



Chhattisgarh State Center for Climate Change

Quarterly Newsletter

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Message from Honb'le Minister



Mahesh Gagda
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:: MESSAGE ::

Climate Change is the biggest challenge the world is facing today. As we all know Chhattisgarh with a large forest area, and nearly 32% of local schedule tribe population, is extremely vulnerable to Climate Change.

Chhattisgarh State Centre for Climate Change (CGSCCC) under the leadership of Dr. Arvind Anil Boaz has already embarked on the path of paving a way forward in both mitigation and adaptation efforts. I am happy to know that State Centre is going to publish a Newsletter on Climate Change initiatives at the global, national and sub-national levels. This is very important to disseminate the latest trends in this field to not only the direct stakeholders but also the common people of the society.

My best wishes to the Climate Change Centre for publication of the newsletter.

(Mahesh Gagda)

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From the Editor's Desk...



Dear Readers,

It gives me great pleasure and satisfaction to share with you the very first issue of the newsletter published by the Chhattisgarh State Centre for Climate Change (CGSCCC). The state center has come a long way to since its inception in 2014. Our efforts in the past have now started to bear fruits and serve its purpose. In this issue we are publishing the efforts made by the state centre and various key sectoral departments.

Climate Change is causing deep concern all over the world. It is not only concerned with developed countries but also affecting the developing countries as well. The adverse effects of climate change are clearly visible across our country. Large numbers of small and marginal farmer, tribal societies of the state are the most vulnerable. The state government has identified eight key sectors as per the National priorities that are directly related to the climate change and need immediate attention.

The state center for climate change has developed a state action plan for climate change which was approved by the state and the Central government in 2014. As part of implementation of the SAPCC, the state center on climate change was established and has a three tier structure :-

- a) The State Centre for Climate Change
- b) The Sectoral Cells in each identified Departments
- c) The District level implementation Committees

Your suggestions on this issue are welcomed. All readers are also invited to share information, articles, write-ups, success stories related to climate change for publication of the next issue of the newsletter.

I wish this Newsletter will go a long way in not only generating interest in Climate issues but also educate the masses on climate concerns and their mitigation and adaptation.

(Dr. Arvind Anil Boaz)

PCCF & Head of Forest Force

Member Secretary, Steering Committee (SAPCC)
State Nodal Officer on Climate Change

Chhattisgarh State Center For Climate Change(CGSCCC)

Chhattisgarh State Centre for Climate Change which is an institutional structure for implementation of the CSAPCC has a vision to serve as the Nodal body for coordination & overseeing climate change actions in the State. SCCC envision to address knowledge gap through strategies actions towards institutional and human resources capacity building initiatives . For the purpose and Knowledge Management Cell is being established in the centre as a repository of knowledge, sharing information & coordination of scientific knowledge etc.

State Center for Climate Change was established in the year 2015 and is housed in the campus on State Forest Research and Training. Since its inception till date, some of the achievements of CGSCCC are-

- Study on "Vulnerability Assessment of Chhattisgarh towards Climate Change" completed with the support of UNDP.
- Climate Change Innovations Programme (CCIP) project of DFID, UK Govt. launched in Chhattisgarh under which Forest Sector Review of the Chhattisgarh State Action Plan for Climate Change and Scoping study on Public Transport in Raipur have been completed.
- Training and orientation of department functionaries.
- Orientation of policy makers on climate change.

Objectives of State Centre For Climate Change

- To set platform for inter departmental coordination on implementation of CSAPCC.
- To act as a knowledge management centre, by strengthening existing knowledge and information base on climate change.
- To provide a platform for stakeholder engagement to develop climate adaptation and mitigation in a participatory manner.
- To act as a monitoring and evaluation agency in the implementation of CSAPCC.
- To promote capacity and skill among Government officials to mainstream climate change issue in development activities, raise awareness on climate change & risk reduction in development activity.
- To plan and budget the activity to effectively utilize the available resources and coordination on accessing international climate funds.

Ongoing initiatives....

