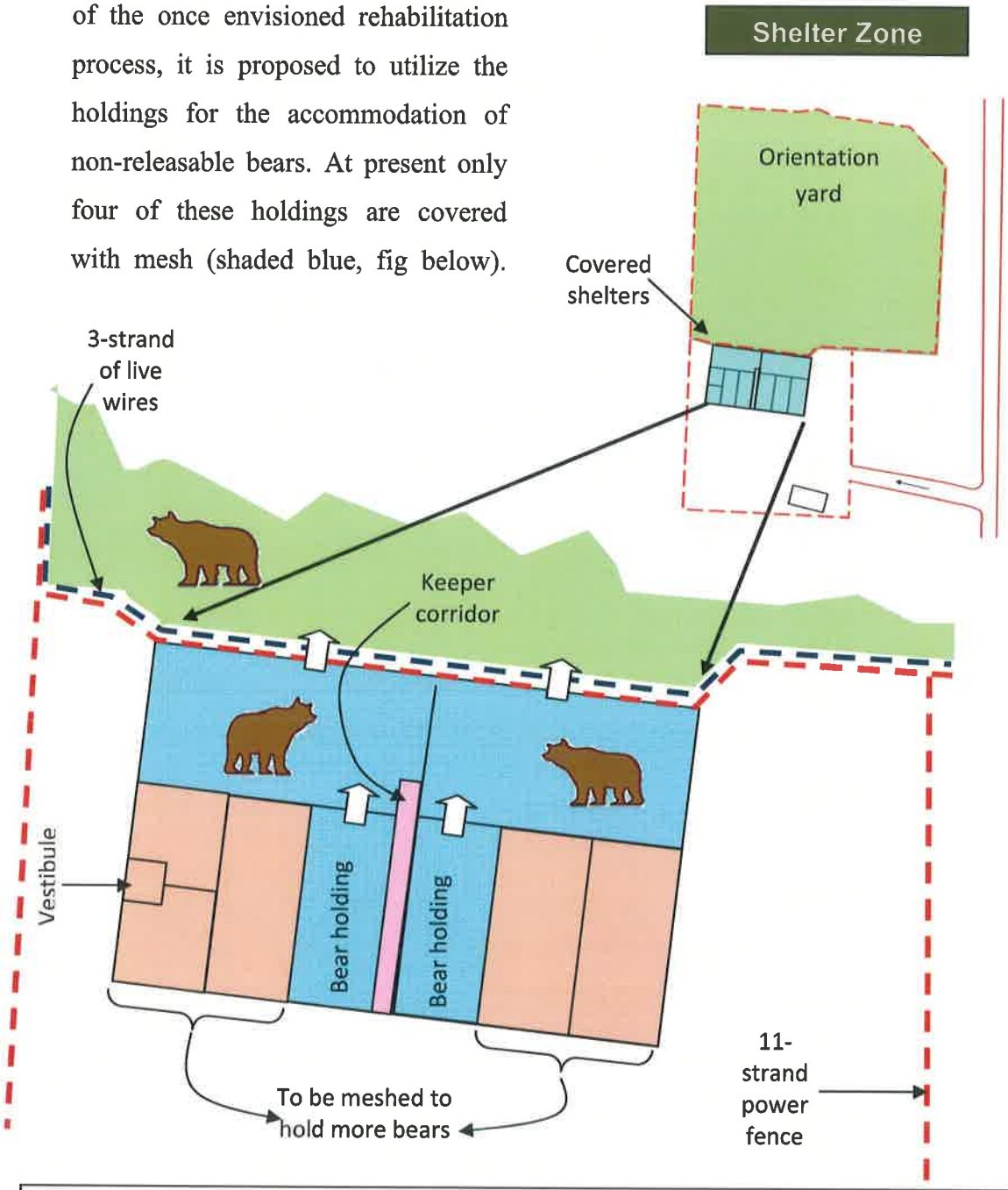


Fig: Maximizing the utilization of the holding section by housing rescued animals.

The remaining five holdings (shaded in light brown) will also be covered in the coming two years to accommodate more bears should the need arise.

b) Awareness campaign on bear conservation

The Pakke river attracts hundreds of visitors during the weekends and they all enter the Pakke Tiger Reserve premises looking for some wildlife viewing opportunities. With the bridge connecting the east and west banks of Pakke river been damaged, there is a lull in tourist flow to Pakke tiger reserve premises where CBRC is located. The bridge is being repaired and will soon be ready for public transports to carry visitors to the park. The visitors who throng the west bank could be educated on the threats facing the Asiatic black bears in Arunachal Pradesh. The opportunity could also be used to distribute pamphlets depicting how hunting leads to orphaning of bear cubs.

An awareness campaign in the target villages from where bear cubs are frequently confiscated (e.g. Seppa in East Kameng District) would go hand in hand with this *ex-situ* education program. This will be initiated in the previous financial year itself (2011-12) and would continue for the next two years. The program would include targeting the tribal populace, distributing pamphlets and organizing village level meetings with the involvement of village chiefs.

The veterinary capability of MVS unit functioning under the CBRC project will also be enhanced during the next years by equipping the unit with long-distance projectile system. By 2014 the existing ambulance will also be replaced with a new vehicle.

c) Changes in the field camp

Wildlife Trust of India, with the permission of Government of Arunachal Pradesh, will be taking up new projects in Pakke Tiger Reserve in the coming five years. Two projects that are likely to be launched in the next two to three years are on the ecology of large carnivores and the status of hornbills in Pakke. One of the two office rooms at the field camp will be set aside as the base camp for staff working under these projects.

The cubs are at present held captive for four to five months before they are moved to release site for acclimatization. There is no particular room dedicated for holding them at the moment. It has been proposed to convert one of these rooms into a nursery (see layout below). This room is large enough to accommodate pet cages and incubators required for small mammal nursing.

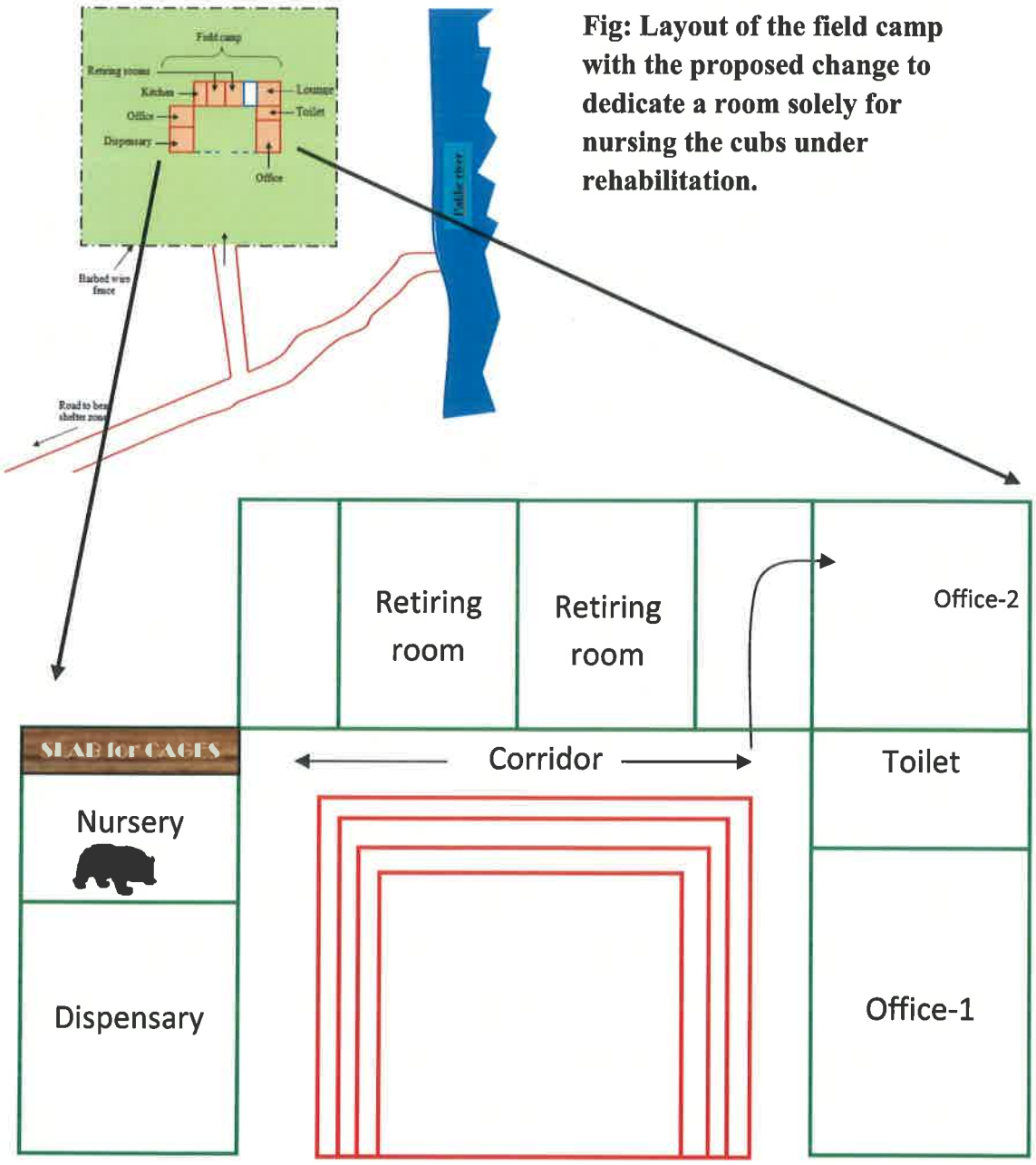
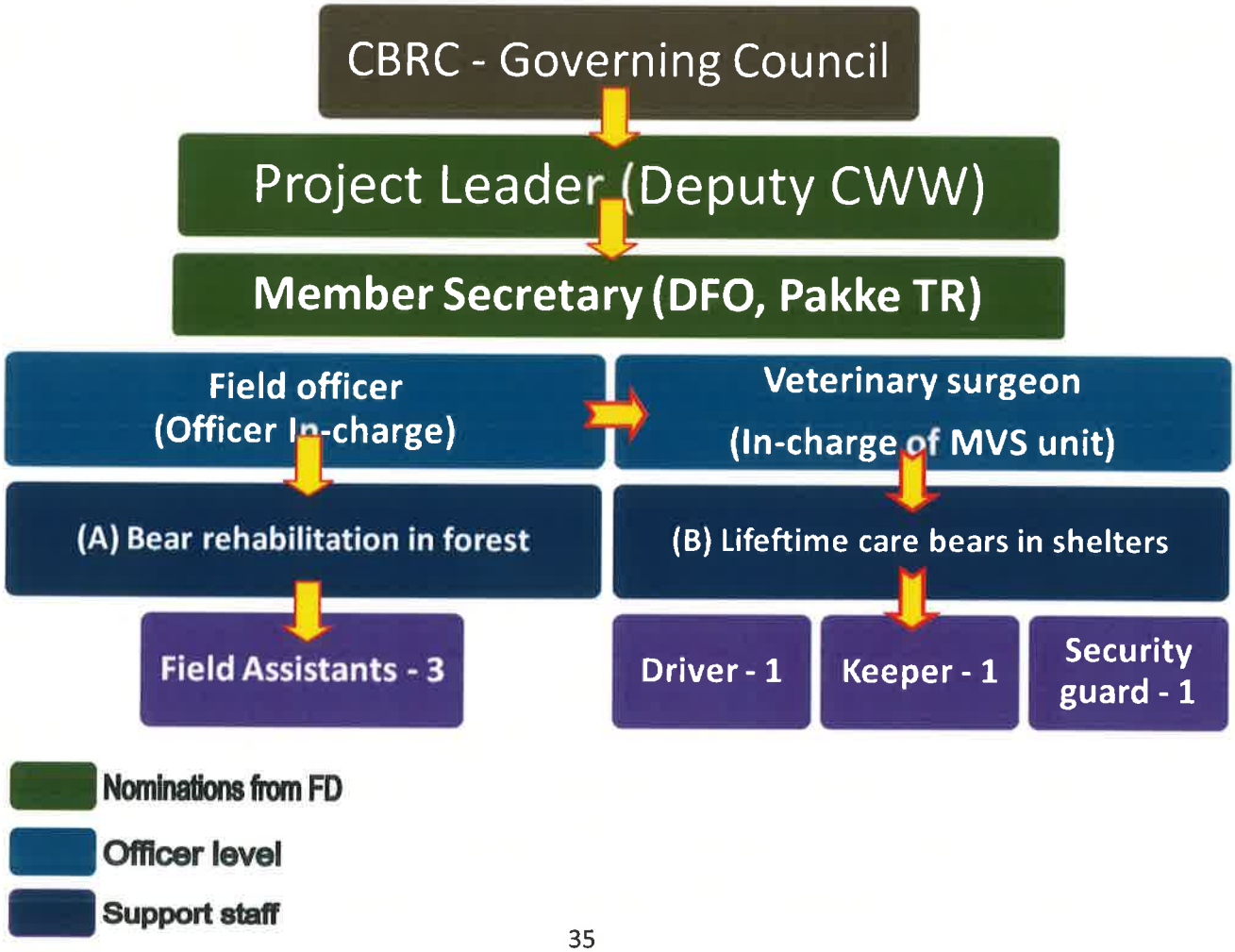


