

# GOI – UNDP PROJECT

## Action Plan for Mainstreaming Disaster Risk Reduction and Climate Change Adaptation

Forest Department, Andhra Pradesh

December, 2016



Prepared by All India Disaster Mitigation Institute (AIDMI) with Andhra Pradesh State Institute of Rural Development (APSIRD)

December 2016

**Under the UNDP – GoI Project on ‘Enhancing Institutional and Community Resilience to Disaster and Climate Change’**

## CONTENTS

EXECUTIVE SUMMERY .....	4
1. Introduction .....	6
2. Forest in Andhra Pradesh.....	8
3. Forest and Climate Change Vulnerabilities .....	9
4. National and State Initiatives in Mainstreaming DRR and CCA.....	13
5. Mainstreaming DRR and CCA in to Forest.....	16
6. Identified gaps and challenges .....	19
7. Mainstreaming DRR and CCA in Forest department of Andhra Pradesh .....	21
8. Action Plan .....	24
9. Conclusion.....	29
10. Annexure I .....	30

## EXECUTIVE SUMMARY

Disaster Risk and Climate Change is affecting every sphere of life in various ways. Global community is making efforts in minimising its impact and achieving sustainable growth. India has remained in forefront in various steps taken up globally to combat Climate Change. United Nations Development Programme (UNDP) has taken a lead globally in partnering with governmental and nongovernmental stakeholders to combat disaster risk and climate change. India has adopted DRR (Disaster Risk Reduction) and CCA (Climate Change Adaptation) approaches at national level through its commitment to Hyogo Framework for Action (HFA 2005-15), Sustainable Development Goals, India's Nationally Determined Contribution towards Climate Change (INDC), National Action Plan on Climate Change (NAPCC), National Afforestation Programme (NAP) and other programmes of government.

India is also now open to incorporate the REDD+ (Reducing Emissions from Deforestation and Forest Degradation), which is the global attempt to create an incentive for developing countries to manage in a better way, protect and save their forest resources; consequently by doing this it will positive contribute with the fight against climate change.<sup>1</sup>The importance of REDD+ is that it includes incentives for positive elements of conservation, enhancement of forest carbon stocks, and sustainable management.

The efforts in integrating DRR and CCA in to other developmental aspect are in very initial stage. It needs rigorous efforts from all stakeholders. In the process of contextualising these at local level, the Indian states are also in process of developing their State Action Plan on Climate Change (SAPCC). The state of Andhra Pradesh has also prepared its SAPCC and tried to mainstream it in 11 key priority sectors which are Agriculture, Coastal Zone Management, Forestry & Biodiversity, Energy, Industries (including mining), Transportation, Health, Urban development, Tourism, Rural Development and Research in Climate Change.

This action plan is also an effort to integrate DRR and CCA components in to the Forest sector of Andhra Pradesh state. The impact of climate change affects many areas including forest and therefore it is very much needed to transform forest in to a sustainable and climate resilient sector.

This plan is an effort to analyse the existing key schemes and functions, challenges of the forest sector along with best practices, identifying gaps and challenges, suggesting entry points for mainstreaming DRR and CCA components for proposing an action plan. Within given time limit, this action plan has been prepared through first, literature review with in-depth study on impact of climate change on forest, existing schemes and programmes of Forest Department of Andhra Pradesh and finding out key gaps and challenges; and second, based on the opinions given by various officials and experts related to forest sector in Andhra

---

<sup>1</sup>Ministry of Environment, Forests and Climate Change, New Delhi, December 2014, Reference Document for REDD+ in India, <http://envfor.nic.in/sites/default/files/press-releases/Reference%20Document%20For%20REDD+%20in%20India.pdf>

Pradesh the plan has been developed. Furthermore, there is still ample of scope for in-depth study and analysis on functions of Forest Department and related functionaries of the state in this regard.

Recently, Andhra Pradesh has witnessed two severe cyclones, Cyclone Phailin in 2013 and Cyclone Hudhud in 2014, causing wide spread damage to coastal districts. The state is also severely prone to floods, droughts, heat waves, and storms which are constantly affecting all over forest and the ecosystem.

There is an ample scope in mainstreaming DRR and CCA in Forest sector in the state. It is evident from the study that, the department has reached far by appropriately addressing the areas of concern. Adequate research on impacts of climate change and its mitigation measures, incorporating DRR and CCA aspects in existing plans and day to day functioning in the Education Department and capacity enhancement of functionaries at local level are good entry points to be developed. The Forest Department prepares its annual action plan; setting up milestones for forest enhancement in the state. The annual action plan should incorporate DRR and CCA aspects. For example, schemes like National Mission for a Green India, which is one of the eight Missions under the National Action Plan on Climate Change (NAPCC) seeks to address issues regarding 'Green India' in the context of risks associated with climate change. Since forests are the most effective carbon-sinks their preservation is crucial. Therefore, this scheme has been launched to promote ecosystem services and it can be inferred how forests play an indispensable role in the preservation of ecological balance and maintenance of bio-diversity.<sup>2</sup>

In the end, the process of mainstreaming DRR and CCA aspects and institutionalising these in a regular framework will need continuous efforts from all concerned stakeholders.

---

<sup>2</sup> National Action Plan on Climate Change(2008), Government of India, <http://www.moef.nic.in/downloads/home/Pg01-52.pdf>, access on September 28,2016

## 1. INTRODUCTION

Environment has become a priority in recent times due to the increasing concern regarding Climate Change and its effects. In recent years, India has faced several disasters and its severity has increased due to impact of climate change. These accumulated risk of disasters and climate change is adversely affecting as well as posing threat to different sectors in different ways. Forest is one of those sectors which is directly exposed to these risks and taking brunt of its impacts.

Climate change is producing severe adverse impacts on India's population, socio-economic parameters and ecosystem. The impacts of climate change are enormous since around 250 million Indians live along a 7500 km of coastline that is at high risk due to sea level rise and extreme water events; 650 million Indians depend on rain-fed agriculture for their livelihoods; deforestation is affecting the preservation of the ecological balance and maintenance of bio-diversity; 10,000-odd Indian glaciers are receding at a rapid rate<sup>3</sup>; these and many other severe events are occurring in the country and therefore it is needed to take action. However, it has to be mentioned that from the 80s onwards India has been proactive in protecting forest by developing legislation and establishing protocols on environmental protection, including pollution control measures and Environmental Impact Assessment procedures.

As a result of global warming, climate related hazards like floods, droughts, heat waves, and storms are expected to become more frequent and/or possibly also more intense.<sup>4</sup>The state Andhra Pradesh has coastline of 974km which is second longest among all Indian states after Gujarat<sup>5</sup>. These coastal areas are highly exposed to cyclones and storms. Recently, districts of coastal Andhra Pradesh have experienced extensive damage because of Cyclone Phailin in 2013 and Cyclone Hudhud in 2014.

Fostering rapid, sustainable and broad-based growth in forest is a key priority keeping in mind the overall holistic view to "greening" the country. For "greening" is understood trees plantation, protection and restoration. According to the Green Indian Mission the emphasis will be placed on restoration of habitat diversity and degraded ecosystems, through an integrated cross-sectoral approach to implementation.<sup>6</sup>Hence, it is necessary to mainstream DRR and CCA in to all over developmental regime.