Climate Adaptation in Wetlands along the Mahanadi River Catchment Area in Chhattisgarh
Climate Change is expected to have huge adverse impact on availability of water. In Chhattisgarh, majority of agriculture is rain based. Increase or decrease of water during peak requirement season may result in loss of crops. Wetlands are the major source of water storage during rains productivity. Wetlands have been subjected to stresses due to various factors including urbanization. Keeping this in view, state center for climate change is implementing a pilot project funded by ministry on "Climate adaptation in wetlands along the Mahanadi River catchment area in Chhattisgarh". in three districts, namely Baloda Bazar. Mahasamund and Dhamtari. The specific objects of the project are

- Develop baseline on climate change vulnerability to ecosystems and local livelihoods in the project area.
- Promote an integrated climate adaptation strategy for wetlands and its dependent communities through water conservation and demand side management.
- Improving adaptive capacity of farmers and other wetlands dependent local communities.
- Identify good practices and success from this pilot project and develop knowledge products for wide dissemination for replication across the state of Chhattisgarh

Chhattisgarh State Action Plan on Climate Change(CSAPCC)

Chhattisgarh State Action Plan on Climate Change (CSAPCC) started in 2009, draft was approved by the state and central government in 2013 and 2015 respectively. Chhattisgarh State Action Plan on Climate Change has been developed with the vision of - 'Inclusive Growth for Improved Resilience' in the State. The CSAPCC has identified eight key sectors Agriculture and allied sectors, Forest and biodiversity, Water resources. Urban development, Transport, Energy, Industries and mining, Human health. For each sector a detailed long and short strategies has been proposed to be implemented. These strategies include bring about conservation and optimum use of natural resources, becoming more energy and resource efficient in production, mining and industries while also ensuring preparedness of people, their livelihoods, agriculture and allied sectors, health, urban habitat development towards possible climate risk and associated vulnerabilities while encompassing aspects like poverty alleviation, livelihood improvement, gender. The vision is to achieve an environmentally sustainable industrial economy and climate resilient rural development in Chhattisgarh.

Knowledge Management Cell

Support for establishing KMC is being provided under the National Mission for Strategic Knowledge Management on Climate Change (NMSKCCC) mission of Department of Science and Technology by the Government of India. The knowledge management cell which will act as a one point source of information and resource on climate change in the state is expected to be fully functional by the end of this calendar year. An interactive website is being developed. Various other initiatives to reach out the common citizen and enhance awareness and knowledge on climate change and its impact is being worked out in collaboration with the departments.

The following research activities are proposed to be initiated in this calendar year: -

- A study on assess vulnerability profile of communities and ecosystems in Chhattisgarh.
- Capacity building over 500 stakeholders on climate change issues.
- To increase public awareness especially among local communities on climate change adaptation.
- To increase institutional capacity to manage climate change issues through adaptation and mitigation activities.



TIME LINE FOR CLIMATE CHANGE INITIATIVE

1979	The first World Climate Conference takes place.
1988	The Intergovernmental Panel on Climate Change (IPCC) is set up.
1990	The IPCC and the second World Climate Conference call for a global treaty on climate change.
1991	First meeting of the intergovernmental Negotiating Committee takes place.
1992	The United Nations Framework Convention on Climate Change (UNFCCC) is opened for signature along with its sister Rio Conventions.
1994	The UNFCCC enters into force.
1995	The first conference of the Parties (COP 1) takes place in Berlin.
1996	The UNFCCC Secretariat is set up to support action under the Convention.
1997	The Kyoto Protocol is formally adopted in December at COP3. The Protocol Legally binds developed countries to emission reduction
2001	The Marrakesh Accords are adopted at COP7, detailing the rules for implementation of the Kyoto Protocol.
2005	Entry into force of the Kyoto Protocol. The first Meeting of the Parties to the Kyoto Protocol (MOP 1) takes place in Montreal.
2007	The IPCC's Fourth Assessment Report is released.
2009	Copenhagen Accord drafted at COP15 in Copenhagen. Countries later submitted emission reductions pledges or mitigation action pledges, all non-binding.
2010	Cancun Agreements drafted and largely accepted by the COP, at COP16.
2011	The Durban Platform for Enhanced Action drafted and accepted by the COP, at COP17.
2012	The Doha Amendment to the Kyoto Protocol is adopted by the CMP at CMP8. The amendment includes: new commitments for Annex I Parties to the Kyoto Protocol.
2013	Key decisions adopted at COP19/ CMP9 include decisions on further advancing the Durban Platform, the Green Climate Fund and Long-term Finance, the Warsaw Framework for REDD Plus and the Warsaw International Mechanism for Loss and Damage.
2014	COP20 is held in December in Lima, Peru.
2015	COP21 or CMP11 was held in Paris, France in December.
2016	The COP 22 was in Marrakesh, Morocco.
2017	The COP 23 will be organized by Fiji and hosted at the headquarters of the UNFCCC Secretariat in Bonn, Germany.

