

***Initiatives to Downscale Climate Change Adaptation
to Sub -Regional level, consistent with the
Chhattisgarh State Action Plan on Climate Change to
strengthen Forest-based Climate Change adaptation
In the Central Indian State of Chhattisgarh***



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The Indian Perspective :

- ◆ Climate change is expected to have significant negative impacts on forest ecosystems. These impacts will have knock-on effects on forest-dependent people and wider society.
- ◆ India is amongst the most vulnerable countries to climate change and The Government of India has prioritised climate adaptation as an important strategy to combat climate change.
- ◆ The NAP (National Adaptation process, established at the 17th CoP at Cancun in 2009, aims at reducing vulnerability to the impacts of Climate change, by building adaptive capacities and resilience and to facilitate the integration of Climate adaptation in the countries' plan for economic development.
- ◆ In the same year the Prime Minister of India urged the 29 Federal States to develop their State Action Plans on CC to decentralize the National Action Plan Objectives and address state specific issues.
- ◆ In the above context, Chattisgarh State has developed the Chhattisgarh State Action Plan on Climate Change that was approved by the Govt of India in July 2014

The Chhattisgarh State Action Plan :



- The NAPCC recognizes that role of state governments and local governments in implementation of the Action Plan is crucial; **need for coherence between climate change strategies at national and state level**
- MoEF has initiated a process of preparation of **State Action Plans on Climate Change (SAPCC)** as a follow-up to the announcement made by Prime Minister in the Conference of State Environment Ministers held on August 18, 2009
- The CSAPCCs has been prepared according to a common and generic framework while incorporating state specific contexts and situations
- CSAPCCs plans to **build on existing policies of State Governments** by taking into consideration the ongoing programmes and schemes being implemented at state level as well as the NAPCC
- **The CSAPCCs has been integrated into state level planning process; and is seen as a dynamic document** which will follow a continuous interactive process to reflect changes and developments happening at national, state and local levels

Chhattisgarh and Climate Vulnerability

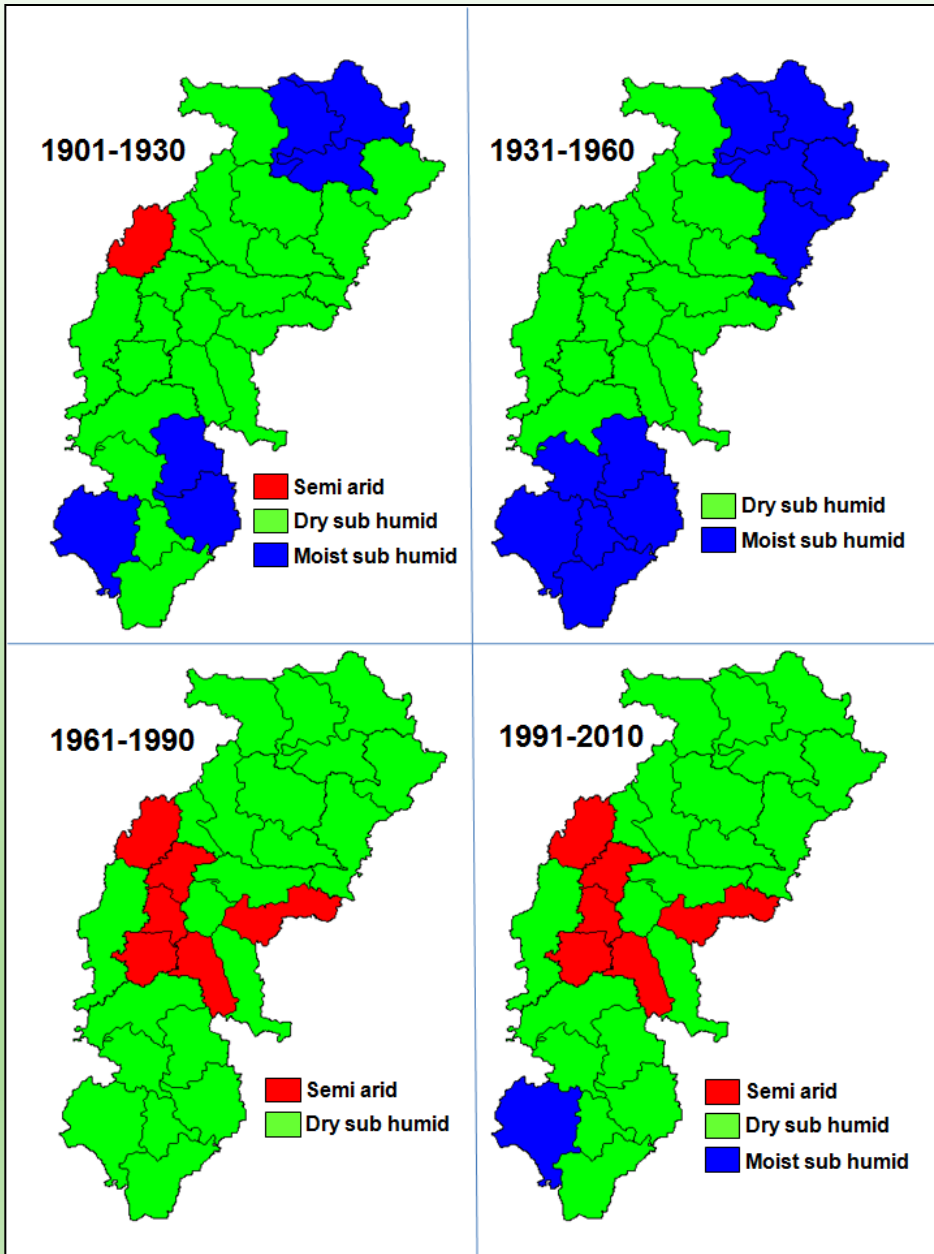


- Detailed climate vulnerability analyses (including sector specific impacts) not available
- Also no systematic documented community perceptions on climate change and its impacts across the state and across various sectors
- However, overall contours of vulnerability can be established from various sources
 - Overall reduction in rainfall is observed, especially in some districts like Raipur, Mahasamud, Raigarh; and several districts and blocks are drought prone
 - Medium to high observed sensitivity to climate change in Chhattisgarh, while exposure is high to highest, with central parts of Chhattisgarh showing highest exposure
 - High to highest vulnerability for Chhattisgarh, with parts of the central areas of the state and the northern regions being most vulnerable as the result of low adaptive capacity