---

3 Indian Institute of Management (2015), Climate Change and India: Adaptation GAP. Ahmedabad, India.

4 A guide to mainstreaming guiding principles disaster risk reduction and climate change adaptation (2013), International Federation of Red Cross and Red Crescent Societies, [http://www.ifrc.org/PageFiles/40786/DRR%20and%20CCA%20Mainstreaming%20Guide\\_final\\_26%20Mar\\_low%20res.pdf](http://www.ifrc.org/PageFiles/40786/DRR%20and%20CCA%20Mainstreaming%20Guide_final_26%20Mar_low%20res.pdf), accessed on September 18, 2016

5 Ports (Andhra Pradesh), <http://www.aponline.gov.in/quick%20links/economic%20survey/economic5.pdf>, accessed on: September 10, 2016

6 Ministry of Environment and Forest, Government of India. National Mission for a Green India (under the National Action Plan on Climate Change), [http://www.moef.gov.in/sites/default/files/GIM\\_Mission%20Document-1.pdf](http://www.moef.gov.in/sites/default/files/GIM_Mission%20Document-1.pdf). Accessed on: September 29, 2016.

### **1.1 Objective:**

The objective of this action plan is to analyze the present status of mainstreaming DRR & CCA in the Forest Department of Andhra Pradesh, to identify gaps and opportunities to mainstream DRR and CCA through specific recommendations and to suggest Plan of Action for implementation. In doing so, identifying key entry points is also a key component of this study.

### **1.2 Scope:**

This action plan incorporates an analysis of the present status of mainstreaming DRR and CCA and plan of action for implementation in the Forest Department. This will help in minimizing the disaster risk and adopting CCA techniques particular to forest sector and will enhance the scope of forest for sustainable development in the state.

### **1.3 Methodology:**

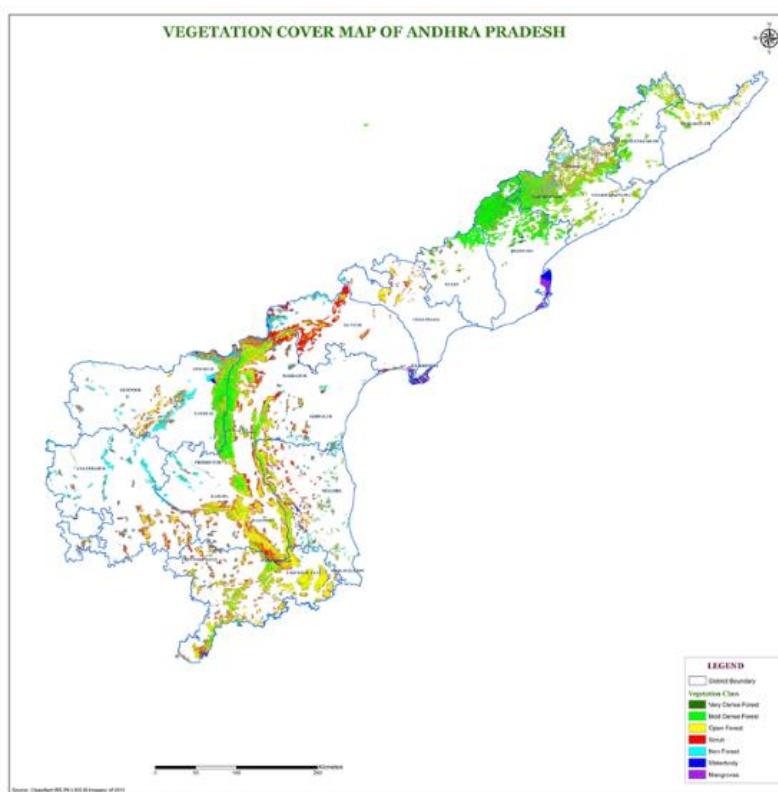
Methodology adopted to finalize this report is divided into two broad categories. The draft action plan has been prepared through first, literature review with in-depth study on impact of climate change on forest, existing schemes and programmes of Forest department of Andhra Pradesh along with analysing the present status of mainstreaming DRR & CCA in the Forest department and finding out key gaps and challenges and second, incorporating the suggestions given by various officials and experts related to forest sector in Andhra Pradesh during the Round Table Conference held on December 08, 2016 at Seminar Hall, Commissioner of Panchayati Raj and Rural Development, Vijayawada (*please refer Annexure I for the list of participants*). There is still ample of scope for in-depth study and analysis on in this regard.

## 2. FOREST IN ANDHRA PRADESH

In Andhra Pradesh, forests constitute one of the major natural resources. The government has defined the 'forest area' as per revenue records; it denotes the legal status of the land. However, it is understood for 'forest cover' all lands, more than one hectare in area, that have a tree canopy density of more than 10%, it indicates presence of trees over any land.<sup>7</sup>

The State has 36914.69 sq. km. of forest area constituting 22.3% of the total geographical area and the total forest cover 23399.95 sq. km. which is 15.24% of the total geographical area of the state<sup>8</sup>. The forest's most common products are timber, firewood, charcoal, beedi leaves and bamboo, which are basic livelihoods resources of most of the population in the area.<sup>9</sup>

Andhra Pradesh is located in the central region of the Indian subcontinent where climatic favourable conditions are developed to support a variety of flora and fauna. Andhra Pradesh's forest can be separated into four major groups based on the biotic characteristics: Eastern Coastal Plains (1%), Eastern Highlands (11%), Central Plateau (35%) and Deccan Plateau (53%). The type of trees can be founded in Andhra Pradesh are Teak, Terminalia, Dalbergia, Pterocarpus, Anogeissus.<sup>10</sup> It is extremely rich in biological diversity of flora and fauna, providing a natural habitat for panthers, tigers, wolves, gaur, black buck, nilgai, cheetal, sambar and a number of reptiles and birds.



Source: <http://www.forests.ap.gov.in/About.htm>

7 State Action Plan for Climate Change(2012), Environment Protection Training and Research Institute, <http://www.moef.nic.in/sites/default/files/sapcc/Andhra-pradesh.pdf>, accessed on October 1,2016

8 Andhra Pradesh State of Forest Report-2014, <http://www.forests.ap.gov.in/pdf/SFR2014.pdf>

9 State Action Plan for Climate Change(2012), Environment Protection Training and Research Institute, <http://www.moef.nic.in/sites/default/files/sapcc/Andhra-pradesh.pdf>, accessed on October 1,2016

10 State Action Plan for Climate Change(2012), Environment Protection Training and Research Institute, <http://www.moef.nic.in/sites/default/files/sapcc/Andhra-pradesh.pdf>, accessed on October 10,2016



### 3. FOREST AND CLIMATE CHANGE VULNERABILITIES

According to the IPCC (Intergovernmental Panel on Climate Change, 2007) definition, vulnerability in the context of climate change is “the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity”.<sup>11</sup>Vulnerability to climate change in India is more pronounced because its major portion of population.

Climate change will seriously affect and alter the distribution, quality and type of natural biological resources in the country. It will affect forest sector in several ways like through increased variability relating to temperature, rain, frequency and intensity of extreme weather events, changes in rain patterns and in water availability, perturbations in ecosystems, etc.<sup>12</sup>On the other side deforestation and lack of forest conservation will bring adverse consequences for the population and for the entire ecosystem, this will effect on people’s livelihoods, and forest-dependent communities in particular.<sup>13</sup>Therefore, there is a need for creating a sensitive plan which aims to build resilience toadaptation in the forest sector.