Source :- United Nations Framework Convention on Climate Change

Nationally Determined Contribution's and Role state of Departments



INDCs Workshop Held in State Center For Climate Change (SFRTI Campus)

India's Nationally Determined Contributions for the period of 2021-2030 submitted in the lead up the COP 21 at Paris includes:

- To put forward and further propagate a healthy and sustainable way of living based on traditions and value of conservation and moderation.
- To reduce the emission intensity of its GDP by 33 to 35 % by 2030 from 2005.
- To achieve about 40 percent cumulative electric power plant installed capacity from non- fossil fuel based energy resources by 2030.
- To create an additional carbon sink of 2.5 to 3 billions tones of CO2 equivalent through additional forest and tree cover by 2030.

To achieve India's ambitions and aspirational NDC targets, state governments are expected to play an important role. SCCC facilitated a day workshop to discuss on how different departments could contribute to the national goals.

Let's take a step towards low carbon lifestyle:

Low carbon life style: India strongly believes that bringing about small lifestyle changes could reduce our carbon foot print. Our NDC's include adopting life of moderation. By bringing about following small measure, we could bring about some major emission reductions.

- Come out and play instead of watching TV/computer and be healthy.
- Switch from desktop to laptop.
- Turn off lights and fan not in use
- Buy BEE 5star rated appliances
- Eat together to reduce unnecessary use of microwave oven
- Switch off appliances at the plug point.
- Use paper only when required and use and pass on text books.
- Always print both side of the paper.
- Plant trees
- Pool cars and take a bus to school
- Put your walkey shoes for short trips.
- Use pressure cooker and fuel efficient cooking methods
- Don't waste water.....

Source: Low Carbon Lifestyle (www.moef.nic.in)



Chhattisgarh Joins The Under2 coalition : Dr. A.A. Boaz, at Signatory Function of Under2Clean Energy Forum at Beijing, China



Dr. Arvind A Boaz, Nodal officer Climate Change represented Chhattisgarh at Beijing, China as one of the signatory state of Under 2 coalition agreement.

(left to right - 1. Helen Clark .CEO, The Climate Group
2.Michael Schack Balle Jensen. Counsellor, Head of Economic Affairs, Growth and Sector Policies, Danish Embassy in Beijing
4. Governor Brown
5. Dr. Arvind Anil Boaz. Pricipal Chief Conservator of Forest and Nodal Officer, Climate Change, Government of Chhattisgarh
6. Karen Shippey. Chief Director, Environmental Sustainability, Western Cape Government)

Adaptation

At present world is experiencing different problems due to climatic change. A simple variation in climate pattern can affect to societies and ecosystems in a drastic way. Disturbed rainfall, flood, drought incidence, delayed monsoon etc. are the common adverse effects of climate change in India. Adaptation is a process which is applied by societies or ecosystem to cope with adverse effects of climate change.

According to United Nations framework convention on climate change (UNFCCC) "Adaptation refers to adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change".

In simple words Adaptation is preparedness to make adjustment against the adverse effects of climate change, This preparedness will help to lessen potential damages and losses from changed climate conditions and extreme weather events.

Governor Edmund G. Brown Jr. convened the forum participated by leaders from around the world. Welcoming the State of Chhattisgarh and other sub-national governments in his opening remarks, Governor Edmund G. Brown Jr. said "Nothing is more difficult, nothing is more important, but by being here we're saying we're up to the task. So let's get to work."During the forum, besides Chhattisgarh, four other new members joined- Denmark, the region of Brittany in France and the provinces of KwaZulu-Natal and Western Cape in South Africa. It was also announced that former UNFCCC Executive Secretary Christiana Figueres would serve as the Under2 Coalition's Global Ambassador.