Fig: Layout of the field camp with the proposed change to dedicate a room solely for nursing the cubs under rehabilitation.

3. Personnel planning

Centre for Bear Rehabilitation and Conservation (CBRC) has remained a small rescue centre since the number of bears under lifetime care is only four and the number of rescue cases of other species handled by the mobile unit veterinarian is also meager. This has a direct bearing on the number of staff deployed for realizing the goal of the bear rehabilitation project. The present staffing pattern has been mentioned in Annexure 3. This has been schematically represented in the organogram below. Governed by the governing council of CBRC on top, and ably guided by the Project Leader and the Member Secretary, the CBRC staff can be brought under two groups: (i) Staff working for bear rehabilitation and (ii) Staff working under the Mobile Veterinary unit. While the former, are responsible for the rehabilitation and release of bear cubs at the release site, the latter take care of the management of the four bears under lifetime care in the shelter zone.



Though the number of staff would remain by and large the same, the following changes are being expected in the next five years:

- **Campaign officer**: While one side of CBRC is engaged in the rehabilitation of 2-5 bear cubs every year, local people on the other side continue to hunt bears and take orphan cubs to captivity. WTI understands the urgent need to launch a campaign among the local communities to end this illegal hunting of bears. The project is likely to be launched in 2011-2012 when a field officer will be appointed for this. There will also be a field assistant to help the officer in the field.
- **Large carnivore ecology**: In order to understand the ecology of large carnivores, particularly Asiatic black bears in Pakke Tiger Reserve where bear cubs are being rehabilitated and released, WTI is planning to launch a long term study to determine their distribution and density in Pakke TR. The biologist who is in-charge of the rehabilitation process would himself carry out this project, duly assisted by field assistants.

Fig: The study on large carnivore ecology would include Bengal tiger, common leopard, Asiatic black bear and also the wild dog.

The following table summarizes the proposed expansion of project personnel at CBRC:

By year	S. No	To be appointed	Job responsibility	Numbers
2011-12	1	Campaign officer	For the campaign against bear hunting	1
	2	Field Assistant		1

4. Capacity building of staff

At the time when Wildlife Trust of India (WTI) took up the challenge of rehabilitating Asiatic black bears in India, there was hardly any information available on the subject. WTI's international partner IFAW (International Fund for Animal Welfare) had been supporting a brown bear rehabilitation project in Russia for a long time. Soon after the commencement of the project in 2002-03, WTI and IFAW planned for a staff exchange program between CBRC and OBRC (Orphan Bear Rehabilitation Centre, Russia).

4.1. Visitors from Russia

Fig: Dr. Valentin Pazhetnov with a bear cub during his visit to Itanagar zoo in 2002

The spadework for the rehabilitation project was done as early as February 2002 when Dr. Valentin Pazhetnov of OBRC and Mr. Curtiss Clumpner from USA visited Arunachal Pradesh to take part in a wildlife rehabilitation workshop which focused on the rehabilitation of bears (Fig left). The workshop attracted more than 40 participants from the states of Manipur, Assam, Meghalaya, Arunachal Pradesh and Nagaland. During the workshop, Dr. Pazhetnov trained WTI project personnel in bear rehabilitation fundamentals. He also visited Pakke Tiger Reserve and was a member of the site selection team for the establishment of the bear rehabilitation centre in Pakke.

In February-March 2004, Dr. Valentin Pazhetnov's son Sergey, an authority on bear rehabilitation in his own right, came to CBRC to (i) assess the suitability of the then four bears for release and (ii) suggest ways to improve rehabilitation techniques followed at CBRC. He spent nearly two weeks studying the bears and

visiting the proposed release sites like Khari and Eagle Nest. The WTI bear project staff made full use of this opportunity to learn from him.

4.2. Training program at OBRC, Russia

Soon after Sergey Pazhetnov's visit to Pakke, WTI organized a series of orientation and training programs for its project staff at the Orphan Bear Rehabilitation Centre at Bubonitsy, Russia. During April-May 2005, the Project Leader Mr. C. Loma, the then Regional Manager Dr. Murali Pai and the CBRC officer in-charge Dr. Prasanta Kumar Boro visited Pazhetnov's OBRC and spent a month long period at their centre (Fig below). The visitors learnt how to avoid imprinting on bears, radio-tracking of released bears, importance of maintaining hygiene while hand-raising orphaned cubs, preparing porridge for bear cubs, selection of release sites, methods of release (hard and soft) and the age and season for releasing bears. The visit proved to be an eye-opener for the staff as this was their first ever visit to a bear rehabilitation project.

Fig: Project leader Mr. C. Loma with Mr. S. Pazhetnov (left) and the then Regional Manager Dr. Murali Pai and CBRC Vet Dr. P.K. Boro (right) at OBRC, Russia.

Besides this staff exchange program between OBRC, Russia and CBRC, India, the staff have been exposed to various workshops and resource materials made available to them on the concerned subject matter. Both the keepers at CBRC have been trained at Guwahati zoo under the CZA sponsored zoo keeper training program. In the years 2005 and 2007, WTI's Wild Rescue program director attended two important seminars on bears. In 2005, it was the IBA (International Bear Association) Conference in Italy which proved to be a turning point in the success of bear rehabilitation in India. It was here that WTI understood the significance of the assisted release method which ultimately proved to be the method of choice for rehabilitating bears in tropics like India (see Annexure 7). Just two years after this conference, WTI presented on the successful rehabilitation of Asiatic black bears in an international conference on orphan bear rehabilitation held in Russia (Fig right). The presentation was made by the Director, Wild Rescue.

Fig: Participants of the "Orphan bear rehabilitation workshop" held in Bubonitsy, Russia in 2007

5. Contingency plan to address emergencies

5.1. Dealing with animal escapes

Like any other wildlife rehab centre, the following are the outcomes possible for animals admitted to the centre:

- Release after treatment or stabilization
- Death during care
- Euthanasia
- Transfer to another facility
- Escape

The last in the list is "Escape", the least desirable outcome, which any wildlife centre would like to avoid. The reason why animal escape protocols are in place in zoos is because animals escaping from enclosures is a fairly common occurrence in captive facilities across the globe. The wisdom therefore lies in minimizing such incidents and attending to such escapes with promptness so that the situation is quickly brought under control.

Animal escapes happen primarily due to two reasons: (i) Faulty or weak enclosures or (ii) Carelessness/mistake on the part of the handler or keeper. Keepers sometimes due to their overconfidence underestimate the ability of the animal to negotiate certain barriers or climb up a wall that may look rather smooth. Here again, animal escapes happen with two possibilities: (i) where there is no trace of the escaped animal, and (ii) where the escaped animal could be seen within or outside the campus. The protocol being discussed here is dealing with the latter situation. Nothing can be done in the case of the former. One has to only hope for the animal to return to its enclosure at a later stage as animals are known to return to their abodes, given time, for food and shelter.

The animals that manage to escape could be brought under two categories:

1. Animals that have spent considerable amount of time at the centre
2. Animals newly brought in and have not yet established themselves at the centre

The greater challenge lies in bringing back the animals belonging to the latter category as they cannot be lured back into the cage. Animals that have spent a long period of time in captivity prefer to go back to their enclosures, either after their day out or after being lured to return. As they are familiar to their particular surrounding, they would prefer the familiarity of their enclosure to the fear and confusion that they encounter outside.

Since CBRC is a not a zoo where visitors frequent, crowd control or visitor control is not an issue at all. Though the protocol of dealing with animal escape would depend on the species involved, the following are the broad guidelines for dealing with animal escapes at the centre.

- **Seal all escape routes**. The Shelter Zone at CBRC is fenced with a solar fence which is operational 24x7. The fence takes care of the bears housed in the orientation yard and also the bears that manage to escape from the holdings (Fig right).
- **Rectify the escape door:** If the animal escapes through gaps in chainlink mesh or through doors kept open by mistake, these defaults and loopholes are immediately attended to, in order to prevent future escapes from the same enclosure.
- **Rescue team**: Form a rapid response team, headed by the centre veterinarian, assisted by the concerned keeper and other support staff including trackers and a sharp shooter who joins the team later.
- **Equipment for recapture**: The rescue team will be equipped with baffle-boards, drug delivery systems for chemical capture, nets, crates, flash light, fire arms and a vehicle.

