ABBREVIATIONS

CCBS	Climate Change Benefit Share
CCFF	Climate Change Financing Framework
CCIA	Climate Change Impact Appraisal
CCIP	Climate Change Innovation Programme
CCRS	Climate Change Relevance Share
CCSS	Climate Change Sensitivity Share
CCAP	Climate Change Action Plan
CPEIR	Climate Public Expenditure and Institutional Review
DAC	Development Assistance Committee
DoWR	Department of Water Resources
EAP	Externally Aided Project
F&ARD	Fisheries and Animal Resources Development
F&E	Forest and Environment
FY	Financial Year
ICZMP	Integrated Coastal Zone Management Project
IDWH	Integrated Development of Wildlife Habitats
IEC	Information Education Communication
ISBIG	Incentivising Scheme for Bridging Irrigation Gap
IWMP	Integrated Watershed Management Programme
JBIC	Japan Bank for International Cooperation
MDB	Multilateral Development Banks
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MoEF&CC	Ministry of Environment, Forest & Climate Change
NDCs	Nationally Determined Contributions
NICRA	National Innovations on Climate Resilient Agriculture
NLMP	National Livestock Management Programme
NRLM	National Rural Livelihood Mission
NTFP	Non-Timber Forest Product
NAPCC	National Action Plan on Climate Change
OCCAP	Odisha Climate Change Action Plan
OECD	Organisation for Economic Cooperation and Development
OIIPCRA	Odisha Integrated Irrigation Project for Climate Change Resilient Agriculture
RIDF	Rural Infrastructure Development Fund
SAPCC	State Action Plan on Climate Change
SAPFIN	State Action Plan Financing Frameworks
SBM	Swachh Bharat Mission
SDG	Sustainable Development Goals
SHG	Self Help Group
SRI	System of Rice Intensification
TRS	Thousand Rupees
UNDP	United Nations Development Programme
UNNATI	Urban Transformation Initiative
WALMI	Water and Land Management Institute
WSIDP	Water Sector Infrastructure Development Programme

Preface

The **Odisha Climate Change Action Plan (OCCAP)** outlines strategies across 11 priority sectors; viz. Agriculture, Coast and Disaster, Energy, Fisheries and Animal Resources, Forests, Health, Industries, Mining, Transport, Urban and water Resources. These sectors form the basis for conducting the Phased CCIA analysis. However, due to comparatively low budgetary allocations, expenditure from the Departments of Industries and Steels & Mines has been omitted from this analysis. Similarly, since only a subset of the schemes of the Department of Revenue & Disaster Management has any actual climate change relevance, these sub-sets of schemes have been analysed as part of this assessment. On the other hand, Panchayati Raj & Drinking Water and Rural Development have been included since the expenditures in these departments have far reaching climate change adaptation benefits and at the same time are susceptible to climate change impacts. The Budget Estimates of Programme Expenditure for 2017-18 as obtained from the Detailed Demand for Grants across the 11 sectors form the source of data on budgetary allocations for schemes were analysed as part of the coding exercise. Similarly, for qualitative scheme details of all priority sectors, the Outcome Budget documents, as well as Activity Reports for the for preceding years were studied during the budget coding exercise. Expenditure under the following departments were analysed during this exercise:

1. Agriculture and Farmers' Empowerment
2. Revenue and Disaster Management
3. Energy
4. Fisheries and Animal Resources Development
5. Forest & Environment
6. Health & Family Welfare
7. Panchayati Raj & Drinking Water
8. Rural Development
9. Commerce and Transport
10. Housing and Urban Development
11. Water Resource

Executive Summary

This study aims to inform public as well as planners in the State Government on the current climate change relevance and sensitivity of public expenditure in sectors outlined in Odisha's SAPCC, through a detailed budget coding exercise. The purpose of this analysis is to assist the Government in first identifying sectors and schemes to focus on to improve climate resilience and mitigation outcomes, and secondly to support government in deciding whether programmes need redesigning or additional funding to accommodate changes needed to deliver climate benefits and / or safeguard projects from the impacts of climate change. This would therefore support the State Government in securing broader development benefits of large scale investments being made, and would help avoid potential future losses that climate change would exacerbate, thereby helping to achieve Odisha's climate response agenda.