Climate Change in Chhattisgarh

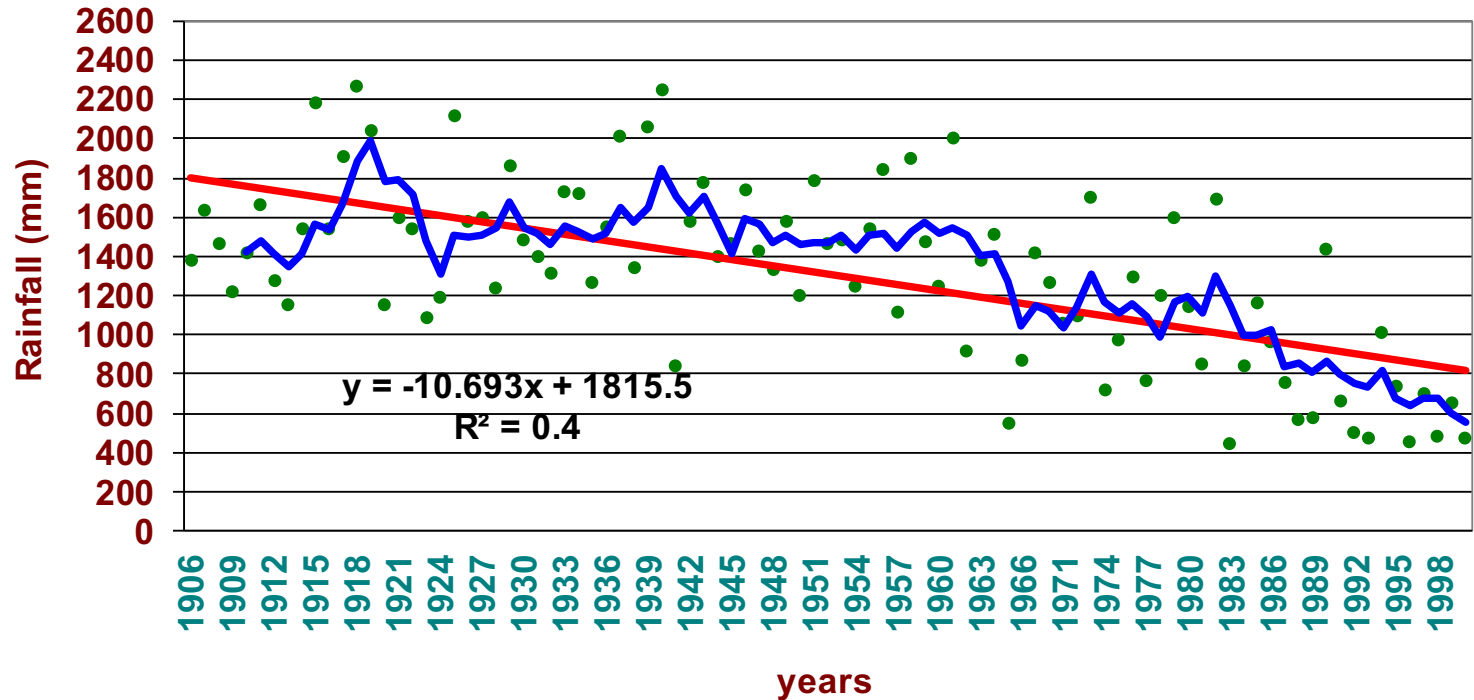
In number of districts the climate is becoming semi-arid

In general the state is moving from a wet to dry climate



Declining Rainfall in Chhattisgarh

Pattern of annual rainfall and its 5 year moving average and trend line at Mahasamund from 1906-2000



Source: Indira Gandhi Agriculture University Raipur

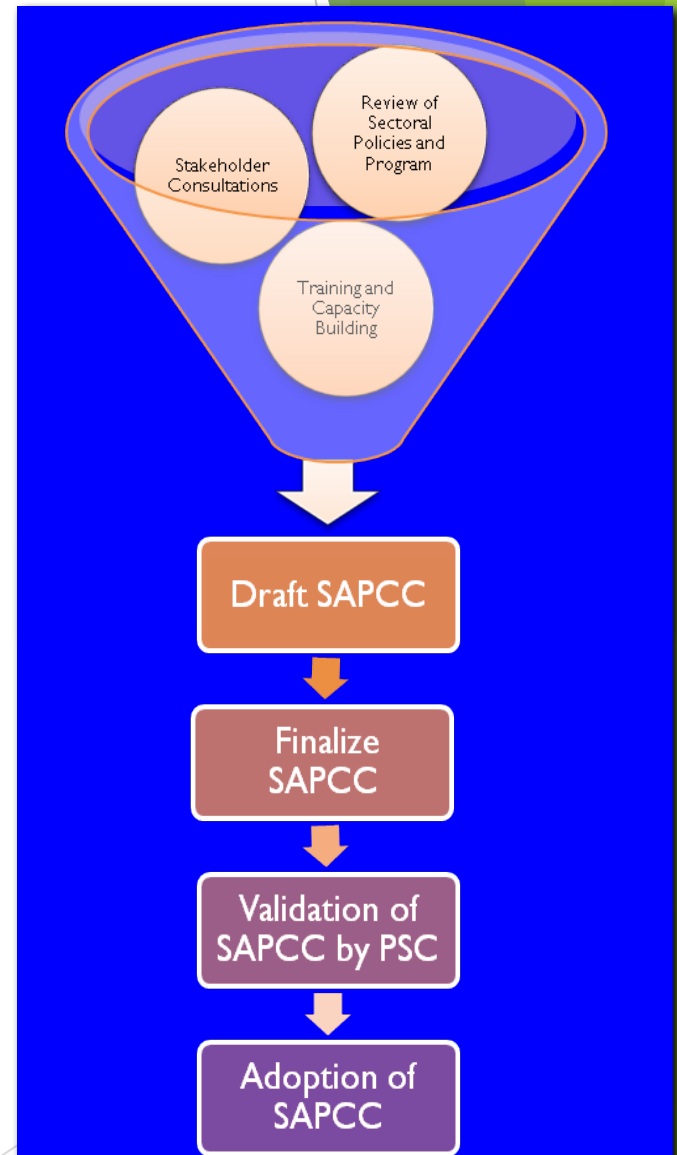
State Action Plan on Climate Change – Process