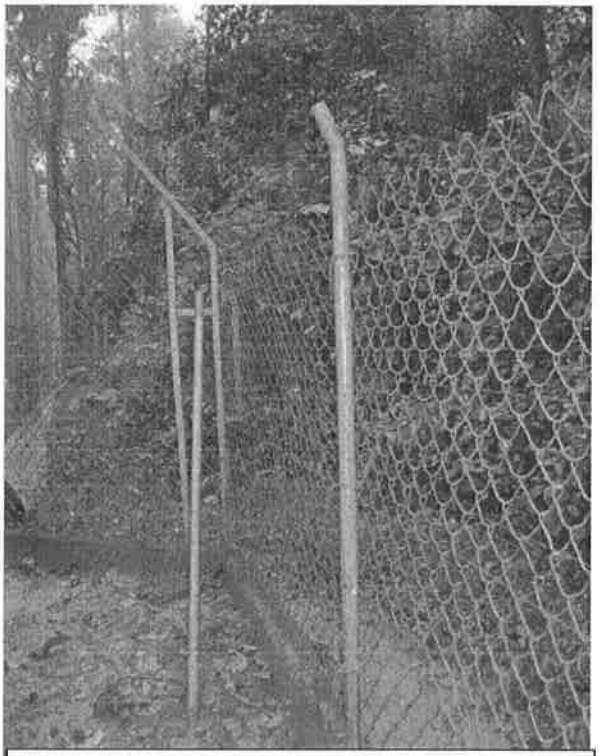


Fig: Live-wired fence at CBRC

- **Monitoring the animal**: No animal will be actively pursued as it would complicate matters due to fright response from the animal. Each animal's flight distance will be duly taken into consideration, especially when targeting the animal for chemical capture.
- **Homing instinct**: Permanently displaced animals will have a binding to their home and will return to their enclosures if given a choice. They will be coaxed with food to lure them back to their abode. The keeper who has been looking after the animal will be given the responsibility of luring the animal back.
- **Safety of the handing staff**: The staff may carry baffle-boards with them while dealing with bears and big cats. At no time will the safety of the handlers be compromised upon.
- **Safety of the animal**: The safety of the animal will also be a paramount while all the methods are being employed to recapture the animal. Only after calming down the otherwise excited animal will any effort be made to recapture it. The keepers are cautioned against using overt physical methods to capture or subdue the animal. If the animal is not creating any havoc, patience should be the norm.
- **Confinement**: Species like primates, leopards, tigers, clouded leopards and barking deer will be confined or cornered to a particular place before they are darted with a remote delivery system.
- **Updating the protocol**: Once the operation is over, a review of all the procedures followed is made to learn from the positives and negatives of the operation.

5.2. Monkey and dog menace

There are wild rhesus macaques frequenting the Pakke Tiger Reserve staff quarter and range office premises on the west bank of Pakke river (Fig right). The major attraction for them is the food thrown by the visitors who come primarily for picnicking to the Pakke riverbed. However, the macaques have so far not proved to be menace to either public or the project's activities. Since only four bears are held at the lifetime care and very little food is cooked, the

Fig: Rhesus macaque near shelter zone.

macaques have not got attracted to the stores or kitchen of the centre. As the number of animals being housed at the centre is not going to increase dramatically and the turnover of rescued animals being attended by the MVS unit is also not likely to increase by leaps and bounds in the near future, the monkey presence is unlikely to zoom to menacing proportions.

Dogs are rarely seen at the shelter zone, though there are a few village dogs in the vicinity of the field camp site near the river bank. They have not been identified as any threat to the bears or bear cubs at the centre. The power fence keeps them off the enclosure area.

5.3. Snake bites

It is not uncommon to encounter king cobras and pit vipers in the shelter zone of CBRC. No anti-venom is available for these snake bites. Cobra, Russel's viper and saw-scaled viper are also reported from Arunachal Pradesh. The genetic distinctiveness of these animals have resulted in the standard anti-venom prepared by institutes like Haffkin's Institute at Bombay and King's Institute at Chennai being ineffective in this part of the world. Only basic first aid facilities are being made available to the staff working in the field at CBRC and the staff are trained in simple steps to avoid contact with snakes.

5.4. Food when there is strike

Unlike Assam, *hartāls* or *bandhs* are not common in Arunachal Pradesh. However concentrate, fruits and vegetables for bears are purchased from a weekly market in Assam to save cost. This market is sometimes affected due to the *bandhs* and on such occasions, emergency rations are procured from local suppliers in Seijosa. Since bears are omnivorous and can sustain on vegetable matter collected from forests, the contingency plan during any crisis is to depend on the forest itself. Since the forest type is semi-evergreen, some plant or the other is always fruiting in Pakke. Apart from concentrate mix given to the bears, they are also duly supplemented with fruits largely gathered from the forest floor.

With regard to the bears under rehabilitation in the forest at the release site, rations are procured and taken on elephant back every fortnight. Since Pakke is a Malaria prone area, the staff often fall sick due to this blood protozoan which has proved to be fatal in the case of some forest

department personnel in the past. By appointing three field assistants in the field, the absence of one caretaker at any given time does not seriously affect the running of the shelter.

5.5. Infighting between animals

Even when adequate care is taken by acclimatizing individuals prior to their mixing, infighting between them cannot be ruled out. Infighting could be of two categories: i) Between animals sharing the same enclosure, and (ii) Between animals housed in the adjoining enclosures. In the case of the latter, preemptive measures include ensuring the barrier between two adjoining enclosures being foolproof. Where there is one common chainlink mesh between two enclosures, adequate care is taken to see that mesh size does not permit the animals from pushing their paws through them. Additionally, a strong layer of bamboo screen or a double layer of chainlink mesh would suffice to prevent such accidents from happening.

Fig: Care should be exercised when mixing two individuals

When infighting is noticed within inmates housed in the same enclosure (Fig left), immediate plan would be to separate the individuals by

- Confining one to the holding area (in the case of carnivores)
- Moving one of the animals, often the injured one, to the confinement zone (in the case of birds)
- Distracting the animals if personnel are present to witness the event
- To prevent or reduce the chances of infighting among inmates, animals are mixed only after gradually acclimatizing them to each other through auditory, visual and tactile habituations.
- Only individuals found to be compatible after this acclimatization are housed together.
- Individuals of different body size are not considered for housing together.

- Drug-immobilization of one of the animals would be considered an option only after ensuring the safety of the immobilized animal from the other.

5.6. Epidemics

Apart from sporadic death of bear cubs admitted to the centre, no disease of epidemic proportions has been reported so far from CBRC. The bears are in general hardy animals and apart from some specific diseases like mange and worminosis, they are not known to get easily affected by systemic infectious and contagious diseases reported from carnivores. Infectious canine hepatitis is a possibility but vaccination against this is not recommended as a rule. Nevertheless, the following contingency measures would be in place during such unexpected disease outbreaks:

- Immediately isolate the affected animals and house them away from the rest
- Ensure disease control measures in place
- Ensure prompt diagnosis and treatment of affected individuals
- Should situation become serious, consider euthanasia of affected animals with the prior permission of the Chief Wildlife Warden
- Ensure that the animals are immunized against these diseases beforehand to avoid recurrence in future

5.7. Power breakdown

There is no power supply on the west bank side of Seijosa where the field camp and bear shelters are located. Between these two, the 500 meter stretch is inhabited by the Pakke Tiger Reserve functionaries like the Range office, guest house and staff quarters. Till mid 2004 there was power supply to this part of Seijosa through a dedicated single power line across the river. Massive flashfloods in 2004 monsoons wrought havoc to the entire place, breaking the only connecting bridge into two, damaging the power line towers and disrupting the power. The electricity board has not yet restored the power supply for various reasons. There is hope that that power supply would be restored as soon as the bridge is reconnected and vehicles begin to ply through.

A generator is in place at the camp area which is pressed into service whenever required. Plans are there to install solar powered lamps at the shelter and camp area if the power line between east and west banks of Pakke river is not restored in the next one year.

5.8. Disaster management

The bridge connecting the west bank with the Seijosa township on the east bank is the lifeline for the forest department staff and the CBRC staff living on the west bank. This has been disrupted since 2004 due to massive flash floods that washed away a section of the bridge (Fig right). Though efforts have been made to restore this connectivity, the progress has been rather slow owing to local politics. In winters when the water level is low, vehicles can ply over the bouldered riverbed easily. During monsoons, when the water level is high, the bridge is used to cover 90% of the river width on foot. The water flow has been redirected towards the eastern side, making it easy to cross the remaining 10% .

Fig: <u>Above:</u> Flashfloods brought enormous silt from the hills, clogging the shutters and the resultant force breaking the bridge on one end. <u>Below</u>: Rubber boats were employed to wade across the river during the post-floods period in 2004.

Since the natural flow of the river is towards the eastern bank, the west bank where the field camp is built is not under threat to floods in future. The animal shelters are anyway too deep inside the forest to get affected by floods. There are no low lying areas in the

shelter zone to be concerned about water stagnation during the heavy downpour. The water soaks in quickly into the loose soil.

6. E-governance

Though the region where CBRC is located is not gifted with power supply and good telecommunication network, the centre's governance and database management is invariably done through the electronic network. WTI recognizes that communication through the electronic network is the only way for fast and effective communication and for facilitating the instant transfer of information on rescue and rehabilitation. The staff either get connected to the internet where mobile connectivity exist or visit the nearest township (in this case Tejpur) to send documents, data and pictures of the project's activities.

6.1. Communication

The communication between headquarters at Noida and the CBRC staff in the field is invariably through the electronic email network. Monthly, quarterly and occasional reports are sent through email. In fact this is the only quick and effective communication tool with staff working in remote areas of Assam. All staff have been provided with a laptops to enable them to maintain an electronic version of all communications, prepare reports and maintain data in excel sheets. They meet periodically at Guwahati and update the regional Coordinator on the project developments by submitting reports, statement of accounts and photographs in electronic format. These reports are then sent to the headquarters by email and copies of the relevant ones to the Chief Wildlife Warden of the state and the Conservators and/or Project Leader.

6.2. Online rescue database

The details of every bear cub admitted to the centre for rehab and every non-releasable bear brought into CZA records are not only maintained as hard copies in registers and datasheets and as soft copies in the form of excel sheets, but also maintained in an online software that provides instant access to the details of every case from any part of the globe. From rescue to release, this software records the success at every stage of the rehabilitation process. Using this dedicated online software, rehabilitators can enter details of every new case (like rescue, admission, species, examination and outcome) simultaneously. A snapshot of the main page of this online database has been shown below.

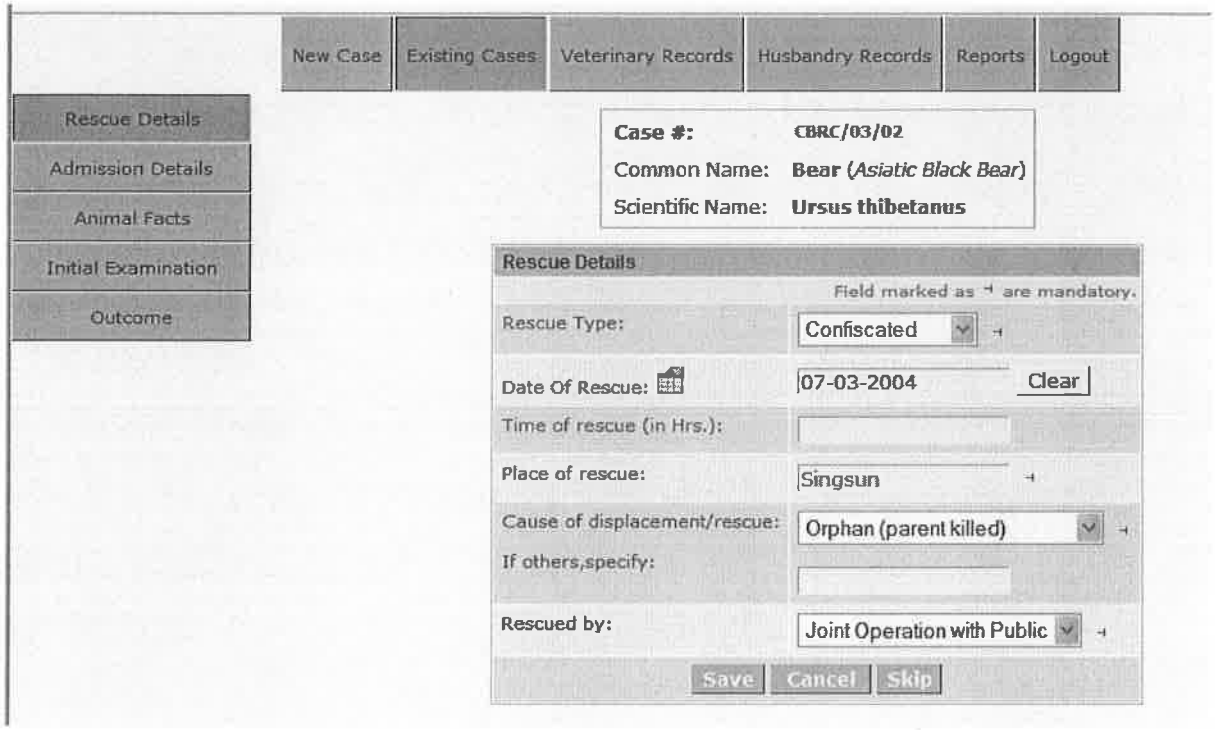


Fig: Snapshot of one of the bear records in the online rescue software.

