CHHATTISGARH STATE CENTER FOR CLIMATE CHANGE
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Content

Message from the editor's desk.....

Dear Readers,

Greetings, first I would like to thank you all for appreciate and encourage our efforts in publishing this news letter. The keen interest shown by all stakeholders in the initiative taken by us, has given immense pleasure for me and my entire team.

I am glad to inform you all that this is our second issue of the news letter, and in this issue I have intended to draw the reader's attention towards some very important concerns about climate change and its effect on bio-diversity. It is great challenge for all of us that hundreds of species have been adversely affected and living under life threatening conditions, whereas many of them are already extinct by the ever growing change in climate and extreme events. In order to maintain a healthy ecosystem and rich biodiversity, spreading awareness and educating people in more scientific ways to deal with the elements our environment is a must now.

Through this news letter we also want you to know about the threat climate change is posing to the heritage sites and impact of worldwide climate change. One of important part of the message is how technology can help us to combat climate change.

I hope this issue will serve the purpose to enhance the knowledge about "Climate change and its impact on us and our surrounding environment" and will also inspire you to take active part in addressing the problem along with spreading awareness amongst other people.

Your suggestions and information, articles, write-ups related to Climate Change are welcome for publication in the next issue of this News Letter.

With best wishes for a brighter future.

(Dr. Arvind Anil Boaz)
PCCF & HoFF
Nodal officer on Climate change
Govt. of Chhattisgarh

Impact of Climate Change on Forest and Biodiversity of Chhattisgarh -Prof. N.H. Ravindranath

Chhattisgarh State Centre for Climate Change (CSCCC) initiated a Lecture series on Climate Change for different streams of people including politicians, officials of different departments, representatives of civil society, organisations and academicians from across the state. In the inaugural lecture of this program, India's eminent expert on Climate Change Prof. N.H. Ravindranath from Indian Institute of Science, Bengaluru shared his thoughts on the possible impact of Climate Change on Forests and Bio-diversity of the state. Prof. Ravindranath, who has authored various books and papers, also been author of several IPCC (Intergovernmental Panel on Climate Change) Assessment Reports on Climate Change including being the lead author of Green House Gases, IPCC Guidelines.
Dr. A. A. Boaz, PCCF & Head of Forest Force (Forestry Research, Training and Climate Change) and State Nodal Officer on Climate Change, Government of Chhattisgarh shared about efforts being made by State Center for Climate Change (SCCC) in his key note address, he also expressed his concern over the recent fragmentation that has happened in the international arena.

Dr. Boaz expressed confidence that the ultimate success of all the efforts being undertaken at the international level would be determined by the level of successful implementation at the ground level and therefore the role of sectoral department and State Centre for Climate Change is increasing in greater proportions with each passing day.
Hon'ble Smt. Champa Devi Pawle, Parliamentary Secretary, Forest, who presided over the function, expressed the need for State Center for Climate Change to organise such orientation programs from time to time, across the state.

The lecture had organised at Auditorium Hall, Mahant Ghasidas, In his lecture Prof. Ravindranath mentioned that Climate Change is imminent and that we are left with no other choice but to be prepared. Our forest and bio-diversity would undergo a huge change in next two-three decades, resulting in total loss of existing forest with how much forest would be replaced is very uncertain and difficult to predict. More rain and more temperature might expedite growth leading to spread of fast growing species and some of these could be invasive and alien to us. Some shrubs, grasses and trees species may completely be wiped off and therefore conservation efforts should go together. A major risk however would be increased frequency of droughts and incidences of fire. Fauna would also not be spared. It is already facing a lot of stress due to habitat destruction and degradation.

Prof. Ravindranath further opined, “today when some developed nations are reneging on their commitments, India's commitment is unflinching and would be modified only upwards. India's commitment to Paris agreement are very ambitious and aspirational .Chhattisgarh and other States would have to proactively respond to the emerging states.

Climate Change: A threat for Archaeological Sites

The climate of our planet is changing. The climate has always been variable, but today there is a growing concern over climate change issues, perhaps because the magnitude of the change seems to be unprecedented but, more importantly, there is strong evidence to suggest that humanity might be directly responsible for climate change.

"An archaeological site is a place (or group of physical sites) in which evidence of past activity is preserved (either prehistoric or historic or contemporary), and which has been, or may be, investigated using the discipline of archaeology and represents a part of the archaeological record. "

Archaeological heritages sites are a heritage site having a value that has been registered by a government agency as being of national importance to the cultural heritages or history of that country.

Archaeological heritages are affected by the impacts of climate change at present thus the continued preservation requires, understanding these impacts to their outstanding universal value and responding to them effectively.

Historical impacts of climate change

The effects of global warming are the environmental and social changes caused (directly or indirectly) by anthropogenic emissions of greenhouse gases. There is a scientific consensus that climate change is occurring, and that human activities are the primary driver. Many impacts of climate change have already been observed, including glacier retreat, changes in the timing of seasonal events (e.g., earlier flowering of plants), and changes in agricultural productivity.

Future effects of climate change will vary depending on climate change policies and social development. The two main policies to address climate change are reducing human greenhouse gas emissions (climate change mitigation and adapting to the impacts of climate change). Geo-engineering is another policy option.

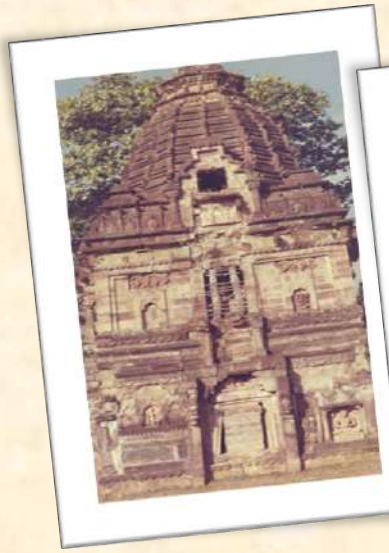
Climate has affected human life and civilization from the emergence of hominines to the present day. These historical impacts of climate change can improve human life and cause societies to flourish, or can be instrumental in civilization's societal collapse.

Impact of climate change on Archaeological heritages

Architecture can be described as the sum of the social, economic, political and cultural developments. The places people live in also live for years. The representatives of architectural heritage each have its own architectural, historical and cultural message have undertaken a social duty to give cultural messages to their environments and future generations. Architecture taking place at the intersection zone of technique and art is the physical and permanent sign of social and economic life culture and national structural culture.

Climate Change is the act of all atmospheric events such as rainfall, temperature, wind, air pressure and humidity etc. In recent years, the alterations about natural environment and climate observed in Chhattisgarh state negatively affected the monumental buildings, the cultural riches of the state that they have been worn out by various natural effects for a long time.

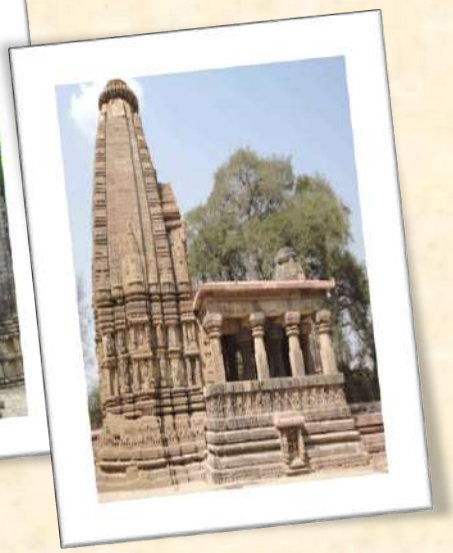
Dr. Sanjay Prasad Gupta
ASI, Raipur Circle



Kanthideol, Ratanpur
Before Conservation

Kanthideol, Ratanpur
After Conservation

Mahadeva Temple,
Narayanpur, Before
Conservation



Mahadeva Temple,
Narayanpur, After
Conservation

Reference: Published in 2007 by UNESCO World Heritage Centre Reprinted in May 2009
Picture credit:Archaeological Survey of India, Raipur Circle

Soil and Water Conservation with Reference to Climate Change

United Nations Framework Convention on Climate Change (UNFCCC) defines "climate change" as: „a change of climate which is attributed directly or indirectly to human activities that alter the composition of the global atmosphere and which are in addition to natural climate variability observed over comparable time periods. It is any systematic change in the long-term statistics of climate elements (such as temperature, pressure, or winds) sustained over several decades or longer. Main reason for climate change is the change in gaseous composition of earth?s atmosphere. It is happening mainly due to increased emissions from different sectors viz. energy, industry and agriculture sectors. Widespread deforestation, changes in land use, land cover and land management practices are also responsible for climate change. When we talk about climate change we really need to be concerned on the fact that **climate change affects development and development affects the climate**. So, we need to revisit, rethink and possibly redesign the parameters of development especially from the point of view of environment. We really need to have a relook at our technologies whether carbon emitting or sequestrating, and to what magnitude?

The consequences of climate change could be variation in temporal and spatial water availability (Surface Water as well as ground water), frequent occurrence of flood and drought (Intensity, Frequency and Magnitude), higher glacier retreat rates, reduction in snow precipitation, sea level rise (sea water intrusion in coastal areas) etc. Global warming is leading to change in climate. As temperature increases so does the process of evaporation. In addition the moisture holding capacity of the atmosphere increases with temperature. For every 1°C increase in global temperatures there is a 7% increase in the moisture holding capacity of the atmosphere. Now, rainfall intensity should increase at same rate as increases in atmosphere moisture (7% / degree C), hence; more moisture in the atmosphere ultimately leads to changes in rainfall patterns (http://www.waterandclimatechange.eu/evaporation).

In Chhattisgarh, the climate in many districts is becoming semi-arid. In general the state is moving from a wet to dry climate (Department of Agrometeorology, IGKV). The situation may put additional pressure on already overexploited aquifers due to need of irrigation water. One of the solutions to these problems is Storage (Ground water or Surface water) through adoption of soil and water conservation measures. Government has taken suitable measures by creating series of anicuts and check dams in the nallahs and rivulets. Another solution could be the wetland conservation and its judicious managementClimate change, in addition to the ever bursting population threatens the food security and presents one of the biggest challenges before agriculture.

Climate change is also responsible for extreme weather events, which is creating environmental hazards, accelerated rate of soil erosion, and also threatening the agricultural production. Increase in soil erosion rates will reduce productivity. Climate change, in addition to the ever bursting population threatens the food security and presents one of the biggest challenges before agriculture.

Looking at the alarming situation Indian Council of Agricultural Research (ICAR) has launched a major network project, National Initiative on Climate Resilient Agriculture (NICRA) during February 2011 to undertake strategic research on adaptation and mitigation, fill critical research gaps, and demonstrate technologies on farmers? fields to cope with current climate variability and capacity building of different stakeholders. Interventions under NICRA leading to Soil and Water Conservation are in-situ moisture conservation, biomass mulching, residue incorporation instead of burning, brown (animal) and green (Plant) manuring, water harvesting and recycling for supplemental irrigation, improved drainage in flood prone areas, conservation tillage, artificial ground water recharge and water saving irrigation methods.

Current estimate of soil loss in the country is around 5000 M tons yr^{-1}. This will account for loss of millions of rupees when converted in terms of nutrient. Now, with more intense floods due to climate change this estimate is further going to increase and agriculture situation going to worsen. Additionally, climate change can increase the potential for higher erosion rates, which is also of concern because erosion has been reported to lower agricultural productivity by 10% to 20% (Quine and Zhang 2002; Cruse and Herndel 2009). Since there is direct relationship between soil and water conservation practices and agriculture productivity, it is confirmed that without the application of appropriate soil and water conservation measures, it will not be possible to increase the agriculture productivity to feed the growing population. Solution lies in the soil and water conservation measures; which can be broadly classified based on land slope as agronomical/biological measures and engineering/mechanical measures.

The challenges of climate change mitigation and adaptation can be met by maximizing soil and water conservation. This will also enable to develop sustainable systems. Soil and water conservation needs for climate change mitigation and adaption includes prevention of soil erosion, creation of irrigation infrastructure, adoption of modern irrigation practices for increasing irrigation efficiencies, soil and crops management to increase water-use efficiencies, diversification of cropping systems, developing drought-tolerant crop varieties, developing secondary storage at farmers field (Small farm reservoir), resynchronization of agricultural operations matching with the shifts in rainy season, carbon sequestration, awareness and valuation of agricultural produce with their respective water and carbon footprint and precision agriculture. To conclude, a sound scientific approach incorporating the concepts of agronomy, soil science and soil water conservation is needed to build and maintain sustainable agricultural production systems.

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CLIMATE VULNERABILITY OF THE ASIAN ELEPHANT

ASIAN ELEPHANTS (Elephas maximus) occur across a range of diverse habitats and feed on a variety of abundant vegetation. These traits contribute to their resilience to a changing climate. However, a number of traits make them vulnerable to a changing climate, including a declining population size, sensitivity to high temperatures, invasive plant species outcompeting their regular food sources, and susceptibility to disease. Asian elephants also have a low adaptive capacity due to a limited dispersal ability (stemming from increasing habitat fragmentation), a long generation time, a slow reproductive rate and only moderate amounts of genetic variation within the species. of most concern for elephants is their need for high amount of fresh water and the influence this has on their daily activities, reproduction and migration. Other threats—such as habitat loss, human-elephant conflict and poaching— remain high, and have the potential to increase due to the effects of climate stressors on humans and resulting changes in livelihoods. Priorities for climate based Asian elephant conservation should include securing fresh water; maintaining and increasing suitable, connected habitat; controlling the spread of invasive plant species; and increasing monitoring for disease and other causes of mortality. It is also essential to create improved conditions in which people can adapt to current and future changes in climate, and continue to focus on reducing threats such as human-elephant conflict.

RECOMMENDED CLIMATIC ADAPTIVE MANAGEMENT STRATEGIES

1 . Secure fresh water in areas that are experiencing drought or are projected to experience drought. This could include providing separate and additional water sources for wildlife, people and livestock, to reduce conflict over water.

2. Monitor and control invasive species like Lantana sp., which may further thrive under changing climatic conditions.

3. Monitor disease, particularly pathogens to which elephants may not have had previous exposure.

4. Increase monitoring of population range shifts, changes in phenology, changes in population abundance, changes in behavior and the correlation of any of these with changes in weather and climate.

5. Increase the extent of protected areas to include stepping stones, movement corridors and climate refugia; improve management and restoration of existing protected areas to facilitate resilience.

6. Outside protected areas, provide and restore movement corridors (including across country borders) and adequate space for elephants to roam.

7. Reduce pressures from other threats, many of which are likely to be exacerbated by climate change, through increasing the capacity of humans to manage the effects of climate change.

SOURCE -https://www.worldwildlife.org

Baseline survey in Mahasamund

Chhattisgarh State Centre for Climate Change has taken various initiatives to increase the adaptive capacity of the vulnerable communities of the State. The centre is implementing a pilot project namely "Climate Adaptation in Wetlands along the Mahanadi River Catchment area in Chhattisgarh" with financial support from Ministry of Environment, Forest & Climate Change, GoI. Results of this project will help to develop appropriate adaptive planning for tribal & rural communities of the state which are highly vulnerable to the climate change.

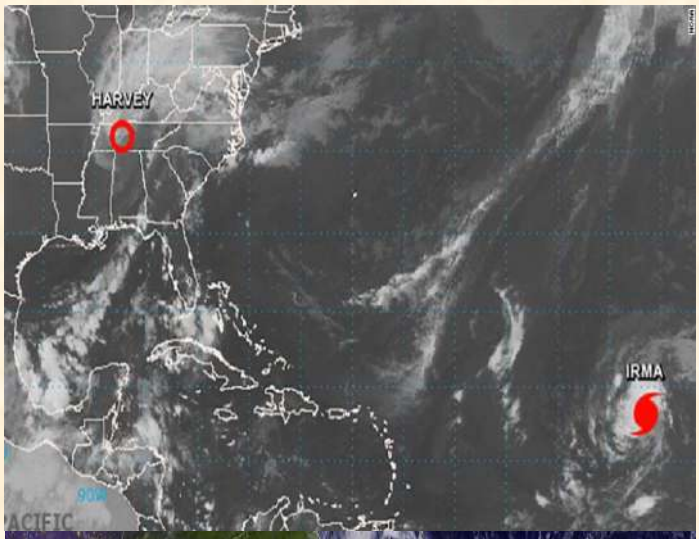
Baseline survey in Mahasamund District

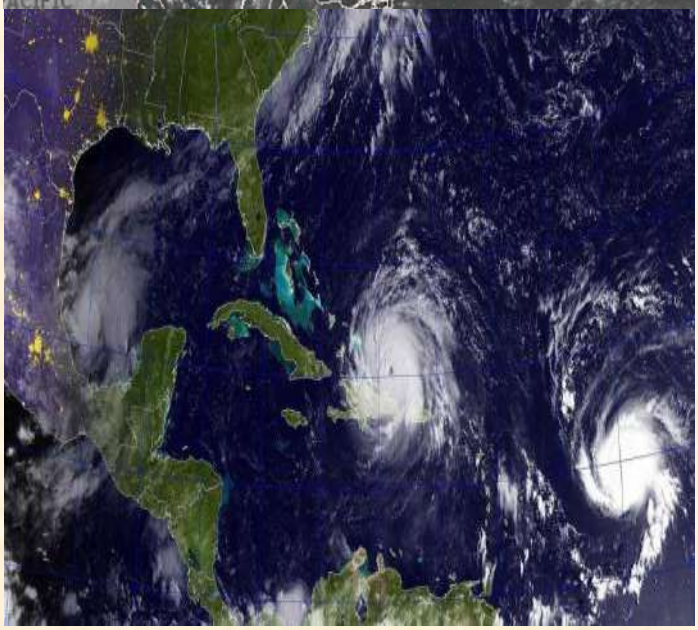
Baseline survey of Mahasamund forest division has been completed under this project. This survey has been carried out by a team of experts of the centre in 07 villages of the division. In depth door to door survey followed by group discussion, transact walk used for data collection. Data from 176 (20%) families of the various segment of the community of the project area has collected during the survey. Information based on agriculture, forest, forest produce & their use, water, animal husbandry, health & their association with Climate Change has been documented.

Irma and Harvey: very different storms, but both affected by climate change

There are several vital ingredients needed for hurricanes to form. These include an Initial disturbance in the atmosphere for the storm to form around, very warm sea surface temperatures to sustain the storm, and a lack of vertical wind shear so the storm is not torn apart during its formation. In the Atlantic Ocean, hurricanes often form near Cape Verde off the coast of West Africa. From there they move westward towards the Caribbean and the US. Lots of factors can affect how strong these storms ultimately become, including how much time they spend gathering strength over the ocean, and the background weather patterns through which they travel.

This storm season we have seen sea temperatures persistently 1-2°C above normal over the tropical Atlantic Ocean, which has allowed stronger storms to form and develop. Atlantic sea temperatures have warmed over the past century, thus enhancing one of the key ingredients for hurricane formation. The climate change influence is clear for the sea temperatures, but not so much for the other ingredients required in forming Hurricanes.

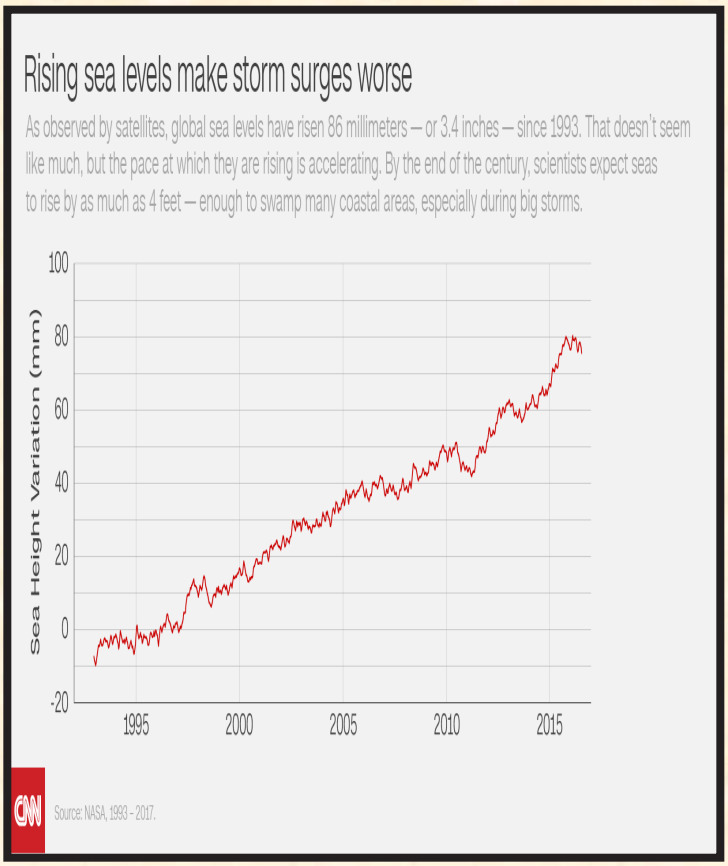




Main impacts

Climate change may not be responsible for the recent skyrocketing cost of natural disasters, but it is very likely that it will impact future catastrophes. Climate models provide a glimpse of the future, and while they do not agree on all of the details, most models predict a few general trends. First, according to the Intergovernmental Panel on Climate Change, an increase of greenhouse gases in the atmosphere will probably boost temperatures over most land surfaces, though the exact change will vary regionally. More uncertain—but possible—outcomes of an increase in global temperatures include increased risk of drought and increased intensity of storms, including tropical cyclones with higher wind speeds, a wetter Asian monsoon, and, possibly, more intense mid-latitude storms.

Irma?s main impacts have been through the storm surge, the strong winds and the Heavy rains. Climate change has likely worsened the effects of Irma. As described above, we know that climate change is intensifying extreme rain events. We also know that climate change is worsening storm surges by raising the background sea level on which these events occur. Sea levels are projected to rise further over the coming century, by 50-100cm under a high greenhouse gas emissions scenario, and 20-50cm if we greatly reduce our emissions So while it?s likely that climate change is contributing to more extreme hurricanes, we have even more confidence that climate change is worsening the impacts of these storms, and will continue to do so over the coming decades.



Sources:
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Effect of Climate Change On Frogs

Introduction

Unlike reptiles or birds, which have hard-shelled eggs, amphibians have jelly-like, unshelled eggs that cannot survive desiccation. Amphibians need moist climates to reproduce, and this makes them extremely sensitive to **climate change**. Frogs in high mountainous areas are most affected by **global warming**. The climate change debate always seems to focus on the potential harm that may happen in the future if we don't act now. We need to make sure people know that climate change is ALREADY causing huge problems for the frogs!

Climate Change in Tropical Regions

In many areas of the world, especially in the tropics, mountainous areas have extremely high amphibian biodiversity. For instance, some sites in the mountains of Costa Rica and Panama may have up to 60 species. In these tropical montane areas, many of the amphibians live in cloud forests, and lay their eggs in the moist leaf-litter. As the eggs are laid away from water bodies, the embryos bypass the aquatic tadpole stage and hatch directly into tiny froglets. These 'direct-developing' species (like the Marsupial Frog *Assa darlingtoni* pictured here) are under serious threat from global warming, which acts to raise the cloud levels. If the cloud's average elevation increases a few hundred meters, the frogs at the newly-exposed lower elevations lose their habitat (and their lives) as the soil dries.

While the affected frogs could potentially move up the mountain to find cool, moist habitat, many frog species already live at the tops of mountains, so when their habitat dries or warms, they have nowhere left to go. Another issue is that mountains are shaped like cones, and at a given elevation, there is less total area at higher elevations, so an amphibian that is forced to higher elevations would find itself in potentially crowded conditions.

Climate change also affects host-parasite relationships. The deadly chytrid fungus (*Batrachochytrium dendrobatidis*) is expanding its elevational range in the high Andes of Peru as the glaciers melt and new lakes are formed. The fungus was recently found infecting *Telmatobius* frogs as high as 5348m elevation.

Source: http://www.savethefrogs.com

Information Technology: An important tool to fight against Climate Change

The Climate change has been attracting a lot of attention for a long time. We can feel the adverse effects of climate change everywhere. like, glaciers are melting, sea levels are rising, cities are experiencing recurring floods and deforestation is on the rise.

To handle this issue, we can use big data and predictive analytics which can potentially provide accurate, real-time or near real-time analytics. Over the years, a lot of work has been done on this front which is reflected in the availability of tools like Google Earth Engine , Microsoft Research?s Madingley Model, and the Global Forest Watch . Given the rate at which climate is changing, we should have to respond fast. Big data and predictive analytics technologies have enabled stakeholders to process huge volumes of data fast and generate accurate insights. Sensors are collecting data on various variables such as forest cover, rain, soil, and helping establish correlations between datasets. It is clear that big data and analytics is and will be one of the most important tools governments will be using while they find ways to mitigate effects of climate change.

Below are some details about tools and the source of the data where we can find the datasets.

Google Earth Engine :- The Google Earth Engine compares the state of environment across years or decades, identifies problems so that it can be fixed. We can understand it with an example of how this works is the Lake Urmia, a salt lake in Iran. Google Earth shows that in 1984, the color of the lake was teal blue. After a few years, the color has changed to green. Cut to 2012, the color is brown. Similarly, deforestation in Amazon Rainforest has been tracked. The engine compiles publicly available satellite imagery to identify environmental damages across the earth.

Climate datasets by Data.gov :- http://www.data.gov/ is a large collection of more than 192,289 datasets on an array of topics. Climate is a part of all these datasets. These datasets provide credible, updated data on an array of climate-related topics. You can, for example, expect a live feed of earthquakes happening across the earth, time lapse maps showing changing temperature in the Great Lakes throughout the year, and prizes of the fertilizer. How valuable could be the inputs from this website is demonstrated by a small project developed in 2006. It was about a tool the impact of change in climate on crops analyzed by that.

Global Forest Power :- It is a tool that helps track the forest cover across the world. It offers an interactive map which provides an array of information such as deforestation, forest cover, in any specific region, forest fire. The tool is a popular one, used by entities, such as the Indonesian Government, Nestle and Unilever.

Abhinav Agrahari
JRF (IT)
(Chhattisgarh State Center For Climate Change)

Climate change in the Headlines

नईदुनिया रायपुर दि. 15/07/2017

कार्यशाला : विश्वभर में बदल रहे मौसम पर चिंता, विशेषज्ञ और आईआईएम बेंगलुरू के प्रो. रवीन्द्रनाथ ने कहा

'जलवायु परिवर्तन, छोटी कोशिश से बड़ा असर संभव'

कोयला, डीजल के दोहन से बढ़ रहा तापमान

नवभारत रायपुर 15/07/2017

जलवायु परिवर्तन से वनों को सर्वाधिक खतरा

संस्कृति विभाग सभागार में पर्यावरण पर सेमिनार का आयोजन. नवभारत फोटो

■ नवभारत रिपोर्टर। रायपुर.

जलवायु परिवर्तन विषय के विशेषज्ञ एवं भारतीय विज्ञान संस्थान बंगलौर के प्रो. एन.एच. रविन्द्रनाथ का कहना है कि जलवायु परिवर्तन का व्यापक असर अगले 20 से 30 सालों में वनों पर पड़ेगा. 15 से 20 फीसदी वन घट जायेंगे क्योंकि प्रदूषण से तापमान बढ़ेगा एवं मिट्टी पर नमी की कमी से हरियाली सफाचट हो जायेगी.

प्रो. रविन्द्रनाथ शुक्रवार को महंत घासीदास संग्रहालय के सभागार में जलवायु परिवर्तन से राज्य के वन एवं जैव विविधता पर प्रभाव विषय पर आयोजित एक दिनी व्याख्यान माला में अपने विचार व्यक्तकर रहे थे. उन्होंने कहा कि छत्तीसगढ़ में भी जलवायु परिवर्तन से अगले दो से तीन दशकों में वनों का प्रकार बदलेगा. मौजूदा वन व्यापक रूप से भी नष्ट हो सकते हैं. वनों में किस तरह का बदलाव आयेगा? यह कहना कठिन है. डॉ.

व्याख्यान माला

- 20-30 सालों में 20 फीसदी वन घट जायेंगे- डॉ. रविन्द्रनाथ
- विकसित राष्ट्र अपने वादों से मुकर रहे हैं
- जलवायु परिवर्तन केन्द्र की जिम्मेदारी बढ़ेगी- डॉ. बोआज

रविन्द्रनाथ ने बताया कि जलवायु परिवर्तन एक निकटतम मुद्दा है एवं हमारे पास इससे निपटने के लिए तैयारी के अलावा कोई दूसरा रास्ता नहीं है हमारे वन एवं जैव विविधता एवं बड़े परिवर्तन के दौर से गुजर रहे हैं औ जलवायु परिवर्तन वन की सम्पूर्ण संरचना को प्रभावित कर सकता है अधिक वर्षा एवं अधिक तापमान तेज से बढ़ने वाली प्रजातियों को बढ़ावा सकता है, जिनमें ■ शेष पेज 5 पर

वन वासी में निवासरत लोगों को जीविका खतरे में- पावले

कार्यक्रम की अध्यक्षता करते हुए संसदीय सचिव (वन) श्रीमती चम्पादेवी पावले ने कहा कि छत्तीसगढ़ में इस प्रकार के आयोजन भविष्य में और किए जाने की जरूरत है क्योंकि जलवायु परिवर्तन का प्रभाव केवल वनों पर नहीं सम्पूर्ण मानव जीवन पर पड़ेगा. श्रीमती पावले ने कहा कि जलवायु परिवर्तन का प्रतिकूल प्रभाव अन्दरूनी वनवासी निवासरत लोगों की जीविका पर पड़ सकता है.

The Hitavada, Raipur 15/07/17

Workshop on Impact of Climate Change on Forest, Biodiversity of Chhattisgarh

■ Staff Reporter
RAIPUR, July 14

AN INTERNATIONALLY renowned research scholar Professor NH Ravindranath gave luxuriant lecture on the climate change and its effect on people of nation in a workshop on Impact of Climate Change on Forest and Biodiversity of Chhattisgarh organised by State Forest Research and Training Institute (SFRTI) and State Centre for Climate Change here on Friday.

Workshop began with keynote address by SFRTI and State Centre for Climate Change Director Principal Chief Conservator of Forest (PCCF) Dr AA Boaz, who introduced the guest Parliamentary Secretary Champa Pawle and chief orator NH Ravindranath (Co-Author IPCC report and lead author-GHG IPCC Guidelines).

Setting up the course of workshop, Dr Boaz expressed concern on deficiency of technical knowledge and highlighted the importance of workshop in filling up this shortcoming. He announced organising such lecture on regular basis. His department had sent many proposals to government and other concerned department since the formation of State Centre for Climate Change in 2014. One of the most important topics of the day was growing scarcity of water due to climate change. Water bodies are being threatened and in response to this, the department come up with a conservation project for wetlands at Mahasamund, Balodabazaar and Dhamtari. It will be a 4-year project funded by Government of India (GOI) and supported by Department of International Development (DFID).

Following PCCF Boaz, Parliamentary Champa Pawle also presented her views on the growing challenges due to climate change in Chhattisgarh. She emphasised on conservation of environment with protection of forest and dwindling wildlife. She focused on synergising local people in environment conservation.

Then began the lecture of Professor NH Ravindranath, wherein he presented an elaborated power point presentation on status of climate change, its effects on world population through immaculately drawn out infographics profuse with pie charts, maps and graphs.

From breaking of biggest iceberg breuk off in Antarctica, to forests fires in France, Portugal, Germany, Canada, Australia as well as Indonesia in recent times, Professor Ravindranath presented devastating figures indicating the cataclysmic effects of climate change.

He explained how these radical changes in weather patterns and bringing permanent mutation in the overall climate world over. Situation is so bad that it has become impossible to predict rainfall, which has become so sporadic and patchy. Such unpredictability is causing huge damage to farmers due to untimely rainfall. He also underlined how present science is incapable of making accurate climate models. Highlighting that the world population is already close to 7 billion and is expected to grow at highest rate in next 20 years, professor cautioned that it may result into mass starvation when the buffer stock of food grains will fall short of requirements.

हरिभूमि, रायपुर दि. 15/07/2017

बीस सालों के भीतर उजड़ जाएंगे 30 प्रतिशत जंगल, बचाना है तो मिलकर करना होगी पहल

कोयला, डीजल, प्रकृतिक गैस के लगातार दोहन के कारण ग्रीन हाउस गैस के उत्सर्जन से जलवायु का तापमान लगातार बढ़ता जा रहा है। जो आज ग्लोबल वार्मिंग की समस्या के रूप में पूरी दुनिया के सामने आ खड़ा हुआ है। अगर यह सिलसिला यूं ही चलता रहा, तो दस गुना तीव्रता के साथ ग्रीन हाउस गैसे उत्सर्जित होते जाएंगे, देखते ही देखते हमारे बचे जंगल में से 30 प्रतिशत जंगल अगले पंद्रह से बीस सालों में नष्ट हो जाएंगे।

रायपुर। अगर इनको बचाना है तो ग्लोबल स्तर पर सोलर, विंड एनर्जी के स्रोतों का इस्तेमाल व उन पर निर्भरता को बढ़ावा देना होगा। तभी जलवायु परिवर्तन के खतरे से दुनिया को बचाया जा सकता है। यह कहना है प्रो. एनएच रविंद्रनाथ का, जो इंडियन इंस्टीट्यूट ऑफ साईस बंगलुरू में जलवायु परिवर्तन विषय के विशेषज्ञ हैं। वे शुक्रवार को छत्तीसगढ़ स्टेट सेंटर फॉर क्लाइमेट चेंज द्वारा घासीदास संग्रहालय के ऑडिटोरियम में आयोजित इंपैक्ट ऑफ क्लाइमेट चेंज ऑन फॉरेस्ट एंड बॉयोडाईवर्सिटी ऑफ छत्तीसगढ़ विषय पर बोल रहे थे।

ग्लोबल इंवायरमेंट सेव की जरूरत

बड़े पैमाने पर क्लाइमेट चेंज पर ध्यान देने की आवश्यकता है। इसके लिए सभी देश को मिलकर जागरूकता लाने के साथ साथ इस दिशा में वैज्ञानिक उपाय ढूंढने होंगे। सभी क्लाइमेट चेंज की गंभीरता को समझते हुए बॉयो फ्यूल एनर्जी से अपनी निर्भरता छोड़नी होगी और सौर व विंड जैसे एनर्जी के और स्त्रोत इजाद करने होंगे।

न्यू एनर्जी टेक्नोलॉजी का अविष्कार

विशेषज्ञों का कहना है कि जलवायु परिवर्तन में बॉयो फ्यूल, बॉयो एनर्जी, कारखानों के बढ़ते जलते कोयले, पट्रोल-डीजल पर आधारित इनर्जी और जंगलों के विनाश ने ग्लोबल इंवायरमेंट क्लाइमेट को चेंज किया है। यह कारण तब तक अनियंत्रित होते रहे जब तक सीमा पार न पहुंचा है। इसमें और देर हुई, तो इससे उबर पाना मुश्किल हो जायेगा। इसलिए एक न्यू ग्लोबल एनर्जी टेक्नोलॉजी विकसित करने के लिए पूरी दुनिया के विशेषज्ञों को एक साथ काम करना होगा।

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