Stakeholders Consultations

- Departmental Consultations
- Regional (Agro-climatic Zone wise) -3

Review of following Sectors

- Agriculture and Allied Sectors (Horticulture, Fisheries, AH)
- Forests and Biodiversity
- Water Resources (Ground and surface water)
- Urban Development
- Transport
- Energy (Renewable/ Non Renewable)
- Industries and Mining
- Health (Human and Animal)
- NAPCC Mission Documents



Stakeholders





Snapshots of the CSAPCC



- The CSAPCC consists of an Introductory section giving the overall Context and Background, subdivided into the Global, National, and the Chhattisgarh contexts

Part A : General and Climate Profile

- PART A, comprising of General, State and Climate Profile and the state Vulnerability Sections. It gives future climate Projections and vulnerability and also elaborates the need for State specific Vulnerability Analysis

PART B – Approach, Strategies and Actions



- PART B consists of :
- **Overarching State Framework detailing proposed ‘umbrella’ initiatives at the State Government Level and cutting across sectors** including subsections on:
 - State Vision and Commitment Statement;
 - Improving scientific knowledge and evidence base and understanding of climate change and its impacts; as well as connecting science, practice, and policy;
 - Improving governance mechanisms, institutional decision making, and convergence;
 - Building adaptive resilience and reducing vulnerability across communities and sectors and contributing to mitigation;
 - Capacity development, education & awareness;
 - Monitoring framework; and
 - Documenting, sharing, learning, and dialogue across the Indian Region and beyond.

PART B (contd...) – Approach, Strategies and Actions



- PART B also details Sectoral Policies, Programmes, Strategies, and Actions, forming the core of proposed sectoral initiatives under the CSAPCC
- It also contains following subsections, clustered under each of the Sectors:
 1. Overview -- Characteristics and Status
 2. Issues, challenges and priorities
 3. Relevant Existing Initiatives
 4. Vulnerability to climate change and community perceptions
 5. Sectoral Responses

This Subsection details all proposed Sectoral Responses in line with the overarching state framework

PART C – Annexures, Climate Change Action Plan Budgets

- PART C has sectoral action plans and budget matrix annexures

State Vision & Commitment



“Through the CSAPCC, the Government of Chhattisgarh commits itself to fostering an integrated approach to inclusive, sustainable, and climate resilient growth and development. This vision will be achieved through:

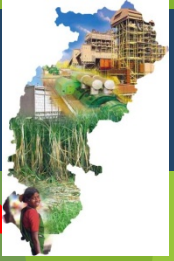
a) mainstreaming of climate concerns into all aspects of development policy and implementation; and

b) ensuring complementarity with and contributing to the National agenda on climate change.

*Keeping in mind the overall motto of the CSAPCC –
‘Inclusive Growth for Improved Resilience,’*

these approaches are supported by the strategies and actions outlined in this report, and by all other necessary actions by the State Government for the achievement of the Vision

Key Elements at State Level



- Recognition that Chhattisgarh already has many initiatives that are adaptive and support resilience building, though not explicitly recognised as such until now; core focus on Adaptation in CSAPCC
- Recognises urgent need for detailed vulnerability and risk analyses and building evidence base;
- Need for review of all State Policies and explicit incorporation of climate concerns;
- Development of capacity both in government and among citizens;
- Governance mechanisms, convergence, monitoring, etc.;
- Connecting science, practice and policy;
- Mainstreaming poverty, equity and livelihood concerns;
- Key roles for private sector, financial institutions, and civil society;
- Knowledge generation, sharing and management