The online software has been programmed to generate reports, project-wise, species-wise, class-wise, and on the success of rehabilitation in terms of release percentage, mortality percentage etc. With the help of this, the WTI rescue staff working in different parts of the country can have access to information on what is happening in other satellite MVS stations and rescue centres.

7. Broad budget analysis for implementing the plan

As outlined in detail under section 2 of Part-II, a few development plans are in the pipeline for the next five years (2010 to 2020). These include completing the meshing over the remaining holding cages, initiation of a campaign against bear hunting, conducting a study on large carnivore ecology and improving the veterinary capacity by updating and replacing all the MVS equipment. These developments mean increasing the number of staff at CBRC and increasing running costs. In this section, we deal with the broad budget required for the establishment and operation of these additional project components. The funding for these activities will be raised by WTI with the support of its international partner, IFAW (International Fund for Animal Welfare). To this end, proposals pertaining to various aspects will be prepared and submitted to different prospective donors for supporting various components of CBRC.

7.1. Construction and development

The following tables (a & b) show the cost to be incurred for the developments planned during the next five years (2010-2020). The total budget for the next five years under capital investment comes to about Rs. 31.75 lakhs, with about 8.15 lakhs going for construction and Rs. 23.6 lakhs for equipping the veterinary unit and bear rehabilitation project.

(a) Construction cost

Year	Location	Components	Budget (Rs)
2010-2012		No construction proposed	
(a) Covering of the remaining holdings			
2012-2013	Shelter zone	Meshing the remaining five enclosures	620,000
		Fabricating vestibules for keeper entry (2 no)	100,000
		Feeding troughs (5 no)	25,000
		Bamboo screen between cages	35,000
		Furnishings and refuge dens	35,000
		Total	**815,000**
2013-2020		No construction proposed	
		Grand total	**815,000**

(b) Capital cost (equipment and vehicles)

Capital equipments to be procured on a priority basis include an advanced drug-immobilization projector, a new vehicle to replace the existing ambulance and radio-collars for the post-release monitoring of bears (see table below).

Year	Section	Equipments	Budget (Rs)
2010-2011		No major equipment purchase planned	
2011-2012	Rehabilitation	Radio-collars (2) for post-release monitoring of bears	160,000
2012-2013		No major equipping planned	0
			0
2013-2014	Veterinary	Remote delivery rifle	270,000
		New vehicle to replace exiting ambulance	750,000
2014-2015	Rehabilitation	Radio-collars (2) for post-release monitoring of bears at release site	180,000
2015-16		No major construction or equipping planned	
2016-17			
2017-18		Radio-collars (2)	200,000
2018-19		New vehicle to replace the old	800,000
2019-20		No equipping cost envisioned	0
			2360,000

7.2. Day to day maintenance

The commissioning of an education program, launching of the bear campaign, initiation of large carnivore ecology study and the completion of enclosures for holding more bears would mean added recurring costs. Over and above the present expense incurred for running the CBRC centre, the rehabilitation of orphaned bear cubs and the mobile veterinary unit, it is expected to cost the organization an additional Rs. 32 lakhs each year. This includes the cost of additional staff to be employed, maintenance and project running expenses. Table (a) below shows the salary budget for the staff to be employed and table (b) shows the anticipated project running expenses.

(a) Additional staff cost:

The number of new staff members to be recruited in the next five years for CBRC has been given in the table below. This is apart from the present staff strength in the project area which has been shown in Annexure 4. This increase in staff is estimated to cost the organization about Rs. 13 lakhs as payment of salaries alone.

Year	Profession	For activity	Budget (Rs)
2010-2011		No new appointment	
2011-2012	Campaigner officer	Campaign against bear hunting in target villages	240,000
	Field assistant	Field assistance during campaign work	50,000
	Field officer	Large carnivore ecology (To be carried out by the present staff)	0
			0
2012-2013	Campaigner officer	Campaign against bear hunting in target villages	260,000
	Field assistant	Field assistance during campaign work	60,000
			0
2013-2014	Campaigner officer	Campaign against bear hunting in target villages	260,000
	Field assistant	Field assistance during campaign work	60,000
			0
2014-2015	Campaigner officer	Campaign against bear hunting in target villages	280,000
	Field assistant	Field assistance during campaign work	70,000
			0
2015-20		No new appointments	0
			0
		Total	**1,280,000**

(b) Additional project running expenses:

The anticipated project running expenses shown in the table below comes to about Rs 19 lakhs. No additional expenditure is anticipated in the coming financial year, apart from the marginal increase due to inflation (see Part-III on Management Plan for a clear insight into the overall budget).

Year	Project / Component	Budget head	Budget (Rs)	Yearly total (Rs)
2010-2011		No additional expenditure		
2011-2012	Campaign	Travel and subsistence	60,000	
		Printing pamphlets and posters	40,000	
		Organizing village level meetings	60,000	
	Large carnivore ecology study	Project running, travel, field equipments, field assistance, traps, collars etc.	500,000	
				660,000
2012-2013	Campaign	Travel and subsistence	70,000	
		Printing pamphlets, brochure and posters	90,000	
		Organizing village level meetings	60,000	
	Large carnivore ecology study	Project running, travel, field assistance etc.	250,000	
				470,000
2013-2014	Campaign	Travel and subsistence	80,000	
		Printing pamphlets, brochures and posters	100,000	
		Organizing village level meetings	70,000	
	Large carnivore ecology study	Project running, travel, field assistance etc.	200,000	
				450,000
2014-2015	Campaign	Travel and subsistence	90,000	
		Printing pamphlets and posters	120,000	
		Organizing village level meetings	80,000	
				290,000
2015-20		No new projects are being planned. About 2-5 cubs are expected to be hand-raised, rehabilitated and released every year		
		Total		**1870,000**

Part – III

Management Plan

Management Plan for the period 2010 to 2015

Wildlife Trust of India spends about 15 lakh rupees every year for the rehabilitation programs taken up under CBRC. This amount covers the rehabilitation of orphaned bear cubs, management of non-releasable bears in lifetime care and running of the mobile rescue ambulance. The next five years is expected to witness a growth in all these segments and this has been enumerated in the table below:

Table: Planned new activities under the three components of CBRC

No	Component of CBRC	New developments envisioned	By the year ...
1	Rehab & release	1) Study on large carnivore ecology 2) Campaign to stop bear hunting	2013-14 2012-13
2	Lifetime care of bears	3) More holdings to be meshed	2012-13
3	Mobile Veterinary unit	4) Equipping the unit (capture rifle) 5) New vehicle to replace old one	2013-14 2012-14

1. Bear rehabilitation and release

Every year, two to five bear cubs are 'rescued' by the Department of Environment and Forests of Arunachal Pradesh and/or Assam and handed over to CBRC for rehabilitation. Since 2004, thirteen bears have been released of which the last ten have been successful ones. Presently three more are being acclimatized at Doigrung, Pakke Tiger Reserve and they will be ready for release by May 2010. Next year, the release could happen in some other protected area of Arunachal Pradesh. The same set of professionals, a biologist and three field assistants, already associated with the project would be involved in the exercise. Since the protocol revised in early 2006 has proved to be a successful one, all bear cubs meant for release in future will not be radio-collared. Henceforth, collaring will be done intermittently, perhaps every alternate year.

The same soft-release method of gradual acclimatization at the release site will be followed for all the bears in future. The cubs will be hand-raised till they are about 5 months of age and then moved to the release site chosen after considering all pros and cons. The cubs will be taken for daily walks to a designated 'rehab' area by a rehabilitator. The bears are initially confined to an

enclosure and fed on porridge in the evenings, and in four months time, they are allowed to sleep on trees outside the enclosure. By the time they are a year old, the rehabilitator would 'drop' them off at the rehabilitation site and collect them in the evening. Three months later, the bears are radio-collared and 'released' while supplementary feeding outside the enclosure area continues for one more month. They are then radio-tracked for about 8 months post-release (see Annexure 7 for rehab protocol).

a) Campaign against bear hunting

In many temperate countries, where licensed hunting of bears is legal, rehabilitation of orphaned bear cubs goes hand in hand. In tropical countries like India, where illegal hunting is prevalent, rehabilitation of bears has never been taken up as a project. In Arunachal Pradesh, though hunting is banned, illegal hunting for meat and bear parts, is still reported. The cubs are taken as pets and sooner or later, handed over to the department or are confiscated by the department personnel. The cause of displacement of all the cubs admitted to the centre so far has been orphaning due to killing of their mothers. Wildlife Trust of India and the International Fund for Animal Welfare (IFAW) have long felt the need to initiate a rural campaign project to create awareness among the tribes on the plight of Asiatic black bears in the state. The campaign is proposed to be launched in 2011-2012. The areas to be targeted will be known from the rescue record which invariably registers the places from where the cubs come. Pamphlets will be distributed during meetings with village chiefs, street shows will be organized using bear-size models and village level watch groups will be instituted to monitor hunting in the area. The project would continue for at least 5 years from inception.

b) Study on the ecology of large carnivores

Seven Asiatic black bear cubs have been released so far in different parts of the 800 square kilometer Pakke TR and three more will be released by May 2010. Considering the fact that the park has three more species of large carnivores sympatric with black bear, a study on the "Ecology and conservation of sympatric carnivores in Pakke Tiger Reserve" would be initiated during the next five years. The study would cover Bengal tiger (*Panthera tigris*), common leopard (*Panthera pardus*) and also wild dog (*Cuon alpines*) since rehabilitated bears have been

observed to steal hog deer kills of wild dogs. The major objective of the study would be to determine the factors facilitating the coexistence of the tiger, leopard, dhole and Asiatic black bear in Pakke TR through differences in prey selection and habitat utilization and the extent to which the bears compete with the other three carnivores for food and space. The study would also record prey abundance and determine their carrying capacity. Other aspect that would be looked into in future would be dispersal patterns. This project is likely to be initiated in 2011-12.

2. Lifetime care of non-releasable bears

There are four bears under lifetime care in the shelters at CBRC (table below). All these bears were considered unsuitable for the new assisted release program which involves walking them in the forests with a rehabilitator as the foster-mother. While Teddy, Diyun and Karbi were already too old even at the time of their arrival, Zoo-2 had crossed the ideal age for the exercise (which is less than five months of age) by the time the protocol was revised and the first bear cubs "Seppa and Seppi" were put to the acclimatization grind in August 2006 (Ashraf *et al*, 2005).