Following the Green India Mission, the focus will be in “greening” in the context of climate change adaptation and mitigation, pursuing ecosystem services like carbon sequestration and storage (in forest and other ecosystems), provisioning services such as fodder, timber, fuel, biodiversity preservation and hydrological services.<sup>14</sup>

By a combination of adaptation and mitigation measures the aim will be focused on responding to climate change adverse effects. Enhancing carbon sinks in sustainably managed forest and other ecosystems. Also, the main focus on forest conservation will be on promoting the adaptation of forest dependent communities and vulnerable species/ecosystems.

However, due to climate change and deforestation, the entire ecosystem is getting affected. Rainfall pattern is also changing in the state of Andhra Pradesh, it is experiencing delayed monsoon, uneven distribution of rainfall, long dry spells, and shift in rainfall pattern with high unpredictability. The recent cyclones, Cyclone Phailin (2013) and Cyclone Hudhud (2014) had

---

11 Working group II: Impacts, Adaptation and Vulnerability, Reports: Assessment Reports, <http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp=22>, access on May 18,2016

12 Thomas Fellmann, The Assessment of Climate Change-Related Vulnerability in the Agricultural Sector <http://www.fao.org/docrep/017/i3084e/i3084e04.pdf>, access on May 18,2016

13 Ministry of Environment and Forest, Government of India. National Mission for a Green India (under the National Action Plan on Climate Change), [http://www.moef.gov.in/sites/default/files/GIM\\_Mission%20Document-1.pdf](http://www.moef.gov.in/sites/default/files/GIM_Mission%20Document-1.pdf). Accessed on: September 29, 2016.

14 Ministry of Environment and Forest, Government of India. National Mission for a Green India (under the National Action Plan on Climate Change), [http://www.moef.gov.in/sites/default/files/GIM\\_Mission%20Document-1.pdf](http://www.moef.gov.in/sites/default/files/GIM_Mission%20Document-1.pdf). Accessed on: September 29, 2016.

also caused widespread damage to the sector. In the case of the Hudhud cyclone in 2014, the winds prevailed for 6 hours after landfall and affected west and east Godavari, Vishakhapatnam, Srikakulam and Vizianagaram of North Andhra Pradesh. The Cyclone caused wind storm and surge together with heavy rain, flooding and water logging. According to the Cyclone Hudhud Joint Rapid Needs Assessment Report in Andhra Pradesh local authorities have estimated that to 70% of trees were uprooted and many lives have been lost.<sup>15</sup>

### 3.1 Challenges of the sector

The challenges forests are facing are related to the demand and supply gap of various provisioning services, such as fodder/grass/grazing, timber, fuelwood, cane/bamboo, NTFP and etcetera. Forest eco-system will become much more vulnerable to climate change since massive deforestation is creating unsustainable pressure and contribute to the continuous degradation of forests, ecosystems and livelihoods for most of the population.<sup>16</sup>

Forests are vulnerable, taking into account altitudinal and latitudinal shift of species of the forest ecosystems and also on account of increased occurrences of pests/diseases, invasive species, fire, change in species assemblage/forest type, loss of biodiversity and forest die-back.<sup>17</sup> Therefore, livelihoods and forest-dependent communities will also be severely affected by climate change adverse effects on forests.

Therefore there is a need of implementing different adaptation and intervention plans for forestry and biodiversity which should include increasing forest areas, promoting afforestation in urban areas, enhancing public participation in afforestation activities, promoting roadside plantation of trees, curbing wood smuggling from forest and etcetera.

There are few key sectoral issues and concerns highlighted in the SAPCC<sup>18</sup> as well as beyond. These are:

1. Wind erosion: Soil is eroded due to strong winds, especially in deforested areas. The areas susceptible to soil erosion are situated near the forested hills and water flows through these areas through innumerable gullies, nallasetc. to finally join a river. Flooding could further contribute to soil erosion, but could also deposit silt, leading to creation of fertile floodplains over time.

---

15 Inter-Agency Group Andhra Pradesh and Sphere India, Cyclone Hudhud Joint Rapid Needs Assessment Report Andhra Pradesh, 2014, <https://sphereindiablog.files.wordpress.com/2014/11/jrna-report-cyclonehudhud.pdf> access on October 10, 2016.

16 State Action Plan for Climate Change(2012), Environment Protection Training and Research Institute, <http://www.moef.nic.in/sites/default/files/sapcc/Andhra-pradesh.pdf>, accessed on October 10,2016

17 State Action Plan for Climate Change(2012), Environment Protection Training and Research Institute, <http://www.moef.nic.in/sites/default/files/sapcc/Andhra-pradesh.pdf>, accessed on October 10,2016

18 State Action Plan on Climate Change for Andhra Pradesh(2012), Environment Protection Training and Research Institute, <http://www.moef.nic.in/sites/default/files/sapcc/Andhra-pradesh.pdf>, accessed on September 30, 2016

2. Cyclonic storms and tidal waves: they cause damage to forests, especially in the 9 coastal districts of the State.
3. Human interferences in the forest land like cattle grazing and the like which had contributed towards degradation of forest. However, over the last couple of decades, this trend has been changing. The area of degraded forest has shown a decreasing trend from 35044 sq. km. in 1996 to 27681 sq. km. in 2000 and 22775 sq. km. in 2006. According to recent report, the State has a degraded forest area of 20915 sq. km for the year 2009- 2010.<sup>43,44</sup> The forest cover of the State has increased from 44229 sq. km. to 45102 sq. km. from year 1999 to 2009 mainly because of the effect of improved protection and development of forests by more than 7,718 VanaSamrakshanaSamities (VSSs) or JFPCs in the State. 23.8 % of forest area is under Community Forest Management (CFM) with involvement of approximately 1539 thousand members. However, the challenge is still to be addressed in its entirety which is still posing a major threat for sustainable forest management. There are other forms of degradation being reported e.g., areas coming under Revenue land are facing severe degradation and loss of Mangrove forest due to excessive prawn (Fish) cultivation and pollution in streams which are magnifying this challenge.
4. Due to changes in climate, there is a disturbance in the timing of flowering and appearance of pollinators. Moreover, excessive use of pesticides/insecticides, loss of forests (natural habitats for pollinators), air pollution etc. have also decreased the appearance of pollinators.
5. Coordination and Finance: The convergence and coordination mechanism has been emphasized in good governance models. However, this still poses a major challenge in the operation aspects of forest department. The department depends heavily upon resources under MGNREGS scheme implemented by Panchayat & Rural Development Department for maintenance of forest which often creates contradiction in terms of identification of priorities and actions. Inter-departmental coordination is a subject which needs a definite reboot and strengthening.
6. Encroachment of forest and water bodies: As on 11.03.2011, 2,56,000.00 Ha<sup>19</sup> of land was under encroachment in the state. This has been a major challenge for the department to ensure sustainable forests. Several water bodies and river catchment areas are also facing the threats of encroachment e.g., Kullaru Lake –which acts as a balancing reservoir between Krishna and Godavari river, has been observed to have decreased in its carrying capacity. There is also limited knowledge and adequate research is lacking to estimate menace of the problem.