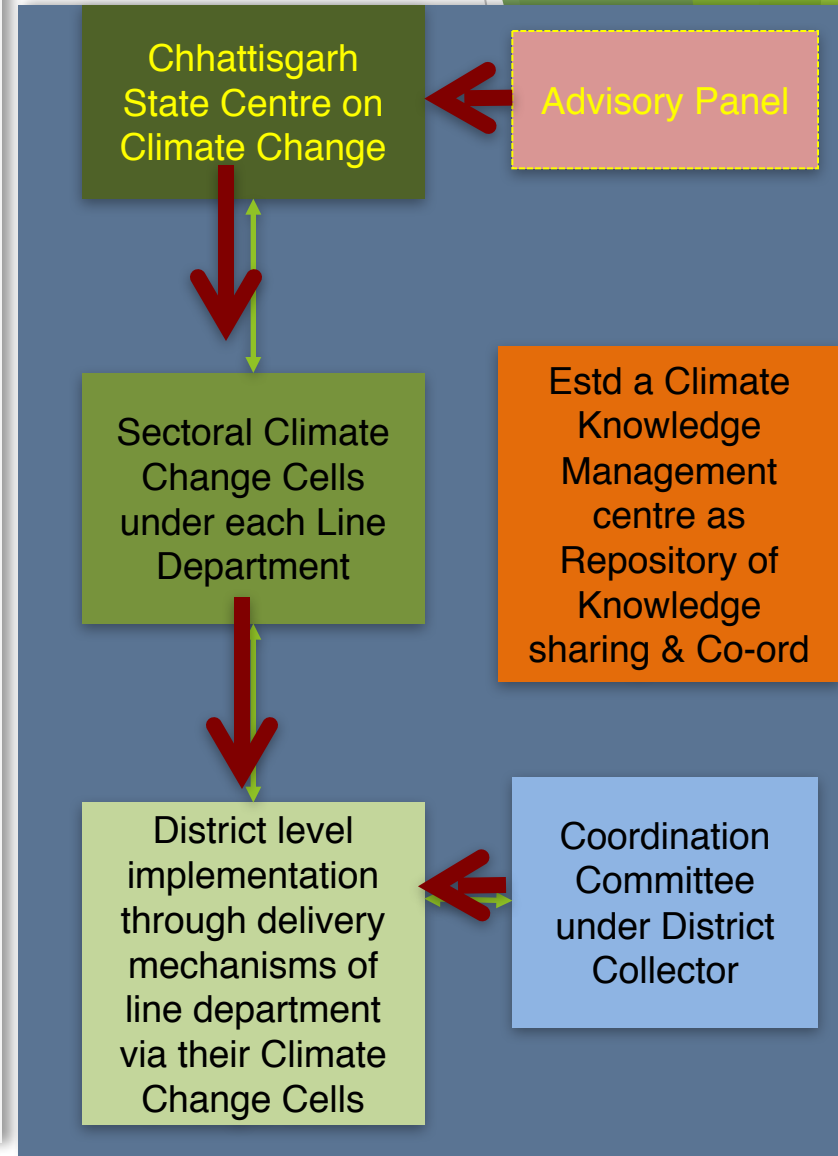
Key Sectoral Elements



- The SAPCC then presents sectoral chapters, each containing:
 - Overview, Characteristics and Status;
 - Key Issues;
 - Existing/On-going Initiatives and Priorities;
 - Perceived Climate Impacts; and
 - Strategies under the SAPCC.
- The focus sectors identified by the State are: **Agriculture and Allied Sectors, Forests and Biodiversity, Water Resources, Urban Development, Transport, Energy, Industries and Mining and Human Health**
- An Appendix containing an action (suggested short and medium to long-term actions) matrix for each focus sector, and indicative budgets is also included in the SAPCC.

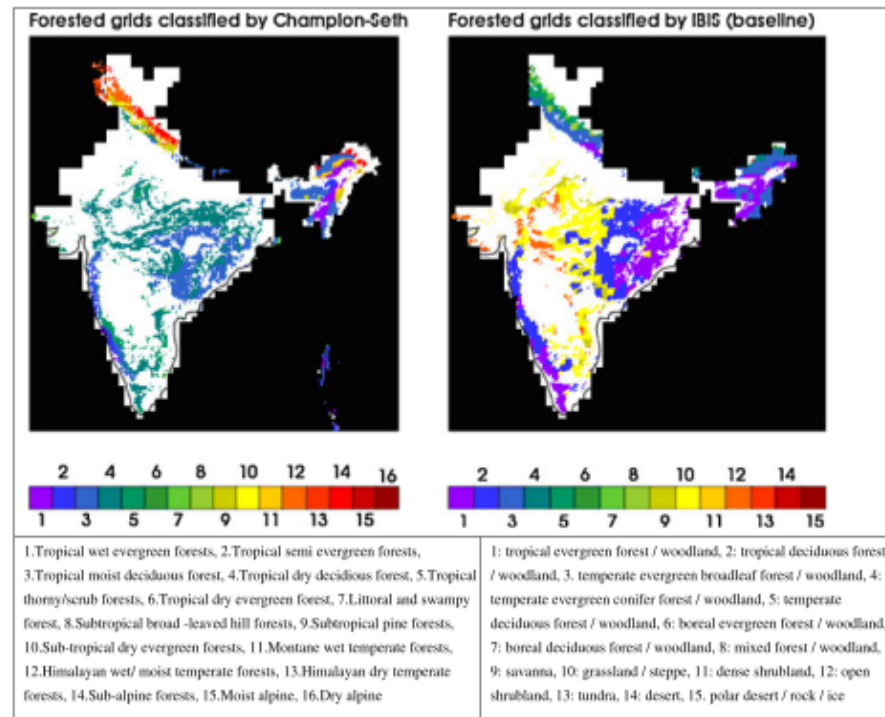
Key state-level elements

- Set up the **institutional structure** for implementation of the SAPCC
 - **A State Climate Change Centre**: Nodal body for coordination & overseeing climate change actions
 - Sectoral Climate Change Cells, & District Coordination Committees
 - A State Advisory Committee
- Undertake vulnerability assessment for all focus sectors and agro-climatic regions, and at district level
- Undertake capacity needs assessment and develop a **capacity building plan** for climate change for the state stakeholders
 - For awareness, analysis, planning, convergence, implementation & monitoring climate change
- Set up a **Knowledge Management Centre** as a repository of knowledge, sharing information & coordination of scientific