Table: Rescue details of bears in captivity at CBRC

No	Names/ Identity	Place of confiscation	Sex	Age at arrival	Date of admission	Months held captive before 'rescue'
1	Teddy	Seppa, AP	Male	6 months	10/8/03	3 months
2	Diyun	Diyun, AP	Female	5 months	16/09/04	1 month
3	Zoo-2	Mongaldoi, Asom	Male	2 months	28/8/05	1 week
4	Karbi	Samaguri, Asom	Female	8 months	22/10/05	8 months

In future, only non-releasable bears will be held in the shelters and brought into records. All bear cubs admitted to the project would be considered as temporarily displaced animals, just as any rescue case would be treated under the mobile veterinary unit (see next section 3). Since CBRC is primarily not a lifetime care centre, efforts will be made to transfer these bears to other lifetime care centres like zoos as more room would anyway have to be created for accommodating non-releasable bears in future.

3. Mobile Veterinary unit

The MVS unit serves the function of a wildlife emergency relief vehicle attending to all cases of wildlife in crisis and distress. The unit is manned by a trained wildlife veterinarian and a driver cum keeper. The veterinarian also provides health support to the bears being rehabilitated in the forest as well as to those in the shelters. Species commonly attended by the MVS vet include slow loris, hornbills, barking deer, Asian elephant calves, Burmese rock python, bar-headed goose etc. (Fig left). As with the rehab-bears, all rescue cases will be treated as temporarily displaced wildlife, and will be brought into lifetime care records only if they are considered non-releasable. However, all the rescue details are meticulously maintained, in registers as well as in a dedicated online database, as a matter of procedure.

Fig: Two of the most commonly 'rescued' birds at CBRC MVS unit are bar-headed goose and hornbills

Other functions of the MVS unit include health support to captive elephants, disease investigation, immunization of livestock living in fringe areas of the park etc. These activities have been schematically illustrated below:

As mentioned in the action plan in the previous chapter, the rescue capability of this MVS unit will be enhanced by the following activities:

- Equipping the MVS unit with a new brand of syringe projectile system. The current one is only a pneumatic blowgun which is used for captive bears but not good enough to be used in the wild while dealing with large mammals. This would cost another 2.7 lakhs rupees.

- By 2014, the present vehicle (TATA Telcoline) would have completed its term of utility as an ambulance. The budget for replacing this vehicle is 7.5 lakh rupees. It was only in 2009 that the old MVS vehicle (Mahindra Pick-up) commissioned in 2003 was replaced with the TATA Telcoline.

4. Additional project implementation and running expenses

Initiation of the education and awareness program, covering of the five holdings cages, purchasing vehicle and initiation of new projects or activities would mean added capital and recurring costs. The details of these anticipated expenditure has been presented in detail under section 7 "Budget Analysis" of the previous chapter. The following table summarizes the projected figures for accomplishing these tasks in the coming five years, over and above the present expenditure of 15 lakh rupees per year.

Table: Projected budget for the period 2010-2015 (over and above the present expenditure)

Financial year	Projected budgets relating to				Total (Rs)
	Bears in wild *	Ecology study	Construction	MVS unit #	
2010-11					
2011-12	610,000	500,000	0	0	1,110,000
2012-13	540,000	250,000	815,000	0	1,605,000
2013-14	570,000	200,000	0	1020,000	1,790,000
2014-15	820,000	0	0	0	820,000
TOTAL	**2,540,000**	**950,000**	**815,000**	**1020,000**	**5,325,000**

* Includes bear campaign and rehabilitation
# Includes vehicle and equipments

From 2011 onwards, funding will have to be ensured to conduct the ecological study, start the campaign, procure radio-collars, complete the enclosures and equip the mobile veterinary unit. The histogram in the following page illustrates the funding committed for the ongoing bear rehabilitation project for the next five years and the funds to be raised for realizing the proposed activities.

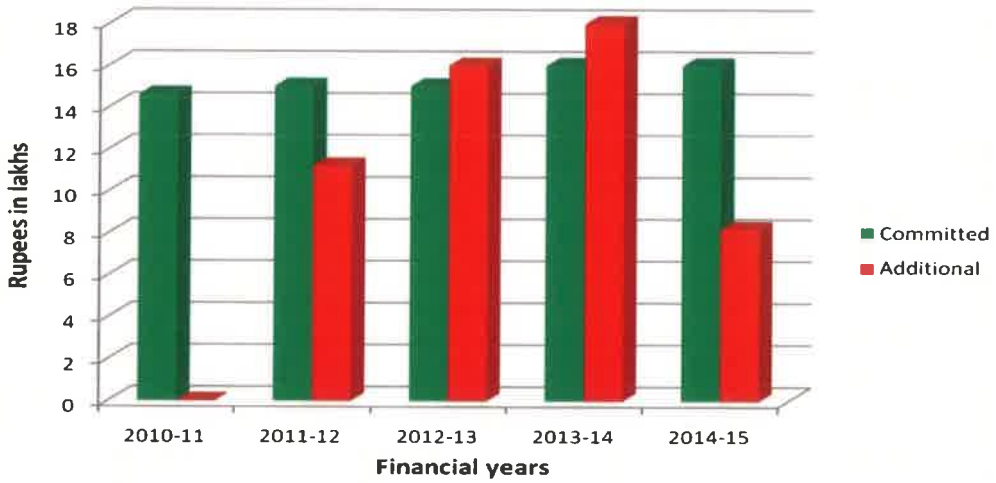


Fig: A comparision of the current budgetary allocation for running CBRC (green) and the projected additional budget (red)

5. Sources of funding

Wildlife Trust of India's international partner, IFAW (International Fund for Animal Welfare) has been the single largest donor, supporting the bear rehabilitation project at CBRC, almost since inception. While the centre was established with the funds received from the then, Animal Welfare Division, Government of India, the project has been largely run with the support of IFAW. The British High Commission supported the project briefly for one year in the beginning. In recent years, oil companies like GAIL, ONGC and Oil India Ltd, have shown considerable interest in funding ER activities, largely for the purchase of vehicles as ambulances. Fresh donors will need to be identified for funding new components, such as the study on large carnivore ecology and purchase of new projectile systems. The Director of the Wild Rescue program at WTI, the Executive Director and the staff of the planning department are responsible for raising the funds to meet these increasing demands of the future.

References:

Ashraf, N.V.K, Tamo Dadda, Boro, P.K. and Akhtar, N. 2008. *Walking the Bears: Rehabilitation of Asiatic black bears in Arunachal Pradesh.* Conservation Reference Series 20080205. Wildlife Trust of India. 118 pages

Existing inventory
(Bears under lifetime care)

Table: 1. Acquisitions, births and deaths

Species	Opening stock (as on 1.4.09)			Births			Acquisitions			Disposal			Deaths			Closing balance (as on 31.12.09)			Remarks
	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	M	F	U	
Asiatic black bear (*Ursus thibetanus*)	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	.

M-male; F-female; U-unsexed

Table: Rescue details of the four bears in captivity at CBRC

No	Names/ Identity	Place of confiscation	Sex	Age at arrival	Date of admission	Months held captive before 'rescue'
1	Teddy	Seppa, AP	Male	6 months	10/8/03	3 months
2	Diyun	Diyun, AP	Female	5 months	16/09/04	1 month
3	Zoo-2	Mongaldoi, Asom	Male	2 months	28/8/05	1 week
4	Karbi	Samaguri, Asom	Female	8 months	22/10/05	8 months

Annexure 2

Annexure 3

Flora and fauna in CBRC campus

The CBRC campus is located on the west bank of River Pakke in Pakke Tiger Reserve, within the area designated for the accommodation of the park staff. The centre could be divided into Field Camp site which lies on the river bank and the Shelter zone where the bears are held, both separated by a distance of about 500 meters. Though they fall within the same vegetation type of moist-deciduous mix and semi-evergreen forest, vegetation inside these areas is entirely different (see Fig below).

Fig: Barren land at field camp site (left) and well forested land at shelter area (right)

There are no trees inside the small field campus area (only 0.14 hectare) as trees along the periphery of the barbed-wire compound provide adequate shade.

(a) Flora of bear shelter area

The semi-evergreen forest within the 0.97 hectare shelter area has more than 100 trees of varying girth classes, beginning from 25-40 cm to 300-400 cm (Akhtar *et al*, 2005). The open 5,600 square meter enclosure (Orientation yard) alone has 103 trees of these girth sizes. This is apart from many species of shrubs, monocots and climbers that provide an enriched environment for the bears. None of these are planted. The most commonly encountered species of trees of the shelter area has been given in the following table.

shelter premises. Some of the most commonly seen 20 species of birds and 10 species of mammals of the area are given in the table below:

Avifauna of CBRC campus	
1. Oriental pied hornbill	11. Collared dove
2. Wreathed hornbill	12. Emerald dove
3. Scarlet minivet	13. Hill mynah
4. Long-tail minivet	14. Red jungle fowl
5. Lesser racket-tailed drongo	15. Fly catcher (3 species)
6. Greater racket-tailed drongo	16. Rose-ringed parakeet
7. Black drongo	17. Black kite
8. Pintail green pigeon	18. Crested serpent eagle
9. Spotted dove	19. Changeable hawk eagle
10. Red-vented bulbul	20. Blue-bearded bee eater
Mammals frequenting the campus	
1. Rhesus macaque (*Macaca mulatta*)	
2. Assamese macaque (*Macaca assamensis*)	
3. Malay giant squirrel *(Ratufa bicolor)*	
4. Orange-bellied Him. Squirrel (*Dremomys lokriah*)	
5. Yellow-throated marten (*Martes flavigula*)	
6. Common palm civet (*Paradoxurus hermaphroditus*)	
7. Large Indian civet (*Viverra zibetha*)	
8. Indian crested porcupine (*Hystrix indica*)	
9. Slow loris (*Nycticebus bengalensis*)	
10. Leopard cat *(Prionailurus bengalensis)*	

References:

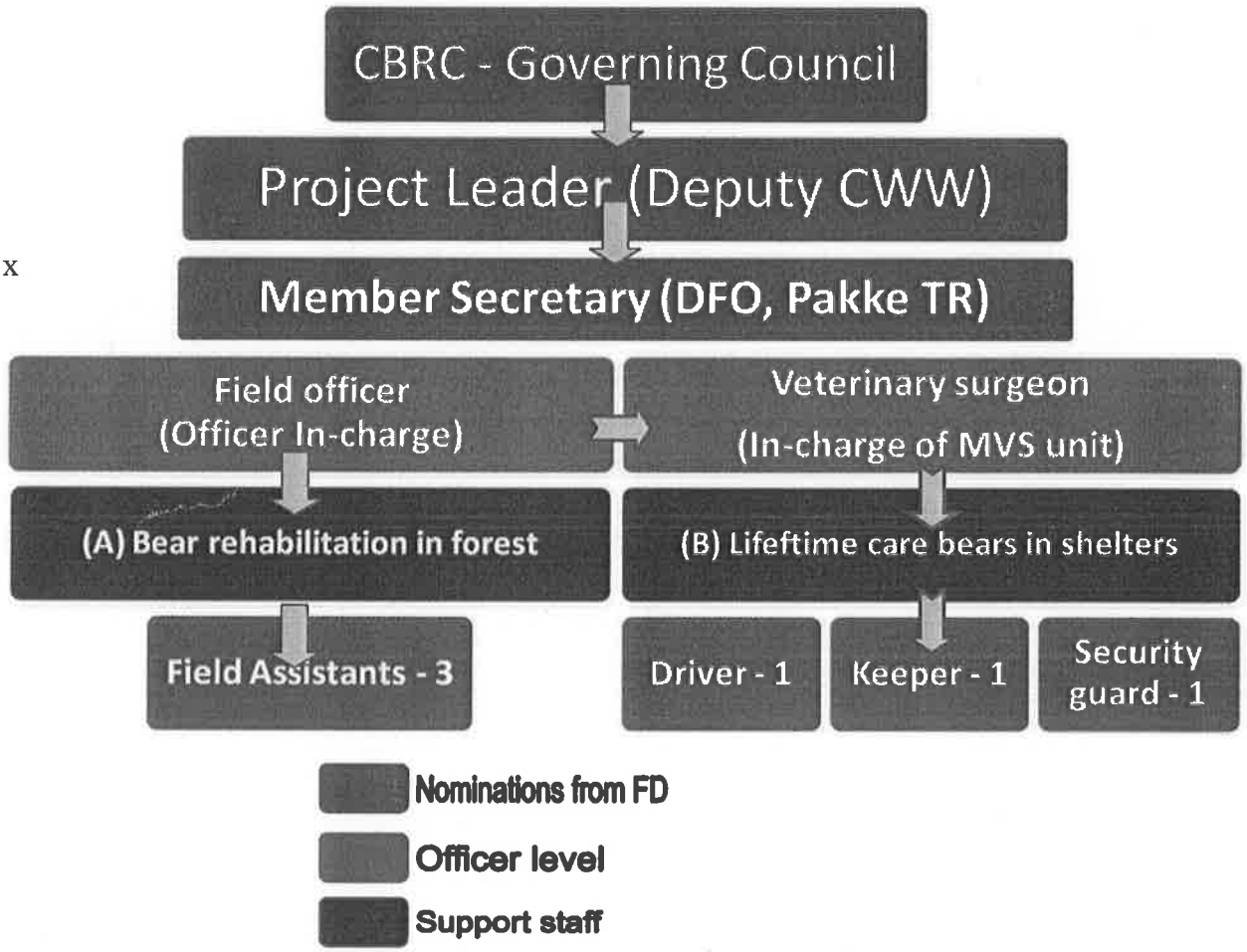
Akhtar, N., Tsering, D., Ashraf, N.V.K. and Loma, C. 2005. Behavioral changes and enclosure use by Asiatic black bears (*Ursus thibetanus*) in pre-release enclosures during rehabilitation. In: *Back to the Wild: Studies in Wildlife Rehabilitation. A compendium on studies in wildlife rehabilitation.* Conservation Reference Series 2. Wildlife Trust of India, New Delhi. pp 148-156

Annexure 4

Present staffing pattern and position

The Memorandum of Understanding signed between Wildlife Trust of India and the Department of Environment and Forests, Arunachal Pradesh in 2002 has nominated the Deputy Chief Wildlife of the state Shri C. Loma as the Project Leader and the DFO of Pakke Tiger Reserve as the Member Secretary of the Governing Council constituted to oversee the functioning of the Centre for Bear Rehabilitation and Conservation (CBRC). The following organogram depicts the present staffing pattern within the umbrella of the governing council.

x



The office in-charge could be either the veterinarian or the biologist, depending on their seniority. At present it is the biologist Shri. Soumya Dasgupta who holds charge of the facility. As depicted above, the bears in the shelters come under the management of the veterinarian and the bears under rehabilitation under the control of the biologist.

Annexure 5

List of buildings other than animal enclosures

CBRC does not boast many buildings within its campus area. There is one building each, at the Field Camp and at the Shelter Zone. The one at the Field camp serves as the office and residence of the staff working at CBRC and the one inside the shelter zone functions as the support building for food preparation, kitchen and examination room.

Fig: Two buildings at CBRC: Support building in the shelter enclave (above) and office building at field camp (below).

ii) The Trust / Society / Non Profit Company shall comply with the provisions of Section 139A(1)(ii) and (iii) of the Act within one Month of the date of this order to obtain a Permanent Account Number and shall communicate the PAN to this office.

iii) The Trust / Society / Non Profit company shall maintain Accounts regularly and shall get these audited in accordance with the provisions of Section 12A(b) of the Income Tax Act, 1961. Seperate accounts in respect of each activity as specified in Memorandum shall be maintained. A copy of such accounts shall be submitted to the Assessing Officer. A Public Notice of the activities carried on / to be carried on and the target group(s) (intended beneficiaries) shall be duly displayed at the Registered / Designated Office of the Organisation.

iv) Seperate accounts in respect of Corpus Donations shall be maintained in compliance to Section 44AA of the Income Tax Act, 1961.

v) All the **Public Moneys** so received including for Corpus or Contribution shall be routed through a Bank Account and such Bank Account Number shall be communicated to this office.

vi) No change in the Trust Deed / Memorandum of Association shall be effected without the approval of the jurisdictional High Court / Appropriate Authority Keeping in view of the decision of the Supreme Court in the case of Andhra Chamber of Commerce, it shall continue to serve the main object (of the Trust in future faithfully without any change).

vii) No asset shall be transferred without the knowledge of the undersigned to anyone, including any Trust / Society / Non Profit Company etc.

viii) If later on it is found that the Registration has been obtained fraudulently / mis - representration or suppression of any fact, the Registration so granted is liable to be cancelled.

8. This order is hereby passed u/s 12A read with Section 12AA of the Income Tax Act, 1961 and entered at **Serial No.** 621 of the Register maintained in this office.

Sd/-

(S.C. GROVER)
Director of Income Tax
(Exemptions)
New Delhi

Director of Income Tax(Exemptions)
7th Floor, Mayur Bhawan
Connaught Place, New Delhi

Copy to :

1. The Applicant as above.
2. The Assessing Officer Y. C. (II)
   The Income Tax Officer (E)

(S.C. RASWANT)
Income Tax Officer (Exemptions) (Hqrs)
for Director of Income Tax (Exemp.)

(S.C.RASWANT)
Income Tax Officer(Hqrs Exemption)
New Delhi

Govt. of Arunachal Pradesh
Office of the Addl. Principal Chief Conservator of Forests
(Wildlife & Bio-diversity) & Chief Wildlife Warden.
****Itanagar.****

No. CWL/GEN/13(3)/2006-07/Vol-I/ 4638-40 Dated 10th Sept. 2009

To

Shri N. V. K. Ashraf,
Director, Wild Rescue,
Wildlife Trust of India
2nd Floor, Sector – 6, Noida.
Uttar Pradesh -201301.

Sub: **Renewal of MoU for operation of CBRC, Seijosa.**

Ref: *Your letter No. WRC/CBRC – Corres p/ WTI – 2009, dtd. 23.02.09.*

Sir,

In inviting reference to your above mentioned letter. I am directed to request you to submit a fresh MoU dully signed by you as second party for getting further recognition of CBRC Seijosa from the CZA New Delhi.

This is for favour of your kind information and further necessary action please.

Yours faithfully

(M. K. Pailt), DCF
O/o the PCCF (WL & BD)
Itanagar

Copy to: i) Shri. C. Loma, Dy. CWLW & Project Leader, CBRC ,Seijosa for information and necessary action.
ii) The DFO (WL) Pakke, WLS for information and necessary action.

(M. K. Pailt), DCF
O/o the PCCF (WL & BD)
Itanagar

Wildlife Trust of India

10 Years in Service of Nature

Ref. No.WRC/CBRC-Corresp/WTI-2009 23.2.2009

To
The Addl. PCCF (Wildlife & Biodiversity)
& Chief Wildlife Warden,
Govt. of Arunachal Pradesh
Itanagar-791 111

Sub: Renewal of MoU for operation of the Centre for Bear Rehabilitation and Conservation project beyond 15.3.2009

Sir,

The memorandum of understanding (MoU) signed between the Department of Environment and Forests, Govt. of Arunachal Pradesh and the Wildlife Trust of India (WTI) for development and operation of the centre for Bear Rehabilitation and Conservation (CBRC) project is due for expiry on 15.3.2009. A copy of the MoU is enclosed for your information.

We will be thankful to you for considering renewal of the CBRC MoU beyond 15.3.2009.

A gentle reminder to this effect was also sent to Shri Chuku Loma, Dy. Chief Wildlife Warden and Project leader CBRC on 5.9.2008. A copy of the same is also enclosed for your information.

WTI looks forward for a long term association with the Department of Environment & Forests, Govt. of Arunachal Pradesh towards providing appropriate placement options for displaced Asiatic Black Bears in the state of Arunachal Pradesh.

Yours faithfully
Sd/-
N.V.K. Ashraf
Director-Wild Rescue
0120-4143919

Encls. 1. Copy of the MoU
2. Copy of request letter written to Shri Chuku Loma, Dy.CWLW and Project leader, CBRC

Copy for favour of information and necessary action to:

1. Shri Chuku Loma, Dy. Chief Wildlife warden, Govt. of Arunachal Pradesh, Naharlagun
2. Dr. P.C..Bhattacharya, Executive Trustee(NE), Wildlife Trust of India, C.R.Kumar Bhawan, 3rd Floor, Pandu Road, Guwahati
3. Shri Sunil Subba, WTI

N.V.K. Ashraf
Director-Wild Rescue

MEMORANDUM OF UNDERSTANDING FOR THE DEVELOPMENT AND OPERATION OF " CENTRE FOR REHABILITATION OF HIMLAYAN BLACK BEARS" UNDER THE PROJECT : REHABILITATION OF HIMALAYAN BLACK BEARS" IN ARUNACHAL PRADESH.

This Memorandum of Understanding (MoU) is enterd into on this day of .....

.....

BETWEEN

The DEPARTMENT OF ENVIRONMENT & FORESTS, GOVERNMENT OF ARUNACHAL PRADESH, hereafter referred to as the "**FIRST PARTY**" (which term and expression shall unless repugnant to the context mean and include its successors, administrators, executors, legal representatives and assigns) on the OTHER PART.

AND

The **WILDLIFE TRUST OF INDIA** hereafter to as the "**SECOND PARTY**" which term and expression shall unless repugnant to the context means and include its successors, administrators, executors, legal representatives and assigns) on the OTHER PART.

WHEREAS the **FIRST PARTY** is a government department engaged in the administration of protection and management of wildlife in the State of Arunachal Pradesh hereinafter referred to as Arunachal Pradesh and matters incidental or related thereto.

AND WHEREAS the **SECOND PARTY** is a chairtable Trust registered under the Income Tax Act, 1961 under Section 12A and is engaged in the promotion of conservation and welfare of wildlife and matters incidental thereto.

AND WHEREAS the **FIRST** and **SECOND PARTIES**, under its project "**Rehabilitation of Himalayan Black Bears**", are desirous of establishing and running a center for housing temporarily disadvantaged bears which are rescued following confiscation, injury, maiming, illness, or staying. The Centre will provide them with food, shelter, veterinary care, treatment and other rehabilitation measures, till they are fit to be released into their appropriate natural habitats which may or may not be at the place where the center is built.