A brief analysis of the top ten schemes (by budgetary allocation) has been presented in every sector on their relevance and sensitivity levels indicating the scope for realignment over a significant portion of the department's expenditure. Additionally, all the schemes analysed have been ranked based on their CCRS for the purpose of prioritisation by policy makers at the time of budget allocations to ensure maximum benefits from climate change perspectives.

CLIMATE BUDGETING IN ODISHA

INTRODUCTION

Climate finance refers to local, national or transnational financing-drawn from public, private and alternative sources of financing-that seeks to support mitigation and adaptation actions that will address climate change. The United Nations Framework Convention on Climate Change, the Kyoto Protocol, 1997 and the Paris Agreement, 2015 call for financial assistance from Parties with more financial resources to those are less endowed and more vulnerable. This recognizes that the contribution of countries to climate change and their capacity to prevent it and cope with its consequences vary enormously. Climate finance is needed for mitigation, because large-scale investments are required to reduce the emissions significantly. Climate finance is equally important for adaptation, as financial resources are needed to adapt to the adverse effects and reduce the impacts of a changing climate. In our State for all such Climate related activities we are having mainly three sources, these are like:

State Budget: this will remain the most potent available resource which is restricted to stakeholder departments' own departmental budget provision,

Other sources of finance flow:

Apart from the State's own budgetary allocation there are few remarkable funding sources are being availed to mitigate the Climate Change related hazards in the State. These are as follows:

Green Climate Fund Project (GCF) Odisha is the first State in the country to have got the clearance for the first Project with GCF Financing: (Grant) USD 34.35 million (INR 228.52 Crore) for the Project "Ground water recharge and solar micro irrigation to ensure food security and enhance resilience in vulnerable tribal areas of Odisha.

(GCF Outcome: Beneficiaries: 1.54 million vulnerable households and 5.2 million vulnerable food insecure people in 15 priority districts with high level of food insecurity, water scarcity, high climatic stress and with high proportion of vulnerable SC-ST population)

Ministry of Science & Technology, Government of India A Project entitled **"Strengthening the existing Climate Change Cell"** in the Forest & Environment Department, Government of Odisha has been approved with a budgetary provision of **₹ 2.28 Cr** for capacity building under National Mission on Strategic Knowledge for Climate Change (NMSKCC)-under implementation.

National Adaptation Fund on Climate Change Project An innovative project namely **"Conservation of water through Management of runoff in the Jonk river basin of Nuapada District to reduce vulnerability and enhance resilience for traditional livelihood"** with financial assistance of **₹ 20 Cr** is under implementation.

Apart from these above sources, a fund namely **OEMF** (**Odisha Environment Management Fund**) has been introduced for climate change activities which will act as corpus fund for providing financial assistance to formulate some remarkable projects under climate change context.

JUSTIFICATION FOR TAGGING THE STATE BUDGET WITH REGARD TO CLIMATE CHANGE:

Odisha is affected by many such climate extreme events *viz.* tropical cyclones, heat waves, storm surges, frequent floods, onset of drought reported from some western districts of the State which resulted in water stressed condition. Odisha is the first State in the country in formulating a **Climate Change Action Plan 2010-15**. Progress on such **Action Plan was evaluated** and after proper evaluation a report to this effect was published. SAPCC for the 2nd phase i.e. 2018-2023 has been released. There were total 11 sectors identified and prioritized in **Climate Change Action Plan 2010-15**. A new sector namely **Waste Management** has been introduced in **SAPCC 2018-2023** as per the mandate of "Clean India Mission" or "Swachh Bharat Mission". 102 prioritized activities have been identified. Presently State is about to furnish its **State Action Plan on Climate Change** to Government of India, as per the commitments made under NDCs of Government of India already submitted to UNFCCC to meet the SDG Goals by 2030.