Impacts of climate change on Chhattisgarh Forests

- A Study by Indian Institute of Science has assessed impacts of climate change on Indian forests based on climate projections of the Regional Climate Model of the Hadley Centre (HadRM3) and the dynamic global vegetation model IBIS for A2 and B2 scenarios.
- The projections predict Central Indian forests to be highly impacted due to climate change. There can be shift in vegetation types and also decline in productivity



State name	Number of forest grids	No. of forest grids changed A2 scenario	% Forest Grid Changed	Number of forest grids changed in B2 Scenario	% forest Grids changed in B2 Scenario
Chhattisgarh	3130	2292	73.23	2292	73.23

Key Forest Sectoral Elements

Forests & Biodiversity

- Increase forest & tree cover, improve conservation (especially fires);
- Decentralised forest governance, capacity building and community interface
- Explore REDD++, etc.
- Rangeland & wetland conservation & management
- Address water stress – mainstream watershed approaches
- Improve evidence base, track C-Stocks
- Activities proposed in Short-(One Year) and Medium (five years) in the Plan

Activity - short term	Data / Knowledge need	Capacity need
<p>Sector policy review - incorporation of climate concerns into SBSAP</p>	<p>Sector impacts and vulnerability assessment for forest types and wetlands; means of addressing vulnerability</p>	<ul style="list-style-type: none"> - High-level sensitization, CC scenarios-based goal-setting, & cross-sector approach to risk reduction/management - Model land use policy
<p>Coordination and networking - setting up of CC Cell</p>	<p>Cross-sector linkages (impacts and actions)</p>	<ul style="list-style-type: none"> - Convergence mechanisms (across linked sectors) - Convergence with Green India Mission
<p>Capacity development - Sector capacity needs assessment</p>	<p>Understanding of CC and its impacts on the sector</p>	<ul style="list-style-type: none"> - In-house review and assessment mechanisms - Sensitization of dept. personnel
<p>Planning - Review of forest working plans and incorporation of climate concerns</p>	<p>Opportunities for mitigation and adaptation measures in forestry sector</p>	<ul style="list-style-type: none"> - Training on 'landscape based approach' - Training on REDD+, forestry CDM projects - Exposure to Green India Mission activities - Model proposals for adaptation and sustainable livelihoods Including eco-tourism)

Activity - short term	Data / Knowledge need	Capacity need
<p>Planning - Activation of State Biodiversity Board; development of multi-annual action plans covering 12th FYP</p>	<p>Flagship publications on Chhattisgarh's biodiversity</p>	<ul style="list-style-type: none"> - Skills to survey, identify, catalogue, document, protect, and improve/enhance the status of biodiversity in the State
<p>Technical & management interventions in forest and non-forest areas (including wetlands)</p>	<ul style="list-style-type: none"> - Baseline data on drivers of degradation at local level - Best practices 	<ul style="list-style-type: none"> - Technical protocols on SFM and toolkits (in local language) - Training of JFMCs and community management institutions - Communications
<p>Research - study on forest and NTFP dependence of communities</p>	<p>Baseline data on dependence patterns across regions/communities</p>	<ul style="list-style-type: none"> - Skills on economic valuation methods
<p>M&E - Contribution to CSAPCC monitoring plan</p>	<p>Impacts and outcome indicators</p>	<p>Skills among frontline personnel</p>
<p>KM - Contribution to CSAPCC KM strategy and roadmap</p>	<p>Knowledge needs of different stakeholders</p>	<p>Access to data sources, knowledge networks, partnerships</p>

Activity- medium term	Data / Knowledge need	Capacity need
Capacity building	<ul style="list-style-type: none"> - Datasets, case studies, model simulations, etc - Traditional and indigenous knowledge of biodiversity conservation and NRM - Sector assessments of NTFP flows 	<ul style="list-style-type: none"> - Training of PRIs, JFMCs and Biodiversity Management Committees (BMCs) on natural resource management, bio-diversity conservation and protection of the critical tiger-elephant corridors of the state - Training of dept. staff and stakeholders on adaptive forest management and livelihood support activities e.g. community based NTFP enterprises
Technical & management interventions in forest and non-forest areas (including wetlands)	<ul style="list-style-type: none"> - GIS-based integrated data base (LULUC and emissions) 	<ul style="list-style-type: none"> - Possible private sector engagement in NTFP-based livelihood enhancement - Pilot programmes on clean energy use by forest fringe communities
Risk management - measures for fire mgnt in all forest types	<ul style="list-style-type: none"> - Risk assessment 	<ul style="list-style-type: none"> - Technical expertise among frontline staff & JFMCs - Communications

Activity- medium term	Data / Knowledge need	Capacity need
<p>Research- Study on potential for REDD+; indigenous trees species to assess their vulnerability to climate change; Assessing and documenting additional threats to biodiversity and wildlife</p>	<ul style="list-style-type: none"> - Met data at local scale - Field observations (over long duration) - Community perceptions 	<ul style="list-style-type: none"> - REDD+ pilots - Skills on forest carbon assessment
<p>Biodiversity conservation - Survey, identify, catalogue, document, protect, and improve/enhance the status of biodiversity</p>	<p>Population dynamics and movement of key indicator wildlife species</p>	<ul style="list-style-type: none"> - Scientific and technical expertise among frontline personnel
<p>Monitoring & evaluation</p>	<p>Impact indicators</p>	<ul style="list-style-type: none"> - Reporting and eval
<p>Knowledge management</p>	<p>Research priorities for the state; evidence of CC impacts; effectiveness of coping strategies; community perceptions</p>	<ul style="list-style-type: none"> - Demonstration projects - Information documentation - Knowledge aggregation and inventorization
<p>Networking and co-ord</p>	<p>-</p>	<ul style="list-style-type: none"> - Participatory processes
<p>Consultations</p>	<p>-</p>	<ul style="list-style-type: none"> - Communications

Forest based Climate Change Adaptation

Forest-based climate change adaptation (FBA) involves two related components:

1. **‘Adaptation for forests’** or strengthening the capacity of forests to deal with climate change and
2. **‘Forests for adaptation’** or using forests to help society strengthen resilience to climate change, and to support livelihood strategies.