---

<sup>19</sup>The figures given by the then Minister of State for Environment and Forests (independent charge) Shrimati Jayanthi Natarajan in a written reply to a question by Dr. Kirit Premjibhai Solanki in Lok Sabha available online at <http://pib.nic.in/newsite/PrintRelease.aspx?relid=77764>

Forest is also severely affected by variability in rainfall and temperature patterns, while rising sea levels and extreme events of marine origin, such as cyclones, pose problems for the coastal areas and affecting forest. The nine coastal districts of Andhra Pradesh are severely vulnerable to cyclonic storms and damages resulting due to cyclones. Loss of lives and livestock is compounded by the loss of forest. Districts like Visakhapatnam, East Godavari, West Godavari, and Krishna have high exposure to floods and cyclones, mainly due to their geographic location and the influence of parameters like deviation of rainfall and exposure to oceanic disturbances.

The changing rainfall pattern like delayed monsoon, uneven distribution of rainfall, long dry spells, shift in rainfall pattern and its unpredictability posing major threat to forest in the state of Andhra Pradesh.

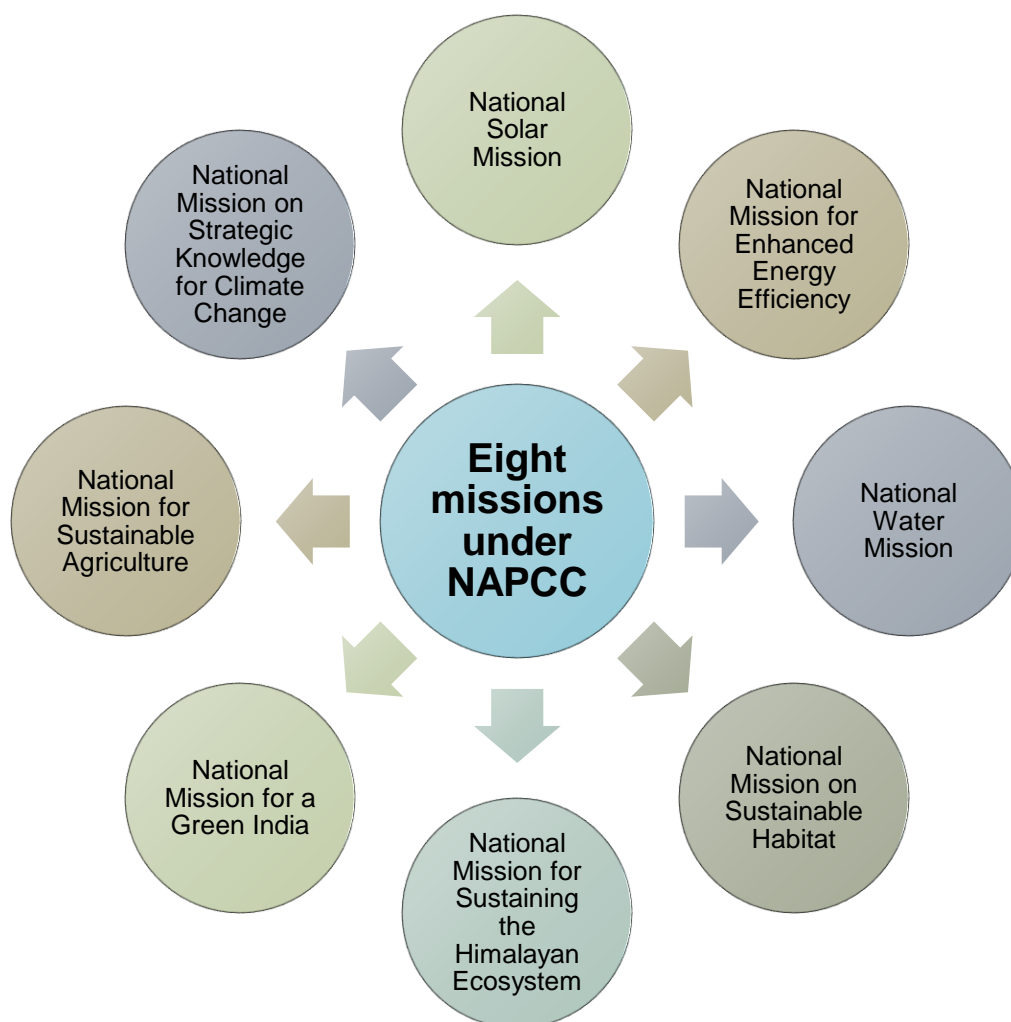


Shri B. Ramanjaneyulu, IAS, Commissioner, PR&RD chairing the Round Table conference to finalize the Action Plans for Mainstreaming Disaster Risk Reduction and Climate Change Adaptation for Forest department of Andhra Pradesh on December 08, 2016 at Seminar Hall, CPR & RD, Vijayawada

## 4. NATIONAL AND STATE INITIATIVES IN MAINSTREAMING DRR AND CCA

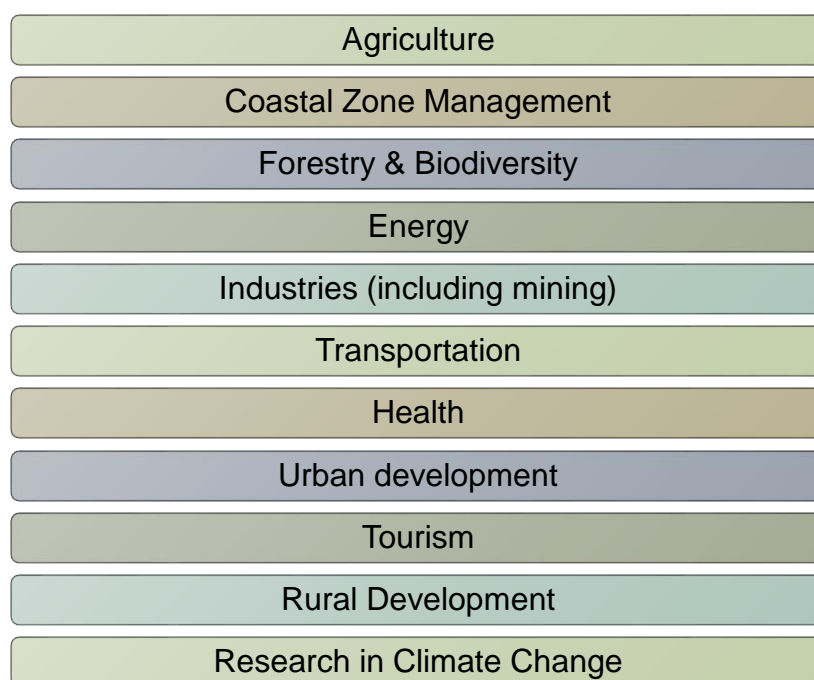
India has remained in forefront in various steps taken up globally to combat Climate Change. India has integrated DRR (Disaster Risk Reduction) and CCA (Climate Change Adaptation) approaches at national level through its commitment to Hyogo Framework for Action (HFA 2005-15), Sustainable Development Goals, India's Nationally Determined Contribution towards Climate Change (INDC), National Action Plan on Climate Change (NAPCC) and other programmes of government.

India's National Action Plan on Climate Change (NAPCC)<sup>20</sup>, was the first major milestone to achieve the objectives of a socially inclusive and sustainable economic growth. The NAPCC identifies eight National Missions to provide a multi-pronged and integrated framework for addressing climate change.



