

STATE ACTION PLAN ON CLIMATE CHANGE FOR TELANGANA STATE



Submitted
to

Ministry of Environment, Forests and Climate Change
Government of India, New Delhi



Environment Protection Training and Research Institute
Survey No. 91/4, Gachibowli, Hyderabad – 500 032
www.eptri.com

Foreword

Government of Andhra Pradesh has notified the Environment Protection Training and Research Institute (EPTRI) as a Nodal Agency for Clean Development Mechanism (CDM) and Centre for Climate Change vide G.O Ms. No. 101 EFS&T (Env. Dept) dated 19.11.2001.

In 2009, the Ministry of Environment and Forests called upon the States to prepare the State Action Plans on Climate Change (SAPCC) consistent with the strategy outlined in National Action Plan on Climate Change.

EPTRI has prepared the SAPCC for combined Andhra Pradesh, which was endorsed by National Steering Committee on Climate Change, Ministry of Environment, Forest and Climate Change (MoEF & CC) in 2013.

In view of the bifurcation of the State, as the Environmental setting, land forms, sloping pattern in respective river basins and drainage pattern, Agro climatic Zones, soil patterns and other conditions, are different for both States of Telangana and Andhra Pradesh, Mo E F & C informed Government of Telangana to bifurcate the SAPCC report. Environment Forest, Science and Technology (EFS&T) Department, Government of Telangana, directed EPTRI to prepare the SAPCC for Telangana, vide its letter dated February 11, 2015.

EPTRI has prepared the SAPCC report for Telangana and presented in this report.

Director General

C O N T E N T S

S.No.	Description	Page No.
	EXECUTIVE SUMMARY	i-xxi
1	INTRODUCTION	1
1.0	Background.....	1
1.1	Climate Change and Global Initiatives.....	2
1.2	India's Response to the Global Initiatives.....	3
1.3	National Action Plan on Climate Change.....	5
1.4	State Action Plan on Climate Change (SAPCC).....	6
1.5	Objectives of SAPCC.....	7
1.6	SAPCC Steering Committee.....	7
1.7	Effective Adaptive Strategies.....	9
1.8	State Profile.....	11
1.8.1	Geography and Climate.....	12
1.8.2	Demographic Overview.....	13
1.8.3	Ecological overview.....	13
1.8.3.1	Natural Resources.....	13
1.8.3.2	River Basins.....	16
1.8.3.3	Agro Climatic Zones.....	17
1.8.3.4	Land Use Patterns.....	18
1.8.4	Economic overview	19
1.8.4.1	Sectoral Performance.....	20
2	PAST AND ONGOING CLIMATE CHANGE TRENDS & ACTIONS TAKEN	25
2.0	Background.....	25
2.1	Observed Climatic Changes.....	25
2.1.1	Climate and Temperature.....	25
2.1.2	Rainfall.....	26
2.1.3	Humidity.....	26
2.1.4	Heavy Rains	26
2.1.5	Floods	27
2.1.5.1	Flash floods in Hyderabad.....	27
2.1.6	Droughts.....	28
2.1.7	Heat Waves.....	31
2.1.8	Risk Management Actions by State.....	34
2.1.8.1	Implemented adaptation interventions for Health Sector.....	34

S.No.	Description	Page No.
2.1.8.2	Implemented adaptation interventions for Agriculture Sector.....	34
2.1.8.3	Implemented adaptation interventions for Forestry and Biodiversity Sector	35
2.1.8.4	Implemented adaptation interventions for Habitats (rural and urban).....	35
2.1.8.5	Implemented adaptation interventions for Transportation Sector.....	36
3	ASSESSMENT OF VULNERABILITY OF STATE TO CLIMATE CHANGE	37
3.0	Assessment of Adaptive Capacity of the State.....	37
3.1	Identification of determinants and indicators.....	37
3.1.1	Economic Status.....	38
3.1.2	Demographic Status.....	38
3.1.3	Infrastructure Status.....	38
3.1.4	Education Status.....	38
3.1.5	Access to Health Infrastructure.....	38
3.1.6	Other Determinant(s)	39
3.2	Approach for estimating the Adaptive Capacity.....	41
3.3	Results.....	43
3.4	District wise adaptive capacity of the State.....	43
3.5	Vulnerability of State to climate change.....	44
3.5.1	Methodology for vulnerability assessment.....	44
3.5.2	Assessment of Physical Exposure.....	45
4	PROJECTING CLIMATE CHANGE AND FUTURE SCENARIOS OVER TELANGANA	47
4.0	Introduction.....	47
4.1	PRECIS Model.....	48
4.2	Future Climate Projections.....	49
4.3	Results.....	50
4.3.1	Experiment-1: PRECIS A1B SRES scenarios for surface-air-temperatures.....	50
4.3.1.1	Projected mean annual surface-air-temperature variability over Telangana State.....	50
4.3.1.2	Anomaly Projected annual temperature over Telangana State.....	51
4.3.1.3	Projected spatial distribution of summer surface-air-temperature	52

S.No.	Description	Page No.
	over Telangana.....	
4.3.2	Experiment -2: PRECIS A1B SRES scenarios for monsoon rainfall.....	53
4.3.2.1	Projected spatial distribution of Southwest monsoon rainfall.....	53
4.3.2.2	Projected anomaly of Southwest Monsoon rainfall.....	54
4.3.2.3	Projected spatial distribution of Northeast monsoon rainfall over Telangana.....	54
4.3.2.4	Projected anomaly of Northeast rainfall.....	56
4.3.3	Experiment -3: Baseline experiment for 1970s (1961-1990).....	57
4.4	Summary and Conclusions.....	58
5	STAKEHOLDER IDENTIFICATION AND CONSULTATION WORKSHOP	59
5.0	Identification of main stakeholders.....	59
5.1	Stakeholders' Workshop.....	60
5.2	Proceedings of the Workshops.....	61
5.3	Feedback from the Stakeholders.....	61
5.4	Process of preparation of SAPCC for Telangana.....	60
5.5	Prioritization of Sectors.....	62
5.5.1	Agriculture and livestock.....	63
5.5.2	Health.....	63
5.5.3	Energy.....	63
5.5.4	Irrigation and water supply.....	62
5.5.5	Industry.....	65
5.5.6	Transport.....	65
5.5.7	Forestry.....	65
6	SECTORAL ISSUES AND INTERVENTIONS	66
6.0	Agriculture and allied sectors.....	66
6.1	Background.....	66
6.1.1	Crops.....	66
6.1.2	Livestock	67
6.1.3	Horticulture.....	67
6.1.4	Agriculture Inputs likely to be affected by Climate Change.....	68
6.1.4.1	Rainfall.....	68
6.1.4.2	Temperature.....	69
6.1.4.3	Irrigation.....	70