In summary, FBA involves addressing the threats to forests and simultaneously exploring opportunities to make forests an integral part of national adaptation strategies.

Forest based Climate Change Adaptation

The CSAPCC has an integrated and comprehensive approach and includes forestry sector activities and a number of related projects that include 'adaptation for forests' that is a component of Sustainable Forest Management (SFM)

The Sustainable Forest Management provides an integrated framework for systematic management of forests.

SFM activities relevant in climate change adaptation that are being implemented in the Chhattisgarh state include:

- Monitoring and maintaining forest health, vitality and diversity;
- Implementing integrated forest fire management

Forest based Climate Change Adaptation

- Enhancing landscape connectivity and reducing forest fragmentation through a Landscape approach under the Green India Mission and The Tiger and Elephant Corridor Management
- Monitoring and removing invasive species and addressing pest and disease threats like eradication of Lantana, Parthenium, Sal Borer beetle
- Undertaking forest restoration and rehabilitation, particularly on slopes and watershed Management in the main river Basins of Mahanadi, Godavari and Ganga Basins;
- Implementing reduced-impact logging; and
- Selecting appropriate species for use in planted forests.

Forest based Climate Change Adaptation

Policy changes that ensure judicious use of forest services and improved access for local communities. Forest ecosystems provide services that reduce the vulnerability of communities and broader society to climate change. These services can be divided into the following categories:

- Livelihoods: providing goods to local communities that make them resilient to effects of climate events;
- Agriculture: conserving and regulating soil, water and microclimate in forests and agricultural lands;
- Watersheds: regulating water quality and protecting soil from erosion and landslides through large scale soil and moisture conservation works;

Measures to increase the flow of benefits from forests and improve local adaptive capacity

- **Globally, rural households derive one-fifth to one-quarter of their income from forest and tree resources and are therefore amongst the most vulnerable to climate change impacts on forests.**
- **By improving the management of forests and allocating adequate rights at the local level, under the National Acts like the Forest Rights Act 2006 and the Panchayat (Extension to Scheduled Areas) Act, 1996 and devolution of rights and concessions by the State Government, the adaptive capacity of forest- dependent people has been greatly improved. include:**
 - *Clarifying and strengthening forest land ownership and use rights;*
 - *Reducing and simplifying resource access procedures;*
 - *Maintaining a stable policy and regulatory environment;*
 - *Strengthening sustainable production of, and access to markets for forest- based products; and*
 - *Applying best practices in Joint forest law enforcement through Joint Forest Management and initiating policies to turn the forest Bureaucracy into facilitators rather than enforcers of Law.*

Large Coverage of Climate Adaptation through JFM activities

Joint Forest Management is an active and on-going programme in Chhattisgarh, with 7887 Forest Management Committees covering over 33,190 Sq. Km and over 27.63 lakh members from forest/forest fringe dwelling communities.

Number of JFM committees	7887
Area covered under JFM committee	33190 Sq Km
Total percentage of forest area covered under JFM	55.52%
Total members in the JFM committees	2.763 million
Female members	1.436 million
Male members	1.327 million
Scheduled caste members	1.521 million
Scheduled tribe members	0.471 million
Other communities	0.771 million

JFM activities contributes to climate mitigation and also enhances the socio economic status of forest dependent communities thereby enhancing their resilience to climate change



Benefit Sharing mechanism under Convention of Biological Diversity well established under Revenue sharing mechanism with JFM Committees as incentives for their role in climate adaptation

Year	Number of JFM Committees benefited	Revenue (In Million INR)
2003-04	1023	175
2004-05	313	82
2005-06	415	90.10
2006-07	395	97.60
2007-08	512	139.30
2008-09	391	271.90
2009-10	412	221.90
2010-11	275	81.30
2011-12	402	97.90
2012-13	618	346.80
2013-14	695	345.00
2014-15	488	242.20
TOTAL	4138	1270.30

- Till year 2012-13 15% of total revenue from Timber and Bamboo production was shared with JFM committees
- From year 2013-14 20% of revenue from Timber production and 100% of revenue from Bamboo production are shared with JFM Committees

Summary of Development activities done in in JFM committees villages as additional incentives from other funds

Sl. No.	Work details	Beneficiaries
1.	Decentralised energy options -Biomass Chula -Cooking stove -Bio-bricket machines -Pressure cooker -Solar cooker -Solar pump -Solar lighting of streets -Gobar gas	44702 5000 17 10000 5305 759 554 2151
2.	Other village development activities like road, drinking water, sanitation, health etc)	19573
3.	Improved irrigation	25200 ha
4.	Establishment of Cottage handicraft works	1340 households
5.	Work under Swachh Bharat mission -Drinking water and sanitation done through JFM in Gariaband, Balrampur, Kondagon districts	219 toilets constructed for the JFM members

Building climate resilience in Dhamtari District-a snapshot



Water Conservation and Management

Improved irrigation

Solar Water pumps for irrigation



Solar pumps for drinking water

Name of Range Dhamtari Division	Work	Irrigated area in ha
Koregaon	Stop dam/anecut	60
Birgudi	Stop dam/anecut	43
Dhamtari	Stop dam/anecut	32
North Singpur	Stop dam/anecut	423
Dhamtari	Solar Water Pumps	5 units
Dhamtari	Solar drinking water pumps	35 units