<sup>20</sup> National Action Plan on Climate Change(2008), Government of India, <http://www.moef.nic.in/downloads/home/Pg01-52.pdf>, access on September 28,2016

In line with this, the Government of Andhra Pradesh has prepared its State Action Plan for Climate Change (SAPCC)<sup>21</sup>, prioritising 11 sectors which are seriously impacted by climate change. The SAPCC has been designed around the existing policies of the State Government by taking into consideration ongoing programmes and schemes being implemented at the State level, as well as the NAPCC. These are:



The National Mission for a 'Green India' which is one of the eight Missions under the National Action Plan on Climate Change (NAPCC) seeks to address issues regarding 'Green India' in the context of risks associated with climate change by devising appropriate adaptation and mitigation strategies for promoting ecosystem services, ecological balance carbon-sinks storage and maintenance of bio-diversity.<sup>22</sup> Institutionalising these efforts in action plans and implementing them at local level through involvement of local stakeholders are very necessary.

India is also now open to the REDD+ (Reducing Emissions from Deforestation and Forest Degradation), which is the global attempt to create an incentive for developing countries to manage in a better way, protect and save their forest resources; consequently by doing this it will contribute with the fight against climate change.<sup>23</sup> The importance of REDD+ is that it includes incentives for positive elements of conservation, enhancement of forest carbon stocks, and sustainable management. REDD+ presents positive incentives for demonstrated

21 State Action Plan for Climate Change(2012), Environment Protection Training and Research Institute, <http://www.moef.nic.in/sites/default/files/sapcc/Andhra-pradesh.pdf>, accessed on October 1,2016

22 National Action Plan on Climate Change(2008), Government of India, <http://www.moef.nic.in/downloads/home/Pg01-52.pdf>, accessed on September 28,2016

23 Ministry of Environment, Forests and Climate Change, New Delhi, December 2014, Reference Document for REDD+ in India, <http://envfor.nic.in/sites/default/files/press-releases/Reference%20Document%20For%20REDD+%20in%20India.pdf>

expanse of forest cover and reduction in deforestation. India is a key country on expanding forest and tree resources which will provide important benefits in terms of biodiversity conservation, food security and livelihoods improvement for local communities; and it will benefit the international community in a broader perspective by reducing carbon emissions.

## 5. MAINSTREAMING DRR AND CCA IN TO FOREST

The term ‘mainstreaming’ has been used to describe the process of incorporating disaster risk reduction into humanitarian and development practice, and it also refers to the end result: where the fundamental elements of risk reduction are imbedded into normal development practice and fully institutionalised within a government’s development agenda.<sup>24</sup> Although, government has taken a lead in mainstreaming of DRR and CCA aspects in to its development agenda, its actual implementation is still in initial phase.

The institutionalisation of DRR and CCA is meant to internalise and mainstream the concept in the government policy and programming; and all tiers of government should recognise the need for involving other stakeholders, including communities, in disaster risk management and climate change adaptation. They should add them in their policies and plans, allocate funds for DRR and CCA activities, assign responsibilities to operational-level staff members and develop appropriate strategies and programmes to support community action and establish technical resource centres.<sup>25</sup>

Andhra Pradesh is one of the progressive States in developing protection and conservation plans for forests, including fire protection; afforestation and eco-development through community based programmes (like Joint Forest Management); soil water conservation in forest lands; restoration of mangroves; public awareness programmes on conservation of forest and biodiversity; creation of forests in degraded/public lands, including lands in and around cities and towns; plantation for sustainable commercial utilisation to reduce pressure on natural forests; shelter belt plantation in coastal regions to reduce damage from cyclone and etcetera.<sup>26</sup>

Sr. No	Name of Scheme	Key Component	Key Aspects for Mainstreaming DRR-CCA
1.	National Afforestation Programme (National Mission for a Green India)	The National Mission for a Green India is one of the eight Missions under the National Action Plan on Climate Change (NAPCC). The Mission recognizes that climate change phenomena will seriously affect and alter the distribution, type and quality of natural resources of the country and the associated livelihoods of people. Green India Mission acknowledges the influences that the forestry sector	<ul style="list-style-type: none"> <li>• Increase forest/tree cover and improve quality of forest/tree cover of forest/non-forest lands;</li> <li>• Promotion of forest based sustainable livelihood to minimise risk of disaster and climate change</li> </ul>

<sup>24</sup> Mainstreaming Disaster Risk Reduction in Environment Sector Guidelines and Tools, National Institute of Disaster Management, <http://nidm.gov.in/pdf/pubs/DRR-environment.pdf>, accessed on October 10 ,2016

<sup>25</sup> Mainstreaming Disaster Risk Reduction in Environment Sector Guidelines and Tools, National Institute of Disaster Management, <http://nidm.gov.in/pdf/pubs/DRR-environment.pdf>, accessed on October 10 ,2016

<sup>26</sup> State Action Plan for Climate Change(2012), Environment Protection Training and Research Institute, <http://www.moef.nic.in/sites/default/files/sapcc/Andhra-pradesh.pdf>, accessed on October 1,2016



		hasan environmental amelioration through climate mitigation, food security, water security, biodiversity conservation and livelihood security of forest dependent communities.	<ul style="list-style-type: none"> <li>Promote Community Forest Management (CFM) through VanaSamrakshanaSamities (VSSs) or Joint Forest Protection Committees (JFPCs)</li> </ul>
2.	Integrated Development of Wild Life Habitats	Integrated development of wild life habitats for Seshachalam Biosphere, Rollapadu Wildlife Sanctuary (Great Indian Bustard Conservation) and Sri Lankamalleswara Wildlife Sanctuary (Jerdons Courser Conservation)	Protection endangered species
3.	Seed Development	To improve the genetic quality of the reproductive propagules and to supply high quality seed to cater to the needs of Territorial and Special Divisions in the Forest Department	Develop disaster and climate change resilient varieties of seeds
4.	Environmental Planting in Degraded Forests around Urban Areas	Development of greenery around urban areas. The scheme also provides employment to the surrounding villagers.	<ul style="list-style-type: none"> <li>Promote community based forest management practices</li> </ul>
5.	Development Of National Parks And Sanctuaries:	Developmental activities in the wildlife development of National Parks and Sanctuaries and other issues related to wildlife	<ul style="list-style-type: none"> <li>Enforcement of law for degradation of forests and environment and protection of species endangered.</li> <li>Protection to some endangered plants</li> </ul>
6.	Mixed Plantation Scheme	Increase the forest cover outside the reserve forest and to realize cherished goal of "Haritha Andhra Pradesh" under social Forestry Programme. Avenue Plantation raising of tall plants and small bag seedlings, and distributing seedlings to people.	<ul style="list-style-type: none"> <li>Promote social forestry program to minimize risk of disaster and climate change</li> </ul>
7.	Integrated Forest protection Scheme (IFPS)	<ul style="list-style-type: none"> <li>Forest Fire Control &amp; Management</li> <li>Protection and conservation of Sacred Groves</li> <li>Conservation and Restoration of Unique Vegetation &amp; Ecosystem</li> <li>Control and Eradication of Forest Invasive Species</li> <li>Preparedness for Meeting Challenges of Bamboo Flowering and Improving Management of</li> </ul>	<ul style="list-style-type: none"> <li>Creating awareness in forestry community for protection of forests and saving forests from getting degraded</li> <li>Educating them in disaster and climate change risk &amp; explaining their roles, responsibilities</li> </ul>

		Bamboo Forests	and importance.
8.	Wildlife Crime Control Bureau	<ul style="list-style-type: none"> <li>To develop mechanism for gathering of intelligence related to wildlife crime and illegal wildlife trade in the country</li> <li>To develop wildlife crime database management system for better analysis and record generation to effectively implement wildlife policy in the country.</li> <li>To co-ordinate the efforts and actions of various state and central enforcement agencies towards better enforcement of Wild Life (Protection) Act, 1972.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct of research on the endangering species and encountering the threats.</li> <li>Enforcing rules and regulations for illegal wildlife trade and hunting.</li> <li>Capacity building of officials to minimize disaster and climate change risk</li> </ul>
9.	Integrated Development of Wildlife Habitats	<ul style="list-style-type: none"> <li>Support to Protected Areas (National Parks, Wildlife Sanctuaries, Conservation Reserves &amp; Community Reserves)</li> <li>Protection of Wildlife outside Protected Areas</li> <li>Recovery Program for critically endangered habitats and species</li> </ul>	<ul style="list-style-type: none"> <li>Protection of animals from disaster and climate change risk</li> <li>Impart CCA-DRR awareness through formal and non-formal education.</li> </ul>
10.	NeeruChettu	<ul style="list-style-type: none"> <li>Integrated programme to make the state Drought Proof.</li> <li>Under the scheme, block plantation, avenue plantation, maintenance of water harvesting structures, water absorption trenches have been taken up.</li> </ul>	<ul style="list-style-type: none"> <li>Building capacity for integrated forest management</li> </ul>

## 6. IDENTIFIED GAPS AND CHALLENGES

There is a great potential to integrate the climate change aspects in to forest framework for promoting forest resilient to disaster risk and climate change. Based on literature review with in-depth study on impact of climate change on forest, existing schemes and programmes of Forest department of Andhra Pradesh along with analyzing the present status of mainstreaming DRR & CCA in the Forest department and based on the opinion given by various officials and experts related to forest sector in Andhra Pradesh the key gaps and challenges identified are:

1. Many local communities are dependent on withdrawals from forests for sustaining their livelihoods. Resources such as timber, non-Timber Forest Products (NTFP), fodder, wood, medicinal plants, fibre, water, biodiversity conservation and carbon are fundamental resources for most of local communities, and due to the unsustainable demand of them it is adversely affecting the quality and extent of forests.
2. Existing schemes and programmes of the department has proven effective in mitigating traditional issues and challenges of the sector. Where the emerging issues of contemporary world for disaster risk and climate change needs to be addressed through thorough integration of DRR and CCA components. Apart from National Mission for a Green India, the other ongoing schemes and programmes of Forest department also need to adapt and incorporate direct aspects of DRR and CCA.
3. To achieve conservation and forestation plans various activities and programmes need appropriate integration of DRR and CCA aspects.
4. Implementation of programmes like REDD+ requires sufficient capacities in terms of resources, technology, methodology, financial options and mechanism of inclusion of local community.
5. Various training and awareness generation programmes and activities have been taken up by department of forest and these programmes and activities need systematic integration of DRR and CCA aspects that local communities can relate it to their day to day experiences.
6. Related Institutes to forest department like the Indian Institute of Forest Management (IIFM), Andhra Pradesh Forest Academy, Forest College and Research Institute, Hyderabad, Environment Protection Training and Research Institute (EPTRI), Hyderabad and etcetera should also be engaged in capacity building programmes. These institutions need to develop specific DRR and CCA courses as well as incorporate these aspects into their allied courses.
7. Research on the impacts of climate change on forest sector in the state of Andhra Pradesh as well as its adaptation mechanisms for the state must be done.
8. Use of technologies like Remote Sensing, GIS and GPS are very helpful in various activities of forest department. The Officers of the Department have to be familiar with these technologies. There are many institutions like the National Remote

Sensing Centre (NRSC), Hyderabad and Indian Institute of Remote Sensing (IIRS), Dehradun which offer different trainings in the use of these technologies and this has to be followed by institutions in Andhra Pradesh.

9. The rapid urbanization, industrialization and abnormal increase in the pollution levels are posing major threat in urban life and therefore it is necessary to develop afforestation plans for urban areas.
10. Changing rainfall pattern in terms of its increased irregularity, long dry spells and deforestation process are adding acute stress on forest.
11. Adequate familiarity of DRR and CCA aspects and its mainstreaming aspects need to be developed for forest functionaries in their day to day activities.
12. There is a need to enhance early warning system in the state in terms of rainfall, temperature, disaster warnings and etc. Early warning systems should reach local communities in the best possible way.
13. The man-animal conflict is also increasing in the state. Strong mitigation measures are needed for sustainable coexistence of both man and animal. The crop raids by the free ranging elephants are common phenomena all along the forest fringe villages. The farmers are losing large chunk of their revenue because of the crop raids by elephants and wild boars. To compensate the crop loss paying off compensation has become inevitable.

## 7. MAINSTREAMING DRR AND CCA IN FOREST DEPARTMENT OF ANDHRA PRADESH

As earlier said, there is a great potential to integrate DRR and CCA aspects through ongoing programmes and schemes in the Forest Department. The government should recognise the need for involving other stakeholders, including communities, in disaster risk management and climate change adaptation. They should work in their policies and plans, allocate funds for DRR and CCA activities, assign responsibilities to operational-level staff members and develop appropriate strategies and programmes to support community action and establish technical resource centres.

In the process of mainstreaming DRR and CCA it is needed to identify different entry points as follow:

- 1. Cross-sectoral Coordination Mechanism:** Coordination at national level with relevant stakeholders for close cooperation between various departments, like rural development, tribal Development, panchayats, agriculture, water, health, tourism, power, finance, irrigation, PWD (R&B), etc. and the forest sector will be necessary to ensure sustainable management of forests, to address drivers of forest degradation, and to improve the livelihoods of forest dependent communities. At state level strong inter-departmental coordination mechanism should be agreed among the above mentioned departments. Coordination focal points, protocols and SOPs for coordination and cooperation with appropriate budgetary provisions must be developed.
- 2. Research on disaster and climate parameters:** A scientific research is needed in terms of monitoring disaster risk and climate change on forest. Very minute parameters of climate and weather may be measured and a detailed risk assessment should be done for the state of Andhra Pradesh.
- 3. Risk Analysis:** Detailed risk analysis, disaster risk and climate change risk of Forest sector is needed. This can be done through systematic study on underlying hazards, vulnerabilities and coping mechanisms. This will help in adopting specific risk reduction measures for different areas. There is a need to better understand the problem of encroachment of forest and water bodies to determine how these are affecting or contributing towards risks and resilience of forests in Andhra Pradesh.
- 4. Research on mitigation components:** Adequate measures for disaster and climate risk reduction should be developed through participatory approach based on the risk profile of the state. The implementation of REDD+ for example will facilitate reporting and monitoring of forest resource, by ensuring conservation of existing forest cover

and also improving the quality of it. Here, ecosystems services are enhanced and sustained, showing that REDD+ will work as a safeguard conservation plan and promote inclusive growth with care for the environment.

5. **Integration of DRR and CCA in to scheme and programmes:** A systematic approach should be developed for appropriate integration of DRR and CCA. The identified risk reduction measures should be integrated in to ongoing projects and schemes related to forest sector. DRR, CCA and NMGI should be incorporated into the Annual Action Plan.
6. **Enhancing capacities of Forest Department:** Successful integration and mainstreaming of DRR and CCA need to be accepted by all departmental stakeholders. Departmental challenges in terms of capacities, knowledge, finance, role clarity and etc. needs to be addressed first. Particularly man-power gaps and required budgetary support needs to be fulfilled. It is essential that Panchayats allocate minimum 2% of their funds including 14<sup>th</sup> FC Grants for Forest management and Protection activities. Similarly mechanism for inter-departmental resource mobilization (man-power, tools, technique and finance) is agreed upon responsible departments. Linkage between the Village VanaSamrakshnaSamities (VSS) and Panchayats must be explored and institutionalized. For enhancing capacity of the department, it is essential that last mile structures like VSS are strengthened.
7. **Functional capacity enhancement:** At functional level, Departmental capacities should be enhanced by making special provisions like establishing Disaster Risk Reduction and Climate Change Action Cell at state and district level and providing adequate resources. Greater emphasis should be given to the implementation of components of such schemes which are directly or indirectly minimizing the climate risk. The cell should promote forest conservation, include fire protection; afforestation and eco-development through community based programmes (like Joint Forest Management); soil water conservation in forest lands; restoration of mangroves; public awareness programmes on conservation of forest and biodiversity; creation of forests in degraded/public lands, include lands in and around cities and towns; plantation for sustainable commercial utilisation to reduce pressure on natural forests; shelter belt plantation in coastal regions to reduce damage from cyclone and etcetera<sup>27</sup>, development of wind resistant varieties, and also measures for protection of wetlands particularly catchment area protection measures for lakes like Kolleru Lake.

---

<sup>27</sup> State Action Plan for Climate Change (2012), Environment Protection Training and Research Institute, <http://www.moef.nic.in/sites/default/files/sapcc/Andhra-pradesh.pdf>, accessed on October 1, 2016

8. **Capacity Building:** Adequate technical and institutional capabilities will be required for effective integration and implementation of REDD+. To ensure better integration and implementation of these aspects, various functionaries will need to be given specific training on DRR and CCA as per their roles in the system. Different training modules should be developed for different stakeholders in coordination with training institutes, such as Indian Institute of Forest Management (IIFM), Andhra Pradesh Forest Academy, Forest College and Research Institute, Hyderabad, Environment Protection Training and Research Institute (EPTRI), Hyderabad and etc. The trainings with key directives and action plan should be provided to departmental officers for enhancing their knowledge and understanding of mainstreaming DRR and CCA in their routine interventions. Special CCA and forestry trainings should be also given to locals through capacity building programmes. Capacities should also be enhanced through trainings with appropriate directives and action plans for climate change. Capacity building of VSS needs to be mainstreamed with other institutions at community level supported by various other departments. The focus should be to spread knowledge and train on different skills in mainstreaming DRR and CCA.
9. **Enhancing early-warning system:** Early warning system plays one of the most important roles in managing risks. Usage of early warning system and other weather predictions help stakeholders in taking appropriate decisions and minimizing risk before a disaster occurs.
10. **Institutionalization of Climate Smart Disaster Risk Management(CSDRM):** CSDRM is an integrated social development and disaster risk management approach that aims simultaneously to reduce risks, adapt to climate change and development.<sup>28</sup> With active involvement of community and civil society organizations, disaster and climate risk can be easily managed.

---

<sup>28</sup> Getting Climate Smart for Disasters: Climate Smart Disaster Risk Management Approach in a Community Based Organisation, (2013), All India Disaster Mitigation Institute, <http://cdkn.org/wp-content/uploads/2012/09/Annexure-4-CSDRM-at-SWAD-Full-Report.pdf>, accessed on September 30, 2016

## 8. ACTION PLAN

Based on the identified gaps, here is the suggested Action Plan for mainstreaming DRR and CCA in Forest department of Andhra Pradesh as per key areas of interventions.

### 8.1 Research

Sl. No.	Activities to be undertaken for mainstreaming DRR & CCA	Responsible Authorities/Agencies	Tentative Timeline
1.	Undertake a detailed vulnerability and climate risk assessment emphasizing adequate participatory mitigation measures for those vulnerabilities.	Forest Department and in support with other partner expert agencies	1 – 3 years
2.	Development of sustainable, flood and drought resistant as well as pest resistant varieties of tree.	Forest Department	5 years
3.	Intensive research on various areas of forest by using Remote Sensing and GIS.	Forest Department, NRSC, Hyderabad and IIRS, Dehradun etc.	3 – 5 years
4.	Develop measurement, reporting and verification (MRV) and forest monitoring system.	Forest Department	5 years
5.	Intensive research work on stable forestry in the context of disaster and climate change, in all its aspects.	Forest Department, Indian Institute of Forest Management (IIFM), Andhra Pradesh Forest Academy, Forest College and Research Institute, Hyderabad, Environment Protection Training and Research Institute (EPTRI), Hyderabad and etcetera	5 years
6.	Develop safeguards policies according to the affected forest area. Generating and distributing of forest ecosystem goods and services <sup>29</sup> for local populations since many people depend on forest for their livelihood.	Forest Department	5 years

### 8.2 Functional

<sup>29</sup> UN-REDD Programme Strategic Framework 2016-2020, 20-25 May 2015, Washington, D.C., United States, [http://www.ncsbd.info/wp-content/uploads/2016/01/UNREDD\\_PB14\\_2015\\_Strategic-Framework-2016-20-7May2015-130662.pdf](http://www.ncsbd.info/wp-content/uploads/2016/01/UNREDD_PB14_2015_Strategic-Framework-2016-20-7May2015-130662.pdf). access on October 10, 2016.



Sl. No.	Activities to be undertaken for mainstreaming DRR & CCA	Responsible Authorities/Agencies	Tentative Timeline
1.	Integrate DRR and CCA components in to Annual Action Plan of Forest Department	Forest Department	1 year
2.	Integrate disaster and climate change risk reduction measures in to ongoing projects and schemes related to forest sector	Forest Department	1 year
3.	Establish Disaster Risk Reduction and Climate Change Action Cell at state and district level to do adequate research in climate resilient forest and REDD+ activities in the affected area.	Forest Department in support with Disaster Management Department	3 – 5 years
4.	Establishing village level meteorology centres and disseminate necessary early warnings	Forest Department	5 years
5.	Promote and disseminate of new flood, drought, wind resistant as well as pest resistant varieties of tree crops	Forest Department	3- 5 years
6.	Enhance financial support to locals in the event of adaptation source of food, fuel, fodder and timber. Providing biodiversity and hydrological services preservation of local climate and biodiversity failure as a result of drought, cyclone, incidence of pest, diseases and etc.	Forest Department	3 – 5 years
7.	Establish field centres, data banks and germ plasma banks.	Forest Department	5 years
8.	Development and implementation of Action Plan for: <ul style="list-style-type: none"> <li>● Reducing the damage of Eco System due to large scale Deforestation.</li> <li>● Minimizing Cattle Grazing in forest lands.</li> </ul>	Forest Department with P&RD Department	2 years
9.	Establishment of Coordination cell which will be in charge of coordinating different departments on Mainstreaming DRR and CCA in different projects. Each department will function independently however for common	Lead by Forest Department in collaboration with other mentioned departments	1 year