Public expenditure in countries like India, even if not explicitly motivated by climate concerns, has provided significant climate change adaptation and mitigation co-benefits. However, this has not received significant focus in the Indian context and budgetary allocation and spending on climate change issues remain underreported in India. To address this, the Ministry of Environment, Forest & Climate Change (MoEF&CC) along with a few states have recently initiated discussions on creating a consistent reporting template for their climate-related expenditure. Frameworks that can be adopted for identifying the climate relevance of public expenditure have far predated such thought in India. However, there is some need to re-align such frameworks to the Indian context. Contemporary frameworks like the Climate Public Expenditure and Institutional Review (CPEIR), Climate Markers by Organisation for Economic Cooperation and Development (OECD), Joint Multilateral Development Banks (MDB) Finance approach, etc. are universally recognised and have been adopted by several countries (UNDP, 2012) in the past to report their climate-related expenditures. These are objective-based approaches which use either the stated explicit or implicit objectives of the schemes/programmes/aid to estimate their climate relevance. Table-1.1 provides a summary of these approaches, followed by a few illustrative examples to highlight the inherent differences in classifying public expenditure.

Table 1.1: Objectives-based Approaches to Climate Budgeting

Multilateral Development Bank Joint Approach (MDB criterion)
Based on explicit inclusion of climate adaptation / mitigation in the objectives of the programme
Categories: 1 (if included) 0 (if not included)
OECD-DAC Climate markers
In addition to explicit mention in programme objectives, also highlights if climate change (CC) is a primary focus or not
Categories: 2 (if CC is the principal focus) 1 (if CC is a significant goal) 0 (if CC is not targeted at all)
Climate Public Expenditure and Instructional Review (CPEIR)
Also included implicit climate co-benefits, and ranks a programme based on the relative importance of these benefits
Categories: High (CC is part of the primary focus) Medium (CC is a secondary focus, or programme has prominent CC co-benefits) Low (CC co-benefits are indirect) Marginal (very minimal or theoretical links of climate relevance)

Source: Methodology documents of different Climate Financing Framework

Table 1.2 shows that there is greater scope to classify components within a programme, rather than take the programme outlay as a whole, as one moves from explicit to implicit inclusion of a climate perspective in programme objectives (i.e. schemes could have a considerable relevance to climate change, even without an explicit goal to address its impacts).

Table 1.2: Objectives-based Approaches: Illustrative Examples

Methodology	**Schemes**		
	On Farm Water Management	**Integrated Coastal Zone Management Programme (ICZMP)**	**National Innovations on Climate Resilient Agriculture (NICRA)**
Objectives	• Enhance Water use efficiency by promoting on-far water management • Rainwater conservation for effective use • Rain-fed area development	• Reduce coastal erosion • Coastal biodiversity conservation • Improving coastal environment quality	• Enhance climate resilience of agriculture & allied activities • Demonstrate farm specific technology packages to adapt to climate risks • Capacity Building of scientists & other stakeholders in climate resilient agriculture
MDB Joint Approach	No	No	Yes
OECD-DAC	Not targeted	Not targeted	Principal
CPEIR	Medium	Medium	High

As can be seen from the above examples, though all three schemes have a significant contribution towards building climate change resilience, the MDB and OECD approaches exclude two of the schemes altogether. Thus, there is a need to identify a methodology to suitably identify climate change benefits of the existing budget expenditures of the State. Such indicators will be helpful for the State to prioritize climate actions as well as be a powerful reporting tool for SDGs.

With this premise, the Climate Change Innovation Programme (CCIP) has developed its Climate Change Financing Framework (CCFF), called the State Action Plan Financial Integration (SAPFIN), which is a benefits-based approach. This approach takes into account the expected benefits of the schemes/programmes and grades them based on their relative climate sensitivity to arrive at the Climate Change Benefit Share (CCBS).

It is important to understand that a State should analyse the climate relevance and sensitivity of its public expenditure. Most of the evidence that suggests the importance of this exercise stems from their Action Plan on Climate Change which summarises the different climate hazards that the State is prone to and categorises its districts based on their degree of vulnerability. Hence this analysis would inform policy makers of the susceptibility and damages that climate change could cause to the State and entry points to building resilience through its already existing development outlays.

Given the State's development trajectory, key concerns relate to agricultural productivity, poverty reduction, food security, disaster mitigation and response, etc. However, it is often seen in developing countries that planning of development programmes without integrating climate concerns could reduce or impede that future benefits expected out of them. This could be due to the need for additional resources for disaster response or building resilience for the communities affected by such disasters. Hence, climate budgeting or proofing of development budgets would only help ensure that these future development benefits are not significantly eroded due to hazards like floods, droughts, storms, cyclones, earthquakes which are aggravated by climate change.

SCOPE AND OBJECTIVE OF CLIMATE BUDGETING

- Identifying the inherent climate mitigation or adaptation benefits of current public expenditure and plan future investments,

- Facilitating the re-alignment of the objectives of departmental schemes to achieve greater climate relevance in future,

- Predicting future loss and damage because of climate change given climate scenarios (regional projections) with current adaptation and mitigation efforts, and

- Standardising domestic and international climate action and expenditure reporting (SDGs)

ACHIEVEMENTS IN CLIMATE FINANCE:

Odisha took an early initiative in formulating the **State Climate Change Action Plan – I, 2010- 15 (SAPCC–I, 2010-15)**. Eleven sectoral missions were identified and inter-departmental representation ensured co-ordination amongst sectors. Individual working groups under the chairmanship of concerned departmental Secretaries, who are also members of **High Level Coordination Committee** headed by the Chief Secretary, Odisha, deliberated on the issues with 11 stakeholder departments with 121 key priority activities. Further, a progress monitoring report was launched in the year 2015 on implementation of SAPCC – I.

Sector wise Budget expenditure made in course of implementation of SAPCC-I is given below in Table – 1.3.

Table-1.3: Sector wise Budget Expenditure (in Cr.) of CCAP – 2012-15

Sectors	Climate Budget (2014-15)	Climate Budget (2013-14)	Climate Budget (2012-13)
Agriculture	556.28	631.44	218.46
Coast and Disaster	319.46	208.00	36.15
Energy	509.40	367.48	274.33
Fisheries and ARD	28.33	27.69	15.41
Forest and Environment	554.59	310.05	246.39
Health and Family Welfare	36.10	30.03	0.00
Housing and Urban Development	502.12	0.00	0.00
Industries	70.50	0.18	0.00
Steel and Mines	0.00	0.00	0.00
Transport	0.00	4.22	1.16
Water Resources	630.47	605.27	908.27
Total	3207.26	2184.35	1700.17

Ideally Climate finance should be over and above the budgetary sources of the State or central sector schemes. However, no concrete allocation mechanism has been forthcoming from the centre so far. The State has allocated budgets for many identified activities from its own sources or existing schemes of the centre and the State.

RE-ORIENTATION OF STATE BUDGET

There is a need to include Climate Change in planning and budgeting (***preventing losses to welfare schemes)***

- A Phased Climate Change Impact Appraisal (CCIA) Study was conducted with technical support of Climate Change Innovation Programme (CCIP). 11 stakeholder departments were taken into consideration.

- More the sensitivity more actions need to be taken so as to make the scheme more climate proof - Any possible future loss due to Climate Change can be avoided.

- Since development is the State priority, we are trying to focus on how to protect the benefits of development from climate change.

- The methodology for coding the climate relevant budgeted expenditure has been integrated in the State Budget 2018-19 as a separate chapter and published in the State Budget.

METHODOLOGY

The Phased CCIA methodology is an extension of the SAPFIN methodology to include a two-step analysis. It is based on the understanding that public expenditure on development could:

1. Provide inherent climate mitigation and adaptation co-benefits and

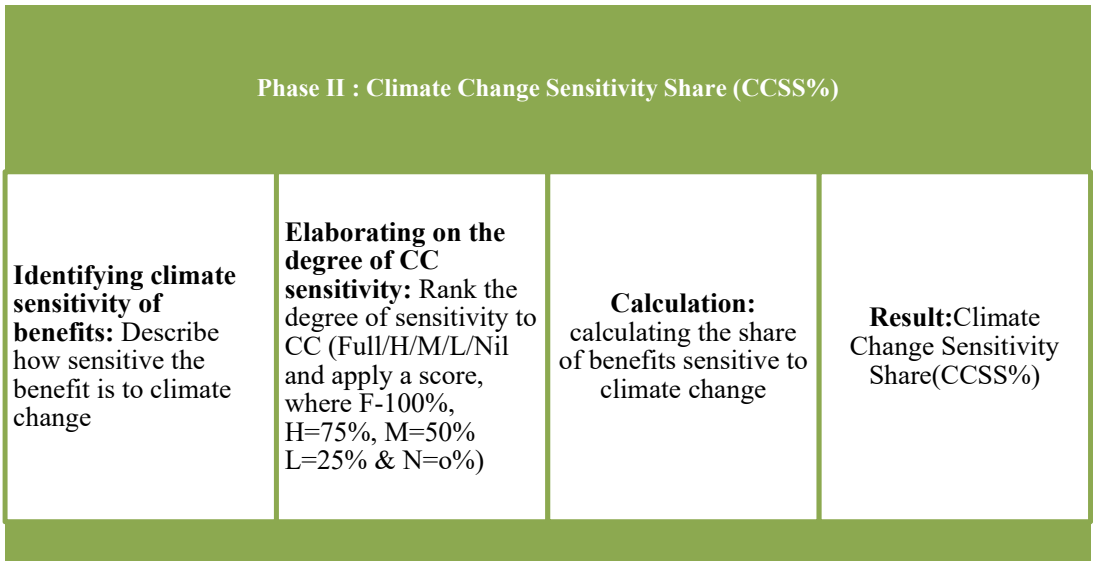
2. Themselves be sensitive to potential impacts of climate change, thereby deviating from the expected welfare trajectory or programme objective in future

The steps adopted during the Phased CCIA approach are represented below.

Figure 1.1: Phase-I CCIA Approach

Phase I : Climate Change Relevance Share (CCRS%)				
Listing benefits: Identifying all the economic, social & environmental benefits of the programme to their beneficiaries	**Identifying importance of benefits:** Mark each benefit with a ranking of importance(High/Medium/Low & apply a score,where H=3,M=2 andL=1). Also substantiate by providing the responses for the rank assigned to the benefit	**Outlining climate relevance of benefits:** Describe whether each benefit leads to building climate resilience and/or mitigation	**Highlighting the degree of climate relevance**: Mark the relative importance of climate relevance (Full/H/M/L/Nil and apply a score, where F-100%, H=75%, M=50% L=25% & N=o)	**Result:**Climate Change Relevance Share(CCRS%)

Figure 1.2: Phase-II CCIA Approach



Hence this methodology in step I, attempts to **provide the climate relevance of public expenditure** while in step II, highlight the **vulnerability of public expenditure to future climate impacts**. If results of both analyses are studied together, it will be observed that there are schemes in every sector which provide relatively greater climate benefits than others while also being sensitive to climate impacts hence needing relevant design considerations to ensure that the benefits are not at risk. Similarly, schemes which are low in providing climate benefits might also be low in sensitivity, which could again call for design changes for accruing greater benefits at lower risk exposure. This could help States draw greater benefits out of schemes which are more tolerant of climate impacts. Hence this dual analysis while facilitating effective design changes could also provide a holistic view of where the current climate preparedness stands vis- à-vis future requirements.

Once the Phased CCIA approach is applied to all the schemes to the expenditures across priority sectors of the SAPCC, the resultant CCRS % and CCSS % will be imposed on the programmatic expenditure of these schemes. This exercise will ultimately provide the overall climate relevance and sensitivity shares of public expenditure thereby providing an additional classification in the light of future climate expenditure as well as Nationally Determined Contributions (NDCs) reporting.

The **relevance (CCRS) share** is meant to help State departments to identify priority schemes to focus on for climate-related planning, as a first step.

The **sensitivity (CCSS) share** is useful to then realign interventions/components within a scheme for reducing any welfare loss from climate-induced risks.

ANALYSIS AND RESULT

The importance of undertaking an analysis of public expenditure in sectors critical for achieving Odisha's climate response agenda stems from the need to secure development benefits of large scale funding programmes from potential future losses that climate change would exacerbate.

Subsequently, a Phased Climate Change Impact Appraisal (CCIA) analysis has been conducted, highlighting two major dimensions of programme-level linkages with climate change.

1. How benefits from development programmes additionally contribute to improving resilience to Climate Change.
2. How programme benefits are likely to be impacted by climate change itself in the absence of climate change specific planning interventions

The former has been captured as the Climate Change Relevance Share (CCRS), while the latter as Climate Change Sensitivity Share (CCSS). These are applied as percentages to the outlay of different schemes (and therefore collectively to an entire sectoral budget), to gauge the relative extent of climate proofing effort that has to be undertaken to prevent loss of intended benefits through development plans. A brief analysis of the top ten schemes (by budgetary allocation) has been presented in every sector on their relevance and sensitivity levels indicating the scope for realignment over a significant portion of the department's expenditure. Additionally, all the schemes analysed have been ranked based on their CCRS for the purpose of prioritisation by policy makers at the time of budget allocations to ensure maximum climate as well as welfare benefits. Details of the findings of the Budget Coding Exercise i.e. Phased CCIA results is presented here in Table – 1.4.

Table –1.4: Phased CCIA Result

Sl. No.	Sector	Climate Change Relevance Share-CSRS(%)	Climate Change Sensitivity Share CCSS(%) Negative	Climate Change Sensitivity Share-CCSS(%) Positive
1	Agriculture	45	-40	3
2	Coast & Disaster Risk Management	45	-39	4
3	Fisheries & ARD	30	-44	1
4	Forestry	53	-35	6
5	Panchayati Raj	45	-45	2
6	Rural Development	42	-36	4
7	Transport	31	-32	0
8	Urban Development	46	-38	4
9	Energy	52	-47	1
10	Health	37	-22	
11	Water Resources	59	-57	3

The sectoral groups, across **'Low' and 'High'** categories for climate relevance and sensitivity respectively are presented in Table – 1.5.

Table – 1.5: Sector level resultant of Climate Relevance and Sensitivity

Phased CCIA Score		Climate Relevance (resilience building/adaptation/mitigation	
Climate Sensitivity (loss and damage due to floods/ cyclones/ droughts		High	Low
	High	**High priority for scrutiny: Retain benefits** with positive climate sensitivity **Climate-proof benefits** with negative sensitivity	**Design changes** to enhance climate resilience and also **more climate proofing** effort to insure against welfare losses from climate hazards (in case of negative sensitivity) In case of positive sensitivity, enhancing climate resilience would reap dual benefits
	Low	Climate change benefits accrue with relatively less impact (or loss)from climate risks-**low hanging fruits**	**Regular monitoring and review effort-** To explore the future scope of mainstreaming climate concerns. Comprehensive assessments needed to evaluate allocations in such programmes

A matrix indicating the different combinations of climate relevance and sensitivity amongst any programmes is provided below to highlight relevant follow-up actions needed based on their grouping. This is presented in Table – 1.6.

Table – 1.6: Key Action Points based on the matrix

Phased CCIA Score		Climate Relevance (resilience building/adaptation/mitigation	
Climate Sensitivity (loss and damage due to floods/ cyclones/ droughts		**High (>=40%)**	**Low (<40%)**
	High (>=40%)	Water Resources Energy Agriculture Panchayati Raj	Fisheries & Animal Resource Development
	Low (<40%)	Forestry Urban Development Coasts and Disaster Management	Rural Development Health Transport

OUTCOME OF THE BUDGET CODING EXERCISE IN THE STATE:

The Phased CCIA analysis reveals that multiple combinations of relevance and sensitivity emerge across schemes of each sector. The critical inputs from this exercise, by capturing linkages with climate change, are as follows:

- Identification of schemes/programmes that need to be prioritised within a sector for further action, to improve resilience/adaptation or mitigation responses.