The message of the Hon'ble Minister of Forest, Law and Legal Affairs was widely shared and wide media coverage was given to the following excerpt from statement across the globe. Dr.A.A.Boaz shared about the progress made by Chhattisgarh in addressing adaptation and mitigation issues and about the efforts made by State Centre for Climate Change, Chhattisgarh. Dr. Boaz expressed full commitment over contributing to the India's NDCs. Various other initiatives and achievements of the state government were also highlighted during the presentation

The Under2 Clean Energy Forum was organised by The Climate Group and was co-hosted by Governor Brown, China's Ministry of Science and Technology and Sichuan Province. The Nodal Officer for Climate Change, Chhattisgarh participated in the event. Another representative from India was representative from Telangana state. The Under2 Clean Energy Forum explored through a series of high-level roundtables and keynotes, how sub-national governments and businesses can work together to deliver the Paris Agreement.

The Under2 Coalition is an international pact among cities, states and countries committed to limiting the increase in global average temperature to below 2 degrees Celsius, the level of potentially catastrophic consequences by either reducing their greenhouse gas emissions from 80 percent to 95 percent below 1990 levels or limit emissions to less than 2 annual metric tons per capita by 2050. Chhattisgarh and Telangana are the only two states to have joined this global commitment towards addressing the Climate Change issues. The coalition now includes 175 jurisdictions on six continents collectively representing more than 35 countries, 1.2 billion people and \$28.8 trillion GDP – equivalent to over 16 percent of the global population and over 39 percent of the global economy

"Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and naral systems."

Source : IPCC Climate Change 2014 Synthesis Report: Fifth Assessment Report



Impacts of climate change

Impacts of Climate Change on Human Health

climate change is emerging out to be the greatest challenge to humanity. The imminent change will impact the entire world irrespective of colour of skin, area of inhabitation, sex, age etc. However, the exposure differs. Coastal areas and developing countries are more prone to the impacts of climate change and consequently of extreme weather conditions. Access to public health care, disaster management responsiveness, early warning systems etc. would determine the extent of damage during floods, droughts, storms etc. which are all expected to be increased both in frequency and intensity.

Chhattisgarh is particularly prone to effects of climate change, since the state is prone to both droughts and floods. Despite huge progress being made by the state towards addressing problems of malnutrition, poverty and sanitation, still much more needs to be done. At this juncture of development, climate change poses a great threat to our ongoing efforts towards improving status of health in the state. This calls for special attention to be paid on climate change impacts while planning for health interventions. Let us first understand, in our state context, how climate change would impact our health:-

- Increased possibility of increased morbidity and physical damage due to increased frequency and severity of extreme weather events
- Health impacts to people forced to migrate/shift/relocate to other areas
- Increase of vector borne diseases and malaria

These impacts would have tremendous potential to offset development gains made in the past towards building health infrastructure, health services etc. leading to better health conditions. It is expected that these impacts would be felt more severely by communities which are remotely located and especially by the economically vulnerable communities and households.

Children with weak nutritional status, low immunity and without coping back up would be particularly more vulnerable to impacts of climate change. Health impacts are expected to be felt more severely on elderly people and people with infirmities and pre-existing medical conditions. Women and girls, in the existing social set-up, are expected to further face nutritional deficiencies arising out of food insecurity and increased household drudgery arising out of say limited potable water availability or hardships from migration of household members etc. Any impact on livelihoods, food grain production, livestock morbidity or loss of life, morbidity among family members would further attenuate impact on children, aged and women and girls in the household.

It is therefore imperative that adequate efforts are taken towards making the people of the state in general and vulnerable communities, aware about the impending threats. Their awareness and preparedness should be key resilience strategy along with strengthening efforts already being made by the State Health Department. Local governments i.e. the Gram Panchayats and Urban Local Bodies (ULBs) would particularly have to play a major role in incorporating climate change concerns while planning for development. Their role has become even more important in Climate Change context, and therefore they need to more proactively monitor implementation and access of health services to the poorest of the poor. Monitoring of mid-day meal and disaster preparedness are areas where active local participation and good governance could ensure developing resilience towards extreme weather events and quick responsiveness post disaster.

