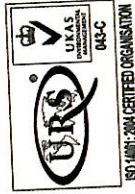


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# Aranjyam

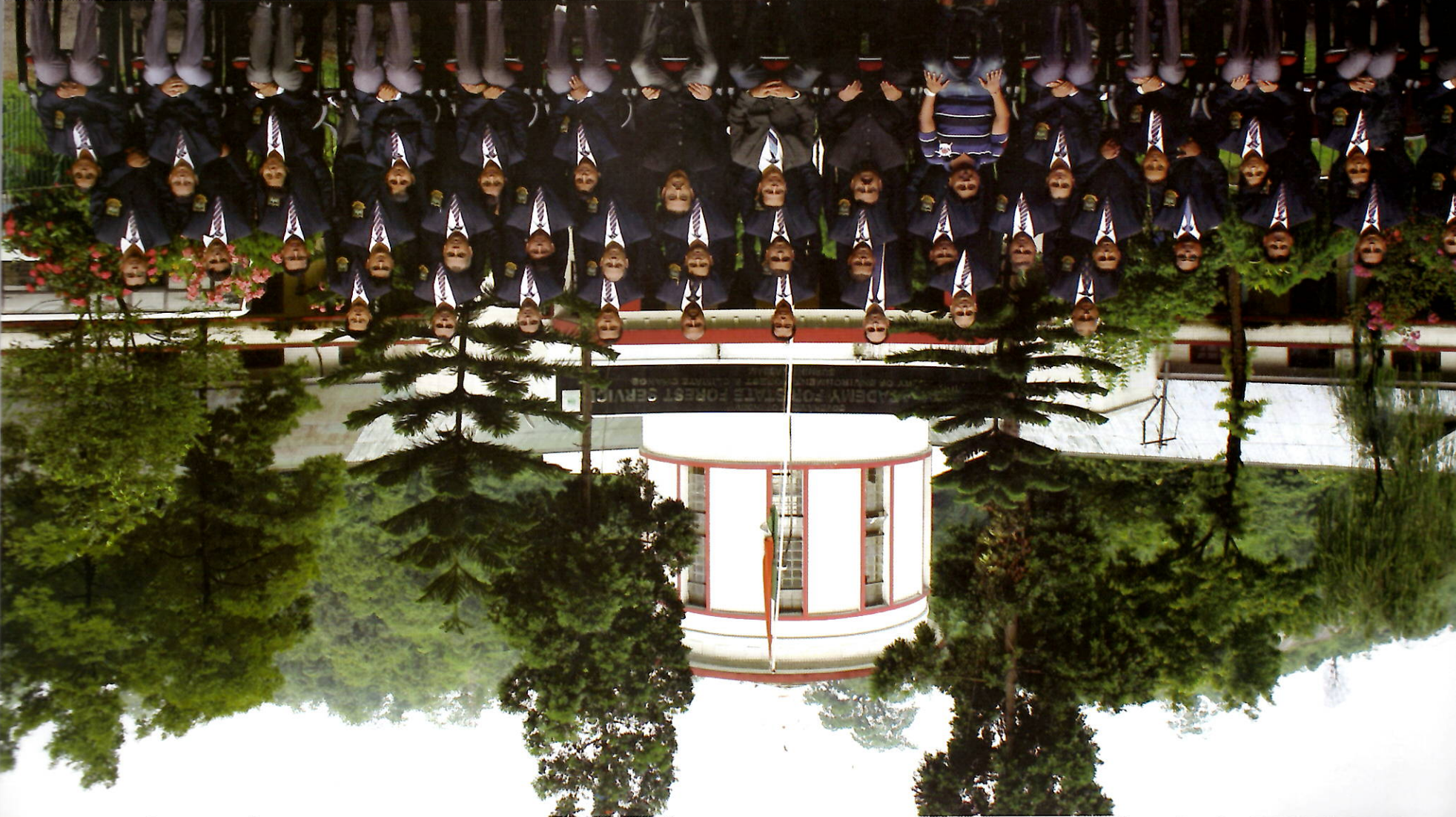
Government of India  
Ministry of Environment, Forest & Climate Change  
Central Academy For State Forest Service, Burnihat, Assam

Annual Magazine, 2016  
XX Issue



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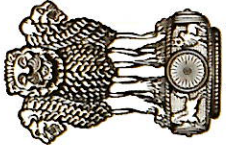
# FOREST RANGE OFFICER TRAINEES 2015-16 BATCH



FIRST ROW (L-R): TANUJA THORAT, RAKHI JUYAL, LUCKY SHAH, JYASHRI TRIPURA, SANCHITA VERMA, SHRI AJAY RAJAK (PT & GAME INSTRUCTOR), SHRI C. A. RAHMAN IFS (LECTURER), SHRI ROSHAN HORD IFS (PRINCIPAL), SHRI N. LIUKHAM IFS (LECTURER), KIRAN SHAH, SONIYA KUMARI, MITA DAS, BHABANI DEBARMA, MAMTA CHAND, ALOKI  
 SECOND ROW (L-R): JUGAL KISHOR, SANDEEP GIRI, DINESH PRASAD NAUJAL, SIMAN BHOWMIK, MUKESH KUMAR, RAJ KUMAR, BINDER PAL, UDAY NAND GAUR, AMIT KUMAR GWASIKOTI, VIKAS RAWAT, ANIL SINGH RAWAT, BISHAN LAL ARYA, LALIT KUMAR, VINOD CHAUHAN, TAPAS DEBARMA, KANHAIYA LAL, JEWEL DEBARMA  
 THIRD ROW (L-R): SACHIN N. SHINDE, ANIL KUMAR JOSHI, SADHU LAL, BIRATA MARAK, VIJAY SAINI, RATANJIT CHAKMA, SUNIL KUMAR, KISHOR KUMAR NAUTIYAL, AMIT TRIPURA



**Shri M. P. Singh, IFS**  
 Director



सत्यमेव जयते  
 Govt. of India  
 Ministry of Environment, Forest & Climate Change  
**Directorate of Forest Education**  
 PO: New Forest, Dehradun,  
 Uttarakhand - 248 006

## Message


It is a matter of great pleasure to introduce the publication Aranyam 2016 to esteemed readers.

The Central Academy State Forest Service, Burnihat is one of the oldest forest training institutions in the country. The rich tradition and the training culture of CASFOS, Burnihat are thus very superior in terms of shaping the career and personality of innumerable Range Forest officers of the country. The alumni of this institution have bought great accolades to the institution as well as the state forest departments in the country.

The Forestry sector today has witnessed exceptional transitions during the last decade. This change has necessitated a change in the capacities expected out of modern foresters. Today, foresters need to possess a different set of skills which are very different and demanding, in sync with the transformation in societal conditions. The evolving needs has placed strong challenges on our training institutions. Despite the challenges, CASFOS, Burnihat has performed very impressively creating all round officers to serve the forests as well as the society.

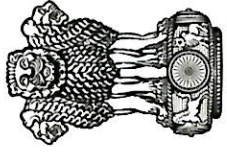
The efforts of officer Trainees in bringing out this publication is well appreciated and is very much relevant in the present societal set up, since communication skills of foresters is an area which has to be improved in coming days. It is very crucial that forest officers communicate with the society through writing in various forums to instill appreciation in the minds of citizens of the enormous role played by foresters.

I would like to appreciate and sincerely commend the efforts of the faculty members as well as the Officer Trainees of CASFOS, Burnihat in bringing out this magazine and wish them all success in their respective endeavors.

  
 (M. P. Singh)



**Shri D. Mathur, IFS**  
PCCF & HoFF, Assam



सत्यमेव जयते  
Govt. of Assam

Forest & Environment Department

**Principal Chief Conservator of Forest &  
Head of Forest Forces**  
Assam

### Message

I am happy to know that the central Academy for State Forest Service (CASFOS), Burnihat is bringing XXth issue of its magazine "ARANYAM".

India in general and the North East Assam in particular, has a rich heritage of biological resources, ranging from iconic species like the rhinoceros, tiger and elephant, to thousands of relatively lesser known species. The spectrum of this diversity is seen in our varied habitats and ecosystems. Conservation of forests and wildlife has been an integral part of our culture from time immemorial. Despite the mounting pressure on natural resources, some of the most amazing life forms on earth are thriving in our forests and wilderness.

When sustainably managed, forests contribute significantly to Sustainable development, poverty alleviation, biodiversity conservation and addressing climate change. To mainstream the elements of conservation into developmental planning is thus, a necessity and a priority. It is imperative that we understand our relationship with the forests and environment. To achieve all round prosperity we have to ensure that our activities are eco-friendly. People from all walks of life have to join together for ensuring better conservation of our natural resources.

The Forest officer of today has not only to learn, the various disciplines of traditional forestry but has also to be an ecologist, social worker and extension worker. He / She has to accept all challenges and contribute his/her might for the conservation of nature and maintenance of ecological balance. For this he/she has to learn all necessary values and skills (including reading, writing and communication) during the training. This magazine will go a long way in contributing towards all round personality development of the Forest officers.

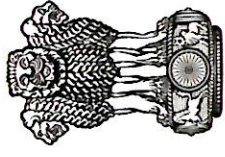
I am sure the thoughts, ideas and expressions of various contributors in this magazine will help spread the message of living in harmony with nature, thereby promoting the cause of forest conservation.

I wish those involved in this endeavor all success.

(D. Mathur)



**Shri Rajinder Kumar, IFS**  
PCCF & HoFF, Uttarakhand



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Office of

**Principal Chief Conservator of Forests,**  
85 Rajpur Road, Dehradun  
Telephone No.:(0) 0135-2746934  
Email: pccfuk@gmail.com

### Message

I am glad to hear the Central Academy for State Forest Service (CASFOS), Burnihat is bringing out XX issue of Annual Magazine "ARANYAM" 2016.

Forest Education in India aims at developing personae with all round development so as to deal effectively with the multifarious challenges in their field. Forest Management is regularly undergoing various changes and the new officers entering the field of forestry have to face variety of challenges for various stakeholders. CASFOS, Burnihat is certainly doing an excellent job in the field of Forestry education by equipping the Officers Trainees with essential skills and attitude to strive towards excellence in their sphere of operation.

I congratulated the Principal, Faculty Members and all the trainees of CASFOS for bringing out this condition of the magazine in a brilliant fashion.

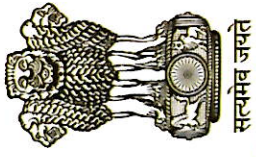
I wish every success for the Academy and all the Forest Range Officer Trainees.

Dated: 04<sup>th</sup> July, 2016  
Place: Dehradun

(Rajinder Kumar)



**Dr. Dinesh Misra, IFS**  
PCCF & HoFF, Gujarat



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Govt. of Gujarat

Forest & Environment Department

**Office of Principal Chief Conservator of  
Forest & Head of Forest Forces**

Block A, 1<sup>st</sup> Floor, Aranya Bhavan,  
Opp. St. Xavier's School, Sector - 10/A,  
Gandhinagar, Gujarat - 382010

### Message

It give me immense pleasure to learn that Central Academy for State Forest Service, Burnihat, Assam is bringing out magazine "Aranyam" Vol.XX 2016. The magazine is the expression of talents, efforts and progress. I found it very informative as articles published in are covering the wide range of the topics which indirectly justifies the level of training they are undergoing.

Forestry as a profession is very challenging and has very crucial importance as it has to deal with environmental challenges such as global warming, climate change, world's population pressure on forest and their demands including sustainable yield, which can not be possible without the spreading awareness amongst society towards conservation and their participation. I am hopeful that this magazine will create an urge among officer trainees to write more on nature, first and conservation.

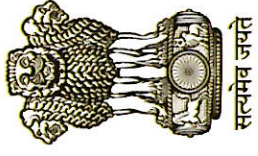
I wish all the Range Forest Officer Trainees grand success in life and also take this opportunity to convey my good wishes to the Principal, Faculty and staff of the Central Academy for State Forest Service, Burnihat, Assam.

Dated: 1<sup>st</sup> July, 2016  
Place: Gandhinagar

  
(Dr. Dinesh Misra)

## **Shri Roshan Horo, IFS**

Principal  
Central Academy for State Forest Service  
13th Mile, Burnihat - 793101, Assam  
E-mail: casfosburnihat@gmail.com



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**Central Academy for State Forest Service**  
(MoEF&CC, Govt. of India)

G.S. Road, 13th Mile, Burnihat, Assam - 793101



### From The Principal's Desk

I am happy that the officer trainees of 2015-16 batch of Central Academy for State Forest Service, Burnihat are going to publish the 20th issue of the magazine "ARANYAM" this year in association with 2016-17 batch. This is a collection of their expression of knowledge and thoughts in the form of articles, poems, cartoons etc, and various events occurred and activities performed during the training period in the form of photographs, and as a whole a memorabilia for their whole life.

Today's world is advancing to face an alarming situations of climate change with global warming due to deforestation, forest degradation and uncontrolled industrialization.

And, we the foresters have been given major responsibilities to act in climate change mitigation with more and more activities, like increasing forest area through reforestation, increasing carbon density of existing forests through afforestation, reforestation, rehabilitation and forest landscape restoration, alongwith sustainable management of forests and enhancement of socio-economic benefits of forest dependent communities, as a new concept of ecosystem approach of forest management.

I wish all the passing out officer trainees to begin their career with healthy mind and determined ambition to serve their states in a result oriented manner and fulfill the aims and objectives in the field of forestry. Through this message I put my aspiration that they will surely be able to streamline the various activities of the department in the range level and implement it with sincerity wherever they are posted.

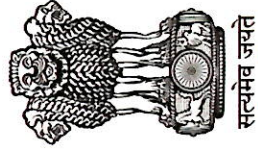
Dated: 10<sup>th</sup> June, 2016  
Place: Burnihat, Assam



(Roshan Horo)



**Shri N. Luikham, IFS**  
DCF & Lecturer



सत्यमेव जयते

**Central Academy for State Forest Service**  
(MoEF&CC, Govt. of India)  
G.S. Road, 13th Mile, Burnihat, Assam - 793101  
nluikham@gmail.com

### Chief Editor's Note

It is a matter of great pleasure to witness the transformation process of young RFO trainees. Their bush with professional ammunition and experiences under tough circumstances has polished their thought processes promising greater creative outputs. *Aranyam* serves as a humble medium to express and document their thoughts & learning's dotted with the occasional refined humour. Perhaps the budding forester in these young minds is taking roots anchoring their professional challenges and opportunities to higher orders.

Creativity has a universal appeal. Hard work, persistence and dedication smoothens out rough edges in the formative phase of taking up new challenges bringing out the better side of human being which when combined with creativity the product may well become an art. This annual outreach exercise may be a small beginning but definitely loaded with tremendous potential as start-up for greener future.

I wish the RFO trainees 2015-16 and 2016-17 batches the very best in their endeavours as they internalize the values of life and professionalism for days to come.

Dated: 6<sup>th</sup> July, 2016

Place: Burnihat, Assam

(N. Luikham)



**Anil Kumar Joshi**  
Magazine Secretary  
RFO Trainee, 2015-16 Batch

### From the Editor's Corner

Environment is considered to be the heart and soul of a Nation. Foresters, being the sentinels of environment, play a vital role in conservation and preservation of these natural resources a real wealth. Changing the scenario of global warming and climate change, it is not only compulsory but also mandatory to step ahead with collective efforts to conserve this base of all forms of life on this planet. This yearly magazine of CASFOS Burnihat provides a platform to trainee Rangers to express their hidden talents and media to develop and enhance their moral towards environment.

I on behalf of the editorial Board express my gratitude to Respected Principal Shri R. Horo (IFS) for his guidance and Shri N. Luikham (IFS) for his support as well as valuable time in final editing the articles and contents. I extend my deep sense of thanks to Shri C.A. Rahman (IFS) & Shri Ajay Rajak (PT & GI) for their cooperation and encouragement. Without their help and guidance this issue would not have been brought within a short period of time.

It is my privilege to thank Director of Forest Education, PCCF & HOFF of Assam, Uttarakhnad and Gujarat for their valuable messages through which they have expressed their keen interest on this training course.

I thank profusely all the trainees for their efforts and enthusiasm for covering variety of aspects through their articles.

I am extremely thankful to all association members, members of editorial board, office staff of the academy and advertisers for their wholehearted co-operation in the getting magazine on the dais.

# CASFOS Association



**Shri Roshan Horo, IFS**  
Principal



**N. Luikham, IFS**  
Lecturer



**C. A. Rahaman, IFS**  
Lecturer



**Ajay Rajak**  
P.T. & Game Instructor



**Sadhu Lal**  
General Secretary



**Mamta Chand**  
Asst. General Secretary



**Anil Joshi**  
Magazine Secretary



**BINDER PAL**  
Sports Secretary



**Raj Kumar**  
Hostel Secretary



**Sanchita Verma**  
Cultural Secretary



**Vijay Saini**  
Mess Secretary



**Lucky Shah**  
Treasurer

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Chief Editor



**Anil Kumar Joshi**  
Magazine Secretary



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**Bhabani Debbarma**  
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**Rakhi Juyal**  
Trainee Editor



Staff Members of Central Academy for State Forest Service,  
Burnihat, Assam



Central Academy for State Forest Service Association Members

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# Annual Report

## (2015-16)

### Central Academy For State Forest Service, Burnihat, Assam

**Sadhu  
General Secretary  
CASOS Association, Burnihat, Assam**

On the occasion of releasing the Annual magazine, I feel privileged to put forward the annual report for the year 2015-16 about the activities and achievements of the association. The objective of CASFOS Association is to maintain discipline and healthy environment in the hostel and academy as well as to look into all the needs of the trainees, motivate them to inculcate managerial and officer qualities and to meet the requirements of the trainees regarding Mess, Hostel, Sports and cultural events. I feel privileged to be a part of the Association and to work for it which gives platform to every trainee to express themselves regarding any issue whether it is related to the Academy or outside world.

#### Objectives of the Association:

1. To maintain healthy environment in Academy and Hostel.
2. To maintain discipline among trainees.
3. To control and manage Mess and Hostel.
4. To control, encourage and promote all games and sports, literary and cultural activities in CASFOS and thereby to infuse a sense of camaraderie amongst the trainees.
5. To look after matters relating to study and health of the trainees
6. Publication of annual magazine "ARANYAM"
7. To make, alter, amend, maintain and enforce rules and regulations for the control and governance of sports, cultural and academic activities.
8. To do all such other acts as may be conducive to carrying out the aims and objectives of CASFOS Association Burnihat, Assam.
9. To select different committee on need basis if necessary.

#### CASFOS Association:

The Principal CASFOS Burnihat is the President of the Association, who is over all incharge for day to day activities of the association. President gives directions to General Secretary for organizing desired activities or functions. General Secretary follows the guideline of President and organizes the functions and activities with the help of concerned office bearers.

#### General Body:

All the officer trainees are the members of the Association. Executive body is elected/ selected among all trainees in general body meeting.

#### Executive Body:

Executive body consists of eight office bearer which are selected/ elected among the trainees through selection / voting. For each portfolio, the following trainees have been selected for the academic year 2015-16.

| Sr.No. | NAME                 | DESIGNATION                 |
|--------|----------------------|-----------------------------|
| 1.     | Mr. Sadhu Lal        | General Secretary           |
| 2.     | Mrs. Mamta Chand     | Assistant General Secretary |
| 3.     | Mr. Anil Kumar Joshi | Magazine Secretary          |
| 4.     | Miss. Luckky Shah    | Treasurer                   |
| 5.     | Mr. Vijay Saini      | Mess secretary              |
| 6.     | Mr. Rajkumar         | Hostel Secretary            |
| 7.     | Mrs. Sanchita Verma  | Cultural Secretary          |
| 8.     | Mr. Binder Pal       | Sport Secretary             |

#### Activities during 2015-16

Range Forest Officer trainees of 2015-16 batch, commenced on 2<sup>nd</sup> February 2015 and passing out will take place on 29 July 2016. The issue of the magazine is being brought out at the time of invocation of batch 2015-16. The present office bearers of the association took charge in July 2015.

There has been celebrated the different activities and functions during this tenure in the CASFOS Burnihat Assam, like cultural night, Holi, Diwali, Christmas day, Eid, fresher's night New Year celebration, sports week, interaction with Hon'ble Minister of environment, forest and Climate Change, Swachh Bharat Abhiyan, Trashthalon - aware for the clean India, world women's day, world environment day, world day for combat desertification, and international yoga day. In this short span of thirteen month, the association had many achievements.

#### S. Sanchita Verma, Cultural Secretary

The culture of India is the way of living of the people of India. India's languages religions, dance, music, architecture, food and customs are different from place to place within the country. The Indian culture, often labelled as an amalgamation of several cultures. Many elements of India's diverse cultures have had a profound impact across the world.

The first event being the farewell night or cultural night in the honour of seniors 2014-15 batch was celebrated on 28.08.2015 (Friday). This programme was attended by the presence of Lt. Cl. Ajay Kumar Sharma and Major Sanjeev Uniyal from Indian Army. Principal CASFOS Burnihat, all faculty and staff members also took part in that glorious occasion.

On 12<sup>th</sup> March 2016 the Association celebrated fresher's Night "**ABHINANDAN... Welcome Influence of culture**" to welcome new RFO trainee batch 2016-17. Abhinandan is the colour of joy, happiness, freshness with aroma of Indian traditions and culture, theme of Swachh Bharat Abhiyan was merged with fresher's night celebrations. An extempore was also organised on the theme of "**Clean India Mission: possibilities, challenges and mitigation**" for making aware of flagship program of Govt. of India. This programme was attend by Principal CASFOS Burnihat, Mr. N. Luikhham, Mr. C.A. Ahman, Ex Principal Mr. M.K. Palit and chief guest **Col. R.S. Negi, Major Sanjeev Uniyal, Dr. Amit Chowdhary**, from USTM. The awesome performance by the both batches, once again proved that our culture is unique and diverse in nature.

On 17 Nov 2015 Hon'ble. Minister of Environment, Forest and Climate Change, **Mr. Prakash Wadekar** visited CASFOS Burnihat and interacted with trainee officer about the forest culture and climate Change, it was the first time in the history of CASFOS Burnihat. We also celebrated **Diwali, Christmas, New Year, Holi** and **Eid** festivals in our academy to prove unity and diversity and to respect all religions. These events mesmerizing performance from both the batches.



### Mr. Vijay Saini, Mess Secretary

A nutritive portentious balanced diet is crucial need for both physical and mental health mankind. To maintain the overall healthy condition and hygiene a balanced diet has been provided mess menu was decided on the consensus of all trainees and mess committee. During my tenure provide better service to all the trainees and for smooth running of mess many sets of utensils like steel plates, bowls, water cups, tea cups, spoons, and forks were issued from the stock as well as purchasing of many kinds of utensils has been made. I personally thank respected principal sir cooperation to this arrangement.

For the first time lady mess worker has been appointed thus maintaining the gender balance in the mess. One additional daily wage worker is appointed for the smooth running of mess work utilizing the mess workers welfare fund two pairs of blue colour uniform and one pair of shoes blanket in winter season is provided to mess workers. Beside this financial assistance was provided during New Year celebration, Holi, Bihu, Eid, and Durga puja and also during the medical emergency to the workers. This is not only but also financial help was given for smooth running of the RD account to the mess workers. There were so many meetings have been held of both the batches to sort out issues regarding mess rules and regulations.

### Mr. Raj Kumar, Hostel Secretary

Our honorable Prime Minister Shri Narendra Modi started "Swachha Bharat Abhiyan" to maintain clean and healthy environment of our country. On the occasion of "Swachh Bharat Week" which was observed from 07 march, 2016 to 12 march, 2016, cleaning operation is conducted by the officer trainee with CASFOS staff and on 10, March, 2016 all RFO trainees with Shri. N. Luikhram sir and Shri A. Rahman Sir. (IFS), Faculty CASFOS Burnihat and USTM/RIST students are started cleaning operation from 14<sup>th</sup> mile Burnihat to forest rest house Morakdola and aware the local people about cleanliness.

On the occasion of International Women's day 8 March, 2016, there is a celebration with the respected sir Shri N. Luikhram, IFS, in hostel common room. All male officer Trainee praised the women's work and congratulated to all women on International women's day.

On the occasion of World Environment Day 5 June, 2016 seedlings of different species were planted in Hostel and Academy premises under the guidance of respected principal Shri Roshan Horo IFS and Faculty Shri. N. Luikhram, IFS and Shri. C. A. Rahman, IFS CASFOS Burnihat.

On WORLD DAY TO COMBAT DESERTIFICATION (WDSD) on 17<sup>th</sup> June, 2016 seedlings of different species were planted in Hostel and Academy premises under the guidance of respected principal Shri Roshan Horo, IFS and Faculty Shri. N. Luikhram, IFS and Shri. C. A. Rahman, IFS, CASFOS Burnihat. The theme 'Inclusive Cooperation for Achieving Land Degradation Neutrality' and the SLOGAN of WDSD was 'PROTECT EARTH, RESTORE LAND, ENGAGE PEOPLE'

'Development of good mind, body and soul starts from a good healthy ambience and accommodation. During our tenure generator is provided to the trainees.

Complete renovation of both blocks of Hostel was carried out. Gymnasium room, Table tennis room were also renovated during our tenure.

In order to upgrade and refresh our knowledge and to have information about the world Host

been provided with three English and Assamese newspapers along with a monthly magazine. In order to provide new gym instruments in the Hostel a proposal is under process.

Complaints regarding water and electricity has been taken due care by staff concerned well in time. The cleanliness of hostel premises as well as chlorination of water tanks and other water pipes and drains were carried out from time to time by the concerned staff.

In concise lot of activities regarding improvement maintenance of hostel has been carried out by improving living conditions in the hostel.

### Binder Pal, Sports Secretary

In our life games and sports have an importance for discipline and health. Today, in clutter life the age of technology human have a stress or tension, it a cause of so many diseases. Sports not only key of mental & physical fitness but also it is a international platform for skill development.

Likewise the 21th Annual Sport Meet, 2016 was organized under the theme "MAXIMUS" - strength and greatest-at the CASFOS Burnihat Assam from 17 March 2016 to 20 March 2016. The completion of this Sports Meet on 21 March 2016 had been done by the Brigadier Bharat Singh Rawat, commandant 1 ABW as a chief guest. The RFO trainees of both the batches 2015-16 & 2016-17 and activities were divided into four teams namely - Hornbill, Rhino, Blue jay, and Tiger. The events which were held in the sports meet participated by Officer Trainees included- Cricket, Football, Volleyball, Basketball Badminton, Table Tennis, Carom Board and Chess 100m, 1500m, 400m Race and 400m Relay Race, Long- jump, High- jump, Discus- throw, and Javelin- throw. Beside the events participated trainee officers, families and children of staff members residing in the CASFOS premises were also motivated to take parts in cultural and sports activities to avoid monotony in their life and feel rejuvenation and they full heartily participated in the events specially organized by them i.e. - Spoon-race, Needle- thread race, Balloon-race, Jalebi-race (only for children), Sack-race, Three leg-race, and Musical chair, etc. Prizes were also given away to them by the Principal Shri N Luikhram, IFS.

Thus the training period explores the hidden talents and energy of the trainees and prepares them to be physically and mentally fit for the challenging of career and service ahead. T-shirts are provided to all RFO trainees of both the batches as a part of sport kit to be used in sports.



## Ravines Reclamation & its Control Measures

Ravines Reclamation is currently rated as a high National priority, & India has the 3rd World's leading soil conservation movement. Gully erosion due to the river channel trenching is a problem that threatens vast tracts of the world's agricultural land. Zones of severe ravine trenching are found along the margins of the Gangetic Basin & in the semi-arid north-east. Successful ravine reclamation requires the support & involvement of the local cultivator & local community & probably, reform of local land tenure & social arrangements.

Ravine a very small valley, product of stream-cutting erosion typically classified as larger in scale than gullies, although smaller than valleys. Ravine formation is the cumulative result of indiscriminative destruction of forests or vegetation, unplanned cultivation, destructive grazing & severe water erosion. Steep slopes & gullies of varying depth from a few meter to 100 m.

Formation of Ravine

Splash Erosion --> Sheet Erosion --> Rill Erosion -> Gully Erosion Ravine

Ravines Reclamation causative factors are Natural factors & Man-made factors. In Natural factors, constraint rainfall monthly distribution of rainfall, rainfall intensity & run off rapid snow melts. Impact of back water during high-floods. In Man-made factors are Improper land use, forest & grass-fires, overgrazing, mining, Road-construction, Livestock & vehicle-trails, destructive logging.

**Classification** on the basis of their average depth Shallow-<5m, Moderately- 5m to 20m, Deep ravines->20m. U or V shaped Ravine it can be classified based on the shape of their cross-

ground water storage, infiltration of water surrounding soil, storing water for re-use, controlling release of stored water, modular farm drainage water systems. Nala bunds: Earthen embankments across nala, permanent method.

**Agroforestry measures:**

**Strip planting:** Growing of different crops on alternate strips of ground that usually follow the contour of the land, minimize erosion. **a. Contour strip cropping:** Growing alternate strips of crops permitting crops along the contour is used as contour strip cropping. **b. Field Strip cropping:** Consists of strips of uniform width running generally perpendicular to the direction of the erosive force, but do not conform to any contour. **c. Buffer Strip cropping:** Strip of grass or some crop laid out between contour & field of crops in the regular rotations, it is a narrow permanent protective strip, reduce the erosion, face runoff & improve surface, water quality. **Wind Strip cropping:** The strips are laid at right angles to the prevailing wind direction, irrespective of the land slope.

**Cover crop:** Any annual, biennial, or perennial crop grown as a monoculture, to improve soil fertility, soil quality, water infiltration. **Afforestation:** Plantation of trees, along the edges of the fields, the waste land & on steeply sloping to prevent soil erosion, to enhance the capacity of the soil to retain water, increase area under forests and indiscriminate felling of trees

**Types of Control Measures:**

**Mechanical measures:**

**Check-dam:** Boulder Check-dam, Loose stone checkdam, log & pole checkdam are built to reduce the erosion.

**Contour Bund:** Bunds are simply embankment like structures, constructed across the land slope on the contour is called contour bund. **Gabion Structures:** Wire woven baskets filled with stones, adoptable high slope & heavy rain areas. Constructed across small stream to conserve stream flows, the height of structure is around 0.5m & normally used in streams with width of about 10 to 15 m. **Percolation Tanks:** Embankments across natural depressions, it is permanent method, it uses control storm water flow, temporary

must stop.

**4. Aerial seedling:** It is a technique of sowing seeds by spraying to them through aircraft. It is applied to increase vegetative cover over barren lands like ravines or burnt sites, reducing soil erosion. **Choice of species:** *Holoptelia integrifolia*, *Dalbergia sissoo*, *Dendrocalamus strictus*, *Prosopis juliflora*, *Acacia nilotica*, *Azadirachta indica*.

**Conclusion:**

India is engaged in a most serious struggle with environmental decline due to ravine & gully erosion. The National Commission On Agriculture notes: The problem of ravines has assumed urgency because they are fast spreading into cultivated lands. This deterioration has not only affected agriculture land but also habitations, roads, railways. The other problem is the presence of anti-social elements in the ravine which provide escape-routes and hideouts for dacoits. The active erosion problem in ravine lands needs to be seen in the background of economic loss. Unfortunately, ravine erosion, ravine management, ravine reclamation are all social problems. The Indian research effort faces most problems. There is a great need for more applied research into the development of procedure to overcome the problems of conservation technology financing within the agricultural community.

**Look deep into nature, and then you will understand everything better.**

**- Albert Einstein**

## A Day of A Forester...

**Amit Kumar Gwas**  
**RFO Trainee, 2015-16 Batch**

In a bright sunny day, Kina Singh, a forest guard was lying on bed & with closed eyes he received a call. He felt the worried waves from other side. This was enough to make his eyes open. The call is about carcass of male tiger resting in his beat. In a hurry he goes inside the kitchen for searching food & get only staled *chapatees (roti)* of previous night. Quickly he grabs those two breads and kicked bicycle to reach at spot. He takes a swing of 360 degree & found himself only a responsible person reaching at site first. With the mixed feeling of nervousness and excitement he landed himself near the nallah about which he was instructed over the phone by range forest officer.

Quickly he checked out the carcass and immediately called back to range officer that, *IT IS A HUNT*. By the time RFO reaches over there informing DFO about the matter and at the same time instructed other forest staff to come over there. Kina Singh found himself on cloud 9 as he know now that he is not aloof at all. But still there is a feeling in corner of his heart that, he has to take move first. Then with the direction of his superiors he posed himself at a crusader of the task.

Since the place was inaccessible, his superiors decided to send Kina Singh with two forest guards to bring the body up.

Downside Kina Singh found worse situation than he was described over phone. There

is a carcass almost rotten, extremely stinking covered with full of vermins without paws, canines and skin. He was shocked at first inst but he geared himself with full of courage responsibility and asked rest of two to click some mean while he make some arrangements to lift the body up.

Superiors inspected the carcass with hand on their nose and with clinched eyes. A they ordered Kina Singh to put that carcass van for further and necessary action.

All left the place except Kina Singh stand over there having thought of pre-plantation v going on in his beat. He, then immediately called his fellow and took the cognizance of work kicked his bicycle again and reached back to home. It was evening, after fresh and up he cooked food and done some other stuff. At night, when close his eyes to sleep he thought about the Though the day was unplanned, exhaustive full of dirty smell but he was happy that again all odds he made it out even. Now he knew, that hard work, that nervousness and victory all are part of his life & again he is ready another task.

That night he closed eyes with a relief that it is his duty and he is pursuing it with full honesty and conviction. That happiness v something else, for that he wants to live again...

## Nature holds the key to our aesthetic intellectual, cognitive and even spiritual satisfaction

- E. O. Wilson

## Visitors of Invasive Lantana (*Lantana camara*)

### Flower: The Butterflies

**Bhabani Debbarma**  
**RFO Trainee, 2015-16 Batch**

Alabama from their experiment have found this, that the flower color is the trait that also attracts the butterflies.



Lantana camara



Lemon Pansy

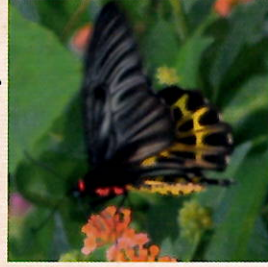
**Facts about the Lantana Flower:** You can find many colors of this flower now more than ever. The intensity of the colors can change as the flower matures as well. You will find the colors red, orange, yellow, pinks and purples. They don't like frost, and will happily bloom until frost in many areas. In frost free areas, they can bloom all year if some care is taken.

**The Visitors around Lantana Bushes of CASFOS Academy, Burnihat:**

Grey Pansy (*Junonia atites*), Three Spot Grass Yellow (*Eurema blanda*), Golden birdwing (*Troides aeacus*), Lemon Pansy (*Junonia lemonias*), Common Castor (*Ariadne merione*) and Peacock Pansy (*Junonia almana*).

Some popular plants also have a dark side. Depending on where you are, a plant can be a great summer annual or an invasive problem. Lantana is of those plants. The plant originated from Central America native to Mexico, parts of the Caribbean, Central America, Venezuela, and Colombia. In our country it is treated as Invasive weed.

But butterflies cannot seem to resist Lantana to the degree that where you see Lantana growing on a warm day, you will also see butterflies enjoying their nectar and this one can mess from a day visit around the Lantana bushes. What attracts these butterflies towards Lantana plants? That is for food the nectar. Typically, butterflies choice of nectaring plants is quite dependent on the structure and size of the flowers relative to the length and diameter of the proboscis of the butterflies. The quality and quantity of the nectar that the flowers of the plants produce is probably another key factor in the popularity of the plants that butterflies frequently visit for their daily food supply. *Lantana camara* is one of the most popular nectar plants for butterflies. Beside nectar, the colour of the flower is the factor that attracts the most butterflies toward it. Researchers of Auburn University in



## How Animals Become Extinct

Kiran  
RFO Trainee, 2015-16

Species of animals or organisms are considered extinct when there are no more of them alive. Animals that are classified as "endangered" are at risk of becoming extinct. Some animals are considered **extinct in the wild**. This means that the only surviving members of the species live in captivity, like in a zoo. Animals become extinct for a variety of reasons. Today many animals are endangered or have become extinct due to the influence of humans. Some of the extinct animals are described below are:

- 1) **Tyrannosaurus Rex** (65 million years ago)
- 2) **Quagga** (since 1863)
- 3) **Thylacine** (since 1936)
- 4) **Steller's Sea Cow** (since 1768)
- 5) **Irish Deer** (7700 years ago)
- 6) **Caspian Tiger** (since 1970)
- 7) **Aurochs** (since 1627)
- 8) **Cave Lion** (2000 years ago)
- 9) **The Great Auk** (since 1844)
- 10) **Dodo** (since 17<sup>th</sup> century)

Some of the ways that animals become extinct are as follows:

**Natural Forces:** Over the course of history many species have become extinct. This is part of the natural process. Species may become extinct because of changes in climate (i.e. the ice age), competition with other species, a reduced food supply, or combinations of all of these. Most natural extinctions are isolated that happen over a fairly long period of time. Some, however, are major events that can cause mass extinctions and happen quickly. Perhaps the most famous of these was the extinction of the dinosaurs, which may have been due to a large meteorite striking the Earth.

**Human Interaction:** Today many conservationists are concerned with human interaction causing species to become extinct. This is because human interaction has increased the rate of extinctions beyond what normally should occur in nature. More extinctions reduce the planet's bio diversity and can have adverse effects for all life on Earth.

**Hunting:** Many species have been hunted or to the point where they are critically endangered. One example of this is the American Bison. There were millions of bison in the Great Plains of North America until the arrival of Europeans. Hunting was so intense that only a few hundred were left by the time the animals became protected. Fortunately, they have survived on farms and ranches and are no longer endangered. Species that live only on island can also be endangered to extinction. Even the arrival of a small tribe can quickly eliminate an island species.

**Furs, Skins, Feathers, Horns:** Besides for their fur, feathers, or horns. Sometimes these animals are the top predators and, therefore, not have a large population to begin with. These species can be quickly hunted to extinction.

**Loss of habitat:** One of the main threats to animals today is loss of habitat. This comes from the expansion of humans, especially from agriculture. As vast areas of land are cultivated for food, natural habitats are destroyed. This can destroy many of the cycles of life necessary for organisms to survive and for biomes to thrive.

There are so many other causes of pollution and introduced species.



## Oak species & Its Utta

"Don't cut Oak trees, they give cool air from them, we get cool water from them."

Uttarakhand is a state in northern India. It is often referred to as the 'Land of Gods' due to many Hindu pilgrimage centres found throughout the state. Uttarakhand is known for its natural beauty and has a rich diversity of flora. A total of 150 species of Quercus are distributed throughout the temperate regions of the world. These five evergreen species occur in Uttarakhand between 1000-3600 msl. Oak species found in Uttarakhand are as following:



**Quercus dilatata (Moru oak):** This species occurs in the moister and cooler aspects of the Western Himalayas between altitudes of 1000 m. to 2300 m. It is a moderate light demanding species. The tree suffers severely from fire and lopping done by local people for fodder fuel. Fruit of this species ripens in December-January.



**Quercus lanuginosa (Riyalanj oak):** This species is mostly found in the Naina Range near Kilberry and some places of Okhalkanda. Riyalanj is a high

## Quercus leucotrichophora

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Quercus leucotrichophora (Banj oak): This species is found in Bhawali Nala (Kumaun) and near Narayan Bagarh (Garhwal). The backside of the leaf is green like Moru but not thorny like Moru.



**Quercus leucotrichophora (Banj oak):** This species occurs in the moister and cooler aspects of the Western Himalayas between altitudes of 1000 m. to 2300 m. It is a moderate light demanding species. The tree suffers severely from fire and lopping done by local people for fodder fuel. Fruit of this species ripens in December-January.



**Quercus lanuginosa (Riyalanj oak):** This species is mostly found in the Naina Range near Kilberry and some places of Okhalkanda. Riyalanj is a high

altitude broad leaved plant and is heavily lopped for livestock as nutritious fodder. Backside of the leaf is white like Banj

Problems related to Oak regeneration:- In Uttarakhand Oak sp. is such kind of sp. which is abundantly used for fodder and fuel. So the Uttarakhand state decided to regenerate oak sp. But the regeneration of oak species has been steadily deteriorating due to

1. Excessive lopping
2. Irregular fructification and unavailability of mass seed crop every year
3. Low acorn production and long reproductive cycle
4. Seed infestation by various pests in nature as well as during storage.
5. Consumption of seeds by animals and birds.
6. Attack of various parasites specially Loranthus
7. Short viability of seeds.
8. Clonal (vegetative) propagation of oaks through stem cuttings has not been very successful

Few effective methods of regenerating oak forests

- Protection done by Traditional coolie v more effective.

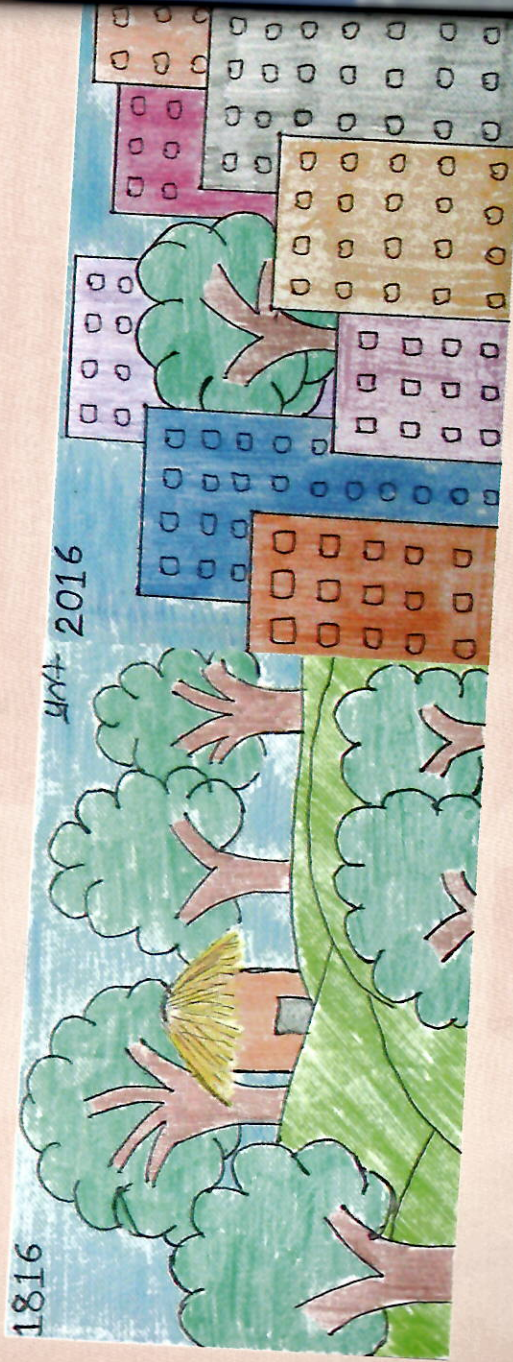
- ANR should be preferred over pure plantation. It should only be done in oak habitat dev any oak mother trees or old root s. Otherwise ANR is more effective than plantations.

- Singling of root stock is necessary to diversify energy supply to a single shoot instead of distributing among several coppices. Singling and cut back operation should be preferred during Oct - Nov.

- For Soil and moisture conservation measures planting should be done only in moisture regimes because it helps water retain on slopes.

- Long term planning and maintenance should be carried out.

"The beauty of the Oaks, the softness of the air, the fragrance of the grass, Speaks to me. The sun on the mountain, the thunder of the sky, Speaks to me. The faintness of the stars, the trail of the strength of fire, and the life in nature, Speaks to me."



Pratik Jo

## Askote Landscape A Heaven in mini Kashmir Pithora

**Mamta Chand**  
RFO Trainee, 2015-16 Batch

among them the snow leopard, black bear, Himalayan thar, bharal, musk deer, goral, serow, sambhar and barking deer. The pheasant diversity itself has a number of species, among them snow cock, Satyr tragopan, monal, koklas, kaleej and cheer pheasants. A wide range of NWFP such as herbs, honey, fruits and food plants, lichens and a larva (*Cordyceps sinensis*) that gets infected by a fungus and thereby acquires high value as a Chinese medicine can be found here.

**Climate:** Sharp variation in altitudes in the tract plays a greater role in determining climatic factors in the landscape, and in combination with terrain, shapes peculiar micro-climatic attributes in different locales. To add to the diverse conditions that such a range of altitudes produce, is the landscape's special biogeographic location on the east-to-west (longitudinal) transition zone of the flora and fauna of Himalaya, and its proximity to Tibet. The Askot landscape is the converging point of the

Askot landscape, of very high biodiversity, is an amazing agglomeration of diverse biomes. It is governed by a successive regime of climatic conditions created by a wide range of altitudes (500m to over 6900msl) and diverse forms with a number of glaciers feeding rivers that meet the river Kali, forming the national boundary with Nepal in this alpine tract. Starting with subtropical sal (a broadleaf tree), the biome diversity covers temperate and cool-temperate biomes with a rich forest of conifer and broadleaved forests, and passes on through sub-alpine and alpine Betula-Juniper tree-scrub with extensive alpine meadows to snowbound peaks with concomitant numerous glaciers, beyond which the nival transhimalaya cold desert linking up the Tibetan plateau. The river valleys in their temperate and subtropical course also have distinct bio-climatic variation resulting in a great diversity of arboreal orchids. Askot has over 2600 peculiar plants, over 250 birds and 37 mammals,



Western Himalaya, the Central (Nepal) Himalaya, and the Trans-Himalaya (Tibetan- Palearctic) transitions and shares the characteristic elements and affinities of all three. All three biogeographic zones represent distinct habitats. The varied combination of altitude and aspect of each mountain slope, also expose it to a different number of hours of sunlight and intensity of solar radiation. Unique combinations of these, and other factors such as severity of slope, soil depth and moisture regimes, produce very diverse habitats within a small geographic area, for both plant and animal species that have specialized to occupy specific niches.

**Rainfall** is quite variable in this area. Averaging below 200cm annually in the lower reaches of these valleys, the areas in the Greater Himalaya zone here, for example the Panchachuli basin on the western flanks, receives as much as 300cm of torrential rain. The upper Trans-Himalaya reaches of these valleys, on the other hand, are in the rain-shadow, and comprise an arid cold-desert area that receives less than 15 cm of rain annually. This is excluding the precipitation in the form of snow in winter. Snow at the high altitudes is heavy and wet, and unlike other places in the trans-Himalaya where dry snow is blown away by strong winds, it accumulates up to the roofs of the alpine habitations, making it necessary for people to migrate with their livestock to lower villages in the montane belt in early October. Avalanches are a regular phenomenon, as witnessed by the huge compacted cones of

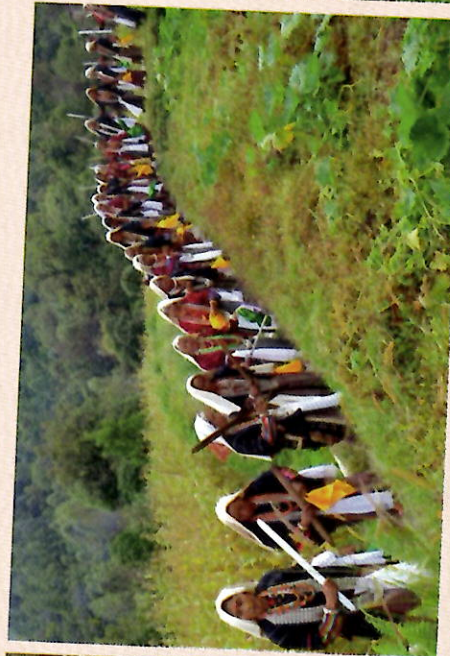
avalanche debris along many gorges, for snow bridges across the rivers at many that can sometimes remain frozen till following winter.



**Protected Area:** The Askot Musk Deer Sanctuary in Pithoragarh district of Uttarakhand was established in 1986, vide Notification No. 96(1)/14-3-86 dated 30.7.1986. The Askot Sanctuary is unique in at least two respects. One, which encompasses a very large range of altitudinal gradients, from about 560m to 6,904m summit of Panchachuli II. Two, that it includes very large number of villages (111 villages in town (Dharchula), and a Military Cantonment within its boundaries).

**Communities in Askot Landscape:** Vardhma, Rang, Bhotia, Byasi Rang, Jauhari Barpatia, Jauhari Barpatia, SC, Anwals, Brahmins. Byasi and Johari lives permanently / migrate to upper Himalayas. Their traditional occupations are woolen craft business, agriculture and medicinal plant collection. Now there is a shift for government jobs.

References: Bio Diversity Conservation and Rural Livelihood Improvement Project (BCRLIP) Progress Report (2013-14) Prepared By: Mr. M.S. SDO, Pithoragarh



# Paris Convention

## A Ray of Hopeful Existence

Sadhu Lal  
RFO Trainee, 2015-16 Batch

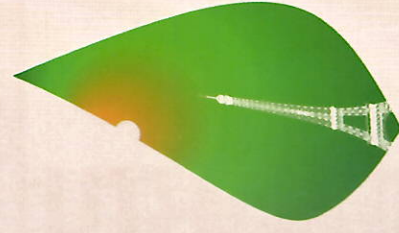
It is a big question, that the Paris Convention, what would be the result of this agreement, but hopefully we can think it in a positive way because world community is creating to think very keenly now on impact of climate change. Before knowing the Paris Convention, we should aware about the report of

The Intergovernmental panel on climate change (IPCC) fifth report projects that the world is likely to be at least a 0.4-1.6 Celsius rise in global mean surface temperature by the year 2046-65 and likely a sea level rise of 0.32 metres by this time, due to recent warming relative to 1986-2005 (IPCC 2013). The report claims that "over the period 1993 to 2010, the global mean sea level rise is consistent with the rate of the observed contributions from ocean thermal expansion due to warming, the sum of which is 2.8 mm/yr. Glacier and ice sheets are clearly melting now more than they have in recent history. Global oceans will continue to warm during the 21<sup>st</sup> century. Heat will penetrate form the surface to the deep ocean and affect ocean circulation."

It is very alarming report and enforcing world community to take any such kind of step that can mitigate this problem. There are taken the step by UN to bring the leader on a table to solve the problems. In this connection, Paris climate change conference (COP 21) had been organized on 30 November 2015 to 11 December 2015 in Paris, the Capital of France. In this convention, there are agreed 195 countries leaders on the agreement, and has been aimed to reduce the temperature till 1.5 degree Celsius. In this agreement, it has been agreed by members of UN for the "Solar alliance". One hundred countries made Solar alliance and to promote solar energy and announced to collect 180 crore rupees to reduce the carbon emission to 35% till 2030. Some important points of Paris Conference:

- To limit the global temperature under 1.5 degree Celsius.
- Solar alliance of 100 countries.
- Announce 180 crore rupees for the promotion of Solar energy.
- 31% carbon emission will reduce by 2030.
- To established "Green climate fund" for the developing countries to recover the impact of climate change.
- Agreed to collect 100 billion American dollars in "green climate fund" by 2021.
- All countries have to sign to agreement till 22 April 2016.

According to the section II of Paris conference, it has been declared the limit for the carbon emission until global temperature increase two degree Celsius. It has been centred a magic number (two degree Celsius) because climatologist alarmed that if the temperature will increase above this number (two degree) then it will be dangerous for the world. 1850,



PARIS2015  
UN CLIMATE CHANGE CONFERENCE  
COP21·CMP11

it was the start of industrial revolution, so in 1992 'earth summit' the limit of carbon emission is kept 2 degree in respect of 1850. But some climate expert says that it may be dangerous result over this limit. So in *Paris conference* this limit was reduced to 1.5 degree Celsius. For achieving this objective, there are taken some innovative step for minimizing the carbon emission.

The **climate justice** also has been used new term in this respect and climate change has been accepted as political and moral responsibility. It is supposed that Political and economical factor is responsible for the global warming's impacts at global level. It has been determined for the *climate justice* that developed countries will have to pay for "**Historical responsibility**" in the sense of equality. Human rights and world brotherhood. Countries, those are least responsible for the carbon emission and global warming, are in the centre for Climate justice by which can create environment for the justice.

Climate justice is name of land, forest, water, culture, food, social and community rights. It helps to them who is struggling for their livelihood and living existence. It forces to mitigate the real impact of climate change. Climate justice has some chief principle.

- Don't exploit the fossil fuel.
- Real and Effective solution of climate change.
- Industrial and developed country should adopt responsibility.
- Balance and sustainable life.

'Climate justice' term first time had been discussed in COP 6 in Netherland in 2000. According to climate justice, developed and industrial countries are historical responsible for the emission of greenhouse gases. So it has been assure to these countries to accept their primary *historical responsibility* for the secured existence of humanity, biodiversity and control their habits of productions and consumptions.

**Intended Nationally Determined Contributions (INDCs)** is a term used under **United Nations Framework Convention on Climate Change (UNFCCC)** for reducing Greenhouse gas emission that all countries signed the UNFCCC were asked to publish lead up to the 2015 UNFCCC held in Paris 2015. The INDCs were determined with prejudice to the legal nature of contribution. The term was intended as a compromise between "**quantified emission limitation and reduction objective**" (QELROs) "**nationally appropriate mitigation actions**" that the Kyoto protocol used to describe different legal obligations of developed and developing countries.

Nationally Determined contribution when a country ratifies the agreement, they decide to submit a new NDC at the time. In Paris convention NDC at the first greenhouse gas target under UNFCCC applied equally to both developed and developing countries.

The INDCs combine the top-down system of a United nations climate agreement bottom-up system in element through which countries put forward their agreement in context of their own national circumstances and priorities within the ambitious reduce greenhouse gas emission enough to global temperature rise to 2 degrees Celsius.

In this context, on **27 February 2016** Switzerland became the first nation to submit INDCs to reduce greenhouse gas emissions. Switzerland said that they had experienced temperature rise of 1.75 degree Celsius since 1864, and aimed to reduce greenhouse emissions by 50% by 2030.

**India submitted its Intended Nationally Determined Contributions to the UNFCCC on October 2015, committing to cut the emissions of GDP by 30-35 % by 2030, the target which targeted a 26-28% reduction by 2030 and European Union which targeted a 40% reduction compared to 1990 by 2030.**

At global level, this conference was appreciated and shown as historical achievement. But experts of developing and

countries said that it is weakening at technical and technical way. They also said, the possibility of developed countries should be fully forced hand, but in this negotiation it does appear. No fixation of amount for the countries to collection in "**green climate fund**" to time period to allotted. *100 million dollar* is presented as a help but not as a responsibility. Poor countries have been adapted some extent but have to complete the national standard.

The technique, which can reduce the impact of climate change, will be very costly and developed countries will export this green technique to the poor and developing countries. It will be extra economic burden to poor countries. Environment impact assessment committee will enforce poor countries for using a technique if they do not follow the same, then budget will be barred. So they have to bit budget.

In this convention, India play a significant role with France for **Solar energy mission**, and voluntary proposed the reduction limit 30-35% carbon emission by 2030. For achieving this target, India will produce 40% electricity without fossil, 1,75,000 MW energy from renewable sources, 3 million tonnes carbon absorption by 2030 and increase area under afforestation and reforestation.

India will benefited with the Budget of

"**Green Climate Fund**", which will be utilized in flood control, Drought, Earthquake, natural disaster and improve the sustainable life style. There will be not supported fossil based energy resource by any international funding agency.

It is question that, Is international standard affect Indian geo-cultural, social, and economical diversity? India should not involve the complex development obstacle. For mitigating the climate change problem, India had prepared the national working plan 2008, but past seven years, Had India achieved the goal, like renewable energy, energy efficiency, solid waste management, water uses, Himalaya conservation, green India, sustainable agriculture and environment knowledge? It is pleased that India is playing dynamic role in the reduction of carbon emission and leading the global community.

The Paris 2015 international Climate conference is expected to host a comprehensive re-negotiation of the responsibilities of states against the global and local implication of the current rise in atmospheric temperature. As Climate change accelerates and worsens, its negative impacts on humans escalate. As it impoverishes, evicts, and kills increasing numbers of people, construing climate change as a human rights issue becomes quite plausible both theoretically and politically. In this scenario, Paris convention is **A Ray of Hope**.

References: (1) Chronicle: Annual magazine 2016 article on Paris convention (2) Wikipedia (3) Wikipedia (4) Data from IPCC.



## Lion : A symbol of pride and life

Vijay  
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When we hear the word "Lion", a picture, an imagination comes in our mind, "A mighty and beautiful animal on the planet earth. Symbolically Lions can be seen everywhere, lion is there, in the wild, in the captivity, in cultural depictions, in a symbol on flags, on mascots, at religious places, historic places and almost everywhere. If there is a symbol of royalty, there is a Lion; if there is a symbol of power, there is a Lion. For thousands of years to till today, the iconic animal has maintained its image as a source of power.

Whether it is country or a religion, Lions have always been recognized as a symbol of majesty, bravery and a gentle beast, and always considered to be the undisputed leader of forest being the unchallengeable force on the planet. The Lion symbol is deeply rooted in our culture. When we talk about royal sighting, it is "Singhavalokan"; when we talk about throne of a king, it is "Singhasan".

The majority of Srilankan people called themselves "Sinhalese" as the Lion people. A famous old quote is "it is better to live like a Lion for a day than live like a sheep for one hundred years". So it may be concluded that "Lion is more widely acknowledged animal symbols in human culture".

**Dark Phase:** in ancient time, Asiatic Lion was roaming in many parts of India, nearly two-third territorial part. But unfortunately, the hunting of

Lion was considered to be a royal game of and Maharajas and further by Bureaucrats British era. As a result, Lions were extinct majority of part of India and got restricted only. Asiatic Lion population of this landscape its only gene pool in the world.

### Gir: The Land of Lion

The Gir ecosystem can legitimate pride in saving endangered Asiatic Lion from the threshold of extinction at beginning of this century by affording relatively safe habitat. Gir region is a unique place, a beautiful blend of people, communities and culture. Among these communities, Maldaharis are considered to be the closest relationship with Lion. This is the only place where world's few ferocious and strong carnivores reside with humans. These people "we are here because of Lion, and the Lion is here because we are here".

It is reality that there was a time when entire Saurashtra faced scarcity of water year after year due to ecological and environmental imbalance. So there may be the scientific proof when the local people say that 'we are here because of the Lion only', but the scientific reality is that, if there is Lion, there is biodiversity, because of rich biodiversity and ecosystem provides ample watershed, which helps in development of a beautiful and rich landscape of Gir.

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## Animal Rights: Indian Context

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RFO Trainee, 2016-17 Batch

the same life in all creatures regardless of their outer dress or bodies. It's important to understand that owning animals as property to be killed and eaten is the hidden and defining core of our culture, and that all of us were, and are, routinely indoctrinated into the mentality of domination, exclusion, reductionism, elitism and disconnectedness required by the food practices of this culture.

There are many provisions given in legislation, Act/rules; resolutions and notification passed by the government and legal authority in relation to animal rights/welfare in India by virtue of which the animal rights and protection given to the animals, which includes:

- It is the fundamental duty of every citizen of India to have compassion for all living creatures. Article 51A(g).
- To kill or maim any animal, including stray animals, is a punishable offence. IPC Sections 428 and 429.
- Abandoning any animal for any reason can land you in prison for up to three months. Section 11(1)(i) and Section 11(1)(j), Prevention of Cruelty to Animals Act, 1960.
- No animal (including chickens) can be slaughtered in any place other than a slaughterhouse. Sick or pregnant animals shall not be slaughtered. Rule 3, of Prevention of Cruelty to Animals, (Slaughterhouse) Rules, 2001 and Chapter 4, Food Safety and Standards Regulations, 2011.
- Stray dogs that have been operated for birth control cannot be captured or relocated by anybody including any authority. Animal Birth Control (Dogs) Rules, 2001.
- Neglecting an animal by denying her sufficient food, water, shelter and exercise or by keeping him chained/confined for

Animals are sentient creatures who are parts of a life; they feel pleasure and pain, experience emotions, remember, anticipate, and what happens to them is important for them, unlike what happens to a rock or a stone. It is rational that animals also deserve rights. Rights can be any benefits appropriate for what people wish to bestow on them; indeed, the right to live free in the natural state of animals choosing, right to express normal behaviour (e.g., food searching, grooming, nest building), right to life (i.e., not be killed for human or other human use), right to reproduce (i.e., pass on their genes to the next generation), right to choose their own lifestyle (e.g., not for people to coerce them into experiments or confinement) and right to live free from human-induced harm (e.g., hunger, thirst, molestation, distress, pain, injury or disease).

In India we have both religious sentiments and legislative provisions, which safeguards animal rights. Historically in the country; two contemporaries, Mahavir, a significant teacher in Jain tradition, and Shakyamuni Buddha, the moral Buddha, both preached and practiced a stress-free diet, and required their students to observe strict codes of conduct that prohibited harm from owning animals, harming animals, and using animals. These are the first animal rights activists that we are certain of today, and the basis of their activism was the teaching and understanding of 'ahimsa'. Ahimsa is the doctrine of consciousness of non-violence: that violence toward other sentient beings is not only unethical, and brings suffering to them, but that it is inevitably brings suffering and bondage to the perpetrator and society as well. Even the Vedas, India's ancient scriptures in which Hinduism has its roots, set out the principle of non-violence, called Ahimsa. The Vedas set out the code of *sarva-bhuta-hita* (devotion to the good of all creatures), which says that people should see



long hours is punishable by a fine or imprisonment of up to 3 months or both. Section 11(1)(h), Prevention of Cruelty to Animals Act, 1960.

- Monkeys are protected under the Wildlife (Protection) Act, 1972 and cannot be displayed or owned.
- Bears, monkeys, tigers, panthers, lions and bulls are prohibited from being trained and used for entertainment purposes, either in circuses or streets. Section 22(ii), Prevention of Cruelty to Animals Act, 1960.
- Animal sacrifice is illegal in every part of the country. Rule 3, Slaughterhouse Rules, 2001.
- Organizing of or participating in or inciting any animal fight is a cognizable offence. Section 11(1)(m)(ii) and Section 11(1)(n), Prevention of Cruelty to Animals Act, 1960.
- Cosmetics tested on animals and the import of cosmetics tested on animals is banned. Rules 148-C and 135-B of Drugs & Cosmetics Rules, 1945.
- Teasing, feeding or disturbing the animals in a zoo and littering the zoo premises is an offence punishable by a fine of Rs. 25000 or imprisonment of up to three years or both. Section 38J, Wildlife (Protection) Act, 1972.
- Capturing, trapping, poisoning or baiting of any wild animal or even attempting to do so is punishable by law, with a fine of up to Rs. 25000 or imprisonment of up to seven years or both. Section 9, Wildlife (Protection) Act, 1972.
- Disturbing or destroying eggs or nests of

birds and reptiles or chopping having nests of such birds and reptiles even attempting to do so constitute hunting and attracts a punishment fine of up to Rs. 25000, or imprisonment up to seven years or both. Section Wildlife (Protection) Act, 1972.

- Conveying or carrying animals whether or upon any vehicle, in any manner or position which causes discomfort, pain or suffering is a punishable offence under two Central Acts. Section 11 (Prevention of Cruelty to Animals) (Transport of Animal) Rules, 2001 and Motor Vehicles Act 1978.

Many other rules are also there under prevention of cruelty to animals act, 1960. The prevention of cruelty to draught and animal rules, 1965; The prevention of cruelty to animals (Licensing of Farries) Rules, 1965; Performing animals (Registration) Rules 2001. The prevention of cruelty to animals (Establishment & Regulation of societies for prevention of cruelty to animals) Rules, 2001. The notification issued on Ban on exhibition and training of five performing animals (Tigers, Monkeys, Panthers, Lions, 14<sup>th</sup> Oct 1998). Apart from the above provisions, judgments by jurisdiction, guidelines by authorities and rule given in the favor of animals rights. India's recent policy decisions to ban testing of cosmetics and their ingredients on animals and its ban on using captive dolphins for public entertainment anywhere in the country make it more progressive than many other developed countries.

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# Reintroduction of Tigers in India The Sariska Perspectives...

Sanchita Verma  
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Wildlife management is a dynamic science comprises of techniques related to wildlife conservation. In the present context with fragmented habitats culminating to extinction of species due to extrinsic and intrinsic factors of action, the immediate restoration of the area is worsened with intrinsic factors of demographic stochasticity and genetic deterioration.

The saving of this flagship species attains paramount significance, especially in intact habitats with sufficient prey, but locally exterminated due to poaching. Re-introduction of the tiger through a guided protocol of IUCN/NTCA, is highly significant from conservation of the biodiversity of the area and the advantages.

## Choice of Release Site and Type

Choice of release site and type also is a major pre-requisite in re-introduction programmes. The selected site should be with in the historic range of tigers and the area may be fenced or delimited for the re-introduction programme. In order to ensure long term survival, there introduction area should have assured long term protection. Reintroduction should take place in suitable habitat and landscape requirements of the tigers.

## Tiger reintroduction in Sariska Tiger Reserve

Tigers (*Panthera tigris*) are highly adaptive species and displays great adaptability in living in different climatic regimes, ranging from temperate oak-pine forest to the tropical rain forest and the mangrove swamps. Tiger hold the apex of the ecological pyramid in the vast Asian landscapes. The presence of a viable population of tiger is a stamp of integrity, sustainability and health of larger eco-system. Forest in tiger landscape, have 3.5 times the amount of carbon, in forest areas outside such tiger lands. With 1% global CO<sub>2</sub> emissions coming from forestation, protection to 1.2 million sq. Km of tiger landscape of the 13 tiger range countries will help mitigate climate change. These forms abodes of biodiversity and important habitats, ameliorate the effect of natural disasters (Cyclone Alia in 2009 mitigated by urban forests), create economic opportunities to local people.

Tigers are conservation reliant species and thus it can maintain self sustaining wild



The enclosure site at Sariska constructed for soft-release of re-introduced tiger

Sariska Tiger Reserve is situated in the Aravalli Hills range and lies in the semi-arid part of the Rajasthan. The total area of the Tiger Reserve is 881 km<sup>2</sup>, with 274km<sup>2</sup> as notified national park.

The year 2008 created history in India's conservation efforts as it attempted its first "Reintroduction strategy of large carnivore" by planning and implementation of tiger Re-introduction in Sariska from the neighbouring semi-arid tracts of Ranthambore Tiger Reserve. It was based on the **Scientific Species Recovery Plan** and the **Tiger Reintroduction Protocol** prepared by the **Wildlife Institute of India, Dehradun, Rajasthan Forest Department and National Tiger Conservation Authority**.

The restocking is essential to maintain genetic and demographic viability of tiger population. The genetic stock of tiger Ranthambore and Sariska Tiger Reserves may be assumed to be similar as both habitats are part of semi-arid tracts in Aravalli hills, therefore to maintain the uniqueness of genetic stock of tigers in semi arid tract the best choice will be Ranthambore tigers.

Adult tigers over two and half years of age is considered good for capture and **re-introduction** due to ideal medical fitness, as the body at this age has higher resistance to diseases, physical strength to take on the stress of relocation, fertility, response/behavior when confronted with human/tourist are the important features that make a final choice.

#### Capture and Translocation of Tigers



The radio-collared in Sariska Tiger Reserve

Five adult tigers (3 female and 2 male) were chemically immobilised and radiocollared with very high frequency in Ranthambore on June 23 to July 4, 2008. A 250 kg container used for the transport of the animal. A small truck was used to transport the tigers in its container from the site of immobilisation to the helipad in Ranthambore.

An Indian Air Force helicopter MI-17 was used to transport the tiger from Ranthambore to Sariska. In Sariska, one tiger and tigress (ST2) were released in to the wild after some observation on 6 July to 8 July 2008. On February 2009 one another tigress (ST3) is released in to the wild. But the most unfortunate thing happened to tiger (ST1) which was the first to be introduced was found dead due to poisoning.

In July 2010 two more tigers (a male and a female-ST5) were reintroduced in Sariska from Ranthambore aiming to complete the stock of the population according to the **Species Recovery Plan**. Subsequent to the death of ST4 occupying the same areas which had been utilised by ST1. ST4 developed new association with all the three female (ST2, ST3 and ST5) covering the entire home range of all three females.

In February 2011, a male tiger dispersed from Ranthambore and backtracked finally settled in a Tinny Bird Sanctuary of Bharatpur. This tiger (ST6) was translocated to Sariska. Other male tiger (ST4) was observed to reduce territory providing space to this new male (ST6) and kept his association with the other two females (ST2 and ST5). In occasional events it was observed that female (ST2 and ST3) engaged themselves in new association with both the males (ST6 and ST4) respectively.

Even after four years there was no birth of offspring in Sariska whereas a similar reintroduction project carried out in **Panna Tiger Reserve MP**, which was initiated after Sariska became successful with the birth of tiger cub within a year's time. But after some time jubilation engulfed Sariska in the Sariska reintroduced female ST2 was photographed with symptoms of lactation in June 2012. Mother nature seemed to rejoice as on August 7, 2012.

When this tigress with a cub was seen through a camera trap deployed in her territory. reintroduced tigers, genetic variation of individual tigers etc.

The Reintroduction programme for Tigers launched in Sariska is a pioneering step in the World. Followed by Panna Tiger Reserve in 2009 and thereby engraving the name of India on the milestone marking of a new era of global wildlife management and research.

This experiment are established the protocol of the Reintroduction protocol in India for Tiger. The technique has been standardized.

Author

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## Fascinating Facts about Coral Reefs world's most colorful & diverse ecosystem

Coral reefs are one of the world's most colorful and diverse ecosystems, and though they cover only about 1 percent of the ocean floor, they have a huge effect on the health of the rest of the world. Healthy coral reefs mean healthy oceans which means healthy planet. Coral reefs are diverse underwater ecosystem held together by calcium carbonate structures secreted by corals. Coral reefs are built by colonies of tiny animals found in marine water that contain few nutrients. Most coral reefs are built from stony corals, which in turn consist of polyps that cluster in groups.

### Facts:

- ❖ Corals are not plants. They're actually animals and are, amazingly enough, relatives of jellyfish and anemones.
- ❖ Though corals are animals, they do rely on photosynthesis to survive.
- ❖ Reefs formed by corals are one of the most bio diverse marine areas on the planet, housing hundred and even thousands of species.
- ❖ Coral reefs are sources of new medicines being developed to treat cancer, arthritis, human bacterial infection, Alzheimer's disease, heart disease and other diseases.
- ❖ Coral reefs are so valuable to the fishing and tourism industries, as well as protecting shorelines from storm damages and yet, nearly 60 percent of the world's coral reefs

Soniya K

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are threatened by human activity.

Corals live in tropical waters throughout the world, generally close to the surface where the sun's rays can reach the algae. While coral most of their nutrients from the byproducts of algae's photosynthesis, they also have bacteria that secrete venomous tentacles they can stick out, usually at night, to grab zooplankton and even small fish.

Coral reefs also provide many valuable services to humans. Food, shoreline protection and medicines are just few of these benefits. They are also the best places to visit if you want to experience marine life very close.

Coral reefs teem with life, covering more than one percent of the ocean floor, but supporting about 25 percent of all marine creatures. How many threats to their existence abound, and scientists estimate that human factors—such as pollution, global warming, and sedimentation—could kill 90 percent of the existing reefs in the next 30 years.

Coral reefs are experiencing a rapid decline in ecosystem health in most locations in which they once flourished. Much of this problem is the direct result of human activities.

We all need to better understand the nature and importance of these vital marine resources if we really want to prevent further decline and assist in coral reef recovery efforts.



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## THREATS ON HIMALAYA BIODIVERSITY HOT SPOT

Uday Nand Gaur  
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A hot spot is an area which faces serious threat from human interference and support a high biodiversity with representatives of evolutionary processes of speciation and adaptation. To qualify as a biodiversity hotspot it must contain at least 0.5% or 1,500 species of other plants as endemics, and it has to have at least 70% of its primary vegetation. Around the world, 34 areas qualify under this definition, with nine other possible candidates. These sites support nearly 60% of the world's bird, mammal, reptile, and amphibian species, with a very high share of those species as endemics. Of the 34 globally identified biodiversity hotspots, India harbours four hotspots. These are **Himalaya, Indo-Burma, Western Ghats, and Sri Lanka and Sundaland (Sumatra & Nicobar Islands)**.

The Himalaya Hotspot is home to the world's highest mountains, including Mt. Everest. Mountains rise abruptly, resulting in a variety of ecosystems that range from alluvial plains and subtropical broadleaf forests to alpine meadows above the tree line. Vascular plants have even been recorded at more than 10,000 m. The hotspot is home to important populations of numerous large birds and mammals, including vultures, tigers, elephants, rhinos and wild buffalo.

Despite their apparent remoteness and inaccessibility, the Himalayas have not been spared human-induced biodiversity loss. People who lived in the mountains of the Himalayas for thousands of years. In recent decades, greater access to the global market has increased the demand for natural resources in the area and encouraged both immigration from outside (such as from Arunachal Pradesh) and movement within the region (such as in Nepal). As a result, populations are growing in the most productive ecosystems,

which are also some of the richest in biodiversity.

The land is also often cleared in the summer months for livestock; the use of fire to clear land poses an additional threat to forest land, as fires sometimes spread out of control. The conversion of forests and grasslands for agriculture and settlements has led to large-scale deforestation and habitat fragmentation in Sikkim, Darjeeling, and Assam. Large areas of remaining habitat in the hotspot are highly degraded. Overgrazing by domestic livestock, including cattle and domesticated yak, is widespread in the lowlands and alpine ecosystems. The flora of fragile alpine meadows has been over-exploited for traditional medicine (because medicinal plant collectors invariably uproot the entire plant, re-growth is retarded). Fuel wood collection and non-timber forest product extraction, both for domestic consumption and export, has inflicted severe damage to some forest ecosystems. Unplanned and poorly managed tourism has led to environmental deterioration. Political unrest, often in the form of insurgencies, also threatens the integrity of some protected areas. Poaching is a serious problem in the Himalayan Mountains, with tigers and rhinoceros hunted for their body parts for traditional Chinese medicine, while snow leopards and red pandas (are sought for their beautiful pelts). Other threats to biodiversity and forest integrity include mining, the construction of roads and large dams, and pollution due to the use of agrochemicals.

Some drivers of biodiversity loss are localized, such as overexploitation. Others are global, such as climate change, while many operate at a variety of scales, such as the local impacts of invasive species through global trade.

**Being a Forest Officer what can we do to help the environment and save the**

**biodiversity**- It is imperative that we try our hardest to do the most good we can with our time on earth. Heroic acts aren't necessary, and small things can add up to a big difference. Each of us has a role to play in saving Earth's biodiversity, and in turn saving ourselves. By reducing the

amount of resources we consume daily, from water to fuel. Be aware of what's going on aware the people talk to people and take initiative that care about saving the biodiversity and natural resources.



## A case study on Pirul Check dam

**Vikas Rawat**  
**RFO Trainee, 2015-16 Batch**

Western Himalaya is home to different **Poles (Balli)** - Small poles of size 6-10 feet are required to set up the check dam. These poles give stability to the structure.

plan of Mussoorie Division has a separate working **Iron Wire mesh** - Wire mesh is needed to circle dedicated to Pine forest. Pirul (fallen Pine consolidate the check dam. Here wire mesh used is needles) is abundant in Pine forests. Removal of 4×4(inches) spacing instead of conventionally Pirul is an important process to prevent these used 6×6 (inches). It provides strength to check forests from forest fire. Many products of Pirul dam.

such as charcoal and plywood have already been **Agronet** - This net is used to hold soil and Pirul, introduced but the processing cost of these otherwise it comes out of the structure.

products is very high and also the quality obtained **Pirul** - This is the basic constituent of the dam and is far inferior. None of the experiments so far have is collected from area surrounding the site.

been much successful in eliminating this nuisance. **Soil** - The soil excavated for the foundation of One such addition to these experiments is check dam is used to make check dam.

construction of check dam from Pirul in Jaunpur **Herbs and Grasses** - At the top of the check dam after completion, herbs and grasses with loose soil is put on so that some vegetation could grow on it.

### Why Pirul check dam

The pine forests are very dry and in such Construction of Pirul Check Dam forest stones are also not available easily. Since **Site selection** - A suitable site where ample Pirul conventional check dams are usually made of is easily available and which is not very steep is either stones packed in a wire mesh or with selected for construction. Distance between two concrete cement. Bringing stones from other place consecutive check dams should not be greater to the construction site is costlier under than twenty meters; otherwise flow of water will department norms and it also leads to land slide at be magnified. Site should be free from perennial the quarried place. Conventional check dams water source since it is difficult to establish Pirul made up of stones binded with wire mesh are not check dam on perennial water source.

able to hold water while Pirul check dams can hold **Digging of Soil** - After site selection soil is dug up water and raises the moisture level. After to one feet depth. Width should be according to sometime these check dams get converted into requirement. Usually 1.25 meter width is permanent structures and vegetation starts to preferred. The heap of this soil is used to layering of these check dams.

Constituents of Pirul Check Dam

**Establishment of Poles** - Now poles are established at the periphery of check dam. These



poles may be of bamboo, pine or any other suitable species. The poles are six to eight feet high and are tied together horizontally with their longer counterparts.

**Wire mesh and Agronet** - Wire mesh of size 4×4 inch is generally used to minimize penetration of soil and Pirul outside the Check dam.

**First layer** - First layer of soil is laid down inside check dam from the soil heap available. The thickness of this layer varies from two to six inches depending upon availability of soil at the site.



**Second layer** - Now a layer of Pirul is laid over first layer of soil. This layer is compacted by beating with logs or walking over it. Usually the thickness of this layer is about one foot however it can be changed according to Pirul availability.

**Alternate layers of Soil and Pirul** - Now alternate layers of Soil and Pirul is laid one over another. Thickness of Pirul layer is more than soil

otherwise it will be washed out in rainy season. The total height of the structure is about four to six feet.



**Covering Check dam with Agronet and Wire mesh** - Packing of check dam is done by wrapping agronet and wire mesh over it tightly along give pole support.

**Sprinkling loose soil and grasses over it** - A last loose soil is sprinkled along with some grasses and herbs at the top. This may be done so that the structure could take a permanent shape in future.

#### Benefits over Conventional Check Dam

**Use of Pirul** - Pirul is the main cause of forest fire in Pine forests. Removal of this is the only way to check the increasing amount of Pirul, hence this innovation, amount of Pirul can be reduced considerably as this becomes raw material for structure.

**No need of stones** - As this check dam is made up of Pirul, there is no need of stones as in conventional check dam. Moreover extraction of stones leads to landslides and devastation of established rocks.

**Refining of water** - Due to its porous nature Pirul

dam refines water very nicely. It can be used for some sort of limitations as well: drinking purposes too.

**Not feasible in running water** - It is not possible to construct a Pirul check dam in perennial stream of water. As this check dam is made up of Pirul and soil, both are unstable in regular current of water.

**Pine forest essential** - To construct this check dam Pirul is essential raw material. This can only be abundant in Pine forests. Rest of forests do not avail this advantage.

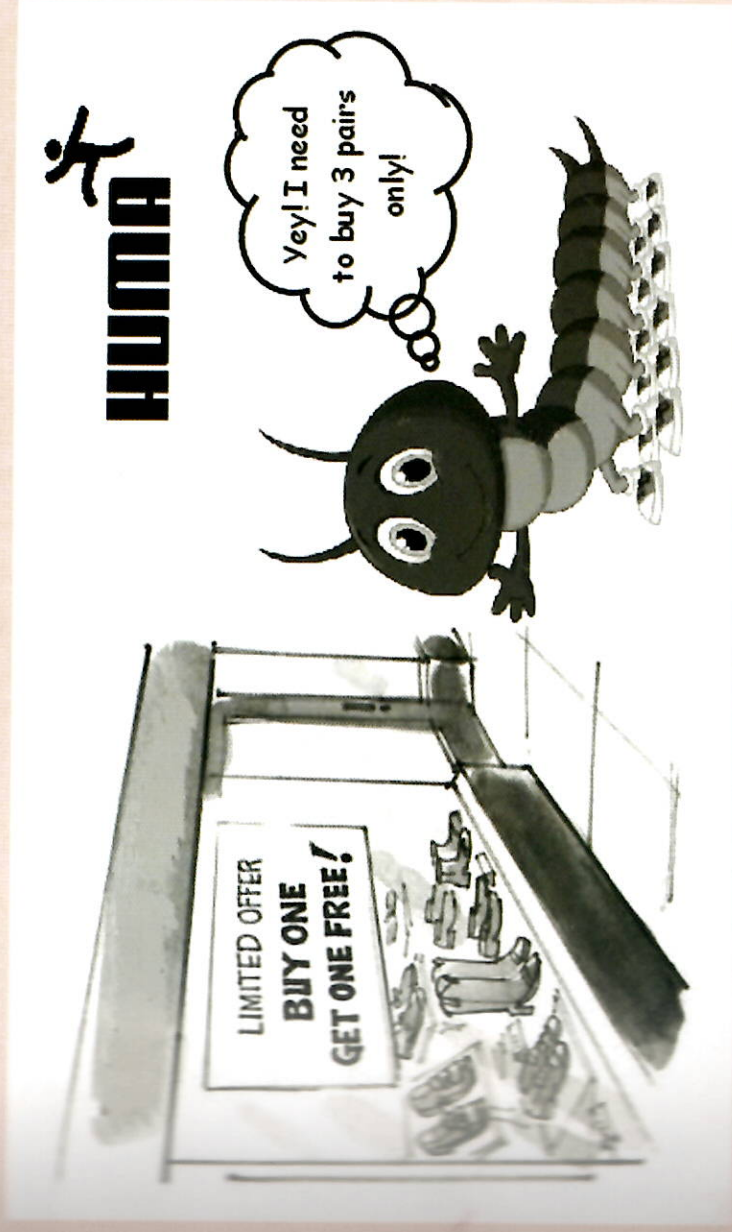
On the other hand a conventional **Non-biodegradable agro net** - The agro net used here is non-biodegradable. Use of such net in greater extent may create a lot of pollution.

Some has either to be transported from some **Torn Agro Net** - Sometimes agronet gets torn off and all the Pirul and soil comes out. This can

vanish all the benefits of check dam.

Limitations of Pirul check dam

Beyond these advantages Pirul check dams have



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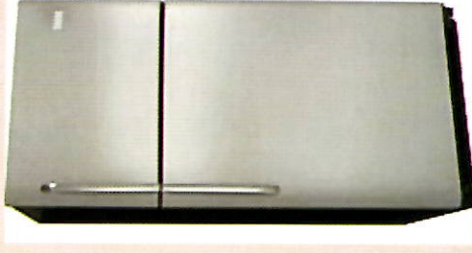
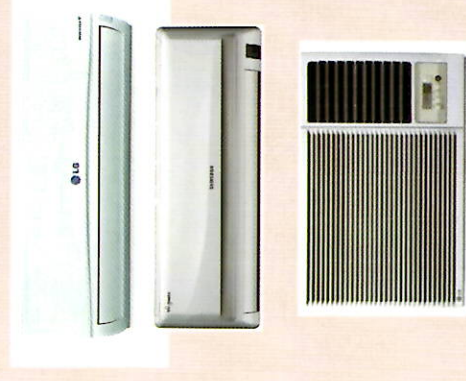
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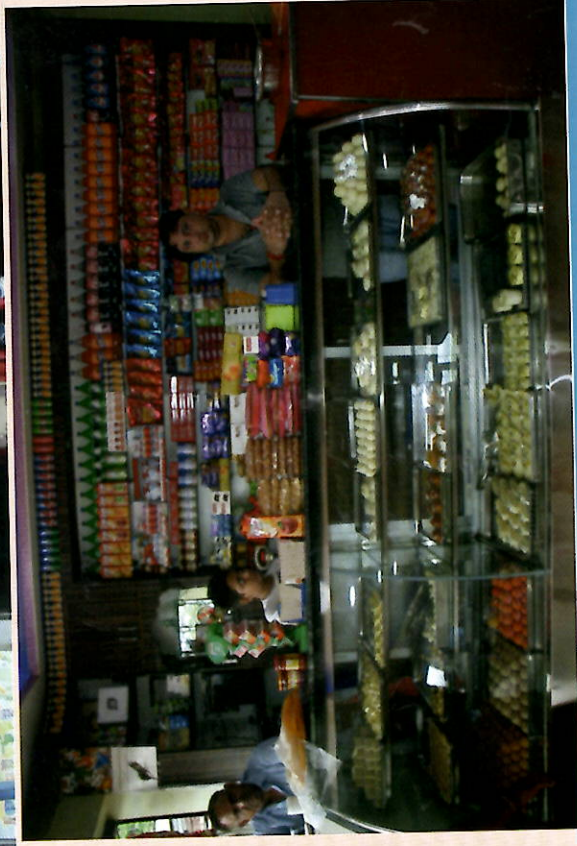
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## Importance of Meditation

**Raj Kumar**  
**RFO Trainee, 2015-16 Batch**

meaning of life? What is its purpose? What is this world, what is love, what is knowledge .....? etc. What we were seeking for a long time but did not know whom to ask.

Meditation has many physical and mental benefits too like it lowers high blood pressure, improves immune system, lowers the levels of blood lactate, reduces anxiety attacks, improves emotional stability, sharpens mind by gaining focus, expands consciousness etc., It de-stresses the mind as we gain inner source of energy.

Meditation is like a seed. The more we cultivate a seed with love, the more it blossoms. Similarly the sapling of consciousness is within us. It needs to be nurtured with meditation. It can be practiced anywhere, at any given moment. It does not have any negative effects but only positive. So, we should practice meditation daily as it has tremendous potential for enriching both our individual lives and our society.

Meditation is not an activity or a body. Meditation is not something you do. Meditation is not about but being. It is a state of being in one's own self. Meditation is an attitude. When you are closed to yourself, you are in meditation. The rest in meditation is deeper than the deepest sleep one can ever have. When the mind become free from agitation, is calm and serene and at peace, meditation happens.

Meditation has many advantages. It can give us physical, mental and spiritual benefits. Practicing meditation daily produces astonishing results.

Meditation makes us spiritually and emotionally strong. It connects us with our own inner powers of vitality, clarity and love. It helps us to realize our true self and our aim of life. As we meditate, we discover the mystery of life. We get the answers to our questions as what is the

## Humanity

**Raj Kumar**  
**RFO Trainee, 2015-16 Batch**

this planet. And this is where we all have to be proud of ourselves and pass this message on to the future generations. Humanity, in general, is perceived as a charity. As the old saying goes, it begins at home. It spreads across the roads we travel, places we dwell, and people we meet.

Humanity, not as many criticize, is scarce today. It is very much available in plenty. In fact, it has grown and evolved much better than centuries ago. From the individualistic aspect to a social, or even in a much larger perspective, humanity has thrived well in embracing and supporting the human race in many different forms. Nevertheless, more and more people are still out there who are not that fortunate to live

Humanity is not about maintaining a relationshship between one another in the society but it is about building a bond amongst the society with the help of a sustainable values. Humanity is not just a word for symbolizing the human compassion and civilization but it goes beyond the horizons of human nature and his creations. It is all about using hearts along with the minds in all the endeavors of human kind. Human kind has come a long way in learning the ways of building relations and creating civilizations in order to inhabit this world with wealth full of love and harmony. Every human are a part in doing this great task of taking ahead the human race to a dignified and noble place on



the humanity in its central point of its existence; they are out there to seek the rays of hope and love and brace the traces of passion and kindness. Today's world, when we look at it in a social point of view, is full of greed, commotion, distress and distrust. Besides becoming more civilized and learning about the intricacies of human race and development, we humans are mired by the new wave of modernization and outcomes of transformation due to technology innovations and cultural incursions. As a result, we are preoccupied with our television, mobile phones, computers, etc., spending less time with the fellow humans. Our direct interactions with our children, neighbours, and friends are taken away by this massive modern hi-tech living style.

We do realise many times a day the importance of humanity, love and kindness to other living beings but could not divulge them directly upon any one. We keep humanity in high regard in principle but have no time to give it a meaning in our own life. We do not expend even a little time, a few seconds in the service of humanity, in the form of prayers or meditation or by any deeds. All humans are one and only one, regardless of caste, creed, religion and race. This oneness would bring the world full of peace and harmony. The future of humanity lies in this oneness. As we narrow down the differences amongst us, broader the outlook on humanity arises; out of which the whole human race can live unto peace.

For centuries, the world was gripped with the evils of untouchability, religious conflicts and the affluent's dominance over the poor. There is

References: Ideas for this article is taken from article by Balamurail Balaji

**Nature does not hurry, yet everything accomplished.**

## Who knows?

Lalit Kumar  
RFO Trainee, 2015-16 Batch

Who knows ,what'll happen tomorrow,  
It may be joy or it may be sorrow.

You may gain or you may lose,  
What will happen nobody knows.

Try to follow the perfect path,  
And try to observe what is right.

So be careful what you choose,  
It could all be win or lose.

Just work hard and achieve the goal,  
Do from your heart and try with your soul.

Give your life to living,  
Or give your life to giving,

Simply do what you feel right,  
Straight till the end is in sight,

Show the world your internal might,  
With blessing of the almighty, You will fight,

Living only for what's good,  
Your life will turn out as it should,

Because you don't know what'll happen tomorrow,  
It may be joy or it may be sorrow



## Life is to live

Life is to live  
 Live the life to all ends  
 Live the life up to all extent  
 You may smile, you may cry  
 But live the life  
 'cause life is to live.

It is the only you have of your own  
 No one can take it from you  
 So, live your life  
 Don't be upset of what you are not.  
 You are the only one to have the right to live your life.  
 'cause life is to live.

Don't waste it, hug it, kiss it, love it  
 'cause you never know  
 What the next moment holds for you.  
 Life is just time, need and circumstances,  
 Life is just about good and bad,  
 Life may be just right or wrong.  
 Live it  
 'cause life is to live.

So be happy with what you have  
 Do something for life  
 You won't be here forever,  
 Live the life, 'cause life is to live  
 So that your life can be remembered.  
 But before you close your eyes....  
 Just live your life  
 'cause life is to live.

Anil Kumar Joshi  
 RFO Trainee, 2015-16 Batch

## ई-शासन पारदर्शिता, सुगमता और जनसंवाद

अनिल कुमार जोशी  
 वनक्षेत्राधिकारी प्रशिष्ठु 2015-16

किसी भी शासकीय व्यवस्था की कार्यप्रणाली का मूल्यांकन इस आधार पर किया जाता है। कि वह अपने कार्यों में पारदर्शिता, आम-जन के लिहाज से सुगमता और जनता से संवाद स्थापित करने की दिशा में किस ढंग से प्रयास कर रही है। शासकीय तंत्र की कार्यप्रणाली में लोकतांत्रिक मूल्यों के स्थायित्व के लिए, पारदर्शिता, सुगमता, और जनसंवाद, तीनों का स्थापन एक अनिवार्य शर्त की तरह है। इन तीनों तत्वों के बिना विशुद्ध लोकतांत्रिक शासकीय प्रणाली के वास्तविक स्वरूप को स्थापित नहीं किया जा सकता है।

**ई-शासन और पारदर्शिता-** ई-गवर्नेन्स सरकार के भीतर सरकार और राष्ट्रीय, राज्य, नगर निगम और स्थानीय व व्यवसायों के बीच दक्षता प्रभावशीलता, पारदर्शिता और सूचना और व्यवहार की जबाबदेही के आदान-प्रदान में बदलाव के लिए सूचना और संचार प्रौद्योगिकी का अनुप्रयोग है। इसका उद्देश्य नागरिकों को सूचना तक पहुँच और उसके उपयोग के माध्यम से उन्हें सशक्त बनाना भी है।

पारदर्शिता से आशय यह है कि सरकार द्वारा लागू की जाने वाली योजनाओं एवं किये जा रहे कार्यों के प्रति आम जनता को न सिर्फ अवगत कराना, बल्कि सार्वजनिक स्तर पर उस योजना से सम्बन्धित हर आँकड़े आदि को सार्वजनिक करना है।

ई-शासन में पारदर्शिता स्थापित होने की संभावना इसलिए अधिक होती है क्योंकि यह सर्व-सुलभ है। ई-शासन के तहत पारदर्शी ढंग से काम कर रहे केन्द्र सरकार के कुछ मंत्रालयों द्वारा किये गये कार्यों को उदाहरण के तौर पर देखा जा सकता है। सरकार ने तमाम वेब-पोर्टल्स एवं एप्स के माध्यम से अपनी योजनाओं एवं कार्यों को सार्वजनिक करने कि दिशा में बड़ा प्रयास किया है। राष्ट्रीय ई-शासन के तहत अन्य क्षेत्रों में भी व्यापक स्तर पर काम पारदर्शी ढंग से चल रहा है। ई-टेन्डर एवं ई-ऑक्शन को एक बेहतररीन उदाहरण माना जा सकता है। चूँकि, पिछले कुछ वर्षों में कोल आवंटन में सार्वजनिक हुई प्रक्रियाओं पर नियंत्रण करने एवं ठेकों और नीलामी की प्रक्रिया को पारदर्शी बनाने के लिए केन्द्र सरकार द्वारा ई-ऑक्शन एवं ई-टेन्डर को बढ़ावा दिया जा रहा है।

**ई-शासन में जनसंवाद एवं सुगमता-** लोक एवं तंत्र के बीच संवाद का सुगम होना लोकतंत्र को मजबूत बनाने में बड़ा कारक है। प्रधानमंत्री ने डिजिटल इंडिया कार्यक्रम के तहत 'राइट टू पीएम' विकल्प के जरिए जनसंवाद का एक अमूर्तपूर्व रूप उपलब्ध कराया है। भारत जैसे एक विशाल लोकतांत्रिक देश के लिए यह प्रधानमंत्री से संवाद का यह ऑनलाइन विकल्प इस लिहाज से भी कहा जा सकता है क्योंकि भारत के आमजन की अवधारणा में यह कल्पना की भी बात नहीं थी कि वे प्रधानमंत्री को सीधा पत्र लिखें और उस पर त्वरित कार्रवाई होगी। इसके लिये बकायदा एक वेब माध्यम <http://pmindia.gov.in/en/interact-with-honble-pm> तैयार किया गया है इस वेब माध्यम से कोई भी आम जनता खास व्यक्ति प्रधानमंत्री को समस्या, शिकायत अथवा सुझाव से जुड़े पत्र लिख सकता है। तथा पंजीकरण नम्बर के माध्यम से पत्र लिखने वाले व्यक्ति द्वारा <http://pgporta.gov.in/viewstatus.aspx> पर जाकर अपने सुझाव, तथा समस्या पर हुई कार्यवाही अथवा प्रगति की सटीक एवं आधिकारिक जानकारी प्राप्त की जा सकती है। इस माध्यम की सबसे अच्छी बात यह है कि यह सीधे प्रधानमंत्री कार्यालय से सम्बद्ध है और वहीं से पत्र के विषय से जुड़े विभागों और मंत्रालयों को प्रस्तावित की जाती है। पत्र प्रेषक को उक्त अधिकारी का सम्पर्क सूत्र भी उपलब्ध कराया जाता है। कहीं न कहीं प्रधानमंत्री से संवाद का यह विकल्प उस अवधारणा को खंडित करने में मदद कर रहा है जिसमें लोग अक्सर यह मान लेते थे कि उनकी सुनवाई प्रधानमंत्री तक संभव नहीं है।

यदि शासकीय तंत्र में जनसंवाद की प्रक्रिया सुगम होगी तो पारदर्शिता में बढ़ोत्तरी होना स्वाभाविक ही है। केंद्र सरकार द्वारा डिजिटलइजेशन की प्रक्रिया को बहुत तेज रफ्तार से विस्तार दिया जा रहा है। सरकार का यह प्रयास स्पष्ट तौर पर दिख रहा है कि शासकीय कार्यों से जुड़े सभी क्षेत्रों को पूर्णतया ऑनलाइन करके शासन को जटिल के बजाए आसान बनाया जाय। इसमें कोई शक नहीं कि जब शासकीय कार्यों में जनसंवाद को बढ़ावा मिलता है तो स्वाभाविक रूप से पारदर्शिता स्थापित होती है एवं शासन सुगमता से संचालित होता है। ई-शासन के माध्यम से पारदर्शिता, जनसंवाद एवं सुगमता तीनों ही लक्ष्यों को आसानी एवं कम समय में हासिल किया जा सकता है। भविष्य में प्राथमिक स्तर पर इसके और मजबूत होने की उम्मीद है।

## गिद्ध बचेनें तो पर्यावरण बचेगा

उदय नन्द गौर  
वनक्षेत्राधिकारी प्रशिष्ठु 2015-16

भारतीय संघ में गिद्धों की 9 प्रजातियाँ पायी जाती है। जिनमें से IUCN की सूची अनुसार तीन प्रजातियाँ विलुप्ति की कगार पर हैं। लोककथा एवं भारतीय साहित्य में इनको महत्वपूर्ण स्थान प्राप्त है। पर्यावरण संरक्षण में ये सहायक हैं। प्रायः ये समूह में पाये जाते हैं, जो कि आकार में अन्य पक्षियों से काफी बड़े होते हैं, ये ऊँचे पेड़ों पर रहना पसंद करते हैं। गिद्ध प्राकृतिक रूप से मृत पशुओं का खाकर पर्यावरण का शुद्ध रखते हैं। इसलिए इन्हें प्राकृतिक सफाई कर्मी भी जाना जाता है।

### गिद्ध का महत्व

1. गिद्ध मांसाहारी होते हैं और मृत पशुओं का खाकर धरती को साफ रखने का कार्य करते हैं।
2. ये सड़े गले मृत पशुओं को खाकर कई तरह की महामारी बीमारियों जैसे -कॉलरा, एन्थ्रेक्स, रेबीज, इत्यादि से बचाव करते हैं।
3. गिद्ध आहार श्रृंखला की महत्वपूर्ण कड़ी हैं। यह हमारे पारिस्थितिकी तन्त्र को संतुलित रखकर जैव विविधता में महत्वपूर्ण योगदान देता है, जिससे जैवविविधता का नुकसान न हो।
4. पारसी समुदाय में अपने प्रियजन के मृत शरीर को गिद्धों के भक्षण के लिए खुले में छोड़ दिया जाता है जिससे आहार श्रृंखला का चक्र बना रहे।



### गिद्धों पर मंडराता खतरा

1980 के दशक में इनकी संख्या हजारों में थी लेकिन पिछले तीन दशकों में इनकी संख्या में 97 प्रतिशत की कमी आयी है। गिद्ध की संख्या भारत में 95 प्रतिशत कम हो गयी है। विगत वर्षों में तीन प्रजाति विलुप्ति की कगार पर पहुँच गयी है। पक्षी वैज्ञानिकों ने शोध कर यह पता लगाया है कि विलुप्ति का मुख्य कारण डाइक्लोफेनेक दर्द निवारक दवा है। इसका प्रयोग पशु इलाज में बड़े पैमाने पर 1980 से 2000 तक किया गया। इलाज के बाद डाइक्लोफेनेक जानवर के शरीर में बचा रह जाता है। इन्हीं डाइक्लोफेनेक युक्त मृत पशुओं के भक्षण से गिद्धों के गुर्दे (kidney) एवं यकृत (liver) खराब हो जाते हैं। इसी कारण इनकी मृत्यु दर अप्रत्याशित रूप से बढ़ गयी। यदि हम लोगों ने समय रहते ठोस कदम न उठाया तो यह दुर्लभ पक्षी हमेशा वंशानुगत रूप से समाप्त हो जायेगा।

### गिद्धों का संरक्षण

वन्य जीव संरक्षण अधिनियम 1972 (Wild life Protection Act 1972) के Schedule I में गिद्धों को संरक्षण प्राप्त है। इस एक्ट के अनुसार किसी भी तरह से इसे नुकसान पहुँचाना कानूनन जुर्म है। ऐसा करने पर कम से कम 3-7 साल की सजा एवं 25 हजार रुपये का जुर्माना या दोनों हो सकता है। साथ ही डाइक्लोफेनेक दवाओं पर भी भारत सरकार द्वारा प्रतिबन्ध लगा दिया गया है। साथ ही मवेशियों में डाइक्लोफेनेक की जगह मेलोक्सीकैम (Meloxicam) का उपयोग करने पर जोर दिया गया है।

### गिद्ध संरक्षण में हमारा योगदान

1. मवेशियों में डाइक्लोफेनेक की जगह मेलोक्सीकैम (Meloxicam) का दर्द निवारक का प्रयोग करें एवं प्रचार-प्रसार करें।
2. यदि गिद्ध आपके इलाके में मरा हुआ दिखाई पड़े तो इसकी सूचना तत्काल प्रमारी वनाधिकारी या रेंज कार्यालय में दें।
3. गिद्धों को अशुभ समझकर मारने एवं भगाने का प्रयास न करें।
4. जिस पेड़ पर गिद्धों का वास हो उस पर न पत्थर मारें और ना ही उसे भगायें।
5. बीमार जानवर को बिना जाँच करवायें दवा न दें।
6. गिद्ध के निवास स्थान पर पटाखे, आतिशबाजी एवं शोर मचाने वाले कार्य न करें।
7. यदि पशु या अन्य जानवर विषाक्त पदार्थ से मरता हो तो उसे जमीन में गहरे गड्ढे में गाड़ दें व उसमें चूना और ब्लीचिंग पाउडर या नमक डाल दें।



अनिल सिंह रावत  
वनक्षेत्राधिकारी प्रशिष्ठु 2015-16

## आह से आहा तक

दर्द होता है, आह नहीं कर पाता है Training में मत पूछ मेरे यार क्या होता है, क्या नहीं हो पाता है।

अलार्म को बंद कर, खिड़की से ताकती मायूसी, भगवान तू है कि नहीं, ये बारिश रात भर तो थी आँखे मूंद कर *Basket Court* में *Fallin* हो जाता है कठोर सड़क बहुत चुभती है, फिर घर याद बहुत आता है दौड़ता है बेहिसाब घर पहुंचने को, पहुंच नहीं पाता है Training में मत पूछ मेरे यार क्या होता है, क्या नहीं हो पाता है।

### Classroom की कुर्सियों पर होती खींचातानी

आगे बैठना, कभी पीछे वाली हथियानी बैठकर आगे, *Morally Responsible* हो जाता है प्रश्न पूछ कर बीच-बीच में नींद को भगाता है हजारों स्वप्न हैं आँखों में, बस बंद नहीं कर पाता है Training में मत पूछ मेरे यार क्या होता है, क्या नहीं हो पाता है।

अरमानों को पंख दिये किताबों से दोस्ती कर ली, बहुत दूर हो गये तुमसे ए खुशी, कौन सी भूल कर ली सारे आश्वासन हैं, फिर भी रातों को जागता है कोई अपने बिछड़ो को, कोई होने वालों को मांगता है बिलख कर रोता है आवाज नहीं कर पाता है Training में मत पूछ मेरे यार क्या होता है, क्या नहीं हो पाता है।

घिसटती सी जिंदगी अचानक दौड़ने लगी खुशबू फिजाओं की, अब रूहों को महकाने लगी अजनबी दोस्त, दोस्त कुछ और, खास हो गये वक्त को पंख लगे *Training* के दिन फुरें *Pass* हो गये डूबता है जिंदगी को इन्ही दिनों में, बड़ी मुश्किलों से मुस्करा पाता है Training में मत पूछ मेरे यार क्या होता है, क्या नहीं हो पाता है।

## कविताएँ

### सच होते ख्वाब

पढ रही थी एक किताब,  
 खोई थी मैं उसी जहाँ में,  
 कोई समझ न पाया,  
 क्या बुन रही थी मैं ख्वाब में,  
 सामने थे टूटे ख्वाबों के ढेर,  
 चुन रही मैं एक-एक कर,  
 उठा लिया कुछ टूटे ख्वाबों को  
 फिर उससे जोड़ा दिल वाले दिमाग को

टूटे ख्वाबों को जोड़ते हुए सोचा,  
 नये ख्वाब को बुनते हुए सोचा,  
 ख्वाबों में जो सजता है हर दिन,  
 वो सच होता है यकीनन एक दिन.

### दोस्ती : एक खुशनुमा जिंदगी

ऐसा नहीं है कि ये जिंदगी बुरी है,  
 पर स्कूल और कॉलेज लाइफ की बात ही कुछ और थी,  
 ऐसा नहीं है कि अब हंसी नहीं आती,  
 पर दोस्तों में बात कर खिलखिलाने की बात कुछ और थी,  
 ऐसा नहीं है कि अब टेन्शन से रात नहीं गुजरती,  
 पर एग्जाम की रातों में जागने वाली बात ही कुछ और थी,  
 ऐसा नहीं है कि आगे जाकर कुछ हासिल ना किया हो,  
 पर पासिंग मार्क्स लेकर पार्टी उड़ाने वाली बात ही कुछ और थी,  
 ऐसा नहीं है कि अब लोगों को जानते पहचानते नहीं,  
 पर वो दूर से ही 'आए रुक बोलकर दोस्तों को आवाज देने की बात ही कुछ और थी,  
 ऐसा नहीं है कि अब टिफिन साथ नहीं खाते,  
 पर कैटीन में किसी और की प्लेट से छीन कर खाने की बात ही कुछ और थी,  
 ऐसा नहीं है कि अब जिंदगी नहीं कट रही,  
 पर दोस्तों के साथ जिंदगी जीने की बात ही कुछ और थी।

लक्की शाह  
 वनक्षेत्राधिकारी प्रशिक्षु, 2015-16

## A Beautiful Lady and Gang of young guns!

Pratik Joshi  
 RFO Trainee, 2016-17 Batch

It was a usual day. I received call from one of my friend. It was about snake rescue call near around. We reached to a location, simply caught the snake and moved on. It was Common Trinket Snake (*Coelognathus helena*). Its common name is Rup Sundari literally means Beautiful Lady!

It is one of the beautiful snakes among all. It is normally not so much aggressive in nature. But if harassed too much have tendency to form a spring like shape with open mouth for defence and can bite multiple times rapidly. It's a Diurnal and active snake. Most of the people got confused, and treat it as two different snake as half of the body is having pattern and rest of the body is plain. It can attain length up to 5 feet. It is constrictor snake. Lizards and rats top the spot of its favourite foods! Human localities suites it more, can be easily found near human localities.

There was nothing special till we reached to release it on next day. As soon as we opened the dabba! it amazed us all. There were 6 eggs around the trinket. We gently taken out trinket and released it. Now biggest question arise in front of us. What to do with these eggs? We didn't know

how to tackle the situation. So, we have contacted some of the expert in field.

According to the experts, generally snakes have habit of laying eggs in areas where it will get suitable temperature as well as humidity. So it got naturally hatched as majority of snakes don't hatch eggs. But in this case, as trinket got disturbed by the humans, it simply laid off eggs for its safety! As it is difficult for any snake to move speedily while carrying eggs. Experts told us that it's quite difficult for us to find a natural place where eggs got naturally hatched. So they suggested us to do it artificially at home.

In lack of equipment like incubator again it is difficult to maintain temperature and humidity. So we came up with a Indan judad! We took a big plastic jar (candy jar) and filled it with mixer of sand, clay and small to medium stones. We almost filled 60% jar with the mixer and made small holes for the rest of the jar. We also made some small holes at bottom of the jar for the removal of excess water. Then we soaked the mixer in the jar with water after draining of excess water, we placed all the eggs in the jar.

Common Trinket Snake (adult)

© Bhavesh Trivedi

Angry Trinket in typical position

© Pratik Joshi



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Jar incubator

Little ones ready to come out of eggs.

## Ramsar Wetland Convention conservation & wise use of wetland

Rahul Patel  
RFO Trainee, 2016-17 Batch

Upon joining, each Contracting Party is obliged to designate at least one wetland site for inclusion in the List of Wetlands of International Importance. The main objective of this key obligation is "to develop and maintain an international network of wetlands which are important for the conservation of global biological diversity".

### Year of Creation

The Ramsar Convention was adopted in 1971 and entered into force in 1975.

### Coverage

There are currently 168 Contracting Parties (countries) to the Ramsar Convention from all over the world. The List of Wetlands of International Importance included **2,231 Ramsar Sites** in March 2016 covering over 2.1 million square kilometres.

### Criteria for Ramsar Wetland Sites

**Sites must meet one or more of the following nine criteria:**

#### • Sites containing representative, rare or unique wetland types

1. Contains a representative, rare or unique example of a natural or near-natural wetland type found within the appropriate bio-geographic region.

#### • Sites of international importance for conserving biological diversity

2. Supports vulnerable, endangered, or critically endangered species or threatened ecological communities.
3. Supports populations of plant and/or animal species important for maintaining the biological diversity of a particular bio-geographic region.
4. Supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions. Specific criteria based on water birds

### Ramsar Wetland Sites & Convention

These are the wetlands considered to be of international importance. The international convention which forms the basis for their identification is commonly referred to as the "Ramsar Convention" after the city in Iran where the convention was signed in 1971. The Convention is an international treaty for the conservation and wise use of wetlands.

The Convention uses a broad definition of wetlands as "areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters".

Every three years, representatives of the Contracting Parties meet as the Conference of the Contracting Parties (COP) to administer the work of the Convention and improve the way in which the Parties are able to implement its objectives. The Secretariat of the convention is based at the headquarters of the International Union for the Conservation of Nature (IUCN) in Gland, Switzerland.

Joining Parties commit themselves to work towards the "three pillars" of the Convention:

1. *Work towards the wise use of all their wetlands;*
2. *Designate suitable wetlands for the List of Wetlands of International Importance (the "Ramsar List") and ensure their effective management;*
3. *Cooperate internationally on transboundary wetlands, shared wetland systems and shared species*

#### Specific Criteria based on water birds

5. Regularly supports 20,000 or more water birds.
6. Regularly supports 1% of the individuals in a population of one species or subspecies of water birds.

#### Specific Criteria based on fish

7. Supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.
8. Is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend. Specific criteria based on other taxa.

#### Specific Criteria based on other taxa

9. Regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species.

#### Advantages of joining Ramsar Convention:-

- Elevates the importance of the site at the international level.
- Encourages international cooperation
- Brings access to expert advice and latest information
- Provides an opportunity for learning the best global practices for wise use of wetlands
- Opportunity for getting international guidelines on various wetland conservation
- Represents a contribution to global environment protection and maintenance of global bio diversity

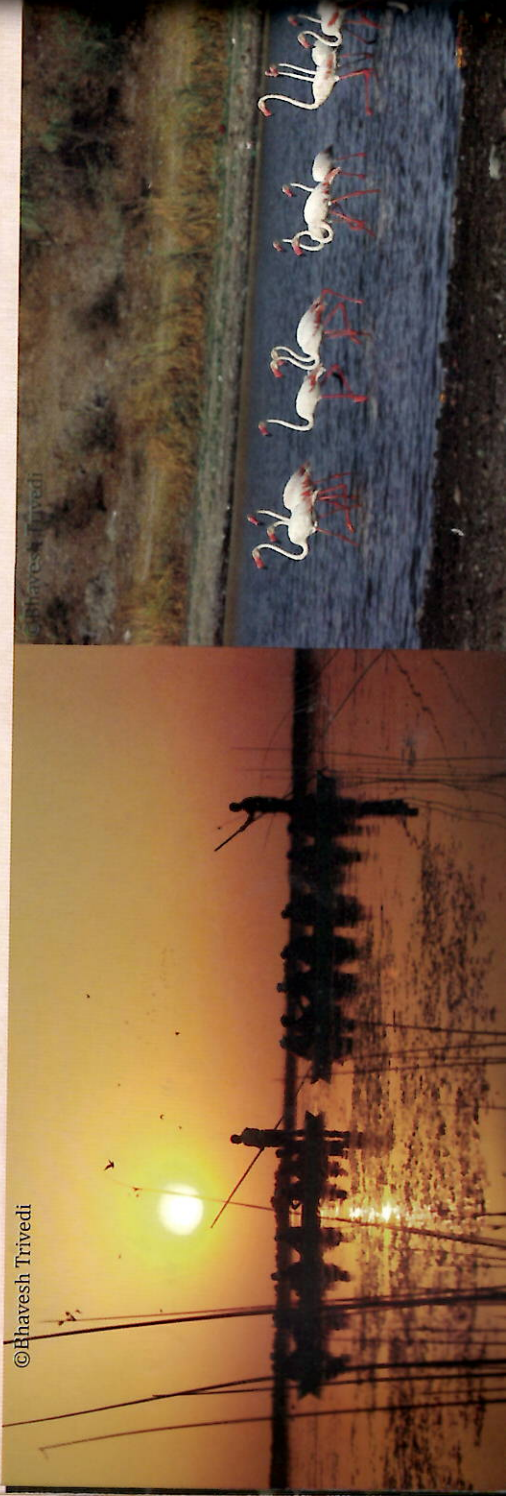
#### List of Ramsar Wetland Sites in India

| Sr. No. | Site                      | State             | Declaration Date | Area (Km <sup>2</sup> ) |
|---------|---------------------------|-------------------|------------------|-------------------------|
| 01      | Asthmudi Wetland          | Kerala            | 19/08/2002       | 1860                    |
| 02      | Bhitarkanika Mangroves    | Orissa            | 19/08/2002       | 525                     |
| 03      | Bhoj Wetlands             | Madhya Pradesh    | 19/08/2002       | 31                      |
| 04      | Chandertal Wetland        | Himachal Pradesh  | 08/11/2005       | 38.56                   |
| 05      | Chilka Lake               | Orissa            | 01/10/1981       | 1140                    |
| 06      | Deepor Beel               | Assam             | 19/08/2002       | 4.14                    |
| 07      | East Calcutta Wetlands    | West Bengal       | 19/08/2002       | 378                     |
| 08      | Harike Lake               | Punjab            | 23/03/1990       | 86                      |
| 09      | Hokera Wetland            | Jammu and Kashmir | 08/11/2005       | 13.75                   |
| 10      | Kanjli Lake               | Punjab            | 22/01/2002       | 14.84                   |
| 11      | Keoladeo Ghana NP         | Rajasthan         | 01/10/1981       | 28.73                   |
| 12      | Kolleru Lake              | Andhra Pradesh    | 19/08/2002       | 673                     |
| 13      | Loktak Lake               | Manipur           | 23/03/1990       | 945                     |
| 14      | Nalsarovar Bird Sanctuary | Gujarat           | 24/09/2012       | 120                     |
| 15      | Point Calimere            | Tamil Nadu        | 19/08/2002       | 17.26                   |
| 16      | Pong Dam Lake             | Himachal Pradesh  | 19/08/2002       | 307.29                  |
| 17      | Renuka Wetland            | Himachal Pradesh  | 08/11/2005       | *                       |
| 18      | Ropar Lake                | Punjab            | 22/01/2002       | 41.36                   |
| 19      | Rudrasagar Lake           | Tripura           | 08/11/2005       | 2.40                    |
| 20      | Sambhar Lake              | Rajasthan         | 23/03/1990       | 736                     |
| 21      | Sasthamkotta Lake         | Kerala            | 19/08/2002       | 11.3                    |
| 22      | Surinsar-Mansar Lakes     | Jammu and Kashmir | 08/11/2005       | 3.50                    |
| 23      | Tsomoriri Lake            | Jammu and Kashmir | 19/08/2002       | 120                     |
| 24      | Vembanad Kol Wetland      | Kerala            | 19/08/2002       | 4583                    |
| 25      | Upper Ganga River         | Uttar Pradesh     | 08/11/2005       | 265.90                  |
| 26      | Wular Lake                | Jammu & Kashmir   | 23/03/1990       | 173                     |

Reference: 1) wikipedia.org 2) ramsar.org 3) biodiversityia-z.org 4) envfor.nic.in 5) moef.nic

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Nal Sarovar - Gujarat



## Indian Wild Ass

### A unique and endemic species Of Gujarat

Chetan S. Patel  
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#### Introduction:

Gujarat is not only known for the Asiatic lion but also the state has glorious, precious and unique faunal specieses, one of them is the Indian Wild Ass. The state has also successful story of conservation of the Wild Ass similar to the Lion. The Little Rann of Kutch in Gujarat, it is the only place on earth where the endangered Indian Wild Ass still lives. It is a unique saline desert and the house of one of the fastest animal of India .The Wild Ass is known as Ghudkhar in the local areas. To conserve the Wild Ass, an area of 4954 sq.km in the Little Rann and its fringes including some Bets in the Great Rann of Kutch have been declared as the Wild Ass Sanctuary since 1973. It is the second largest wild life sanctuary after Kutch desert wild life sanctuary. Recognising its uniqueness and ecological significance, the area has been listed, by the Government of India, as among the first 13 areas selected for conservation as Biosphere Reserve.

#### Habitat and Behaviour:

Once the Indian Wild Ass were distributed in Western India, Southren Pakistan, Afghanistan and also up to south eastern Iran. But today it found only in kutch region of Gujarat, where saline desert, arid grasslands and shrublands are its preferred habitat.

The Indian Wild Ass is different from African Wild Ass. The animal feeds on grass, leaves and fruits of plant, crops, *Prosopis* pods and other saline vegetation. The coat of the wild Ass is usually sandy but varies from reddish grey, fawn to pale chestnut. It possesses an erect, dark mane which runs from the back of the head and along the neck. The mane is then followed by a dark brown stripe running along the back, to the root of the tail.

Stallions live either solitarily or in small group of twos and threes, while family herds remain large. In monsoon when mare comes into heat for mating, she separates her from the herd

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Indian Wild Ass in Rann of Kutch



with stallion who battles against rivals for her possession. After few days, the pair returns to the herd. The mare gives birth to one foal. The male foal weans away by 1-2 years of age, while the female continues to stay with the family herd.

#### Threats to Indian Wild Ass:

The main threat for the Indian Wild Ass is the sanctuary faced the illegal salt panning activity in this area, which supplies a full quarter of salt for Indian market, create noise and air pollution by transportation. The other is very fast invasion of the plant species *Prosopis juliflora* L. known as Gandabaval. And also the government has planned to establish a main irrigation channel and minor channel, which will supposedly separate the sanctuary in many parts.

#### Conservation measures:

Indian Wild Ass found only in Kutch region. From 1958-1960 the Wild Ass become a victim of a disease known as Surra, transmitted by flies, which caused dramatic decline of its population and figure fell to just 362 in 1960. For conservation of this unique species, the wild life sanctuary was established in 1972. The forest department started conducting census, water holes were increased, developed fodder plot and other activities. Though it is needs to be specified that the department is yet to get desired success. In 1998 the population was 2940, in 2004 it was increased to 3863 and recently in 2015, the

current census of the Wild Ass population has increased to more than 4800. Of late, it has been spotted outside of Kutch also.

#### Conservation through Reintroduction plans:

The population has been growing since 1976 but experts warn that this area is drought prone due to erratic monsoon; the Wild Ass population could decline suddenly as a result of a massive die-off. It is only if there are no severe droughts, the species likely to grow and disperse in the great Rann and adjoining Rajasthan, habitats that the Wild Ass occupied in the recent past.

The Gujarat Ecological Education and Research foundation (GEER) report has recommended that the Thar desert in Rajasthan should be developed as an alternative site for re-establishing the Indian Wild Ass by reintroduction of a few of them there.

#### Conclusions:

Indian Wild Ass, an equid species inhabits the saline arid region of Kutch. Though species is conserved in this area and its population is increase but there, it is increasingly threatened by developmental activities leading to habitat loss and fragmentation. It listed in the IUCN red list of threatened species and in Schedule I of the Wildlife protection Act of India. So it is needed to take some strong consider measures for conservation of a unique species.

References: 1) indianmirror.com 2) gujarattourism.com 3) Wikipedia 4) National studbook of Indian Wild Ass By : Anupam Srivastav & Parag Nigam 5) arkive.org

## We need the tonic of Wilderness. We can never hae enough of nature.

- Henry David Thoreau



# Community based conservation: An Indian scenario

**Bhargav Brahmabhatt**  
**RFO Trainee, 2016-17 Batch**

## Introduction:

In Indian state like Manipur, most of the forest land owned by the local people or communities. Likewise in other states local communities and people also own a piece of forest land in outskirts of protected or reserved forest areas and living with harmony with forests and utilize the minor and major forest produces for their livelihood. These privately owned forests or the unclassified forests are harboring great faunal and floral diversity, act as buffer zones or corridors between established protected areas and have values as natural resources but are highly vulnerable to devastation. Unlike the protected areas it's difficult to implement strict conservation norms on the private or unclassified forest land. In order to generate awareness among the local communities and to promote global diversity and sustainable land use, community conservation aspect was implemented, in which local communities are being facilitated and empowered to manage and conserve natural resources within the social, cultural and economic context of their communities, it facilitates widespread, global adoption of community based conservation. Community based conservation is one solution to the climate change, deforestation and loss of biodiversity. The buffer zones to or connector and migration corridors between established National parks, Wildlife sanctuaries and reserved and protected forests of India are known as conservation reserve if the land is uninhabited and completely own by the Government and if it's a part of land is privately owned then it is known as The community reserve areas<sup>1</sup>. Administration of such reserves would be through local people and local agencies like *gram panchayat*.

## History and accordance of Community conserves

It is obvious that the protection level would be reduced in and around existing or proposed protected areas due to private ownership of surrounding land, and such areas are great threat to the wildlife of the protected areas also. In Melghat Tiger Reserve where a large area was left unprotected due to private occupancy, considering a case in point for conservation, these categories of protected areas were first introduced through the Wildlife (protection) Amendment Act of 2002 in the Wildlife protection Act of 1972, India, through which the community reserves were included in the areas for wildlife protection. In other words it can be said that first time such privately owned areas were accorded protected under Indian legislature.

Soon after the legal protection for the wildlife in the community reserve areas, through 2002 amendment<sup>1</sup>, the demands for legal backing to the community rights were raised. Further the same was provided by an amendment to the Wildlife protection act in 2003<sup>1</sup>. This amendment 2003 provides a flexible system to achieve wildlife conservation without compromising community needs.

In Tamilnadu, considering the efforts of a community of Tiruvaidaimarudur village, who wished to protect the bird nesting in the village, India's first Tiruvaidaimarudur Conservation Reserve was declared on February 14, 2005<sup>1</sup>. Recently, Rajasthan government in India declared "Jawai Bandh forests" as conservation reserve forest<sup>2</sup>. Jawai Bandh forest is situated in Pali district and it is in close proximity of Kumbhalgarh Sanctuary. The west Bengal will

soon have India's first community reserve for gangetic dolphins<sup>3</sup>. The details of existing community reserves in India are given in the table below.

## Some constrains for CCA declaration

Legally CCA can only be declared on non-government land<sup>5</sup>. In most of the Indian states the surrounding areas, of national park, sanctuaries and reserved forests are occupied by the government. Hence, as per law. Such areas cannot be declared as CCA but in North east India, Western Ghats and a few examples in the rest of the country where conserved land is under community and private land ownership, this provision could have been applied. But could create problems as:

There are several problems which makes the communities to be refrained from CCA project.

- 1) After declaration of CCA the community or the private body loses the mandate to manage and conserve their own area with their local rules, regulations, and institutions.
- 2) The community or the private body and no longer make any changes in the land use without the permission of the state government.
- 3) The process for de-notification is not specified.
- 4) The benefits or incentives, after CCA declaration, are unclear.

Under such conditions, communities or private parties are unlikely to be willing to have their areas declared community reserves. Community reserves may be mutually useful in community or private land where the community is strong enough to be able to resist the above problems, where they can force the government to accept their own terms. However, until and unless the community is volunteering to conserve the declaration of CCA cannot be done.

## Pros and cons of community based conservation

Community based natural resource management (CBNRM) it's a concept seems to be a very good for the conservation of wildlife and natural

resources on private land, but at the same time if the concept lacks the ability to fulfilling the need of local people, or it harms the ownership of the local/s (in long term) then it should be considered as natural injustice to the tribe. Therefore, for a successful CCA there should be bilateral understanding for conservation purposes and at the same time it should bring long lasting benefits to the communities and its future generation

## Principals that make CBNRM project successful:

CBNRM projects vary within and between nations resulting in considerable diversity in project development, implementation and outcomes but the common thing in the CBNRM is its aim of conservation and local people participation. Considering all these facts Dr. Pauline Gitonga, as an outcome of her extensive research, has derived following principals which should be considered to make a CBNRM project successful<sup>6</sup>.

- Diversification of livelihood option - minimize the risk on natural resource
- Sustainable maintenance of natural resources- secure livelihood of current and future generation.
- Involve all stakeholders: Local Govt., Local organizations and community organizations.
- Community receives direct and indirect economic, social, cultural and spiritual benefits.
- Community involvement in the development and implementation of policies and laws e.g. land tenure and distribution of benefits and resources.
- Capacity building and technology transfer to the communities: but it should respect the local knowledge and experiences.
- Good understanding of local leadership who should fully understand and support the project.

## Conclusion:

• The concept of community based



conservation reserve has a great aim of people participation in wildlife conservation and sustainable utilization of natural resources.

- It should not restrain local people for taking benefits from the forest for their livelihood;

similarly local peoples should ensure sustainable utilization of resources and protection of wildlife.

- It requires patience and different skills to encourage community to participate, work together and to make the project successful.

### EXISTING COMMUNITY RESERVES IN INDIA (As on February, 2016)

| Sr. No.                             | Name                           | Esta. Year | Area (km <sup>2</sup> ) | District         |
|-------------------------------------|--------------------------------|------------|-------------------------|------------------|
| <b>Punjab</b>                       |                                |            |                         |                  |
| 01.                                 | Keshopur Chhamb                | 2007       | 3.40                    | Gurdaspur        |
| 02.                                 | Lalwan                         | 2007       | 12.67                   | Hoshiarpur       |
| <b>Kerala</b>                       |                                |            |                         |                  |
| 03.                                 | Kadalundi                      | 2007       | 1.50                    | Malappuram       |
| <b>Karnataka</b>                    |                                |            |                         |                  |
| 04.                                 | Kokkare Bellur                 | 2007       | 3.12                    | Mandya           |
| <b>Meghalaya</b>                    |                                |            |                         |                  |
| 05.                                 | Ka Khloo Thangbru Umsymphu     | 2014       | 0.19                    | E. Jaintia Hills |
| 06.                                 | Ka Khloo Pohblai Mooshutia     | 2014       | 0.33                    | E. Jaintia Hills |
| 07.                                 | Ka Khloo Langdoh Kur Pyrtuh    | 2014       | 0.15                    | W. Jaintia Hills |
| 08.                                 | Nongsangu                      | 2014       | 1.00                    | Ri-bhoi          |
| 09.                                 | Raid Nongbri                   | 2014       | 0.70                    | Ri-bhoi          |
| 10.                                 | Lum Jusong                     | 2014       | 0.70                    | Ri-bhoi          |
| 11.                                 | Jirang                         | 2014       | 2.00                    | Ri-bhoi          |
| 12.                                 | Raid Nonglyngdoh/ Pdah Kyndeng | 2014       | 0.75                    | Ri-bhoi          |
| 13.                                 | Phudja-ud                      | 2014       | 1.20                    | SW Khasi Hills   |
| 14.                                 | Lawbah                         | 2014       | 2.10                    | E. Khasi Hills   |
| 15.                                 | Ryngibah                       | 2014       | 0.80                    | E. Khasi Hills   |
| 16.                                 | Mongalgre                      | 2014       | 0.20                    | W. Garo Hills    |
| 17.                                 | Dangkipara                     | 2014       | 0.02                    | S. Garo Hills    |
| 18.                                 | Aruakgre                       | 2014       | 1.00                    | N. Garo Hills    |
| 19.                                 | Resu Haluapra                  | 2014       | 0.50                    | N. Garo Hills    |
| 20.                                 | Kitmadamgre                    | 2014       | 0.70                    | N. Garo Hills    |
| 21.                                 | Kpoh Ejjah                     | 2014       | 0.17                    | W. Khasi Hills   |
| 22.                                 | Miewsyiar                      | 2014       | 0.87                    | W. Khasi Hills   |
| 23.                                 | Umsum Pitcher Plant            | 2014       | 0.40                    | SW Khasi Hills   |
| 24.                                 | Lumkohkriah                    | 2014       | 6.11                    | SW Khasi Hills   |
| 25.                                 | Ryngud                         | 2014       | 5.22                    | E. Khasi Hills   |
| 26.                                 | Thangkharang                   | 2014       | 1.11                    | E. Khasi Hills   |
| <b>Total Area (Sq. km)</b>          |                                |            |                         | <b>46.93</b>     |
| Source: Wildlife Institute of India |                                |            |                         |                  |

## Vrikasana - Tree Pose

Dhaval Patel  
RFO Trainee, 2016-17 Batch

The name comes from the Sanskrit words vriksha or vriksha (वृक्ष, vṛkṣa) meaning "tree" and asana (आसन) meaning "posture"

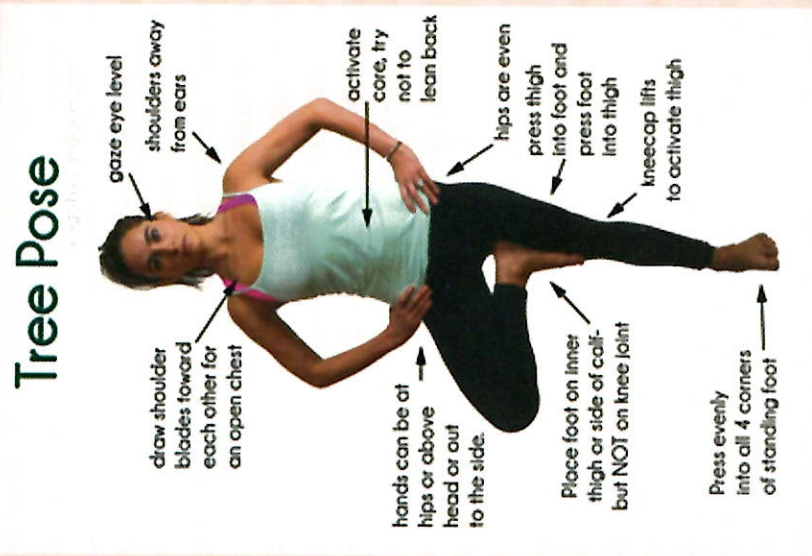
### Description

Weight is shifted to one leg, for example, starting with the left leg. The entire sole of the foot remains in contact with the floor. The right knee is bent and the right foot placed on the left inner thigh, or in half lotus position. In either foot placement, the hips should be open, with the right knee pointing toward the right, not forward. With the toes of the right foot pointing directly down, the left foot, center of the pelvis, shoulders and head are all vertically aligned. Hands are typically held above the head either pointed directly upwards and unclasped, or clasped together in anjali mudra.

### Benefits

This asana improves: Balance, concentration, increases the range of motion in the hips, strengthens the ankles, tones the muscles of the legs, back and chest

References: 1) Illustrated Light on Yoga by B.K.S.Iyenger 2) yogabycandoce.com



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## Fearless 'Lion Queens' of India

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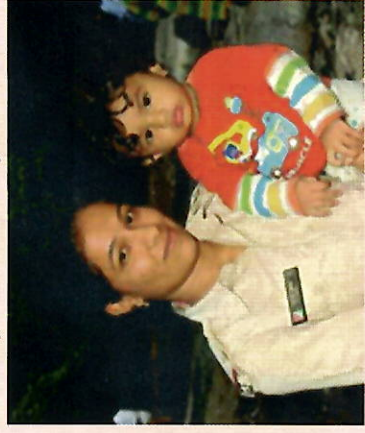
An inspirational move of Shree Narendra Modi then chief minister of Gujarat in 2007 to employ women for guarding the reserve forest may well have taken a hot lead and several women made a selection to serve in the fields rather than more secure desk jobs. The first batch of 51 women forest guard was appointed in 2007. Since then, women forest guard at Gujarat Forest Department have increased by substantial number and now a day a team of 50 brave hearted female forest guards are doing their best to protect the endangered species of Feline mammal-the Asiatic lions (*Panthera leo persica*) within the 1,412 sq. km of Gir reserve forest in Gujarat state which is the only home for Asiatic lions (523 lions) in the world.

Armed with double-barrelled shotguns and walkie-talkie radios, the vigilant women put out patrol into the bush, heedless of the dangerous venomous snakes, lurking crocodiles, a keen leopard or angry lionesses. On an average day each of the women patrols over 25 km of forest, even during peak summer months when temperatures inside the sanctuary top 45 °C. Really they put into risk their lives every day. These courageous women carried out more than 600-rescue missions last year to save the lions—perhaps amongst the highest number in any wildlife park in the world. Some of the lion queens and their stories cited here.



Darshana Kagada

**Darshana Kagada** a forester who was a part of a rescue that went on for about 15 days, when a villager near Rajula district was killed by a lioness and the rest of the village labelled the lioness as a 'man-eater'. Darshana Kagada and her team decided to investigate the matter at the grassroots. After a 15-day long probe, it was clear that the lioness' attack was actually an act of defence. And thanks to their analysis, the two cubs of the lioness did not lose their mother. As Darshana is one of her eight sisters, she supports her entire family on her salary.



Kiran Pathiya

A forest guard named Kiran Pathiya worked through most of her pregnancy; she was still scouring the forests on her motorcycle in her third trimester. In fact, even after her delivery, Pathiya would leave her newborn baby with her mother and would patrol around the jungle. She would just come back home to breastfeed her newborn. She is responsible for saving 19 lions, including a mother who created a record by delivering 5 cubs all of whom survived.

Another forest guard Rasila Vadher, who belongs to the Junagadh district, has been part of the first batch of the 12 guards stationed at Gir. The forest has many uninvited women gangs, who visit the forest to cut some of the prized teak trees. As there is a strong women force guarding the interiors, they are a great threat to these women gangs. Vadher has participated in over 200 lion rescues, and hardly ever misses her shot. She has

even climbed into a cage that was lowered into a pit containing an injured (and dangerous leopard).



Rasila Vadher

Vilas Antana, graduated in Sanskrit from a college in Amreli and knew nothing of wild animals till the day she joined department as a guard in Gir. As with many of her colleagues, the job has diluted her marital prospects, with few young men of her community willing to marry a woman who wears khaki and wields a shotgun. She is not overly bothered, though, happy instead with the independence her job provides. She can now tell you scientific names of all the birds and animals in the forest of Gir.

Job in the sanctuary has been a hugely empowering experience for Shabnam Rinbaloch. Belonging to a tribal Muslim community that did not let its womenfolk seek work outside home, she became the trailblazer for other young

women in her village of Jamvada. A young forester Manisha Vaghela has single-handedly tracked down and arrested a gang of 11 motorcycle-borne poachers trying to hunt chinkara antelopes.

The numbers of Lion are rising because one of the reasons that the women guards have been successful in creating a new awareness among women and children in villages near the forest. Assuming a more gently persuasive approach than their male counterparts who worked this beat before, Vadher and her colleagues, like Jayshree Patat and Shabnam Rinbaloch have worked hard to win cooperation not just from local villagers but also from maaldharis, the semi-nomadic tribal herdsmen who live in the sanctuary.

In spite of the long hours, and a salary that doesn't match, the team has expanded in numbers from 8 to 43 women, and continues to grow. They love their job, they love the forest and they love the animals and hence more than the money, it is the job satisfaction they get that they cherish the most.

These women forest guard's unwavering commitment to preserve the lions and its habitat was recently highlighted by Discovery Channel launching four-part series 'The Lion Queens of India' last year on 28 September.



# The Cultural Context in Forestry

## Sanskritik Vans

Indian cultural scriptures like Vedas, purans, upanishadas etc. are reflecting the relations between human beings and trees. For thousands of years, Indian culture has accorded a position of great importance to trees. In ancient times, our forefathers lived in co-existence of nature. They have recognized the high importance of plants for health, wealth and prosperity of human life, so they were worshipping trees. At present, most of our religious festivals include worship of trees. People have great regards for astrology and Ayurvedic system of medicine. It is universally known that these medicines are prepared from fruits, flowers, barks, leaves and roots of trees and herbs. Some trees are also believed to have positive effects on human life besides warding off evil influences.

Such plantations, which are planned according to the various Indian traditions, have collectively come to be known as Sanskritik Van, and are known by the traditions they follow. We shall discuss some of such Vans. (Forests)

### Objectives of establishing Sanskritik Vans or Cultural Forests

- To increase active participation of the people for increasing tree cover.
- To make people acquainted with our ancient culture.
- To create awareness among people about religious & medicinal plants.
- To connect people with tree plantation & protection.
- To improve bio diversity & environment.
- To strengthen our cultural & traditional values for protecting trees.
- To generate employment.
- To develop cultural sites.

### Navgraha Van

Indian astrology claims a definite

### Dhaval Patel & Priyank Patel RFO Trainee, 2016-17 Batch

correlation between plants and navagrahas - the 8 planets and the Sun at the centre. These planets are supposed to influence different organs in the body either in positive or negative manner and may result in diseases due to evil effects. Different plants have been prescribed for usage to overcome the ailments. Such plants are thus associated with the planets and are believed to have medicinal properties for treating the diseases. A Navgraha Van would thus typically include plants associated with each of the navagrahas, viz.

- Budh - Achyranthes Aspera (Chichida)
- Shukra - Ficus Glomerata (Gular)
- Chandra - Butea Monosperma (Palas)
- Guru - Ficus Religiosa (Pipal)
- Surya - Calotropis Procera (Aak)
- Mangal - Acacia Catechu (Khair)
- Ketu - Saccharum Spontaneum (Darbhe)
- Shani - Acacia Ferruginea (Shami)
- Rahu - Cynodon Dactyfon (Doob)

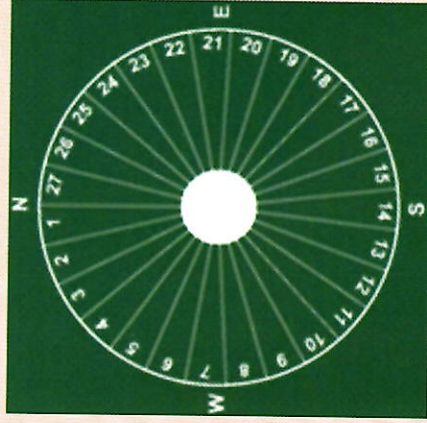
|        |         |         |
|--------|---------|---------|
| Ketu   | Jupiter | Mercury |
| Saturn | Sun     | Venus   |
| Rahu   | Mars    | Moon    |

### Nakshatra Van

Constellations are groups of stars which appear to be fixed in the sky. The Hindu Panchanga assigns a separate tree for each of the 27 constellations (nakshatras) through which the Sun passes. It is believed that celestial bodies like the Sun and the Moon exert different influences on human beings when they are transiting through these 27 constellations. It is also believed that such effects can be moderated or enhanced by planting and worshipping trees assigned to each constellation. This collection of trees

planted in the correct order constitutes a Nakshatra Van.

- Ashwini - Strychnos nuxvomica
- Bharni - Emblica officinal
- Kritika - Ficus glomerata
- Rohini - Syzygium cumini
- Mrigshira - Acacia catechu
- Ardra - Awuilaria agalocha
- Punarvasu - Dendrocalamus strictus
- Pushya - Ficus religiosa
- Ashlesha - Mesua ferrea
- Magha - Ficus benghalensis
- Purva - Falguni Butea monosperma
- Shravana - Calotropis gigantean
- Dhanishtha - Prosopis spicigera
- Saiabhissha - Anthocephalus cadamba
- Uttara - Falguni Ficus rumphii
- Hasta - Jasminium auriculatum
- Chitra - Aegle marmelos
- Swati - Terminalia arjuna
- Vishakha - Mesua ferrea
- Anuradha - Mesua ferrea
- Jyestha - Bombax ceiba
- Moola - Vateria indica
- Poorvashada - Calamus spp.
- Uttarashada - Artocarpus heterophyllus
- Poorva Bhadrpada - Mangifera indica
- Uttara Bhadrpada - Azadirachta indica



**Rashi Van:** The 27 constellations are further grouped into 12 zodiac signs. Astrology groups human beings into these zodiacs. The zodiacs play a vital role in the lives of human beings and

any astrological prediction starts from the zodiac sign of a person. Indian Astrology has assigned specific trees for specific zodiac signs.

**Panchvati:** A group of five holy trees, namely, Vad (Ficus benghalensis), Pipal (Ficus religiosa), Bilva or Billi (Aegle marmelos), Amla (Emblica officinalis) and Ashok (Saraca indica) is called Panchvati. The numbers of the trees are specified: Vad (4), Pipal (4), Ashok (25), Bilva (4) and Amla (92) for creating Panchvati. Vad gives shade, Pipal produces vast amounts of oxygen, Bilva is offered to Shiva, Amla has significant medicinal properties, and Ashok drives away sorrows. It is, therefore, believed that Panchvati is good for overall well-being of the mankind.

**Saptarshi Van:** In the Indian mythology, according to Sapta Brahamana, the seven stars in the constellation Ursa Major, are associated with the seven major Indian saints and the constellation is known as Saptarshi (the seven rishis) - Kashap, Atri, Bhardwaj, Jamdagni, Vishwamitra, Vashistha and Gautama. The trees identified with these seven saints constitute the Saptarshi Van. These are Ocimum sanctum (Tulsi), Sesbania grandiflora (Agastya), Achyranthes aspera (Chidchida), Cynodon dactylon (Doob), Aegle marmelos (Bilva), Prosopis cineraria (Shami), and Datura metel (Dhatura) respectively.

**Arogya Van (Charak Van):** A number of medicinal plants are prescribed by the ancient scriptures for treating different ailments affecting different organs in the human body. Arogya Van or Charak Van is a representation of these medicinal plants. Some of the important medicinal plants are: Brahmi (Centella asiatica), Amla (Emblica officinalis), Arjun (Terminalia arjuna), Harde (Terminalia chebula), Baheda (Terminalia belluca), Kariatu (Andrographis echiooides), Satavari (Asparagus dumosus), Sarpagandha (Rauwolfia serpentina).

## Neem : A Versatile Plant

Vijay Saini  
RFO Trainee, 2015-16 Batch

Neem (*Azadirachta indica*) is perhaps the most useful traditional medicinal plant in India. Each part of Neem tree has some medicinal property and thus, it is commercially exploitable. During the last five decades apart from the chemistry of the Neem compounds, considerable progress has been achieved regarding the biological activity and medicinal application of neem. It is now considered as a valuable source of unique natural products for development of medicine against various diseases and also for the development of industrial products.

Neem is well known in India and its adjacent countries for more than 2000 years as one of the most versatile medicinal plants having a wide spectrum of biological activity. Each part of tree has been used as traditional medicine for household remedy against various human ailments, from antiquity. Neem has been extensively used in Ayurveda, Unani, and Homeopathic medicine systems and has become a cynosure of modern medicine. The Sanskrit name of the neem trees is Arishta meaning "Reliever of seekness" and it still regarded as village dispensary in India.

The importance of the neem tree has been recognized by the US. National Academy of Sciences, which published a report in 1992 entitled "Neem-A tree for Solving Global Problems". Various parts of the neem tree have been used as traditional Ayurvedic medicine in India as well as in abroad.

Neem oil, bark and leaf-extract have been therapeutically used as folk medicine to control

carbachol-stimulated gastric acid output and may act as an antihistamine by blocking H<sub>2</sub> receptors, thereby helping as an anti-ulcer agent. Nimbidin also demonstrated antifungal activity by inhibiting the growth of *Tinea rubrum*. In vitro, it can completely inhibit the growth of *Mycobacterium tuberculosis* and was also found to be bactericidal. Diuretic activity that was also reported for sodium nimbidinate in humans.

### Conclusion

Neem, the versatile medicinal plant is the unique source of various types of compounds having diverse chemical structure. Very little work has been done on the biological activity and plausible medicinal applications of these compounds and hence extensive investigation is needed to exploit their therapeutic utility to combat diseases. A drug-development programme should be undertaken to develop modern drugs with the compounds isolated from Neem. Although crude extracts from various parts of Neem have medicinal applications from time immemorial,

modern drugs can be developed after extensive investigation of its bioactivity, mechanism of action, pharmacotherapeutics, toxicity and after proper standardization and clinical trials. As the global scenario is now changing towards the use of nontoxic plant products having traditional medicinal use, development of modern drugs from neem should be emphasized for the control of various diseases. In fact, time has come to make good use of centuries-old knowledge on neem through modern approaches of drug development. For the last few years there has been an increasing trend and awareness in neem research. Quite a significant amount of research has already been carried out during the past few decades in exploring the chemistry of different parts of neem. Several therapeutically and industrially useful preparations and compounds have also been marketed, which generates enough encouragement among the scientists in exploring more information about this medicinal plant. An extensive research and development work should be undertaken on Neem and its products for their better economic and therapeutic

References: This article is being written down with the help of Prof. S.K. Kurial, Doiwala Degree College, Doiwala, Dehradun.

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# Celebrations



International Yoga Day - 2016



Hon'ble Environment Minister's CASFOS Visit



Culture of Tripura



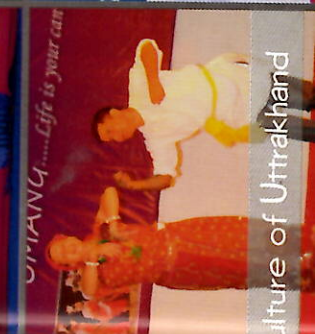
# Holi



# Dipawali



Culture of Arunachal



Culture of Uttarakhand



Culture of Gujarat



Culture of Mizoram





Fresher's Night - 2015



Convocation - 2015



Fresher's Night - 2016



Physical Training



Yoga



Trekking



Tour Masti

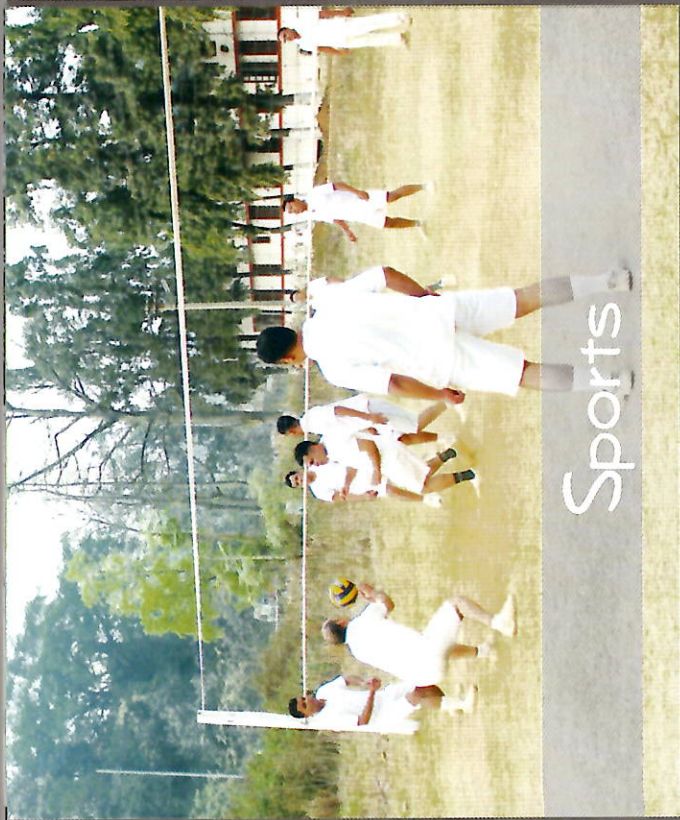


Plantation



World Environment Day





Sports

Sports Week Champion - Team Rhino



Winner (Cricket) - Team Hornbill



Jor Laga ke...



Football

Winner (Football) - Team Rhino

Winner (Table Tennis) - Team Rhino

Winner (Badminton) - Team Bluejay







Shramdan

Swatchh Bharat Mission

Volley Ball Match Senior v/s Junior

Marathon

Trashathlon



Living Root Bridge



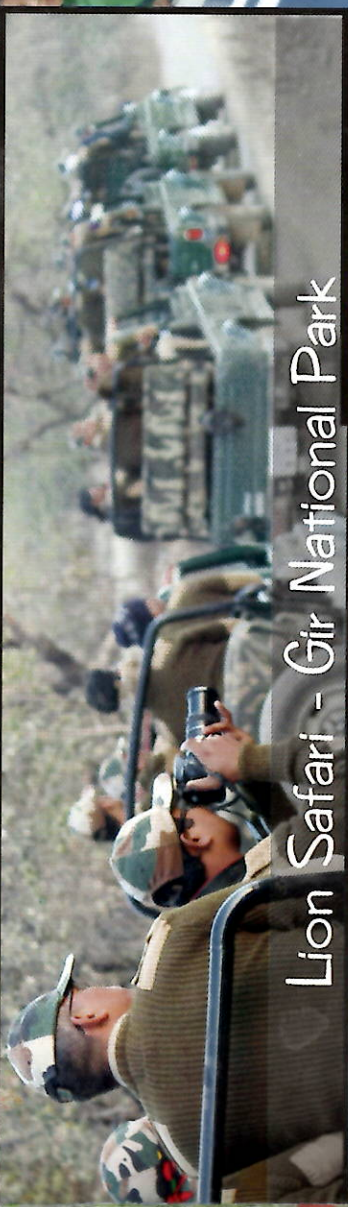
Eagle Nest Wild Life Sanctuary



With Experts



Railgadi...

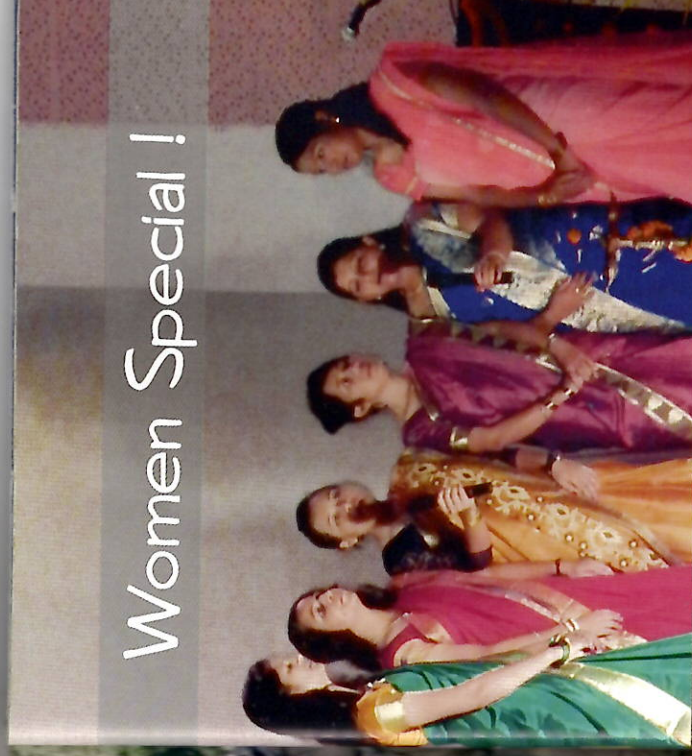


Lion Safari - Gir National Park





Forest Fighters!



Women Special!



Kadam Taal



Fire!



Shooting Training



Women's Day Celebration

# CASFOS

# Collage



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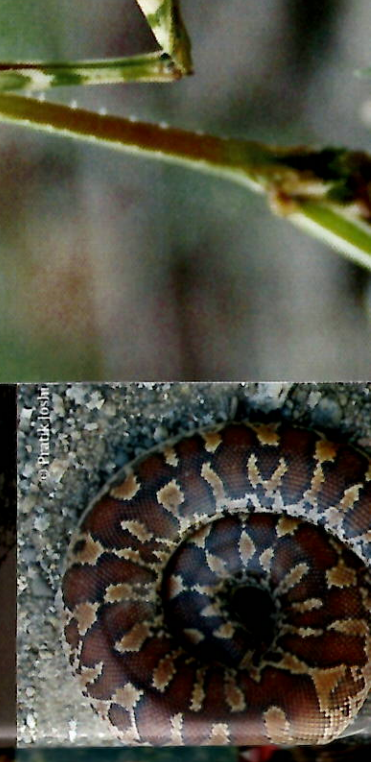
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## Forest Range Officer Trainees, 2016-17 Batch



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## FOREST RANGE OFFICER TRAINEES 2016-17 BATCH

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SECOND ROW (L-R): SVAPNILKUMAR K. PATEL, HITENDRASINH M. VAGHELA, LALRINDIKA KHAINGTE, JONATHAN LALCHHANMAWIA, DHAVAL K. PATEL, C. LALDANMAWIA, GOVINDBHAI A. CHAUDHARY, ROHITKUMAR M. CHAUDHARI, HITENDRASINH N. CHAVADA, BHARGAVKUMAR C. BRAHMABHATT, LIKHA OBI, NABAM TAKAM, ISRAELA HADHAR, RAHULKUMAR M. PATEL, RAM WADA BAGANG

THIRD ROW (L-R): H. LALREMUATA, TEJASKUMAR H. CHAUDHARY, PARIMAL R. PATEL, AJAYSINH B. RATHOD, PRAKIN N. JOSHI, VIRALSINH R. CHAVDA



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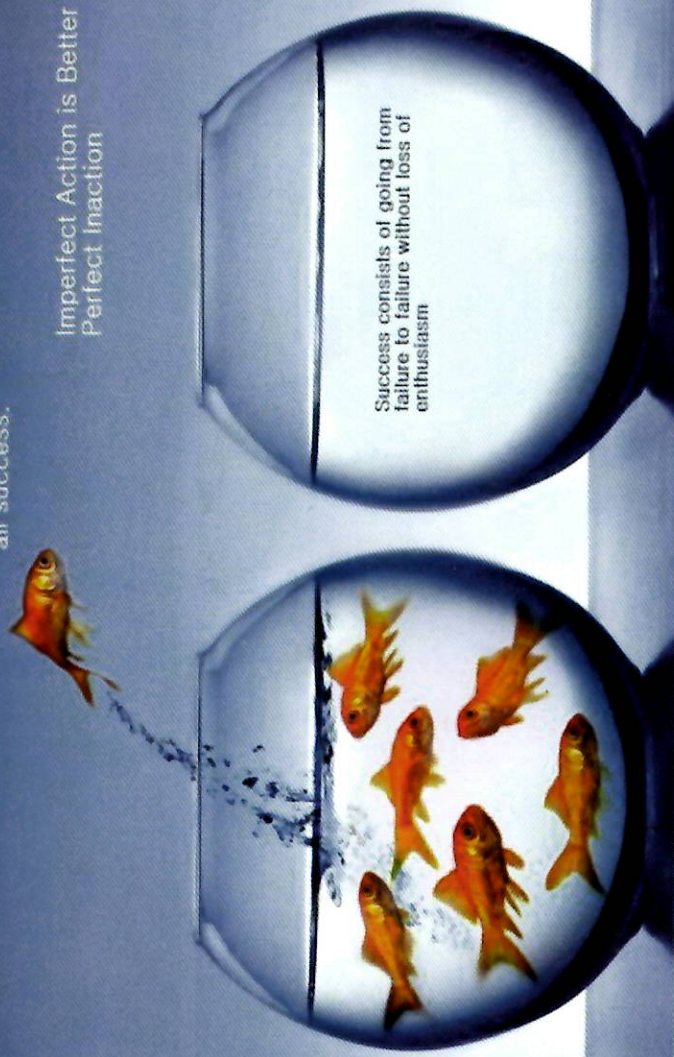
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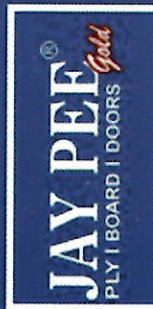
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