AND WHERES both parties desire to develop and operate the **"CENTRE FOR REHABILITION OF HIMALAYAN BLACK BEARS"** in Arunachal Pradesh, desire to put their agreement in writing for that purpose. **NOW THEREFORE THIS MoU WITNESSETH AS UNDER:**

ARTICLE - I

Both parties agreed that the following are the objectives and scope of work of the center :

a) Rescue temporarily disadvantaged wild bears, which have been confiscated, injured, maimed, orphaned, sick and / or astray.
b) Optimize the conservation and re-introduction potential of the rescued wild animals.
c) Promote ethical and humane methods of handling, maintenance in captivity and veterinary care.
d) Release the rehabilitated bears back to the wild in a suitable site after acclimatizing them before release, and monitoring them after release.

ARTICLE - II

Both the parties shall collaborate at all stages of the execution of all mutually agreed activities, and shall not withhold from each other relevant information or otherwise hinder the execution of these activities.

ARTICLE - III

a) The FIRST and SECOND PARTIES, for the purpose of the efficient management of the center / land its programmes, agree to constitute a "Governing Council" consisting of the following members:

1. Principal Chief Conservator of Forests & Principal Secretary Department of Environment & Forests, Govt. of A.P.	*Chairman.*
2. Chief Wildlife Warden, Department of Environment of Forests, Govt. of A.P.	*Member.*
3. Chuku Loma, Dy. Chief Wildlife Warden, Govt. of A.P. Naharlagun.	*Project Leader.*
4. Executive Director. Wildlife Trust of India (WTI)	*Member.*
5. Representative, Wildlife Rescue Programme (WTI)	*Member.*
6. CBRC – Project staff (WTI)	*Member.*
7. Director Biological Park	*Member.*
8. Veterinary Assistant Surgeon, Biological Park, Itanagar	*Member.*
9. DFO, Pakke Tiger Reserve, Department of Environment & Forests, Govt. of A.P.	*Member Secretary*

b) In addition to the above, the "Government Council" may identify people of repute with expertise of topical relevance and invite them to the "Governing Council" meeting.

ARTICLE - IV

a) The "Governing Council" shall determine its overall responsibilities during the inaugural and ensuing meetings, but these shall include:

i.) Formulation of the polices, guidelines, rules and regulations and matters relating thereto of the center.
ii) Overseeing the Rehabilitation Project as a whole and the Rehabilitation Center in particular.
iii) Issue of suitable directions/advice to the center management.
iv) Such other matters as many arise.

b) The "Governing Council" should meet at least once a year.

ARTICLE - V

The SECOND PARTY shall engage appropriately qualified and experienced project personnel, who are acceptable to the "FIRST PARTY" for the rehabilitation, acclimatization, release and monitoring of the bears. These personal include a Project Biologist and Centre Supervisor. While the center supervisor will primarily be responsible for the management of the rescue/rehabilitation center, the Project Biologist will be in charge of the execution of the project WTI veterinarian or the Itanagar Zoo veterinarian will provide the veterinary support to the bears from outside. The SECOND PARTY shall further engage for the center such other personnel as may be required for eg: assistants / drivers / keepers / watchmen etc. All costs including the salaries, per diem and travel expenses etc. of the staff for the center and its projects and programmes, shall be done by the SECOND PARTY, unless specially mentioned otherwise. The FIRST PARTY shall have no obligation / liability for the engagement / regularization of the service of such staff during or after the expiry of this MoU/its projects. All liabilities, if any arising out of the engagement of such staff during the period of this MoU will be borns by the SECOND PARTY. However, once their services are terminated this MoU

ARTICLE - VI

a) All the necessary permits for the establishment of the aforesaid centre and to fulfill the objectives of the centre and the project, including any such other complementary actions as may be initiated elsewhere in Arunachal Pradesh in relating to the scope of work of the said centre shall be provided by the first party.

b) The centre shall be provided with water and electricity supplies, telecommunication infrastructure, motorable roads and sewage facilities, which shall be facilitated by the FIRST PARTY, while the SECOND PARTY shall incure all the expenditure on the above.

c)

ARTICLE - VII

The **SECOND PARTY** will bear all the budgeted recurring and non-recurring costs of the centre and the project during the period of the MoU.

ARTICLE - VIII

Any dispute between the parties in respect of this MoU and its implementation shall first be placed before the 'Governing Council' for amicable resolution. However, failing such resolution, the decision of the Chief Secretary, Govt. of Arunachal Pradesh shall be final.

ARTICLE - IX

This MoU shall be valid for the period from 15th March 2005 to 15th March 2009 unless either of the parties gives to the other a written notice, three months in advance of its intention to terminate the MoU anytime before the period of expiry of the MoU. The MoU may be renewed for a further period based on the consent of the both parties. It may also be modified by mutual consent of both the parties.

IN WITNESSES WHEREOF, the **PARTIES** above named have hereto signed this MoU and affixed thereto their seals.

Executive at Itanagar on the day and month and year herein above written.

FIRST PARTY

Name in full (KRISHNA DEV SINGH)

SECOND PARTY

Name in full

WITNESSESS:

Name (CHANDER NATH)

Designation.

Annexure 7

Protocol for the Rehabilitation of Asiatic black bears (*Ursus thibetanus*) employing soft release option

Centre for Bear Rehabilitation and Conservation

Wildlife Trust of India

Dept. of Environment and Forests

Contents

The following documents have been consulted in the preparation of this protocol:

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Section 1. Introduction

1.1. Wildlife Rehabilitation

Internationally, Wildlife Rehabilitation is an emerging discipline in the science of wildlife conservation, with both conservation and welfare issues being intricate components. The International Wildlife Rehabilitation Council defines Wildlife Rehabilitation as the treatment and temporary care of injured, diseased, and displaced indigenous animals, and the subsequent release of healthy animals to appropriate habitats in the wild. Bear rehabilitation is a major conservation and animal welfare activity practiced throughout the world. Bears have been successfully rehabilitated and released back to the wild in many countries including Russia, USA and Canada (Rogers, 1986; Wasserman and Clumpner, 1995; Pazhetnov *et. al.*, 1999). In these countries, where licensed hunting of bears is legalised, rehabilitation of orphaned bear cubs goes hand in hand.

1.2. Case for rehabilitating Asiatic black bears in India

Arunachal Pradesh is a mega diversity hotspot gifted with 75% of forest cover, with extremely rich flora and fauna. But in last three decades rapid population growth, agricultural practices (jhumming) and the development of towns have led to rapid fragmentation and degradation of forest and forest resources of the state. Asiatic black bear (*Ursus thibetanus*) is classified as Vulnerable (VU - A1cd) on the IUCN Red List 2002 and listed on Appendix I of CITES since hunting for bear parts has been perceived as a major threat to their survival. The species is listed under Schedule II, Part II of the Wildlife (Protection) Act, 1972 of India.

1. According to IUCN/SSC, all bear species have declined in numbers and distribution due to the impacts of human activities. Major human activities that impact bears adversely are habitat destruction due to conversion of forest to agriculture, human encroachment on forest land and excessive forest harvest.
2. There is evidence of killing of bears in northeast India, for meat and the sale of body parts in medicinal preparations. Bear cubs are also captured whenever they are encountered and possibly also traded in the national and international market. In Arunachal Pradesh alone, four bear cubs were confiscated in the year 2001-2002, adding to the already existing nine individuals in Itanagar zoo.
3. IUCN reports that bear populations at greatest risk include **Asiatic black bear,** sun bear, giant panda, sloth bear, brown bears of Mongolia Tibet, France Spain and Italy and the spectacled bear of Venezuela, Columbia and the Desert population in Peru. (Servheen *et al* 1998).
4. Besides releasing bears back to the wild, one of the major impacts of rehabilitation projects is that the efforts to release rescued bears often creates awareness amongst the locals on the plight of the species. In the long run, this would help in the promotion of conservation of bears in the wild.

1.3. Rehabilitation Centre for bears

The state of Arunachal Pradesh is ideally placed to rehabilitate displaced bears to the wild as it still retains vast tracts of undisturbed forests which are essential for any rehabilitation operation. Considering the tremendous potential that exists for rehabilitating bears back to the wild in Arunachal Pradesh, Wildlife Trust of India (WTI) signed a Memorandum of

Understanding in March 2002 with the Department of Forests and Environment, Arunachal Pradesh, to establish a rehabilitation centre that will address the issue of displaced bear cubs (MoU, 2002). The centre now provides food, shelter, veterinary care and other rehabilitation measures to them until they are fit enough to be released back into their habitat. The Centre also treats injured/sick temporarily displaced bears with the aim of returning them to the wild. The centre has been established in an area of four acres of undisturbed semi-evergreen forest in Pakke Tiger Reserve, Seijosa. The center has a quarantine facility, apart from the main complex consisting of shelters, 2 small cub enclosures, 5 large holding pens (5x10x5 m), two huge covered enclosures (15x10x8 m) and a pre-release orientation yard of 4,800 sq. m. This facility was primarily designed to hold bear cubs meant for hard release.

2. Acceptance of bear cubs and hand raising

2.1. Acceptance of bears at the centre

Bear cubs are often confiscated from villagers who keep them when young for various reasons. Usually the cubs are sometimes handed over to the government after keeping them in captivity for periods that may range from less than a week to more than two years.

1. The center will not accept bear cubs that have spent considerable length of time in captivity. Any cub above four months of age will not be considered for admission, unless the cub is found to be suitable for putting into a soft release programme.
2. All confiscations will be done by the Forest Department and the CBRC ambulance can help in the transportation of the animal to the centre with the permission of the Forest Department.
3. All new arrivals will be subjected to 21 days of quarantine period, during which they will be examined for behavioral aberrations and infectious diseases.
4. All cases of admission will be registered in appropriate databases. Ideally, all cubs will be micro chipped with transponder implants.
5. No cub with deformities (mental or physical) diseases that cannot be cured in a short period of time shall not be considered for admission.

2.2. Hand-raising of displaced cubs

1. Bottle feeding of suckling cub is the most crucial stage in the rehabilitation process. This is also the nurturing stage, where the rehabilitator takes on the role of surrogate mother to the bear cubs and provides them not just food but also comfort and security.
2. It is essential that the rehabilitator plays the role of mother bear, gaining the confidence of the cubs and interacting with them just like the mother would. It will ensure easy handling of the cubs and the cubs will not consider the rehabilitator a threat even when sick or injured. This will be advantageous when the cubs begin on their walks in the forest.
3. All the cubs will be handled by one or two designated persons who will eventually walk the bears.
4. Bedding and warmth are essential for neonates. The bedding will comprise a hand towel that can be replaced every day. Adequate warmth especially at night is essential for all

suckling cubs. Warmth using infrared lamps will be provided to all cubs whenever deemed necessary.

5. All suckling cubs will be handled with gloves to maintain strict hygiene. Wherever possible, they will be raised in groups of 2 or 3 individuals.
6. An appropriate milk formula will be selected. Considering the fact that an appropriate milk replacer for bears is not available in India, Lactogen-II will be used as it has been found to be adequate. Bear cubs have not been observed to exhibit formula intolerance like elephant and rhino calves.
7. The cubs will be fed every two hourly in the beginning with night feeds till the age of two months. The frequency of feeding will be subsequently reduced to four times a day with no night feedings by 4 months of age, to once a day by 6 months of age. All cubs will be weaned off milk by the age of 6 months.
8. Milk will be bottle fed as opposed to bowl feeding to maintain a level of intimacy between the cubs and the rehabilitator. Moreover, it is easier to bottle feed cubs as opposed to using feeding bowls as bear cubs can be very messy causing a lot of wastage.
9. A high level of hygiene will be maintained during nursing as the cubs are prone to pick up infection. This would include:
    a. Personal hygiene of the keepers handling the cubs
    b. Maintenance of hygiene while preparation of food
    c. Frequent disinfection of the cage of confinement
    d. Daily cleaning of the kitchen or milk preparation area
10. Growth is a good indicator of wellbeing. The cubs during this phase will be weighed and the body length recorded every month to monitor growth.
11. Adequate nutritional supplements in the form of vitamins and minerals will be given until they are moved over to solid foods.
12. Solid food can be introduced to the cubs' diet at the age of two months. This can range from fruit mush, cereals etc. mixed with the milk formula.
13. As the cubs get older, say at about 4 months of age, dry dog food can be introduced into the diet.
14. Once the cubs are weaned at the age of 5-6 months of age, formula, porridge, fruit etc can continue to be provided in bowls as additional feeding in the wooden cage at the acclimatization site.
15. All cubs will be dewormed at the age of one month. They will again be dewormed when they are moved into the cub enclosure at the age of 2 months. Stools will be examined for parasite ova at every stage of rehabilitation.
16. If the cubs are under 2 months of age they will be housed in a protected nursery room in small plastic or wooden rectangular containers of 2x3x2 feet dimension.
17. After two months they will be moved to the cub enclosure with adequate provision for shelter against elements of weather. This enclosure will be in the form of a wooden den (0.7x1.5x0.7m). During this period, the rehabilitator will get the cubs used to following him/her in and around the CBRC campus itself.

3. Rehabilitation technique: "Walk the bear"

3.1. General Principles

Most hard releases have worked in temperate regions as bears are invariably released during winter while they are hibernating. Hibernating bears are chemically restrained and released into a den in the wild. This is the standard `hard release' technique followed in temperate countries to avoid homing. Bears in the northern hemisphere (temperate regions) are released into `hibernating' dens when they are barely 7-9 months of age (Pazhetnov *et al*, 1999). Releasing bear cubs of similar age is not advisable in a tropical situation like Arunachal where tigers and leopards are also found. Bear cubs less than 15 months of age will not be released under normal circumstances.

These techniques cannot be followed in most parts of Arunachal where climate is tropical and bears are active throughout the year (Clark, *et. al.*, 2002).

The three bears released so far were hard released which means the bears had to be on their own until they developed site fidelity and established a home range. One of the bear's homed back to the center, one was killed in an encounter with a hunter while it was moving towards ideal bear habitat and the third bear Liza who was trying to habituate to the release site was predated upon by a leopard. It is clear from these instances that hard releasing the bear cubs has not been successful.

Research was done to identify a soft release methodology that will enable the bear cubs to graduate to adulthood at the site of release, gradually acclimatize to the wilderness and enable them to establish a home range, develop site fidelity thereby increasing their chances of survival post release. Therefore the method being adopted for the release of the next set of bear cubs is the "walk the bear technique" used in Indonesia to rehabilitate Malayan sun bears.

Using this technique, the bear cubs will be taken for a walk on a daily basis by one person who acts as the surrogate mother. This enables the bears to gradually familiarize themselves to the new environment, learn predator avoidance, obtain their own food and establish a home range. The bears will be fed on a combination of natural food from the forest and supplementary food in captivity. But food will also be provided intermittently by the surrogate mother during the walk to have control over the movement of the bear during the period of acclimatization. The bear cubs will be brought back to the enclosure/den every night. According to the technique followed in Indonesia, eventually the bears begin to resist being brought back to the enclosures. At this point they will be fitted with radio collars and not be forced at any point to return to the enclosure. The dependence of the bear to supplementary food would be gradually reduced as the bear becomes more and more independent in the forest.

The soft release method using 'walk the bear' technique gives the bear cubs:

1. A longer acclimatization period at the site of their future home.
2. Less overall time in captivity (younger age of beginning the acclimatization process)
3. Younger age at the time of release (possibly less threatening to wild bears)

The soft -release method follows the assumption that bears must feel at home when they are released in an area. It is a gradual assimilation of the bears back into their natural habitat. Here the rehabilitator does with the cubs in rehabilitation what the mother bear does with her cubs in the wild, the fundamental principle being to allow them to graduate to adult hood in the same area where they will be "weaned" from their surrogate mother

3.2. Selection of release site

The proposed site of release will be assessed by a committee of rehabilitators for suitability of release. The site thus chosen will be informed to the Chief Wildlife Warden while requesting the permission for release. A habitat suitability study will also be initiated to evaluate the proposed release site. The team will consider the following variables while assessing the suitability:

a. The site selected will be within the natural distribution range of Himalayan black bears in Arunachal Pradesh.
b. Based on the dietary habits of bears in the wild, the food availability in the prospective release area will be assessed by identifying the vegetation type.
c. The site chosen will have few or preferably no resident bears.
d. The release site will not be close to any village and/or with any evidence of bear hunting, but at the same time approachable for post-release monitoring.
e. The bear will not be released if habitat loss or any other factor detrimental to the survival of bears is visualized at the time of release.

3.3. *In-situ* acclimatization for soft release

1. Rehabilitation would be carried out at CBRC by in consultation with the bear rehab experts, members of the CBRC Governing Council and IUCN bear specialist group.
2. The overall success of the rehabilitation project shall be evaluated as per the objectives laid down in the beginning. If necessary, decision shall be made to revise, reschedules or discontinue the program.
3. The process and duration of rehabilitation would vary for injured, sick bears, orphaned bear cubs or sub- adults. Rehabilitation process may not be initiated or continued if it becomes clear that there are no chances of release of the healthy animal into the wild. But CBRC would strive to weigh pros and cons to give the bears a chance to go back into the wild.
4. Bears will be subjected to a minimum period of 21 days quarantine, subject to the discretion of the veterinarian.
5. Once the cubs reach the age of three months and are ready to initiate their walks into the forest, they will be moved to the *in-situ* acclimatization site along with their wooden crates.
6. At the selected acclimatization site, a 'machan' will be constructed for the rehabilitator to stay in. The wooden cage to hold the bear at night will be grouted under this machan.
7. Ideally, at least two bear cubs will be taken to the *in-situ* acclimatization site. The enclosure at the site will be similar to the dimension of the cub enclosure (4mx5mx4m). Alternatively a small wooden cage (2x3x2m) can be employed to hold the bears at the in-situ site and placed below the machan.
8. The machan (3m x 2m) and the cage will be protected by an eight line power fence of 10m x 10m x 9.5m to keep leopards and other predators out.
9. The cubs will be walked through the forest by the rehabilitator during the day and kept in a cage at night where they will receive additional food. They can be active in the forest for a period of 9-10 hours in a day. They may even show signs of exhaustion and a need to come back to the cage. This should not be discouraged.

10. The cubs will be given ample opportunity to forage for food in the forest and introduced to fruit and vegetation while they are walked in the forest.
11. To supplement this wild diet, cubs will be fed on a mixture of vegetables (mostly tubers), fruits of cultivated varieties, and fruits and branches, shoots and leaves collected from the forest.
12. The bears will also be fed with some animal diet (large pieces of bone with some meat, entire birds or chicken heads etc.) once in 15 days.
13. The cubs can also be provided the additional food inside the forest at times. Food is provided in the cage in order to habituate the cubs to the cage and let them identify it as a security blanket.
14. It was observed in the case of the Malayan sun bears that the cubs began exhibiting refusal to enter the cage after 6 months of being walked in the forest (Fredrickson). Once the cubs are reluctant to enter the cage, they should be radio collared immediately. At no point should the cubs be forcibly put inside the cage.
15. All released animals will be radio-collared and monitored for a minimum period of one to two years. Detachable or drop-off collars will be used to take into consideration the growing neck girth of the bears.
16. The frequency of the bears coming back to the cage for additional feeding or security will gradually decline over a period of time (2.5 years in the case of the Malayan sun bears). However food must be readily available to them whenever the cubs appear and they should not be discouraged from doing so.
17. The number of people walking the bear should be ideally just one. This will ensure that the bear associates with just the one person and not human beings in general.
18. Bears will quickly adapt to the forest environment and show instinctive knowledge of feeding behaviour. Malayan sun bears in rehabilitation were eating a large variety of the same foods that were observed to be eaten by wild bears in the same are (Fredricksson, 2005).
19. Time spent in captivity is an important factor. Bears that have spent more time in captivity will be more difficult to release due to the time period necessary for them to learn foraging skills and establish a home range (Fredricksson, 2005).

4. Pre and Post Release Considerations

4.1. Behavioural considerations

The bears will not be released under the following situations:

1. When following the soft release option, if they have not been adequately habituated to the wilderness situation.
2. If some of the behavioural abnormalities, prevalent at the time of rescue, failed to disappear during the course of rehabilitation.
3. Bears with permanent disabilities due to injuries/disease acquired during *in-situ* acclimatization, will be moved to permanent care centers or zoos.

4.2. Veterinary considerations

1. Bear cubs will be screened for infectious disease like mange, tuberculosis and if needed against infectious canine hepatitis (ICH) also before being taken to "release site" and for *in-situ* acclimatization. Evidence of pruritis and alopecia will be considered signs of possible mange, the animals will be tuberculin tested to determine presence of tuberculosis, and fecal samples will be screened for ICH virus.
2. Weak, nutritionally deficient and anemic bears with poor body condition will not be considered for soft release.

4.3. Contingency plan

- There is a concern that rehabilitated bears may prove to be a threat to people living in adjoining villages. But, published data on rehabilitation of bears suggest that only few hand-reared bears resort to nuisance behaviour once independent in wild (Stringham, 2003). Since bears have a large home range, they may wander near human settlements. If there is danger to the lives of either bears or humans, the bears will be captured and moved to a lifetime care facility.
- The possibility of losing track of the animal soon after release also cannot be ruled out. It is very likely that bears can pull out radio collars from their neck. In such cases, attempts will be made to retrieve the collar and the animal recollared after tracking and recapturing.
- There are also chances of bears getting attacked by predators and getting injured. In such instances, they will be treated after darting. Bears with irreparable injury shall be captured and brought back to CBRC for later transfer to a lifetime care facility.

5. Monitoring the bears during the "walk"

1. The biologist will walk with the bears twice a week in order to collect data on the movement of the bears, range use, activity, behaviour and food habits.
2. Data will be collected on the movement of the bears, range use, activity, behavior and food habits.
3. The rehabilitator will however monitor the bear cubs daily of course. He/she will collect a sample of each item eaten by the bears and identify its local and scientific name. A preference rating of each item will be given.
4. The distance walked, direction of walk, duration of walk and area covered will be noted down every day using a compass readings, timers, a pedometer and GPS.
5. The bears will be equipped with radio collars the moment they exhibit refusal to get inside the crate.

6. Legal considerations

1. No bear will be moved to the designated site without the permission of the Project Leader and/or Chief Wildlife Warden of Arunachal Pradesh.
2. As per the amendments made to the Indian Wildlife Protection Act (1972), all rehabilitation/rescue centers will henceforth be called zoos and will come under the purview of the Central Zoo Authority (CZA) (Section 13-A). No bear will therefore be released without the written permission of CZA, MoEF.
3. Use of radio-telemetry in wildlife requires the permission of the Ministry of Telecommunications. No bear will be radio-collared without the permission of this ministry.

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