- Dr Khemraj Sonwani
Deputy Director & State Programme
Offier (NVBDCP) Directorate of Health Services

Impact of Climate Change on Horticulture

Global warming and climate change is the greatest concern of mankind in 21st century. Climate change is predicted to cause an increase in average air temperature of between 1.40C and 5.80C, increases in atmospheric CO2 concentration, and significant changes in rainfall pattern. India with diverse soil and climatic conditions comprising of several agro-ecological regions has huge potential for horticulture. Several initiatives have been undertaken over last few decades leading to significant increase in fruit and vegetable production, consumption and export. Over the years, horticulture has evolved as less risky and more rewarding livelihood option to millions of farmers across the country, while at the same time ensuring nutritional security by providing essential vitamins and minerals to the Indian diet. Thus, cultivation of horticultural crops plays a vital role in the prosperity of a nation and is directly linked with the health and happiness of the people. Our state has also benefitted and gearing up for further strengthening livelihoods of the people. But Climate Change is standing in the way!!

Even with the scientific community the knowledge about the impact of climate change on horticultural crops is limited.

. It is expected that the established commercial varieties of fruits, vegetables and flowers will perform poorly in an unpredictable manner due to aberration of climate. Commercial production of horticultural plants particularly grown under open field conditions will be severely affected.

Due to high temperature, physiological disorder of horticultural crops will be more pronounced. Air pollution also significantly decreased the yield of several. horticultural crops and increases the intensity of certain physiological disorders like black tip of mango. Hence, climate change will adversely impact production. However, using climate resilient agriculture practices such as conservation agriculture, soil and moisture conservation etc. the losses could be minimized.

Decrease in potential yields is likely to be caused by shortening of the growing period, decrease in water availability and poor vernalization. Dealing with climate change would require planning, as the crop is subjected to increased stress. Change in temperature, humidity, precipitation would require gestation period for the crops to adapt to. In order to sustain our horticultural production with present day challenges we have to have packages to manage abiotic stresses and undertake greater use of greenhouse technology, development of new cultivators. High temperatures can cause significant losses in tomato productivity due to reduced fruit set, and smaller and lower quality fruits. In pepper, high temperature exposure at the pre-anthesis stage did not affect pistil or stamen viability, but high post-pollination temperatures inhibited fruit set, suggesting that fertilization is sensitive to high temperature stress.

K.K.Pandey
Deputy director, Horticulture



Impacts and Adaptation practices of the State Departments in Chhattisgarh

Mitigation Initiatives undertaken by the Transport Department

The increasing global temperature is a serious cause of concern for all of us. Emissions from transport is one of the causal factors of climate change. India is committed to resolve this global problem. To address these issues, the Transport Department of Chhattisgarh has undertaken the following measures:

E-Cart (E-Riksha) : The department is committed to increase the number of E-Carts in the state. For their intensive extension across the state, the department is simplifying the associated rules.

Institute of Driving Training and Research (IDTR) : To reduce emissions through proper driving, the department is promoting proper and fuel-efficient driving techniques through IDTR.

Bus Rapid Transit System (BRTS) : The state is developing BRTS to promote fast and quality public transport to discourage transportation by individual vehicles. The department had been ensuring AC and State of Art buses towards the goal of reducing private and individual means of conveyance.

Speed Governor : The speed of medium and heavy vehicles is being monitored on the road to ensure that increased emissions from high speed could be reduced.

Cycling Track : To motivate people to take up cycling, the government is promoting cycling tracks. Cycling tracks would help make cycling less risky and thereby would incentivise people to use cycling to other means of conveyance such as cars and motorcycles. Use of bicycles would also have health benefits on the users.

Efforts of Energy Department

CREDA is the State Designated Agency(SDA) designated by the Government of Chhattisgarh to coordinate, regulate & enforce the provisions of Energy Conservation Act- 2001 in the state of Chhattisgarh. The same has been approved by Bureau of Energy Efficiency(BEE),Govt. Of India.CREDA is also the State Nodal Agency(SNA) designated by the Ministry of New & Renewable Energy (MNRE), Government of India for implementation of its programme on new and renewable sources of energy in the state of Chhattisgarh.