- Identification of components/interventions within the prioritised scheme/programme which are more vulnerable, and require either additional proofing effort, or reduced

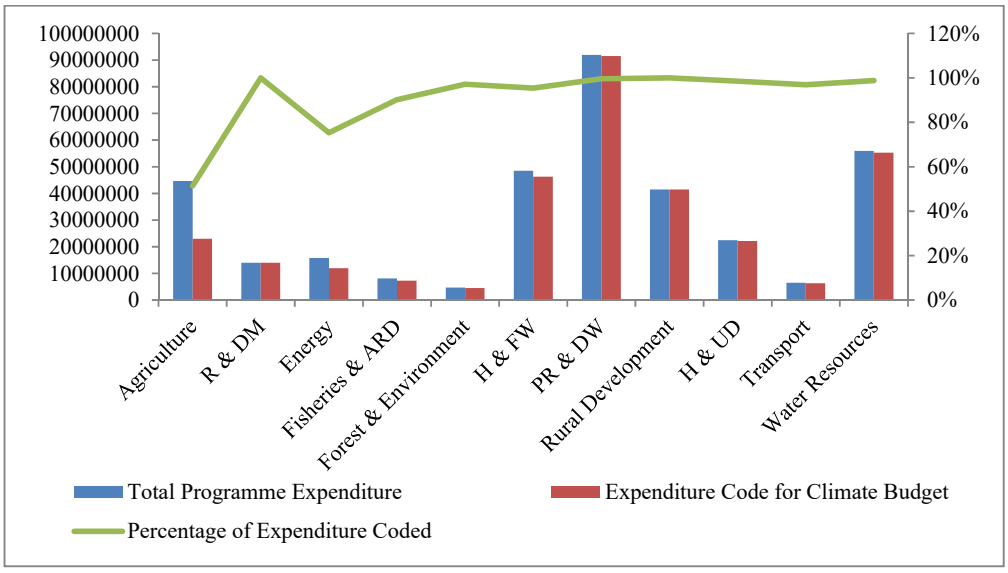
investment (hence the planners could deliberate upon technical vis-à-vis financial adjustments based on the nature of activities and their benefits).

- Schemes within every sector can be categorised based on the budget coding framework into High and Low in terms of relevance and sensitivity. The four combinations (high relevance & high sensitivity, high relevance & low sensitivity, low relevance & high sensitivity, and low relevance & low sensitivity) have been elucidated using illustrations from four sectors: Agriculture, Fisheries & Animal Resources Development, Forests & Environment and Water Resources which are the key sectors for delivering development benefits.

- While schemes that adopt a holistic approach of development (irrespective of the sector) to include livelihood enhancements, training and capacity building have fared as moderate-high scores in terms of relevance and sensitivity, others which have a lean focus on natural resource management or agriculture, have been estimated to show relatively more extreme scores.

The **Climate Change Impact Appraisal (CCIA)** analysis of the eleven departments has been shown in the below charts. Chart-1.1 highlights the total department-wise programme expenditure and coded programme expenditure for FY 2021-22(BE). The coded programme expenditures for climate budget analysis for the eleven identified departments have been calculated using the SAPFIN methodology.

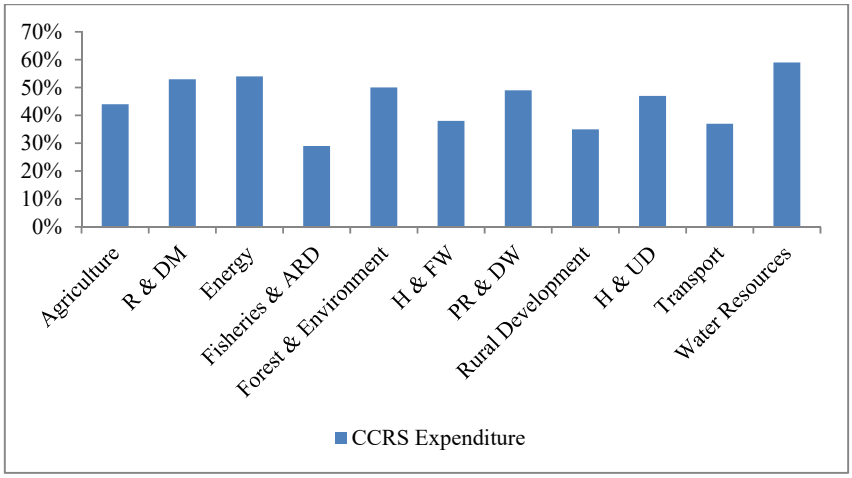
Chart-1.1- Programme Expenditure Coded for Climate Budget