Bamboo regeneration activities



अंतागढ़ परिशिष्टका मातहत बांबू योजना वर्ष २०१२ कए क्रमांक २५५ १०१

Year	First year of RDBF work (ha)
2007-08	23799
2008-09	39500
2009-10	61100
2010-11	34200
2011-12	48900
TOTAL	207499

Year	Allotted revenue share for JFM committees through timber production	Allotted revenue share for JFM committees through Bamboo production
2002-13	324.900	22.400
2013-14	270.000	75.000
2014-15	324.000	75.000

* All amount in Million INR

Sustainable harvest of NTFP for supporting local livelihood and forest conservation



Forest produces collected are certified by Village Forest Committees and marketed through Gram Sabha and Forest Department and village forest committees are also engaged in spreading awareness on medicinal plant conservation

Year	Share of bonus on sale of tendu leaves to village forest committees (Million INR)
2001	286.40
2002	399.50
2003	331.80
2004	253.70
2005	244.80
2006	315.90
2007	1173.20
2008	659.60
2009	924.10
2010	1358.80
2011	1568.70
2012	3104.20
2013	1004.00
2014	743.50
TOTAL	12368.20

Nursery development and afforestation through JFM committees



अंतागढ़ परियोजना मंडल, भानुप्रतापपुर, कोटरी रोपणी, वर्ष 2014



अंतागढ़ परियोजना मण्डल-उच्च तकनीकी सागौन रोपण-2010,
परिक्षेत्र-लैगा कक्ष क्र. 1851

Year	Targeted Afforestation (ha)	Achieved (ha)
2002-03	200	200
2003-04	6570	3120
2004-05	12079	12407
2005-06	11610	12512
2006-07	12055	12768
2007-08	17768	17345
2008-09	21262	21262
2009-10	16696	16696
2010-11	8800	8715
2011-12	1177	1127
2012-13	8370	7730
TOTAL	116587	113882

Afforestation for enhancing carbon sinks

Sl. No	Plan	Allotted Expenditure for year 2015-16 in Million INR
1.	Restoration of degraded forests	14.700
2.	River bank plantation	0.850
3.	Fast growing tree plantation	1.350
4.	Bamboo regeneration	4.600
5.	Avenue plantation	0.660
6.	Compensatory plantation for forest diversion	0.445
7.	Plant distribution scheme for agroforestry	0.110
8.	Greenery expansion programme	6.000
	TOTAL	28.715

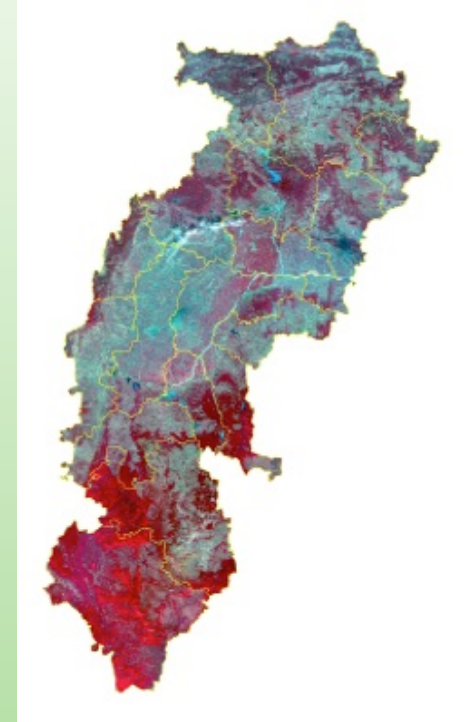
Initiatives extensive plantations (for industrial use, etc.) and regeneration of degraded bamboo forests are taken by the Chhattisgarh State Forest Development Corporation (CSFDC) and through CAMPA

CAMPA works on forest development

Sub components	Details	Physical Target (ha/unit)	Financial Target (in Million INR)
Assisted Natural Regeneration (ANR) in Timber Coupes	(A) First Year Preparation:-		
	(i) General Area	55,000 ha	484.00
	(ii) Buffer Area	2500 ha	22.00
	(B) Maintenance	121300 ha	121.40
	TOTAL ANR		627.40

Wetland conservation

Chhattisgarh has 7711 wetlands of >2.25 ha and spread over 31014 sq km area and has some of best practices in watershed development and wetland management-both manmade and Natural-



Green India Mission Initial works

- State has adopted a **landscape based approach** - 11 landscapes and 80 JFM committees have been identified in Chhattisgarh in three agro-climatic zones; The Detailed Plan has been developed under a **Bridge Plan** and based on this exercise a detailed **Perspective Plan** for five years has been prepared and its implementation is in progress.
- Preparation of baseline on **carbon sequestration** are under way
- preparatory activities including
 - awareness,
 - outreach and communications,
 - micro-plans,
 - landscape survey,
 - detailed mapping,
 - nursery development, etc. are underway.

Chhattisgarh State Biodiversity Strategy and Action Plan

The Action Plan covers specific strategies for biodiversity conservation based on Eco-region and Agro-climatic Zone of the State. Some key objectives also include building climate resilience in biodiversity conservation such as

- Improving corridor for wildlife connectivity
- Sustainable use of bio resources and sharing of benefits arising.
- Targeted species level action plan such as Wild Buffalo and Hill Myna Conservation programmes



Wild Buffalo (*Bubalus bubalis arnee*)
State Animal of Chhattisgarh



Hill Myna (*Gracula religiosa*)
State Bird of Chhattisgarh

Climate Adaptation Study in Chhattisgarh by State Centre for Climate Change

The study is being carried by the forest department and its objectives include.

- Study the forestry aspects of Chhattisgarh SAPCC describing the main areas where strengthening adaptation and mitigation within forest systems would bring more efficient and effective results.
- Shall identify areas, including forest protection and biodiversity, timber extraction, community forestry and market regulations, where adaptation could be undertaken with immediacy and at low costs, and prioritize urgently needed actions for maintaining resilience of forest ecosystems over the coming decades.