Sl. No.	Activities to be undertaken for mainstreaming DRR & CCA	Responsible Authorities/Agencies	Tentative Timeline
	concerns the cell will coordinate their efforts towards mitigate climate change. The involved departments will be Forest, Agriculture, P&RD, Tribal Development, PWD (R&B), Water, Health, Tourism, Power, Finance, Irrigation, and others. The cell will also help to coordinate and prepare protocols, SOPs, focal persons, budgetary provisions and etc.		
10.	Development and implementation of an action plan for the protection of wetlands ecosystem, river catchment areas particularly Kolleru Lake.	Jointly by Water Resources, Irrigation, Agriculture, Forest and Rural Development departments	5-6 years
11.	Protection and Conservation of forests. Including fire protection, mitigation of carbon-sink emissions and etc.	Forest Department	3 – 5 years
12.	Soil and Water Conservation in forest lands.	Forest Department	3 years
13.	Forestation of degraded/public lands in and around cities and towns.	Forest Department	3 -5 years
14.	Restoration of mangroves. Protection against marine-origin disasters, preservation of fishing areas and biodiversity.	Forest Department	3 – 5 years
15.	Afforestation and eco-development through community based programmes (like Joint Forest Management) in forest lands.	Forest Department, VanaSamrakshanaSamities (VSSs), Gram Panchayat	3 – 5 years
16.	Public awareness programmes on conservation of forests and biodiversity	Forest Department	1 – 2 years
17.	Notification by P&RD Department on Forest management activity in the List of Panchayat Powers as entrusted vide 74 <sup>th</sup> Constitutional Amendment along with allocation of minimum 2% of their funds including 14 <sup>th</sup> FC	Panchayat and Rural Development Department	1- 2 years
18.	Documentation of biodiversity, including genetic fingerprinting.	Forest Department	1- 3 years

Sl. No.	Activities to be undertaken for mainstreaming DRR & CCA	Responsible Authorities/Agencies	Tentative Timeline
19.	Shelter belt plantation in coastal regions to reduce cyclone impact.	Forest Department	3 -5 years
20.	Plantations for sustainable commercial utilisation to reduce pressure on natural forests.	Forest Department	3 -5 years
21.	Preservation of rare/threatened germplasm (e.g. under cryogenic or other controlled conditions)	Forest Department	3 – 5 years
22.	Develop and provide alternate clean sources of energy, such as fodder being grown outside forests and LPG in order to reduce deforestation within local communities.	Forest Department	1-3 years
23.	Prepare Community Forest Management Plans.	Forest Department, PRI and Community	1-3 years

### 8.3 Capacity Building:

Sl. No.	Activities to be undertaken for mainstreaming DRR & CCA	Responsible Authorities/Agencies	Tentative Timeline
1.	Prepare training modules for different stakeholders for integration and implementation of DRR and CCA measures	Forest Department, Indian Institute of Forest Management (IIFM), Andhra Pradesh Forest Academy, Forest College and Research Institute, Hyderabad, Environment Protection Training and Research Institute (EPTRI), Hyderabad and etcetera	3 – 5 years
2.	Provide trainings to key directives and departmental officers for enhancing their knowledge and understanding of mainstreaming DRR and CCA in their routine interventions.	Forest Department, Indian Institute of Forest Management (IIFM), Andhra Pradesh Forest Academy, Forest College and Research Institute, Hyderabad, Environment Protection Training and Research Institute (EPTRI), Hyderabad and etcetera	3 – 5 years
3.	Provide trainings to the functionaries of the forest department in the use of technologies such as: Remote	Forest Department, NRSC, Hyderabad and IIRS, Dehradun etc.	3-5 years

	Sensing, GIS and GPS.		
4.	Provide DRR, CCA, sustainable forestry and capacity building training programmes to local communities.	Forest Department, Indian Institute of Forest Management (IIFM), Andhra Pradesh Forest Academy, Forest College and Research Institute, Hyderabad, Environment Protection Training and Research Institute (EPTRI), Hyderabad and etcetera	3 – 5 years
5.	Development and Training on Forest management techniques with focus on 100% Plantation Survival, Soil Moisture Management and etc	Forest Department, Indian Institute of Forest Management (IIFM), Andhra Pradesh Forest Academy, Forest College and Research Institute, Hyderabad, Environment Protection Training and Research Institute (EPTRI), Hyderabad and etcetera	6 months will take to develop through research. 3-5 days training in batches to officials and VSS

## 9. CONCLUSION

The successful integration of DRR and CCA components will lead to promote sustainable forest. The process of mainstreaming involves developing appropriate institutional arrangements along with capacity building at the local and national level.

India is stepping forward to combat disaster risk and climate change, the discussed entry points and proposed action plan will provide a necessary roadmap to achieve desired objectives for the state of Andhra Pradesh. As DRR and CCA are crosscutting issues, the mainstreaming process needs to be owned by all departments, staff and volunteers rather than by a single department or an individual. It is important to anticipate potential barriers to ownership and consider how to address them to ensure that mainstreaming can be considered as an institutional asset rather than a liability. Emerging need of tackling disaster and climate risk needs constant efforts from all stakeholders.

Schemes like Green India and programmes like REDD+ have already opened gates for making appropriate provisions for mainstreaming DRR and CCA aspects in to forest sector. Forest Department in association with department of Disaster Management of the state should jointly take a lead. These efforts should be further enhanced through support of central and state government, nongovernmental organisations and active participation of all community.

## 10. ANNEXURE I

### List of Participants

Round table conference to finalize the Action Plans for Mainstreaming Disaster Risk Reduction and Climate Change Adaptation for Forest department of Andhra Pradesh

Date: 08.12.2016

Venue: Seminar Hall, CPR & RD, Vijayawada

Sr. No.	Name of the participant	Designation and office address
1.	B. Ramanjaneyulu, IAS	Commissioner, PR&RD
2.	V. Ranga	JD (G&A), APSIRD
3.	Nagendra Biyani	SPO UNDP
4.	Abdul Haleem	Deputy Director, APSIRD
5.	Dr. Mahendra R	DRR Office, UNICEF, Hyderabad
6.	K. Pradeep Kumar	ADH, VMC
7.	S. Srinivasa Rao	Forest Section Officer, Vijayawada range
8.	B. Hanumantha Rao	S.E.S Municipal Corporation, Vijayawada
9.	Vipul Nakum	Project Coordinator AIDMI, Ahmedabad
10.	R Santha Ram	S.E.S. Municipal Corporation, Vijayawada
11.	Sk. Firoz	FRO
12.	SA Sattar	CPC, UNDP
13.	D Kaneswara Rao	SNEHA, Guduwada
14.	G. Satish	ACF/Sub-DFO, NUZVID
15.	A. Sekhar	SFO/VMC – FPW
16.	Nayeem Ahmed	SES/VMC
17.	K. Ashok Kumar	DFO (SF), Vijayawada
18.	P. Madhuri	Faculty, APSIRD
19.	G. Satyavani	Faculty, APSIRD
20.	R. Jayaram	Lecturer, SCERT, AP