The Climate Change Relevance Share (CCRS) which helps the State Government to identify priority schemes/programmes in each Department to focus on climate-related planning. It helps in identifying the schemes which have relevance with respect to developing climate resilience planning. The CCRS percentage for each of the eleven identified departments has

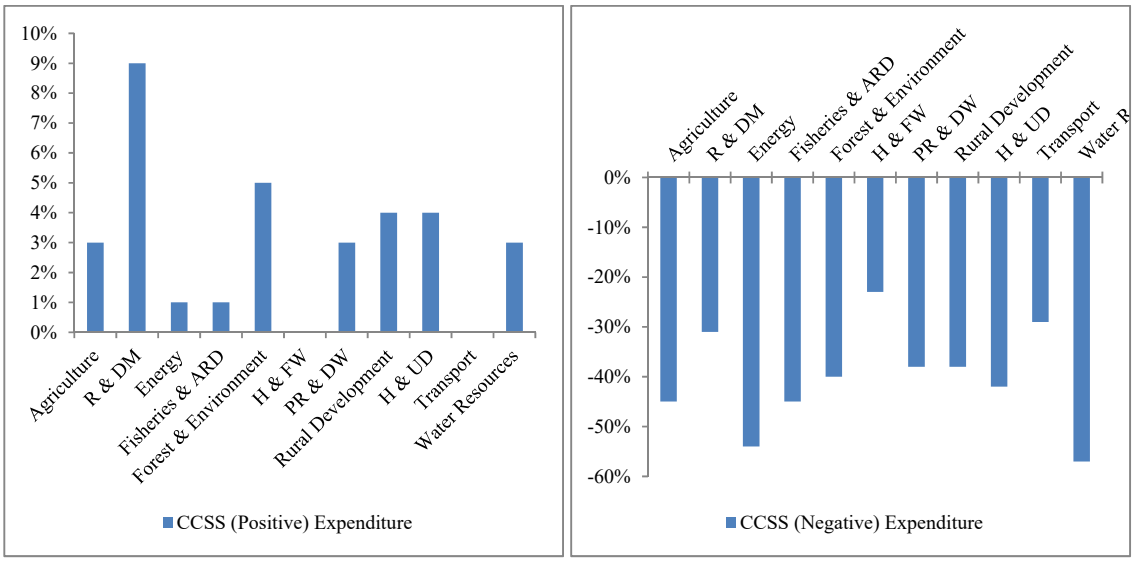
been calculated as a part of CCIA analysis. Chart-1.2 highlights the CCRS percentage of the selected eleven departments of the State Government.

Chart-1.2 Climate Change Relevance Share (CCRS) For the Eleven Departments



The Climate Change Sensitivity Share (CCSS) helps in identification of components within the schemes/programmes which are more vulnerable and need additional proofing in terms of technical or financial intervention to further augment climatic relevance of the programme. The CCSS percentage for each of the eleven identified departments has been calculated using the SAPFIN methodology. Chart-1.3 highlights the CCSS percentage of the selected eleven departments of the State Government.

Chart-1.2 Climate Change Sensitivity Share (CCSS) For the Eleven Departments



CONCLUSION

Using the phased CCIA approach, the CCRS and CCSS scores of the different schemes with different degrees of relevance and sensitivity to climate change can be compared within each sector. This could potentially form the basis for a concerted mainstreaming and climate proofing initiative by the concerned State Departments. Integration of a simple yet relatively objective budget coding template with departmental budgets would be the way forward for the State if it were to measure the climate relevance and sensitivity of its expenditure. This would internally facilitate greater effectiveness of public expenditure in not just delivering welfare but also significant climate adaptation or mitigation benefits without much additional effort towards planning.