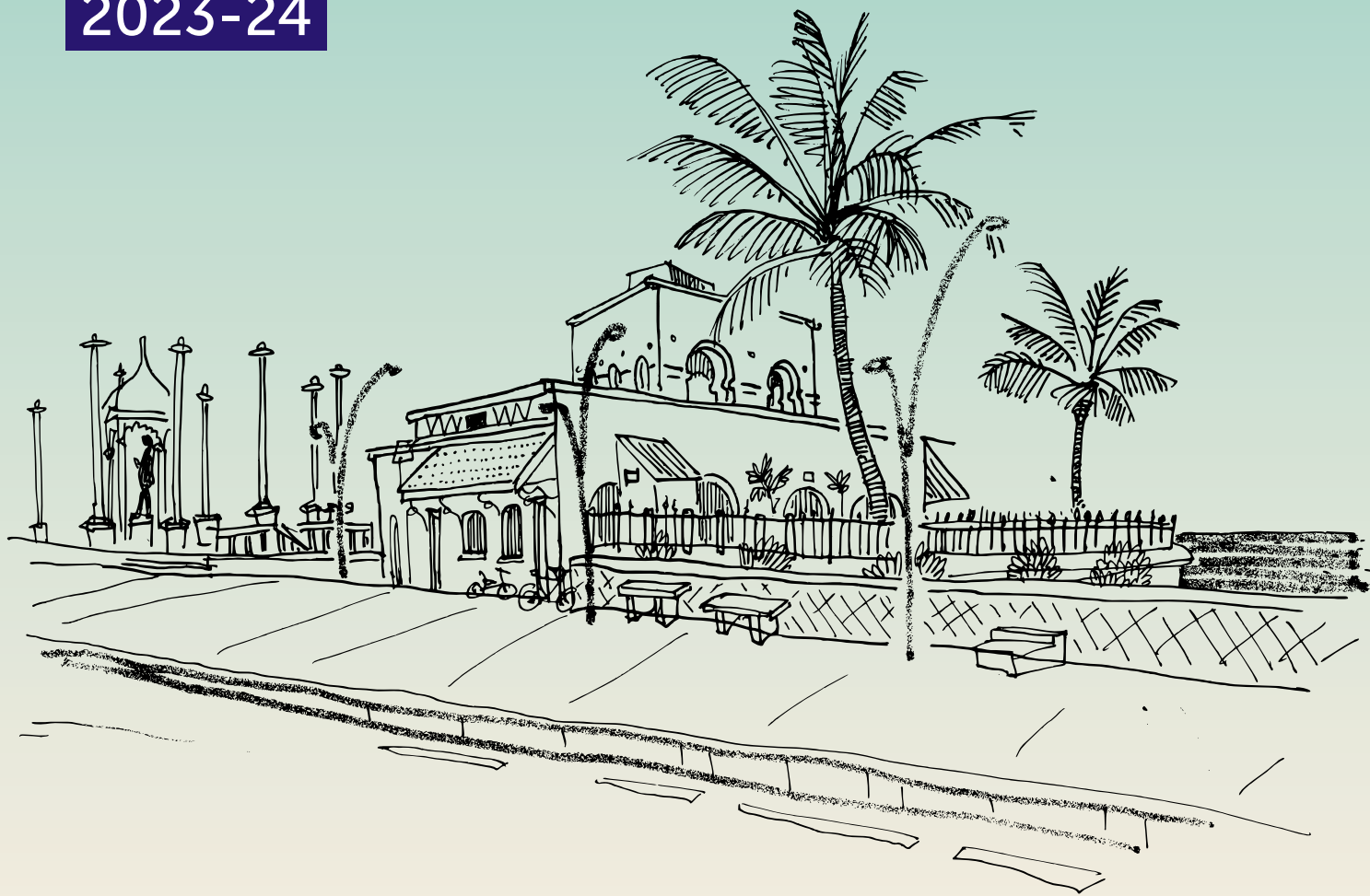


Government of Puducherry
Finance Department
Department of Science, Technology and Environment

Puducherry Green Budget

2023-24



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Finance Department
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DR. TAMILISAI SUNDARARAJAN
Lt. Governor,
Government of Puducherry.



MESSAGE

I am delighted to announce the launch of the Green Budget report for the fiscal year 2023-24 on the occasion of the World Environment Day. This report underscores the urgent need for the preservation of nature and measures on environmental sustainability through the conscious allocation of finance and mapping of themes and activities. This budget is a significant step towards raising awareness among government stakeholders and civilians to promote a cleaner and greener environment, ultimately leading to sustainable development.

I appreciate all the departments, especially the Finance Department and the Department of Science, Technology, and Environment for their valuable contributions to the development of the green budget. I also thank The Energy and Resources Institute (TERI) for facilitating the process of Green Budgeting in our Union Territory. The Green Budget serves as a reminder of our responsibility to hand over a clean environment to the present and future generations. It demands a conscious designing of developmental activities in order to achieve the sustainable development goals.

By encouraging the adoption of sustainable practices and supporting initiatives that reduce greenhouse gas emissions, we aim to contribute to regional, national, and international efforts for combating climate change. It is a moment of immense pride for me to state that the Union Territory of Puducherry has been progressing well in all aspects contributing to sustainable development.

I urge every department to embrace the spirit of this Green Budgeting exercise and actively engage in environmental protection. It is time that we come together and make conscious choices that reduce our ecological footprint, conserve natural resources, and safeguard the biodiversity of our beautiful Union Territory.

By working in tandem, we can create a sustainable and resilient Puducherry that will thrive for generations to come. Together, we can build a future that strikes a harmonious balance between development and environmental conservation.

I thank the citizens of Puducherry for their unwavering support and commitment to a green and clean Union Territory.

(DR. TAMILISAI SUNDARARAJAN)

N. RANGASAMY

Chief Minister,
Government of Puducherry.



MESSAGE

As we navigate the whirlpool of environmental challenges faced by our planet, including climate change, pollution, deforestation etc., our government recognizes the pressing need to assess and mitigate their impacts within the Union Territory of Puducherry. On this World Environment Day, I would like to promulgate the steadfast commitment to environmental sustainability and unveil the Green Budget Report for the fiscal year 2023-24 charted by our government to foster a greener and a resilient future for the U.T. of Puducherry.

This comprehensive report provides an overview on the allocation of funds towards green initiatives. Additionally, it maps out the activities and themes of each department, focusing on crucial areas like air and water quality, waste management, pollution control practices, and climate actions.

A prime focus of our government has been the holistic development of Puducherry and ensuring that each and every resident can enjoy an equitable life governed by the principles of social justice at its core.

I am pleased to inform that, with the announcement of the Union Territory Budget for the FY 2023-24, our government launched three issue-based budgeting processes namely green budgeting, gender budgeting, and youth budgeting. Our government takes immense pride in being a pioneer of the policy innovation of Green Budgeting among other Union Territories in our country. I extend my deepest gratitude to every department, especially the Department of Finance and the Department of Science, Technology, and Environment, and the individuals who have contributed to the preparation of this report. I eagerly anticipate the constructive discussions and fruitful outcomes that will emerge from this release. This Green Budget Report signifies our dedication to transparency, accountability, and inclusive decision-making in our environmental efforts.

Our success in achieving our green goals relies heavily on the collaboration and commitment of not only government departments but also our valued citizens. To accomplish this ambitious endeavor, our government has collaborated with The Energy and Resources Institute (TERI), New Delhi, to assist and strengthen our Green Budgeting efforts. Together, we can create a sustainable, eco-friendly, and climate-resilient Union Territory in the years to come.

Let us stand united in our shared vision to protect and preserve the natural beauty of Puducherry for generations to come.

(N. RANGASAMY)

RAJEEV VERMA, I.A.S.
Chief Secretary,
Govt. of Puducherry.



FOREWORD

In recent years, there has been a growing recognition of the critical need to preserve our natural environment and protect it for the benefit of future generations. The global community has witnessed a surge in efforts to conserve natural resources, reduce pollution, and promote sustainable development. Agenda 2030 and the sustainable development goals along with the Paris Agreement under the United Nations Framework Convention on Climate Change have underscored the urgency of addressing environmental concerns in terms of policy making, resource mobilization and budgetary provisions.

The launch of the Green Budget Report for FY 2023-24 on World Environment Day marks an important milestone in our journey towards a greener and more sustainable Puducherry. This occasion presents an opportunity to reflect on the strides we have made towards fostering an inclusive and comprehensive approach to pollution abatement and climate action and reaffirms our commitment to the same. With good insights on our budget allocation with their respective themes, activities and sustainable development goals, I hope that this report will serve as a guiding document, inspiring all sectors and departments of the government to integrate environmental considerations into their planning and policy-making processes.

The Green Budget Report for FY 2023-24 is also a hallmark of the tireless efforts and dedication of our government officials to embrace environmental policy innovations. I commend the efforts of the departments involved along with the Department of Finance and the Department of Science, Technology, and Environment, for their dedicated work in preparing the Green Budget Report for the fiscal year 2023-24. I take this opportunity to thank The Energy and Resources Institute for their research input and designing the process of green budgeting along with DSTE.

As we move forward, I urge all departments and stakeholders to participate in the process of green budgeting every year. By incorporating environmental considerations into every aspect of governance, we can forge a future where the well-being of our people and the health of our planet go hand in hand. I extend my heartfelt gratitude to everyone involved in the preparation of this Green Budget Report for their unwavering commitment and dedication. Together, let us march towards a greener and more sustainable Puducherry.

(RAJEEV VERMA, I.A.S.)

P. Jawahar, I.A.S.
Commissioner-cum-
Secretary to Govt. (Finance),
Government of Puducherry.



FOREWORD

It is with great pleasure that I present the Green Budget Analysis Report for the fiscal year 2023-24, showcasing our commitment to environmental sustainability and climate action. With the announcement of green budgeting, youth budgeting and gender budgeting, the philosophy of the UT's budget allocation strategy has been enhanced with a reflection of our conscious efforts to address issues pertinent to sustainable development. The launch of this Green Budgeting Report serves as a guiding document to further strengthen the green budgeting process as well as align our financial resources with environmental goals, emphasizing the importance of sustainable development and resilience.

I would like to commend all the departments involved in making this report a reality for their dedicated efforts, enthusiasm, and key input. The report provides an overview of the financial allocations made towards environment-related initiatives, shedding light on the steps we are taking to ensure a sustainable future for Puducherry. It also highlights the need for all government departments to include more green components in their schemes, emphasizing the integration of environmental considerations into policy and praxis.

Puducherry has been working diligently to achieve a balance between economic growth and environmental conservation in all aspects of governance. The Union Territory has made remarkable progress in various fields, and this Green Budget Report exemplifies our commitment to taking proactive measures through policy innovations for a greener and more sustainable Puducherry.

The launch of the Green Budget Report for FY 2023-24 on World Environment Day holds great significance for all of us. It serves as a timely reminder to strategize and plan our actions by prioritizing the environment for a better future. This occasion provides us with an opportunity to reflect on our achievements and renew our dedication to effectively plan and allocate resources through incorporating green elements into our schemes and projects. I would like to urge more and more departments to embrace this green budgeting process that will help in steering our works towards achieving sustainable development goals and create a positive impact on the environment.

I extend my sincere appreciation to the officials of the Finance Department and DSTE for their commendable contributions in the preparation of this Green Budget Report. I express my gratitude to TERI, New Delhi for their work in preparing this document and developing the process of green budgeting for the Union Territory.

(P. JAWAHAR, I.A.S.)

A. MUTHAMMA, I.A.S.
Secretary (Science,
Technology and Environment),
Govt. of Puducherry



FOREWORD

Over the years due to a rapid increase in our ecological footprint and demand for resources in our modern society, the anthropogenic impact on the environment has intensified exponentially. We have witnessed environmental degradation, habitat destruction, biodiversity loss, all a consequence of climate change and unabated resource consumption. It is crucial that we address these challenges and prioritize sustainable practices to ensure a greener and more sustainable future.

This Green Budget Report for the fiscal year 2023-24 serves as an analysis on the environment conscious budget allocation that the Government of Puducherry has taken up in the present and in the future years. The launch of this report on the World Environment Day is a significant milestone in our journey towards a greener and more sustainable Puducherry. It provides us with an opportunity to reflect on the progress we have made and reiterate our dedication to an inclusive and comprehensive approach to environmental and climate action. This report serves as a guiding document, reminding us to align our policies, actions, and investments with our environmental goals. I thank the Finance Department and other departments of the Government of Puducherry for their valuable contribution, inputs and cooperation in the making of this report.

The process of green budgeting has played a crucial role in enhancing the capacity of all government departments to plan and implement schemes that incorporate green components. Along with the analysis in this report, the capacity building workshop conducted by The Energy and Resources Institute has served to strengthen our decision-making processes and enabled us to identify and enhance the green elements in existing schemes for sustainable development. This approach ensures that environmental considerations are integrated and mainstreamed into every aspect of governance.

Moving forward, I urge all departments and stakeholders to embrace the findings and recommendations presented in this report with renewed environmental enthusiasm. Let us work together to create a holistic framework that not only protects our natural heritage but also fosters green innovation, sustainable economic growth, and social well-being. By incorporating environmental considerations into every aspect of governance, we can forge a future where the well-being of our people and the health of our planet go hand in hand.

I extend my heartfelt gratitude to everyone involved in the preparation of this Green Budget Report for their unwavering commitment and dedication which reaffirms shaping the sustainable path we are embarking on.

(A. MUTHAMMA, I.A.S.)

**YASAM LAKSHMI
NARAYANA REDDY**

Director,
Department of Science,
Technology & Environment,
Government of Puducherry.



PREFACE

Our Union Territory of Puducherry is bestowed with a remarkable natural heritage comprising rich coastal ecosystem, wetlands, a substantial green cover. However, the rapid urbanization and industrialization that our UT has been undergoing in the last few decades pose greater challenges to our environment. It is essential that we address these challenges proactively and adopt sustainable practices to preserve and protect our valuable natural resources.

I take immense pride in presenting the Green Budget Report for the fiscal year 2023-24. This report provides comprehensive insights into various schemes and initiatives that incorporate green components, demonstrating our commitment to sustainable development and environmental conservation. I am confident that this report will serve as a valuable resource for all government departments, enabling them to further their efforts in promoting sustainable practices and safeguarding the environment of Puducherry.

I extend my heartfelt gratitude to all those who have contributed to the preparation of this report. I thank the Finance Department for their support on the uptake of this policy innovation. I also acknowledge the diligent efforts of the officials and staff from the Department of Science, Technology, and Environment. Their dedication and expertise have been instrumental in compiling the data and the analysis presented in this report.

I also commend the voluntary efforts and commitment of The Energy and Resources Institute and the invaluable support and facilitation of this policy innovation they rendered in the process. Their assistance in strengthening government officials' understanding and effectively allocating funds to enhance green components in every scheme has been indispensable. Their expertise has contributed significantly to our pursuit of sustainable development and a resilient future for Puducherry.

As we move forward, we remain committed to our mission of creating a cleaner, greener, and more sustainable environment in Puducherry. This report reinforces our determination to work collaboratively towards making our Union Territory an exemplar of environmental justice and a frontrunner in the nation's sustainable development efforts.

Let us continue to prioritize environmental conservation, integrate green components into our schemes, and forge a path towards a greener and a resilient Union Territory.

(YASAM LAKSHMI NARAYANA REDDY)

ACKNOWLEDGMENT

We would like to express our deepest gratitude to the Government of the Union Territory of Puducherry for unwavering support and commitment to the policy innovation of green budgeting. Their vision and dedication have been instrumental in promoting sustainable practices and environmental consciousness in the region.

We extend our heartfelt appreciation to Shri P. Jawahar, I.A.S. (Commissioner-cum-Secretary, Finance Department) and Shri M. Raju, I.A.S. (Former Commissioner-cum-Secretary, Finance Department), and Dr A. Muthamma, I.A.S. (Secretary, Science, Technology, and Environment) for their invaluable guidance in strengthening the green budgeting process. We thank Shri Yasam Lakshmi Narayana Reddy, Director (Science, Technology, and Environment), and Smt P. Priyadarshini, Former Director (Science, Technology, and Environment), for their invaluable support. Their involvement and guidance have played a crucial role in shaping this initiative's success, including organizing the consultative workshop in December 2022.

We would also like to extend our thanks to all 15 departments involved in this endeavour. The Electricity Department; Public Works Department; Department of Agriculture and Farmers Welfare; Transport Department; Department of Fisheries and Fishermen Welfare; District Industries Centre; Directorate of Health and Family Welfare Services; Department of Forests and Wildlife; Department of Science, Technology, and Environment; District Rural Development Agency; Department of Animal Husbandry and Animal Welfare; Local Administration Department; Police Department; Port Department; and Tourism Department have all contributed and provided valuable inputs to the green budgeting report. Their dedication and support have been crucial in implementing a green budget and identifying sustainable practices across various sectors.

Special appreciations to the officials from the Finance Department and the Department of Science, Technology and Environment who supported us in this exercise. We extend our heartfelt gratitude to Shri. K. Kalamegam and Shri. T. Balaji of the Department of Science, Technology and Environment for their continuous efforts in coordinating and facilitating the budget-related processes. Their commitment to integrating environmental considerations into financial planning has been commendable.

We are also indebted to the team at The Energy and Resources Institute (TERI), particularly Dr Prodipto Ghosh (Distinguished Fellow) for his continuous input and constructive feedback. His expertise in the field of sustainability has been invaluable in shaping the green budgeting report. We also extend our gratitude to Dr Vibha Dhawan (Director General) for institutional support. Furthermore, we would like to thank Dr Shailly Kedia and Ms Palak Khanna for the



research, analysis and writing the report. We thank Mr Vivek Tejaswi for his input during the December 2022 workshop. We also thank Mr Ravi Nair and Mr John Andruse for their unwavering support throughout the green budgeting process. We would also like to extend our thanks to Mr Shubhashis Dey and Ms Kruthika Jerome. We thank Ms Sushmita Ghosh, Mr Shreyas Joshi, and colleagues from the TERI Publications team for their contribution.

Lastly, we would like to acknowledge all the individuals and organizations who have contributed to the success of this green budgeting initiative. Their collective efforts and dedication have paved the way for a more sustainable and environmentally conscious future in Puducherry. Thank you once again for your support and commitment to this transformative policy innovation.



EXECUTIVE SUMMARY

Green budgeting is a policy innovation that serves as a planning and assessment tool that can contribute to institutionalizing and integrating environmental sustainability in various government initiatives and promote a system-wide approach. Through ex-ante planning and ex-post reflection, departments need to reorient their goals, schemes, and policies to become more environmentally and climate sensitive.

The Green Budget Report of the Union Territory of Puducherry provides a comprehensive analysis of the allocated budgetary resources that focuses on identifying and integrating green components within existing schemes and initiatives. This report serves as a vital tool for promoting sustainability and environmental consciousness within the region. This document is a benchmark for future years and helps track progress and identify improvement areas. By establishing a baseline, the report sets the stage for monitoring and evaluating the effectiveness of green budgeting initiatives over time.

One of the key aspects covered in this report is providing baseline indicators based on inputs from various departments for FY 2022-23. The report analyses the green budget for FY 2023-24. The analysis delves into the various themes and activities that can be mapped to facilitate better planning and integrating of environmental components within existing budget items. To ensure alignment with global sustainability goals, the budget mapping process has been carried out in line with the sustainable development goals (SDGs). This realignment helps to steer the efforts of the Union Territory of Puducherry towards achieving the SDGs by 2030. By incorporating the SDGs into the budgeting process, the report emphasizes the commitment of Puducherry to global sustainability objectives. More importantly, SDG mapping will help map environmental impact over time whenever Puducherry develops an indicator framework on SDGs.

It highlights the sustainability approaches adopted by each department, showcasing their efforts to promote sustainable practices that have a positive impact on the environment. This comprehensive overview allows for a holistic understanding of the initiatives undertaken by various departments to foster sustainability within their respective domains.

Five key baseline green budget indicators have been proposed as per the information provided; these include (i) Green Budget (₹'000), (ii) % of Green Budget of Identified Scheme Budget, (iii) % Green Budget of RE/BE, (iv) the number of departments that identified schemes and green components, and (v) the number of budget line items with green components. The report also highlights the performance of each department and encourages them to include and promote sustainability-associated initiatives.



The green budget increased by 153% from ₹191 crore in the baseline year to ₹483 crore in FY 2023-24. The percentage of the green budget in the identified schemes increased from 7.78% to 16.42%. As a share of total expenditure (revised estimates for FY 2022-23 and budget estimates for FY 2023-24), the green budget component increased from 1.66% to 4.17%. In the baseline year, 9 departments identified schemes and green components, while in FY 2023-24, 15 departments identified both schemes and green components. Regarding budget heads, the baseline year includes 120 heads, while for FY 2023-24, 134 budget heads were identified.

Out of 15 departments, 10 departments had thematic activities on climate change mitigation, followed by sustainable consumption and production, clean/green technology, pollution abatement, climate adaptation, water management, waste management, energy conservation, and water quality. Water audits can be included in future activities. Of 15 departments, 13 had activities under the programme/scheme implementation category, followed by green technology and infrastructure, regular operation and maintenance, policy action, IEC (information, education, and communication), skilling, capacity-building, and subsidies.

In terms of SDG mapping, out of the 15 departments, 12 contributed to SDG 13, making climate action a major focus of green/environmental sustainability activities. SDG 6 (clean water and sanitation), SDG 7 (affordable and clean energy), and SDG 12 (responsible consumption and production) were included in the activities of eight departments. SDG 3 (good health and well-being) and SDG 11 (sustainable cities and communities) were included in the activities of seven departments.

Institutionalizing the entire process would require two things. First, every year, all departments must report on the implementation of their respective green budgets. These should be consolidated and reviewed, first by the Chief Secretary, and then by the Chief Minister. Second, is that for each year's demand for grants, along with the budget document, an additional memorandum may be submitted to the legislative assembly, based on the consolidated reports of the departments, accepted by the Chief Minister. This memo to the legislature may indicate the progress report of the accomplishments of the green budget over the past fiscal year, as well as the anticipated enhancements in the new fiscal year.

For the Green Budget for FY 2023-24, 15 departments provided green budget inputs in the Pro forma. The process can be further strengthened with justification for each line item. More departments need to participate. Through ex-ante planning and ex-post reflection, departments need to reorient their goals, schemes, and policies to become more environmentally and climate sensitive. By doing so, departments could also assess how much a particular department contributes to climate change. Green budgeting can act as a self-assessment tool.

The Green Budget Report of the Union Territory of Puducherry for FY 2022-23 (baseline year) and FY 2023-2024 is a comprehensive document that outlines the green budget allocation, highlights sustainability initiatives, maps activities to promote environment-sensitive planning, accountability, aligns with the SDGs, and provides valuable recommendations for departmental budgeting. It is a road map for fostering sustainable development and promoting a greener future in Puducherry. It is a sincere hope that the Union Territory of Puducherry champions the cause of environmental protection by further integrating environmental components in more budget line items by various departments.

1. INTRODUCTION

The Union Territory of Puducherry extends over 490 km² and has a coastline of 45 km. It is the twenty-ninth most populous and third most densely populated state/UT in the country. Located on the south-eastern coast of India, it has four coastal enclaves: Puducherry, Mahe, Yanam, and Karaikal. These coastal areas, including Puducherry, are particularly vulnerable to the adverse impacts of climate change. Rising sea levels, increased frequency and intensity of extreme weather events, and coastal erosion pose significant challenges to the region.

According to the *India State of Forest Report 2021*, Puducherry has a total forest cover of 53.30 km², that is 10.88% of the total geographical area. Of the total forest cover, 33% is moderately dense forest cover and 66% is open forest cover. The territory has a rich diversity of wildlife, avi-fauna, and reptiles. According to the Zoological Survey of India, Puducherry harbours 2.49% of the faunal diversity of the country, whereas it encompasses only about 0.014% of the total geographical area of the country.

Puducherry is renowned for its natural beauty and faces concerns associated with ecological carrying capacity. As uncertainties surround the magnitude and consequences of climate change, addressing the vulnerability of Puducherry becomes crucial for achieving sustainable development and climate resilience. The region confronts various environmental and infrastructural challenges that can undermine its resilience. Among the significant threats is the excessive extraction of groundwater, which compromises the water security of a region and amplifies its bio-physical vulnerability to climate change. Statistics indicate that around 25% of blocks in Puducherry fall under the over-exploited category, highlighting the urgent need to address this pressing issue.

More than 90% of Puducherry's gross state value added is generated from the secondary and tertiary sectors. This also presents opportunities and areas for green growth in the tourism, manufacturing, and trade sectors. The share of agriculture is less in terms of gross state value added; it accounts for about 30% of land use, with rice, horticulture crops, sugarcane, and coconut being the dominant cultivations. However, the region is highly prone to natural disasters such as storms, cyclones, and tsunamis, which inflict substantial damage on crops and significantly reduce productivity. Moreover, irrigation in the region is heavily reliant on groundwater due to the shift from traditional water sources. This has led to a decrease in arable land availability. The fragmentation of land further exacerbates the challenges faced by the agriculture sector.

Puducherry's water management is a critical concern, given its significant impact on various sectors. The quantity and quality of available water resources in the region have witnessed a significant decline, posing severe consequences. As mentioned previously, Puducherry



heavily depends on groundwater for agricultural irrigation, with more than 60% of its net area irrigated by tube wells. Consequently, the region grapples with the consequences of excessive groundwater exploitation. The region has also seen infiltration of seawater, particularly exacerbated by the 2004 tsunami. These factors have led to a marked decline in the water quality supplied to urban areas of Puducherry, thus exacerbating the water crisis.

The annual average concentrations of the pollutants, namely PM_{10} , SO_2 , and NO_2 in the monitored six locations were within the prescribed standard limit in 2022. In the monitored locations, in terms of air quality index (AQI), 76.5% of AQI value (377 AQI value out of 493 AQI value) in Puducherry revealed good air quality and 23.5% of AQI value (116 AQI value) showed satisfactory air quality. Based on the guidelines of the Central Pollution Control Board (CPCB), out of the 3548 industries in the union territory, 133 fall under the Red Category (with a Pollution Index Score of above 60) while 1364 fall under the Orange Category (with a Pollution Index Score of between 41–59).

Surface water parameters of pH and biochemical oxygen demand of Kanagan River are outside the permissible limits. In some of the borewells, viz. Thengaithittu, Maruthi School, