



## INTERNATIONAL DAY FOR BIOLOGICAL DIVERSITY - 2021

(THEME: WE'RE PART OF THE SOLUTION #FOR NATURE)



**22 MAY 2021**  
**BIODIVERSITY DAY**  
We're part of the solution #ForNature

REPORT  
**IDB - 2021**

**HARYANA STATE BIODIVERSITY BOARD**



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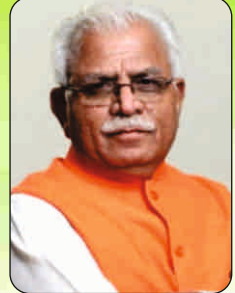
**22 MAY 2021**  
**BIODIVERSITY DAY**  
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**श्री कंवर पाल गुर्जर**  
वन मंत्री, हरियाणा

## अंतर्राष्ट्रीय जैव विविधता दिवस International Day for Biological Diversity 22nd May, 2021

**संदेश**



**श्री मनोहर लाल**  
मुख्यमंत्री, हरियाणा

जैव विविधता का अभिप्राय जीवों में पाई जाने वाली विभिन्नता से है। मानव जीवन में इसका अति महत्वपूर्ण स्थान है। इसके बिना पृथ्वी पर मानव जीवन की कल्पना असंभव है, इस लिए इसका संरक्षण किया जाना अति आवश्यक है। जैव विविधता हमारे भोजन, कपड़ा, औषधि, वन ईन्धन आदि की आवश्यकताओं की पूर्ति के साथ-साथ पर्यावरण संरक्षण के लिए भी महत्वपूर्ण भूमिका अदा करती है। असल में जैव विविधता प्रकृति की स्वाभाविक सम्पत्ति है और इसका दोहन, प्रकृति के दोहन के समकक्ष है। अतः प्रकृति को नष्ट होने से बचाने के लिए जैव विविधता को संरक्षण प्रदान करना समय की सब से बड़ी आवश्यकता है।

विश्व में अब तक 14.36 लाख प्रजातियों की पहचान की जा सकी है। लेकिन ईको-सिस्टम के दोहन के कारण लगभग 27,000 प्रजातियां प्रति वर्ष विलुप्त हो रही हैं। अगर यही रफतार कायम रही तो विश्व की एक-चौथाई प्रजातियों का अस्तित्व सन् 2050 तक समाप्त हो जायेगा।

जैव विविधता कृषि पैदावार बढ़ाने के साथ-साथ रोग रोधी औषधियों तथा फसलों के विकास में सहायक होती हैं। इसी प्रकार जैव विविधता औषधियों की आवश्यकता की पूर्ति भी करती है। जैव विविधता पर्यावरण प्रदूषण के निस्तारण में भी सहायक होती है।

जैव विविधता की विलुप्तता का सीधा नाता प्रकृति के उपलब्ध संसाधनों के अत्याधिक दोहन व ईको-सिस्टम के साथ खिलवाड़ करने से जुड़ा है। बढ़ती जनसंख्या के साथ-साथ अंधाधुंध एवं अनियोजित विकास से उत्पन्न व्याधियों जैसे बाढ़, पर्यावरण प्रदूषण, ईको-सिस्टम से छेड़छाड़ एवं जलवायु परिवर्तन से जैव विविधता के संरक्षण पर बहुत बुरा असर पड़ता है। वैज्ञानिकों के अनुसार

ईको-सिस्टम में मानवीय हस्तक्षेप और उसके अवकमण से जंगली जीव जन्तुओं का आवासीय क्षेत्र सिकुड़ जाता है और मनुष्य जीव जन्तुओं के बहुत करीब आ जाता है। इससे जीव जन्तुओं में पाये जाने वाले खतरनाक वायरस व बैक्टीरिया से मनुष्य रोग ग्रस्त हो जाता है। विशेषज्ञों का मानना है कि कोविड-19 के उजागर होने का सीधा नाता जैव विविधता के नष्ट होने से जुड़ा है क्योंकि बीमारियों का फैलना ईको-सिस्टम व उसमें बसे जीव जन्तुओं के साथ खिलवाड़ करने का ही परिणाम है।

इस वर्ष अन्तर्राष्ट्रीय जैव विविधता दिवस का थीम “We are part of the solution” रखा गया है जो हमें सबक देता है कि प्रकृति के साथ खिलवाड़ ना किया जाये तो सभी समस्याओं का समाधान हमें प्रकृति में ही मिल जाता है। हम सभी के सहयोग से ही जैव विविधता का संरक्षण संभव है।

आज के समय में कोविड-19 मनुष्यों को जागरूक करने के लिए यह चेतावनी है कि प्रकृति के साथ छेड़छाड़ न करके प्रकृति के साथ अच्छे सम्बन्ध स्थापित करने में ही मनुष्यता की भलाई है।

मुझे इस बात का हर्ष है कि लगातार दूसरे वर्ष लाकॅंडाउन के कारण हरियाणा राज्य जैव विविधता बोर्ड अन्तर्राष्ट्रीय दिवस मनाने हेतु विभिन्न प्रकार के कार्यक्रम आनलाईन करके प्रकृति के साथ अच्छे सम्बन्धों बारे जागरूकता लाने में प्रयासरत है।

मैं इस अवसर पर हरियाणा वासियों को अपनी हार्दिक शुभकामनाएं देता हूँ।

22 मई, 2021

**मनोहर लाल**  
मुख्यमंत्री, हरियाणा





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**BIODIVERSITY DAY**  
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## A W A R D S

Online Competitions - A Report

**IDB - 2021**

"We are Part of the Solution #ForNature"





# IDB 2021 - WE ARE PART OF THE SOLUTION #FOR NATURE

## Report on the Competitions held on Virtual mode

*International Day for Biological Diversity is celebrated every year on 22nd May. Haryana State Biodiversity Board celebrated this Day on 22.05.2021 with great fervor. Due to the current COVID-19 pandemic situation all over the country, it was decided that the occasion will be marked by engaging the children and youth of Haryana and Chandigarh by organizing various Competitions- Essay writing, Quiz, Painting and Photography on an online mode. In this regard an Advertisement was published in leading Hindi and English newspapers on 12.05.2021 for wide publicity so that maximum school, college students and general public could participate in these competitions. The competitions were held on 17.05.2021. Online links were provided to the participants on the Board's website.*

The Board received an overwhelming response and entries from the school, college students and general public. To evaluate the entries and to ensure fair selection of the winners for all the competitions, Selection Committees were constituted with subject matter experts. Cash prizes were announced to enthuse the participants. The cash prizes have been distributed to all the winners and the amount has been transferred into their bank accounts directly and a certificate of participation-cum-merit has also been sent to all the participants. The result of all the competitions held is given below:

### 1. Name of winners of Quiz Competition

Sr. No.	Name of Participants	Position
1.	Raghav Kashyap	1 <sup>st</sup>
2.	Gitik	1 <sup>st</sup>
3.	Mayank	1 <sup>st</sup>
4.	Ritika	1 <sup>st</sup>
5.	Yukt Sharma	2 <sup>nd</sup>
6.	Saurav Suhag	3 <sup>rd</sup>

### 2.1 Name of winners of essay competition (English)

S. No.	Name of Participants	Position
<b>School Category</b>		
1.	Moksh	1 <sup>st</sup>

<b>College Category</b>		
1.	Asha	1 <sup>st</sup>
2.	Gaurav Suhag	2 <sup>nd</sup>
3.	Navita Singh	3 <sup>rd</sup>
4.	Deepak	3 <sup>rd</sup>
<b>Open Category</b>		
1.	Pratibha	1 <sup>st</sup>
2.	Sonu Kumar	2 <sup>nd</sup>
3.	Anu Kumari	3 <sup>rd</sup>

### 2.2 Name of winners of essay competition (Hindi)

S. No.	Names of Participants	Position
<b>School Category</b>		
1.	Sanjeev	1 <sup>st</sup>
<b>College Category</b>		
1.	Nirmala	1 <sup>st</sup>
<b>Open category</b>		
1.	Mamta Rani	1 <sup>st</sup>
2.	Monika	2 <sup>nd</sup>

### 3. Name of winners of Photography competition

S. No.	Names of Participants	Position
1.	Kadam Chugh	1 <sup>st</sup>
2.	Saurav Suhag,	2 <sup>nd</sup>
3.	Moksh	3 <sup>rd</sup>

### 4 Name of winners of Painting competition

S. No.	Names of Participants	Position
1.	Anchal Gupta	1 <sup>st</sup>
2.	Swati Soni	2 <sup>nd</sup>
3.	Shilpa Verma	3 <sup>rd</sup>



## PHOTOGRAPHY COMPETITION



Saurav Subag



Renu Jain

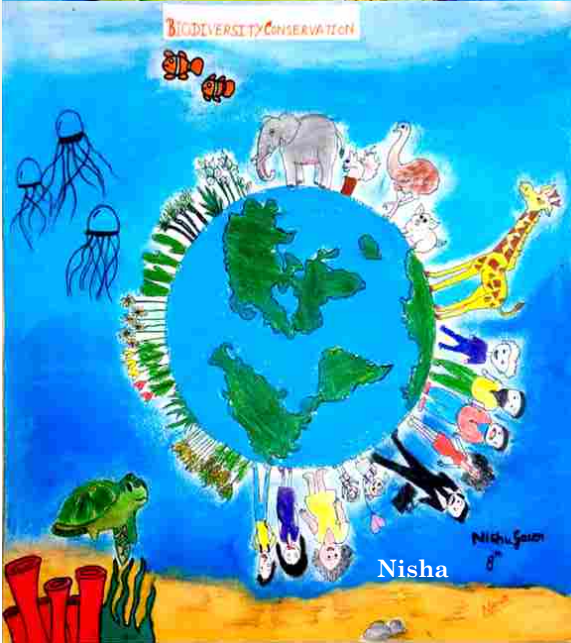
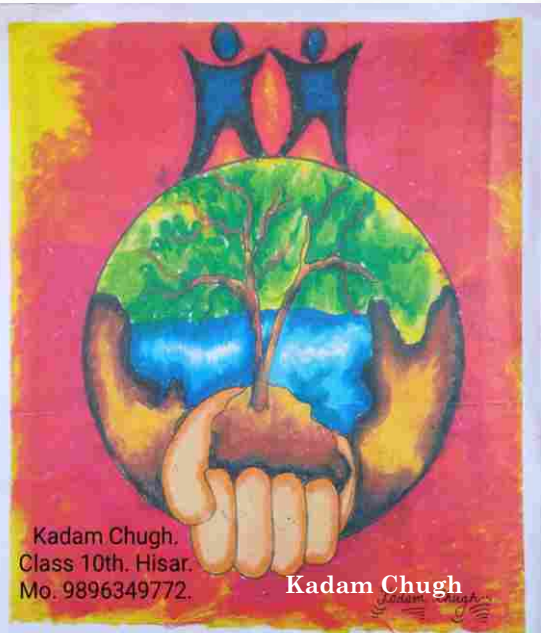


Kadam Chugh





# PAINTING COMPETITION



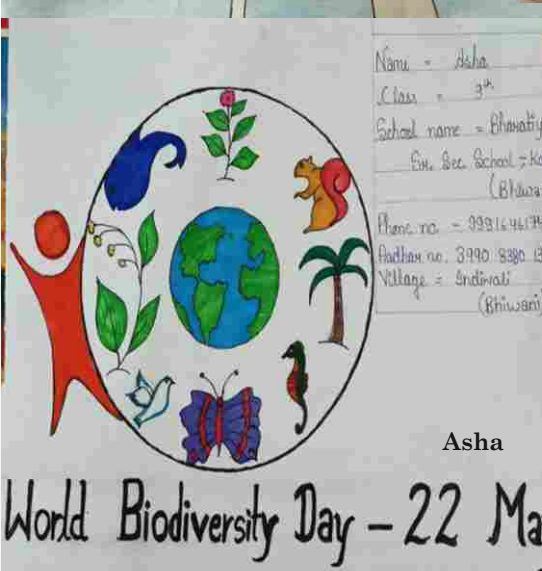
# PAINTING COMPETITION



Swati Soni

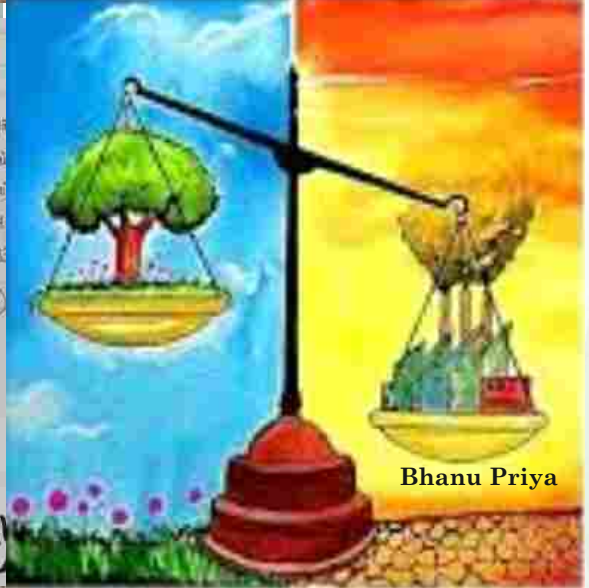


Mukesh Pahwa

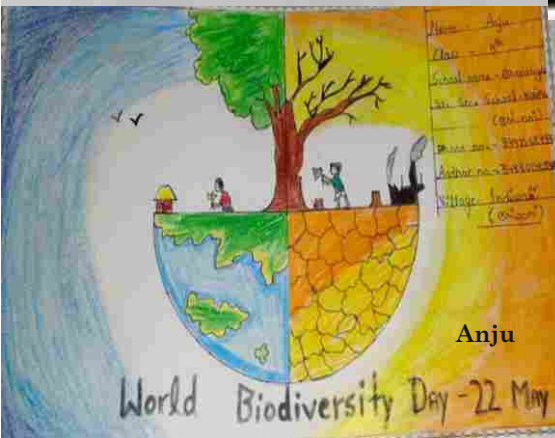


Asha

World Biodiversity Day - 22 May

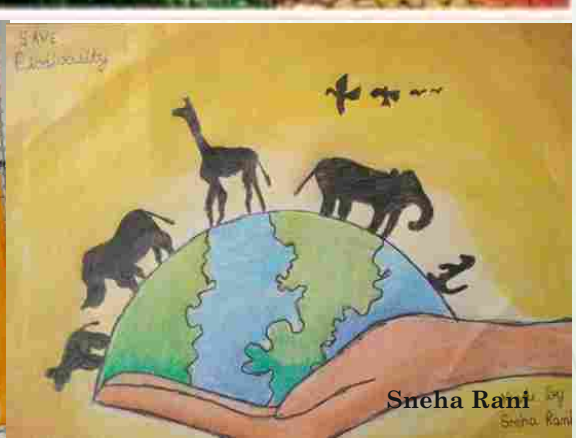


Bhanu Priya



Anju

World Biodiversity Day - 22 May



Sneha Rani





## ESSAY COMPETITION

### “Role of Mankind in Depletion and Also in Conservation of Biodiversity-as We Are Part of Solution”

Mankind: where man is not kind towards biodiversity

Biodiversity: where diversity of people is not interested in saving the bio-species of nature

Solution: problem will be solved only when all souls come together to work in this direction

When men try to dominate nature, unimaginable tragedies came into force; every time showing a MIRROR to us. Locust to COVID-19, we could get a glance of the angry mode of nature.

TIME AND TIDE WAITS FOR NONE. Nature is too humble, ready to forgive us. So without wasting time, let's be thankful to nature and join hands with our biodiversity so that each one of us can return to our NORMAL LIFE.

Instead of PARASITISM, let's make it MUTUALISM.

Nature is for us, we are part of it, not master of it. Last but not the least, Let's Pledge for BEING HUMAN which SYMBOLIZES HUMANITY, not severity.

- Asha

The Rate of extinction is quite high. Once a species gets extinct, there is no chance of ever getting that species back on the planet. Three main problems that cause species extinction are: habitat loss, degradation, and fragmentation. Habitat loss is described as the complete destruction of a habitat. Habitat degradation is when a habitat diminishes to a point where it can no longer support biological communities. Habitat fragmentation is described as a habitat that is broken into smaller discontinuous segments of land for development.

Preventing unsustainable practices and safeguarding wildlife populations can help us in avoiding future pandemics. We are indivisible from biodiversity cum nature and it's time to renew that relationship as “We are Part of the solution”.

With the help of biotechnology and plant science, farmers can grow more food on the same piece of land. We should buy from small local farmers to give a boost to the local economy.

This Biodiversity Day, as the world is working for a post-pandemic recovery, every citizen should work for conservation of Biodiversity by “We are part of the solution”.

- Sonu Kumar

Like pampered sons, we have received unidirectional blessing from nature. Biodiversity presented us with plenty to even assuage our griefs and disappointments. But our refusal to grow up and hold the responsibility baton has tested the clock of nature.

Our mindful exploitation of the natural resources has tested the generation limits of our planet. The societies grew and the problems magnified. The engines of growth rolled on, oblivious of their impacts. Human population itself, has become the biggest question mark on the future of man. The population resource imbalance is unfavourable for subsistence of humanity. “There is enough for everyone's need but not for anyone's greed.” Mahatma Gandhiji was accurate in his observation and the visionary could predict the direction of human progress.

It is through small efforts at local levels that our resources will be sustained for a better tomorrow and future beckons our sense of responsibility and we must stand and work for it. We have borrowed our planet not from our ancestors but from our future generations and we must return it to them in a good condition...

- Gaurav

Biodiversity is the term that is given to describe the variety of life on earth and the natural patterns it forms. It is the result of evolution, natural processes, and human influence.

Biodiversity involves diversity of genes within a species, of species within ecosystems, and of ecosystems in the biosphere.

Direct or indirect actions by humans have resulted in the decrease of biodiversity. Some of the indirect human drivers are demographic, economic, socio-political, scientific and technological, and cultural and religious factors. Some of the direct human drivers are changes in local land use and land cover, species introductions or removals, external inputs, harvesting, air and water pollution, and climate change.

If humans become extinct, it will likely be a result of their own action or lack of action. Hopefully humans will realize this before it is too late.

-Moksh





**22 MAY 2021**

**BIODIVERSITY DAY**

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# IDB - 2021

“We are Part of the Solution #ForNature





# Report on Webinar on “Challenges in Biodiversity Conservation – State’s Perspective”

DATE : 21st MAY 2021

VENUE : HSBB CONFERENCE HALL, PANCHKULA

*A Webinar on “Challenges in Biodiversity Conservation – State’s Perspective” was organized on 21.05.2021 on the occasion of International Day for Biological Diversity under the Chairmanship of Sh. Vineet Kumar Garg IFS, Chairman, HSBB on virtual mode.*

## Background Information:

Biodiversity encompasses the variety of all life forms on earth. According to estimations, there are about 1.0 to 1.5 crore species of plants and animals living on our planet earth. Due to population and developmental pressure, unequitable and unsustainable utilization of bio-resources, many species of plants and animals are getting extinct every year. This led to the establishment of a ‘Convention on Biological Diversity’ at Rio de Janeiro in Brazil during Earth Summit in 1992. The Convention came into existence in 1993 and 194 countries, including India signed this Convention for Conservation of Biodiversity.

To give effect to the said Convention, the Indian Parliament enacted the Biological Diversity Act, 2002, effective from 5-02-2003. The Act is implemented through a three tier decentralized mechanism i.e. at the National, State and Local body level.

Haryana is primarily an agricultural state of India and 80% of the total geographical area is under agriculture. The forests in Haryana belong to three Forest Type Groups i.e. Tropical Dry Deciduous Forest, Tropical Thorn Forest and Subtropical Pine Forests which are divided into 10 Forest Types. Over 500 bird species have been recorded in the State which is almost 40% of total bird species in the country. Although, the maximum portion of the geographical area consists of agricultural fields, over a time, the State has achieved a unique status in the field of agroforestry which has enabled the forest deficient State to support a large number of Wood-Based Industries based on farm-grown timber. Poplar and Eucalyptus trees are the major

agroforestry species which have become the main resource for improvement of livelihood of farmers in northern and central parts of the State.

Special emphasis is being given to Soil and Moisture Conservation works in the hills to conserve water and deliver it to adjacent farmlands for increasing their productivity and enhancing incomes. Herbal Parks have been developed in every district to bring people closer to the natural ecosystem.

Two National Parks, eight Wildlife Sanctuaries and two Conservation Reserves constitute the Protected Area Network of the State covering 0.75% of its geographical area and about 20% of the Total Forest Area of the State. Forestry activities in the state are dispersed over rugged Shiwalik Hills in the north, Aravalli hills in south, sand dunes in west and wastelands, saline-alkaline lands and waterlogged sites in the central part of the state.

The two biodiversity rich hot spots—The Shiwaliks and Aravallis in the state of Haryana are facing a threat of shrinking bio diversity. Excessive urbanization, construction of national highways, mining, commercial agricultural practices and spread of invasive species are some of the myriad challenges faced by the state. It is estimated that in the next decade there would be an increase in the urban population by 30%, therefore, it is imperative to also focus on Urban biodiversity that includes addressing the issue of soil, water and air pollution, planning and eco restoration of habitats. To address the challenges to Biodiversity, in the state of Haryana and the way forward, the theme of the Webinar was chosen as **“Challenges in Biodiversity Conservation – State’s Perspective”**.



## Introduction

*Smt. Ruchi Kaushal, Scientific Officer, HSBB*

Smt. Ruchi Kaushal, Scientific Officer on behalf of HSBB and the Chairman, Sh. Vineet Kumar Garg, welcomed all the Hon'ble Speakers and participants to celebrate the International Day for Biological Diversity-2021, based on the theme "We are part of the solution". She said keeping the current pandemic in mind, as part of its celebration, the Board had organised various competitions on virtual mode. HSBB got an overwhelming response from the participants from all across the State and Union Territory of Chandigarh.

She said that the Webinar on "Challenges in Biodiversity Conservation – State's Perspective" is primarily being organised to highlight the importance and emerging issues of biodiversity conservation and protection in the state of Haryana and seek solutions to these challenges towards enriching the biodiversity through community actions and policy reforms.

## Welcome Address

*Sh. Vineet Kumar Garg IFS, Chairman*

On the occasion of International Day for Biological Diversity, the Chairman on behalf of HSBB heartily welcomed all the Hon'ble Speakers and participants for the Webinar on "Challenges in Biodiversity Conservation – State's Perspective". He said that by and large humanity has come to realize, that despite all our technological advances, we are completely dependent on healthy and vibrant ecosystems for our health, water, food, medicines etc. The theme emphasises hope, solidarity and the importance of working together at all levels to build a future of life in harmony with nature. ***As the world continues to grapple with the COVID-19 pandemic, the global community is required to resolve and improve its relationship with nature more than ever for the benefit of humans and all life forms on earth.***

He said that the topic of the Webinar is an attempt by the HSBB to enlist all such challenges in the area of forestry, wildlife, agriculture, animal husbandry etc. HSBB has invited eminent Speakers who would give us an insight on the

impact of climate change on biodiversity, role of women in biodiversity conservation and restoration of biodiversity amid rampant urbanization and to come out with few solutions and actions for moving ahead in conservation of Biodiversity in the State.

## Session - Biodiversity at the Global, National and State level - Status and Challenges.

*Smt. Ruchi Kaushal, Scientific Officer, HSBB*

A brief presentation was given by Smt. Ruchi Kaushal to highlight the different activities undertaken by the HSBB in the State of Haryana. She presented the state of Biodiversity at the global, national and state level and the relevance of IDB celebration, which is to remind each one of us that Biodiversity remains the answer to several sustainable development challenges. She presented the uniqueness of India in the realm of biodiversity, where the communities have a rich repository of traditional knowledge, whether it was protecting indigenous species or traditional healing practices. She also talked about the Convention on Biodiversity, International protocols signed by India that led to the enactment of Biological Diversity Act 2002 in India. She emphasized on the Biodiversity loss due to human intervention which is a continuous threat to Biodiversity and ended her presentation with some thought provoking lines "In future our children or the younger generation might ask us a question along the lines of ***"when the crises on Biodiversity became rampant during the early 2000s, what did you do about it?"***"

- India is a source of traditional crop varieties ranking 1st amongst the 12 regions of diversity of crop plants.
- 7th in the contribution of agricultural species .
- India is the origin of 166 species of crop plants and 320 species of wild relatives of cultivated crops





- ❑ India is one of the 17 mega bio diverse countries, so quite rich in biodiversity .
- ❑ 36 Mega diversity hot spots world over
- ❑ India is also rich in associated traditional knowledge
- ❑ Biodiversity is predominantly being managed by local communities in India



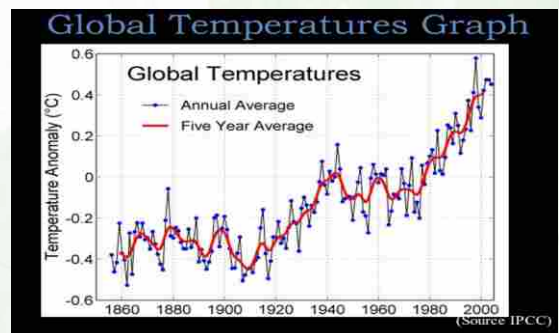
- ❑ Total land area -44212 sq km
- ❑ Total Forest and Tree Cover-3167 sq km (7.16%)
- ❑ Haryana has two biodiversity hotspots- The Aravallis & Shiwaliks
- ❑ Out of 1250 bird species found in Indian sub continent , approx. 600 species found in Haryana



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*Dr. TP Singh, IFS,  
Secretary Forests, Haryana*

He emphasized on the fact that Indian Economy is to a great extent dependent on it's national resources and therefore the loss in Biodiversity has repercussions on the economy as well.



## Loss of Forest Biodiversity



- Forests a big repository of Biodiversity
- Global warming poses serious threat
  - Rise of invasive alien species
  - Pest attack (like Pine beetle in USA/Canada)
- Extinction of
  - Medicinal plants
  - Animal species



### Conclusions

- Climate Change has great impact on Biodiversity
- Need to expedite initiatives with joint efforts for mitigation and adaptation to climate change, biodiversity conservation and control of desertification and land degradation
  - To achieve the goals of Rio Conventions
- Mechanisms like REDD+, EBA, CBA and SLM are innovative ways to achieve these objectives

### Recommendations:

- A Two-Fold climate action-mitigation and adaptation plan, to combat the issue of climate change in Biodiversity
- To have extensive research to design suitable strategies on mitigation-adaptation mix.
- Identification of vulnerable biodiversity 'hotspots' where the need to enhance adaptive capacity is greatest.
- Continued assessment of the mitigation potential and adaptation process in ecosystems.
- Dissemination of best practices.

***"We're losing biodiversity globally at an alarming rate, and we need a cornucopia of different plants and animals, for the planet's health and our own."***

## Session - Biodiversity Conservation Issues in Shiwaliks:

*Dr. S.S. Grewal, President, SPACE, Chandigarh*

Dr. Grewal shared his forty years of experience of working as a soil specialist in the state of Haryana. Dr. Grewal highlighted some of the biodiversity related issues. He stated some hard facts, where in the famous Sukhomajri Project, he elaborated that there was large scale production of Bhabbar Grass (*Eulaliopsis binata*) which was going to Ballarpur Paper Mill (Yamunanagar) for best quality paper and for preparing rope (sutli) for knitting cots and also sold to farmers of Punjab where it was used for tying up bundles of harvested wheat. Strangely one cannot find a single blade of bhabbar grass now. Similarly, palatable grasses like Dholu Grass (*Cynodon dactylon*) was harvested on large scale from these hills and used for livestock and preserved for feeding animals during winter months. This grass has totally vanished from the entire area. The rain-fed foothill areas of Kalka and Nalagarh belt were famous for the cultivation of Moong, Groundnuts, Rajmah and Arhar. The dry forage of Groundnut was used as feed for camels. Now all these crops have vanished from this area.

The landscape of this area was covered by large numbers of Kikkar (*Acacia nilotica*) trees and this tree was the main feed of goats which were present in large numbers in Sukhomajri and whole of this area. The British Forest Officers were dead against goats as they were responsible for checking the growth of local trees and they evicted the goats from this area and sent them to the cantonment. The goats came back because the local communities were professional grazers and their livelihoods greatly depended on goat rearing. Now such lands have been brought under cultivation. The acacia trees have been removed and as such there is neither feed for goats nor the younger generation of goat rearing community is prepared to take up this work after receiving good education.

Dr. Grewal also highlighted the large scale invasion of Lantana and Parthenium in the forest area of the state that has smothered the tree





growth. The natural regeneration of trees and grasses have been checked and large number of creepers have taken over the useful plant species like khair, drumstick, harar, bael etc. Subsequently, technology of tube-well installation became popular on large scale and as a result, undulating lands supporting native trees and grasses were levelled and used for cultivating crops- mainly- wheat and paddy. The important natural trees like mango, shisham, jamun, beri and neem have totally vanished from these cultivated lands. The damage to the crops by wildlife has become a serious issue, as the feed and fodder for wildlife is not available in the hilly habitats of these species. They have come out from the forest areas to the farm lands and are responsible for damaging the crops.

### Recommendations:

- The participation of local communities, frontline staff of the Forest Department and other organizations, institutions and universities is very important to create awareness about the biodiversity loss and need for conservation.
- There is an emergent need to diversify the forest species and agricultural crops.
- Traditional varieties of food and fodder should be revived and the problem of invasive species, which is a threat to the biodiversity and food security, should be addressed.

## Session - Biodiversity Conservation in Aravalis and in Urbanised Environment

*Sh. M.D. Sinha IFS, PS to GoH  
Tourism Department, Haryana*

Sh. M.D. Sinha said that Urban biodiversity is not as much a priority, in comparison to rural biodiversity and he raised concerns about this apathy. He presented the status of Forest cover of the state of Haryana which is a miniscule 3.9% and is highly skewed. Shivalik region of north Haryana and the Aravalis in the south are rich in forest biodiversity. His presentation highlighted the issue of Urban green spaces, where in India we have 26 trees per person in comparison to 1494 trees per person in Brazil. The tree population is only 35 billion in Urban India. He emphasized the issue of restoration of Urban green spaces by

presenting a Case Study of **Eco-restoration of Wazirabad-Chakkarpur Bandh**, a place which was primarily a waste dump and posed a threat to the health of the local communities and added to water, soil and air pollution. The project was implemented by Forest Department in PPP (People, Public & Private) mode with community support. Today this place has a walking and cycling path, with lots of greenery and beautiful water body, an example of a successful PPP Partnership Model.

He emphasized that by 2030, the Urban population will increase by 30% which will further stress the urban biodiversity and he raised the issues of water, soil & air pollution. Therefore, it is important to have an advanced design system for Urban planning. The community will only participate when they find benefits and value addition coming out of the initiatives. He reiterated the fact that Urban Local Communities, Civil Society Organization and the Government should be on board and have a strong partnership if we want a holistic sustainable development model. A fine balance needs to be created between Development & Conservation as both are important.

### Urban Greens

- We have a tree population of only **35 billion**, leading to just **26 trees/person**
- Brazil : **301 billion** trees (**1,494 trees/person**)
- Canada : **318 billion** trees (**8,953 trees/person**)
- China : **139 billion** trees (**102 trees/person**)



*Eco- restoration of Wazirabad Chakkarpur Bandh  
which was a dump yard earlier*



## Recommendations:

- Urban Biodiversity planning, conservation and protection should be a priority for the state.
- Local communities should be an important stakeholder in the planning and management of Biodiversity.
- Local communities should find some benefits and value addition in the initiatives.
- Development and Conservation both are important and a fine balance needs to be created.

## Session - Agriculture and Livestock Biodiversity – Urgent issues and Actions required

*Dr. Ram Chand,  
Former ADG (KVK), ICAR, New Delhi*

Dr. Ram Chand emphasized on the fact that in 1960s, Green Revolution was important to cater to the food security of the increasing population in India. Simultaneously, now we also need to protect the indigenous species, propagate organic farming and introduce indigenous crop varieties which are climate resilient.

He emphasised on the threat to biodiversity from invasive species like Lantana, Congress Grass which are threatening the native species of Haryana. He raised concern on monocropping and extensive water usage in agriculture and reiterated the fact that Haryana, which was once mainly a wheat belt, is now a producer of paddy, a crop which needs lots of water. By exporting paddy, we may be earning revenue, but it is depleting our ground water table at a fast rate.

There is an urgent need for all the National and State Technical Institution to work in collaboration with each other. Haryana is an agriculture dependent state where agriculture and animal husbandry are interdependent. The decreasing population of the famous indigenous Sahiwal Cow is a concern for the state.

He stated that the State should have more genes and DNA banks for cloning of the indigenous Flora and Fauna species and the traditional knowledge, which is eroding at a very fast rate, needs to be documented and disseminated. Modern technology should be built around traditional knowledge and practices for sustenance.

## Recommendations:

- Organic farming, rotational and multi cropping pattern should be adopted and propagated by farmers.
- Technical institutes at National and State level should work in collaboration with each other.
- Indigenous and traditional knowledge should be well documented and disseminated.

## Session - Women and Biodiversity Conservation

*Dr. Neelima Jerath, Director General,  
Pushpa Gujral Science City, Punjab*

Dr. Neelima Jerath said that women are role models and they need to be emulated to have an inclusive, Sustainable Development Model. Biodiversity is connected to access to resources, food and essential household products, income generating activities, development, traditional knowledge, collecting, utilizing and selling plant and animal products and it is a daily routine for many women and men in the world, especially in rural areas. Comparing the two genders- women and men, she said that women do not have an equal voice in decision-making related to land use, nor equal access to needed resources. Biodiversity loss poses a disproportionate burden on women by increasing the time required to obtain necessary resources such as water, fuel wood and medicinal plants, which reduces the time they can spend on income generating activities and education. She reiterated the fact that women have better specialized knowledge of various local and neglected species. On the other side, men are decision makers especially in rural communities, their major concern is generation of cash and they take decisions without considering hardships which these may cause to women. They do not assign economic value to women's work and take for granted women's contribution in the home or fields. Men tend to be more focused on cash and non-food crops, and have more information of resources in the market.

A UN Study says that Women's enormous potential to contribute to biodiversity conservation and sustainable development is still



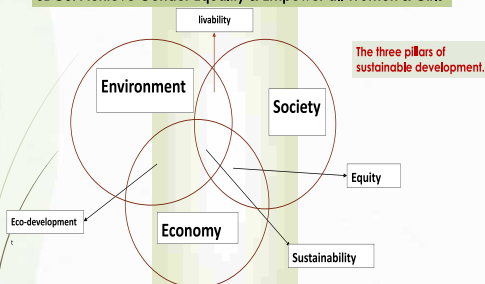


to be fully explored and they can bring new perspectives to conservation. The Sustainable Development Goal 5 (SDG-5) is committed towards **“Achieving Gender Equality & Empower all women and Girls”**, which is imperative for an all inclusive , holistic development.

Women have a different perspective and their leadership examples in Biodiversity Conservation and sustainable use have been exemplary. We see them as –farmers, entrepreneurs, crop protectors, fisherwomen, medicinal plant conservators, wild species protectors. The Millets sisters of Zaherabad; Tribal women of Assam, using Komal Chawal ( an indigenous rice variety that can be eaten without cooking) during floods; Fisherwomen who guard their fish farms in the absence of the men folk; the lone woman fighter saving the Greater Adjutant Stork are inspiring stories of women who have shown tremendous strength and courage especially at the times of adversity along with conservation and management of their bio-resources.

Women play a very important role in Biodiversity Conservation and therefore, they need to be empowered. She said that the traditional Knowledge of woman is rich and should be documented specially in the Aravallis and Shiwalik regions in the State of Haryana.

#### SDG5: Achieve Gender Equality & Empower all Women & Girls



Target 5.5: **Ensure Women's full & effective participation and equal opportunities for leadership.**

#### The Millet Sisters of Zaherabad

M. Ratnamma, Leader of Sangham  
 B. Tuljamma – 5300 acre fallow land under millet  
 K. Sunandamma – 90 acre story hillcot to lush forest  
 Y. Kanakamma – Sanctuary of rare medicinal plants  
 N. Anjamma – Plant Genome Saviour Award- conserving 100 varieties  
 Magulamma – Nari Shakti Puraskar (seed heritage)



Women have the inherent strength and resilience to brave any storm and at the same time also rejoice on the positive side of even the most hostile situation.  
**The time to wake up is NOW !**

Thank you for your kind attention 🙏

### Recommendations:

- A large network of conservation efforts by rural women has provided a system of sustainable use of biological resources which remains largely unrecognized which needs to be documented and emulated.
- The Traditional knowledge of women needs to be identified and recognized. Lessons learnt from their strengths and weaknesses should be incorporated in policies and management plans.

### Session - Biodiversity and Ecosystem Services

*Dr. Sharda Gupta- Prof. of Botany (Retd), Kurukshetra University, Kurukshetra*

Dr. Gupta spoke on the issues of Biodiversity and Ecosystems and its Benefits, Threats to biodiversity, ecosystem services and biodiversity conservation. Genetic diversity contributes to resilience and allows crops and livestock to adapt to changing conditions which is the very basis of future food security. She pointed how species that lack variation and inability to adapt to pressures of environment become extinct. Ecosystem diversity provides fundamental ecosystem services- carbon sequestration, plant pollination, pest control by natural predators, watershed protection and erosion control, maintenance of soil fertility, breakdown of waste and pollutants. Biodiversity is essential to food and agriculture and is vital to food security and medicines (both traditional medicines and modern pharmaceutical sector).

She stated that the Global value of ecosystem services in 2011 was estimated as \$125



trillion/year in comparison to the cumulative Gross Domestic Product (GDP) of all nations as \$108.5 trillion (calculated by World Bank in 2014). The UN Millennium Assessment found that losses in Biodiversity have been rapid in the past 50 years, with quarter of mammals facing extinction, only 10 percent of big ocean fish remain.

Dr Gupta attributed the causes to multiple facets of human activity which are a threat to Biodiversity. Human intervention has led to habitat loss, increase in invasive species, pollution, over harvesting, climate change, ocean acidification etc. She closely linked Biodiversity to

poverty especially in rural areas, where the poor depend directly on biodiversity for their survival and well being.

In the Indian context, biodiversity is important as it supports 18% of human population and also 18% of livestock population and accounts for nearly 7% of globally recorded species. In the context of Haryana, the forests of Shiwaliks are bestowed with rich biodiversity where the Yamuna river, the largest tributary of the Ganges, supports aquatic biodiversity and provides numerous ecosystem services such as ground water recharge, climate regulation, fisheries and flood control.

## Biodiversity is essential to food and agriculture



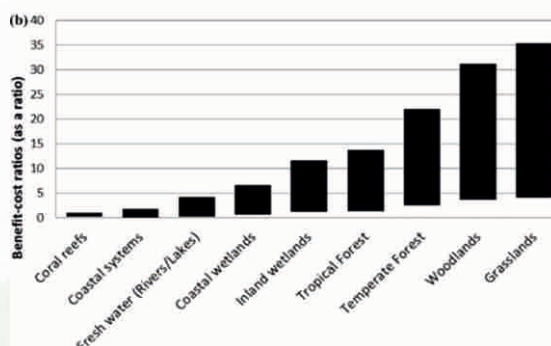
## Biodiversity contribution to achieving sustainable development goals



### Recommendations:

- Nature Based Solutions by protection, restoration and management of natural and semi-natural ecosystems.
- Nature based agriculture should be propagated.
- Mobilise resources to protect biodiversity damage.
- Mainstreaming biodiversity and ecosystem services into poverty eradication and developmental processes.
- Economic value of biodiversity to be integrated through cost/benefit analysis for decision makers.

*Investing in nature (restoration) pays !  
Provides more Benefits than Costs*





## Session - Weeds a Threat to Agricultural Farming and Biodiversity

*Dr Samandar Singh,  
Prof. & Head, Agronomy (Retd.) CCS HAU, Hisar*

Dr Singh briefly pointed that we need to be better implementors and not just be great planners. He stressed that much research is taking place but very few ideas get implemented and replicated on the ground. As a Weed Science Specialist, he raised the issue of weeds that are a threat to biodiversity and pointed out that this is primarily due to the practice of mono-cropping undertaken by the farmers. He stated that crop diversification should be propagated to ward off the evils of invasive species and weeds. The farmers in Haryana are growing mostly wheat and paddy which are economically viable for them, but this trend needs to be changed and be addressed at the policy level.

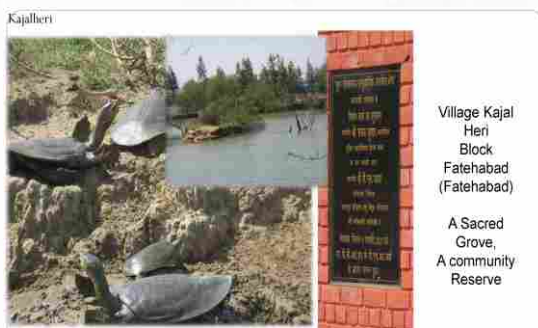
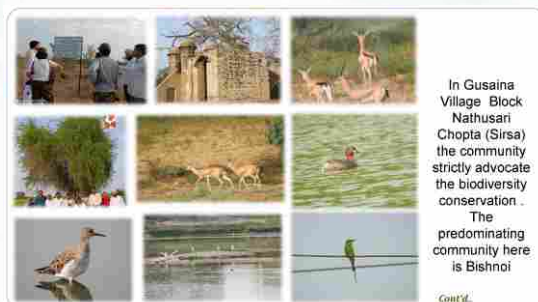
### Recommendations:

- Mono cropping needs to be replaced with multi cropping patterns
- Crop diversification is important for sustainability.
- Policy level intervention required to encourage crop diversification .

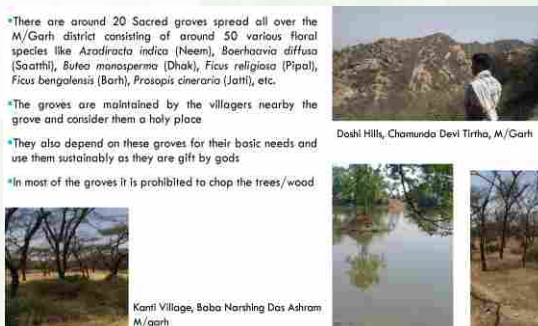
## Session – Experience Sharing by Technical Support Groups (TSGs) of HSBB

1. Ms. Ankita Rajput from Maaty, TSG, shared some good practices adopted by the communities in the three districts namely Hisar, Sirsa and Fatehabad. She stated that in Gusaina village of District Sirsa, Chinkara is conserved by the Bishnoi community. Neelgai and Chinkara are conserved in Bodapal and Dangar villages of Fatehabad district. The turtles are conserved by the villagers of Kajalheri village of Fatehabad. In Ratta Khera (Fatehabad), Asrawan, Dhobi and Kirdhan (Hisar) villages, birds and Neelgai are conserved by the communities. Trivenies (Peepal, Banyan & Neem saplings) are planted on cremation of their near and dear ones by the villagers not only as a mark of respect for the

departed soul, but also to encourage communities for planting native species.



2. Sh. Dhananjay Kumar, MD of NH Consulting, TSG working in Mahendragarh, Rewari and Jhajjar districts stated that organic crops are sown in many villages. In Dhani Kalan village of Rewari district, a wheat variety is organically grown for many years which needs less water in comparison to other varieties. Handmade bird feeders can be seen in village Manethi of Rewari district to conserve bird species. Sacred Tree groves in Kanti village -Baba Narsingh Dass Ashram in Mahendergarh district are examples of Biodiversity protection, conservation and community led initiatives. Fish farming in village ponds have distracted migrant birds adversely which is a cause of concern.



3. On behalf of TDU, Bengaluru, Dr. Chetan HC, Assistant Professor presented the community led practices in the districts of Palwal, Nuh and Rohtak. He highlighted how communities are using Bithoda for fuel and Bunga/Coop is made to store fodder for their cattle for long time. Mooda, Stool, Armchair are made using Sarkanda (a kind of grass).

He highlighted the challenges where community wetlands have been converted into private fish ponds, that is adversely affecting the migrant birds. Due to intense urbanization, many wetlands have been encroached or disappeared in the landscapes and he emphasized that communities need to focus on economically viable agroforestry which directly and indirectly enriches local biodiversity.

**TU Good practices**

**1. Substitute to fuelwood**

- 'Bithoda' - These are small temporary hut like structures, erected in the crop fields or adjacent to households in the villages, meant for storing large sized dung cakes (locally called 'ooprah') for the use of domestic fuel.

**Photo : Bithoda- the indigenous way of storing dung cakes**

• We find this practice is one of the **good practices**, which is **locally evolved**, indicating **ingenious ways of utilizing local resources for better use**.

**TU Good practices**

**3. Substitute to cane/wood chairs by utilizing locally available resources**

Commonly found grass weed, it is sub-species of sugarcane (*Saccharum* sp.).

This tall grass weed made out useful products.

The range of furniture - mooda or round stool, armchairs, two and three seater sofas, tables etc.,

**Photo. Sarkanda (grass furniture)/ Reed grass Chairs prepared from locally abundant weeds**

**TU Good practices**

**2. Utilizing local resources for better use**

**Bonga :** Is a traditional temporary hut like construction erected in the crop fields, for storing fodder, especially the chaff (locally called 'Bhoos') and chopped hay, and stalks of wheat.

These are usually built ingeniously using long reed like stalks of Jhond grass (*Saccharum* spp.) and sturdy dried stalks of cotton, jowar and bajra.

**Photo : Bonga- an indigenous form of silo**

4. Dr. Chetan Sharma, CEO of Datamation, TSG stated that they have imparted trainings to BMCs in Kaithal, Karnal and Kurukshetra districts and have almost completed the work of data collection for preparation of PBRs. Dr. Sharma emphasized that the community can be involved towards conservation of biodiversity.

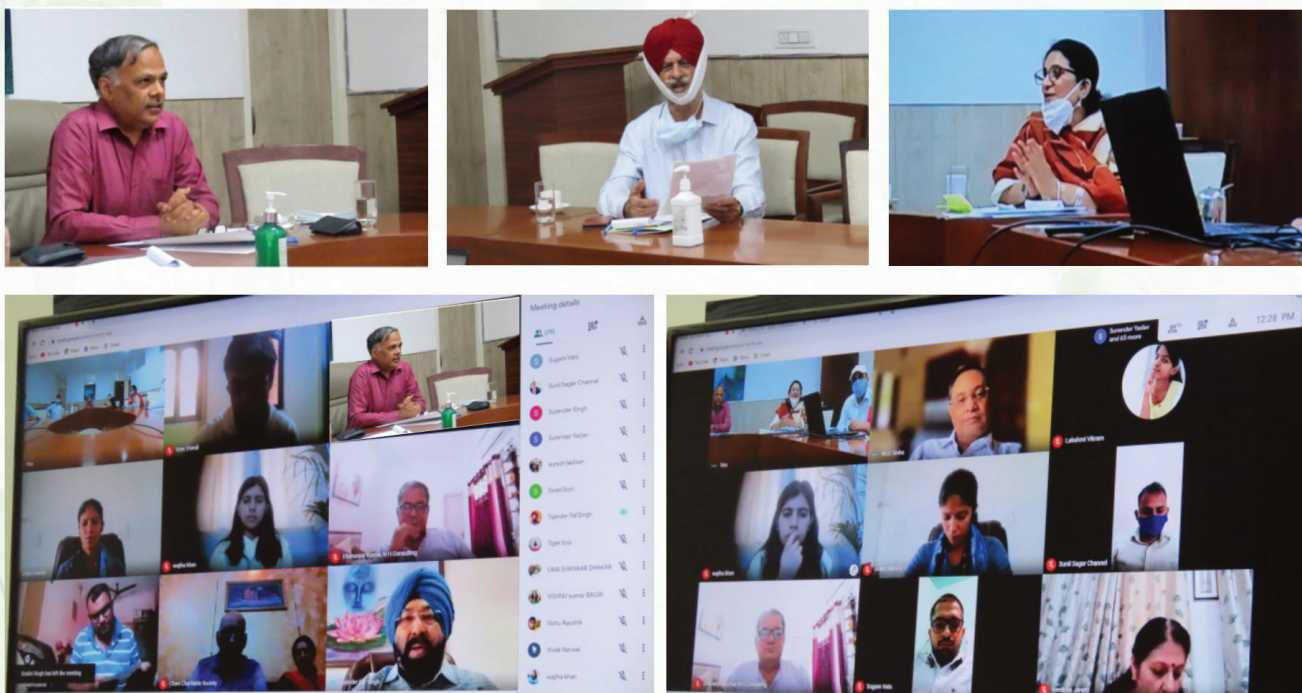
5. Sh. Abhishek Rajdeep, CEO of Everain TSG presented the success story of Mangar Bani of Faridabad district. Out of 4262 acres of total land of Mangar village, 1132 acres of land is under Mangar Bani, which provides shelter to leopards, porcupines, hyenas, jackals, jungle cats, neelgai etc. This Bani is a paradise for birds where 207 species have been recorded. The students of nearby villages and cities visit this Bani to learn about the importance of biodiversity, environment and to get knowledge about different species of plants, birds and animals. Number of Eco-clubs have been set up supported by the financial support of Corporates that encourage children to visit this Bani. Nature enthusiasts and tourists from Delhi NCR regularly visit Mangar Bani which is considered as the lungs of the NCR (National Capital Region)

6. Ms. Bhumika from Chavi, TSG working in the three districts of Bhiwani, Charkhi Dadri and Jind said that there is much awareness in the younger generation on environment and shrinking biodiversity. The communities are aware that in future this region will face catastrophic issue of ground water availability. In Dhanana village of Bhiwani district, polyhouses are being used by farmers to grow crops using less water. Organic farming and fish farming is being done in Chang village. Many communities are shifting to organic farming and do not use pesticides. Bee keeping is an activity undertaken by the villagers in Shiwani Block which was not the practice earlier in this region. Trivenis are planted by the villagers on large scale in many villages to conserve the flora. The plant of Tulsi can be seen in almost every house.





## Glimpses of the Webinar



Publisher : Haryana State Biodiversity Board (HSBB), Panchkula.  
Year : 2021  
Copyright : Haryana State Biodiversity Board (HSBB), Panchkula.  
Edited by : Sh. Vineet Kumar Garg IFS, Chairman, HSBB &  
Ms. Ruchi Kaushal, Scientific Officer, HSBB

Design & Print : Genius Graphics, Chandigarh