Renewable energy has a significant role to play in Chhattisgarh, and the state is taking significant measures to subsector through CREDA. The state will explore the provision of banking and wheeling facility for all grid connected renewable energy electricity generation projects up to 25 MW. Entry tax will be waived on capital cost for equipment for decentralised distribution generation (DDG) based renewable energy plants of less than 5MW. The state is also encourage project developers to install or adopt mechanisms such as CDM (clean development mechanism) for leveraging funds for renewable energy based projects.



Fitness:Special efforts are being taken up by the state government to ensure that old, unfit and polluting vehicles are now allowed in road tax regime. This will help phase out polluting vehicles in a time bound manner.

Pollution Check Points:As mandated in the Central Motor Vehicles Rules, Pollution Under Control (PUC) is being strictly monitored. To enable regular checks, the number of PUC centres has been increased. In addition to this, permit of school buses of more than 12 years of registration is being cancelled. Similarly, phasing out of very old goods carriers and passenger vehicles is being planned. To modernise the buses, bus code (AIS-052) is being implemented. This international standard would help standardise production of proper buses.

BS II and BS :In line with the Indian standard, the registration of vehicles with BS II and BS III pollution standard has been stopped. The Transport department of Chhattisgarh is committed to addressing the global challenge of climate change. In future as well, the Transport Department role and efforts towards the same would further increase.

- Mahendra kuldeep
Transport sub Inspector
R.T.O Raipur

S. N.	Sector	Cumulative Till 2015-16		During the year 2016-17		Cumulative Achievement (as on 31/03/17)	
		Nos.	MW	Nos.	MW	Nos.	MW
A.	Grid Connected						
1	(a) Mega Scale SPV	10	76.80	0	0	10	76.8
	(b) RoofTop SPV	30	4.93	30	2.65	60	7.58
2	(c) Biomass	29	271.09	0	0	22*	214.99
3	(d) Small Hydro	5	26.90	0	0	5	26.90
4	(e) Bagasse Based	1	6.00	0	0	1	6.00
Total of A :-		75	385.72	30	2.65	98	332.72
B.	Off-grid Solar PV						
5	Roof Top SPV Power Plant (I)	6751	24.779	1491	2.221	8242	27
6	Solar Pumping System						
	(a) Irrigation	1325	4.36	7143	23.8989	8468	28.2589
	(b) Drinking	3437	2.62	730	0.675	4167	3.295
7	Through Home Lighting System						
	(a) Villages	455	0.57576	176	0.84039	631	1.41615
	(b) Majara Tola/ Hamlets	163	0.1434	3	0.04704	166	0.19044
Total of B :-		1213	32.47816	9543	27.6823	21674	60.16049
Grand Total (A+B) :-		1220	418.19816	9573	30.3323	21772	392.8804
		6		3		9	

Efforts of Forest Department

The geographical area of the state is 1,35,191 SqKms, out of which forest comprises 59,772 SqKms. i.e 44.21 percent of the geographical area of the state. Various programmes/schemes are being implemented by the department to improve the forest cover and to protect and conserve the bio-diversity of the state. The following schemes are being implemented by the department to improve tree cover in Urban and revenue areas:

ParyavaranVaniki: Under the initiative the department undertakes development of parks and afforestation activities in urban areas.

PaudhaPradaya Yojana: Under this initiative land owners are motivated to undertaken plantation for which seedlings are provided by the department on subsidised rates. Each beneficiary is provided with 1000 seedlings at a rate of Re 1 per seedling. In 2015-16, 8.12 Lakh seedlings were provided by the department.

The state centre for Climate Change recognizes the great potential with the state to reduce emission through REDD plus. Since National mitigation target aims of sequestration OF 2.5 to3 billion tones of carbon equivalent through additional afforestation (besides other targets). This calls for international support to implement provision of REDD plus in the state. The decentralised and democratic set up in management of forest area provides huge opportunity to take successful afforestation.

Strengthening of the REDD Plus Approach

Reducing Emissions from Deforestation and Forest Degradation (REDD) is the global endeavour to create an incentive for developing countries to protect, better manage, and save their forest resources, thus contributing to the global fight against climate change. REDD+ goes beyond merely checking deforestation and forest degradation, and includes incentives for positive elements of conservation, sustainable management of forests and enhancement of forest carbon stocks.

River Bank Plantation Yojana: To prevent soil erosion from the banks of perennial rivers of the state, the program is being implemented by the forest department.

Road Side Plantations: Road side plantation activity is being undertaken by the department on National and State highways, main district roads and rural roads. In the year 2015-16, 44 Sq Km road side plantation was undertaken by the department.

India and its States potentially stand to gain a lot from a global REDD+ mechanism. It is estimated that a REDD+ programme for India could provide capture of more than 1 billion tons of additional CO2 over the next 3 decades and provide more than US\$ 3 billion as carbon service incentives under REDD+.As such, the Forest Department will proactively carry out a scoping study to examine the possibility of leveraging REDD+ opportunities, as also CDM, etc

Detail of plantation undertaken by forest department in last 5 year

Year	No of seedling planted	Plantation area	
		Block plantation (ha)	Road side plantation (Kms)
2012	57674387	50425	271
2013	49012195	36915	141
2014	58557390	47277	159
2015	71820447	41218	168
2016	71632228	30950	268
Total	308696647	206785	1007



Urban Development

The department of Urban Development provides support to four types of urban bodies i.e. State Urban Development Authority, Chhattisgarh, Raipur; Nagar Nigam (13); Nagar Palika (44) and Nagar Panchayat (111). The department implements various programs to develop and improve basic health and sanitation amenities; improving infrastructure in Urban habitation and implementing schemes and programmes for urban bodies.

Important programmes/schemes implemented by the department includes (1) Mission Amrut (2) Mission Clean City (3) City Bus Project (4) Mission Smart City and other centrally sponsored programmes.

The department is also implementing various state sponsored programmes including Naveen SarovarDharohar Yojana, PushpVatikaUdhyaan Yojana, Transport Nagar Yojana and many livelihood generation and skill building schemes.

Under the Naveen SarovarDharodhar Yojana renovation, deepening, beautification and measures for improvement from environment perspective is undertaken in water bodies located in Urban Areas. In 2016-17, work has been undertaken in 25 different water bodies. Up till now, a total of 480 projects have been completed under the initiative.



Climate change Initiatives in the Headlines

The **Hitavada**
Wednesday ■ March 23 ■ 2016

Rs 21 cr sanctioned for Mahanadi water augmentation project



Forest Minister Mahesh Gadga releasing a souvenir on the occasion.

■ Staff Reporter RAIPUR, Mar 22

THE Central Government had sanctioned Rs 21 crore for environment friendly water augmentation project at Mahanadi reservoir. Forest Minister Mahesh Gadga inaugurated the prestigious project on the eve of World Water Day. He stressed upon the importance of World Water Day at the State Forest Institute and Training Centre. He was speaking at seminar on 'Forest and Water Conservation'.

He said the delicate balance of environment should be maintained, regulating the temperature on planet earth and climate change. He added Chhattisgarh has a forest cover of about 44 per cent. People's co-operation is needed to protect environment and conserve nature. The State Government is focusing on this vital issue and 7887 Forest Management committees had been constituted. Parliamentary Secretary Champadevi Pawde read out the message of Chief Minister Dr Raman Singh in connection with the World Water Day. Senior Journalist Sunil Kumar addressed the gathering. Even as human beings do not give anything to trees but still plantations provide us with oxygen. Principal Chief Conservator of Forests Dr AA Boaz gave welcome address. A lot of senior officers were present on the occasion.

Need to make organised efforts to meet threats of climate change: Gagda



One-day workshop on Climate Change held

Raipur, Apr 26: Forest Minister Mahesh Gadga laid emphasis on conservation of environment and carrying out more and more plantation in view of worldwide problems been faced due to climate change. He said that this is not the problem alone that of the Forest department, but that of entire society, state and country. He laid emphasis on creating more public awareness and making organised efforts to solve this grave problem.

Gadga was speaking as the chief guest at the one-day workshop on Climate Change organised by Chhattisgarh state Climate Change Centre here on Wednesday. He said that this problem is definitely very challenging and to tackle this everybody will have to make combined efforts. There is need to take information to general public and ensure public participation in solving this problem. This workshop has been organised on the subject of the role of different departments of Chhattisgarh state for the INDCs fixed as per Paris agreement at National level. In this the contribution by each department for proper implementation of the role of each department for solving of this grave problem was discussed and presentation was also given. In this the representatives from Energy, Agriculture, and other concerned departments like Forest, Transportation, Mining, CREDA, health and Water Resources Department gave information about the efforts been made by each department for rooting out problems related to climate change and about the projects through a presentation. The members present in the workshop laid emphasis on strengthening the departmental cell formed for climate change. This workshop was attended by Nodal officer Chhattisgarh Climate Change Centre PCCF and Head of Forest Force Dr AA Boaz and PCCF (Wildlife) Dr RK Singh and other speakers.

Chhattisgarh's Initiatives to complete INDCs of The Nation

Chronicle, Raipur 27/04/2017

Chhattisgarh joins global alliance against climate change

hindustantimes <http://www.hindustantimes.com>

Two Indian states Chhattisgarh and Telangana are now part of the Under2 coalition that aims to keep global temperature rise to under 2 degrees Celsius.

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Mahesh Gadga, Minister of Forest, Law and Legal Affairs, Government of Chhattisgarh, said: "Today our world is facing the big challenge of climate change and we all bear the burden of sharing the responsibility of addressing it. A challenge of this magnitude cannot be fought only at the national level. I am of the firm belief that sub-national collaborations between state governments and provinces, provides a great opportunity to further bridge the gap between nations, their people and culture. Chhattisgarh State will undertake all possible efforts to fulfill India's NDC commitment. Let us all resolve to contribute our bit in the fight against climate change."

जलवायु परिवर्तन, वन क्षेत्र पर समीक्षा कार्यशाला

वैज्ञानिकों-विशेषज्ञों ने दिए सुझाव, वन विभाग करेगा क्रियान्वयन

राजपुर, जलवायु परिवर्तन

जलवायु परिवर्तन पर छत्तीसगढ़ राज्य कार्ययोजना के तहत वनक्षेत्र की समीक्षा के लिए आज राजधानी में कार्यशाला आयोजित की गई। इसमें वन, जल संसाधन विभाग समेत इंदिरा गांधी कृषि विश्वविद्यालय के अफसरों के अलावा नैर सरकारी संगठनों के सदस्यों ने भी शिरकत की, वहीं दिल्ली और पुणे से जलवायु परिवर्तन संबंधी विषय से जुड़े वैज्ञानिकों ने भी हिस्सा लिया। इंडियन इंस्टीट्यूट ऑफ ट्रोपिकल मेटेरोलाजी पुणे के जलवायु परिवर्तन वैज्ञानिक डॉ. अश्विन कुलकर्णी ने कहा कि अनुमानित सभी जलवायु मॉडल ने छत्तीसगढ़ में वर्षा की गिरावट और तापमान में बढ़ोतरी की भविष्यवाणी की है। इसके चलते भी वन उत्पादकता पर दुष्प्रभाव पड़ सकता है। इधर, राज्य जलवायु परिवर्तन के नोडल अफसर एवं पीसीसीएफ डॉ. ए. बी.आज ने कहा कि वनक्षेत्र पर जलवायु अनुकूलन और शमन सुधार के लिए राज्य में कई योजनाओं का क्रियान्वयन हुआ है। हरियाली प्रसार योजना एवं संयुक्त वन प्रबंधन के जरिए विकास में भागीदारी का अवसर दिया गया है। इसके अलावा दिल्ली के जलवायु परिवर्तन एवं चानिकी विशेषज्ञ डॉ. प्रमोद कौत ने राज्य कार्ययोजना पर समीक्षा प्रस्तुत की, उन्होंने कहा कि राज्य के वन क्षेत्र में दी गई अनुकूलन और शमन रणनीतियों को भारत सरकार के 2015 के परिस प्रतियोगिताओं के साथ लिखित करना है। इसके लिए तंत्र और परिवर्तनकारी निवेश की आवश्यकता है। डीएनआईडी क्लाइमेट चेंज इनिशिएशन प्रोग्राम राज्य जलवायु परिवर्तन योजना के क्रियान्वयन में सहयोग कर रहा है। इस दौरान डॉ. प्रमोदकौत की समीक्षा सिफारिशों को भी छत्तीसगढ़ वन विभाग क्रियान्वित करने में सहयोग करेगा।

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