Field visits by DFID Consultant and discussions

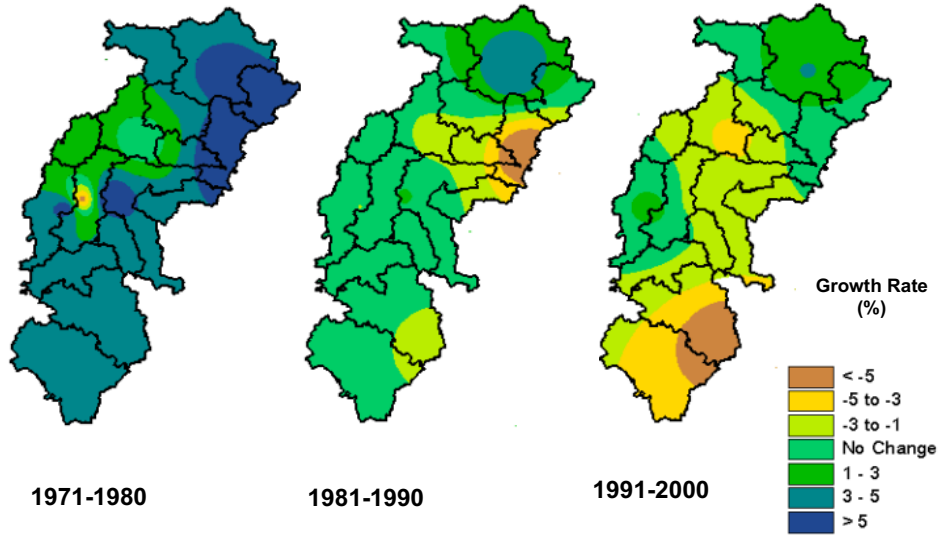


**Other best practices for Strengthening
Climate resilience and decreasing
Vulnerability of Forest dependent
Population on a Convergence Approach**

Changes in crop sequence due to increasing temperatures

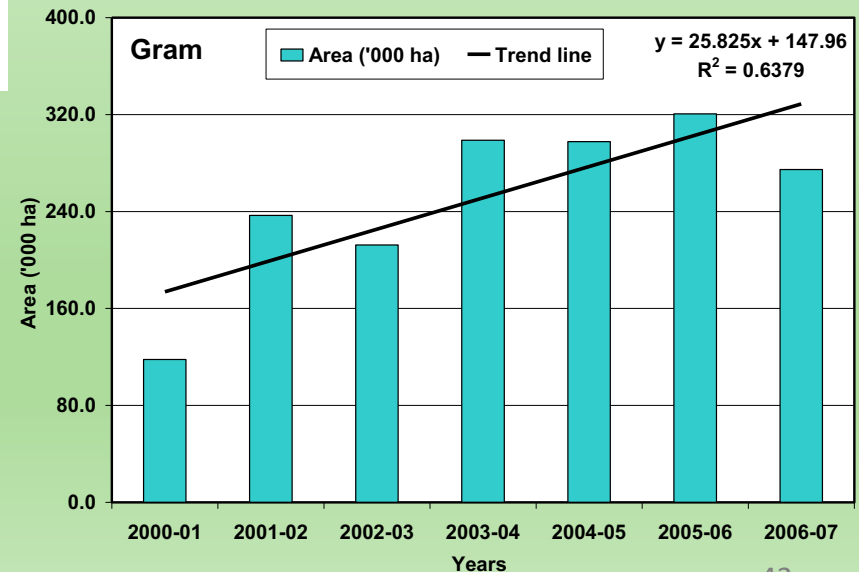
Shift in wheat area during last three decades (1971-2000)

In Chhattisgarh



The growth rates are decreasing in southern parts of Chhattisgarh

The wheat area is being replaced by Chickpea crop which needs less water as well as sustains higher day temperatures



Climate Resilient Agriculture

To reduce vulnerability and improve adaptability of agriculture to climate change, the All India Coordinated Research Project on Agrometeorology (AICRPAM) -National initiative on climate resilient agriculture (NICRA) project funded by ICAR is being implemented in Chhattisgarh. The Indira Gandhi Krishi Vishwavidhyala, Raipur and Department of Agriculture, Government of Chhattisgarh has also established *Gramin Krishi Mausam Seva (GKMS)* an Agro meteorology Advisory service to farmers.



Water Resources planning and management for climate adaptation

- The Government of Chhattisgarh is implementing various water resources management programmes through State and Central schemes and also through multilateral agencies such as the World Bank and Ministry of Water Resources funded Hydrology Project, ADB supported irrigation project. Some of the best practices on water resources monitoring, conservation and management are being established in Chhattisgarh
- Micro irrigation efforts through canals and check dams for water resource management & Success models of world bank funded hydrology projects such as Decision Support System for the Sheonath Basin have been developed and implemented



Renewable Energy

- The Chhattisgarh State Renewable Energy Development Agency (CREDA) has been promoting renewable energy production through solar, biomass gasifiers, wind, micro hydro power etc. Remote villages in Chhattisgarh, mostly in forest areas, where on-grid electricity is not feasible are now connected with off grid renewable energy. Solar water pumps, roof top solar panels are other notable achievements under CREDA.
- Posters displaying policies and incentives that are helping in improving renewable energy production in Chhattisgarh such as solar policy, renewable energy purchase obligation.
- Documentary on renewable energy successes
- Mini models of Solar City, Biomass Plants, etc to be displayed



From Left to Right: 1 MW solar plant in Naya Raipur, Solar Powered Drinking Water pump, Biomass gasifier plant, The States first Energy Efficient Building- CREDA

Thank you

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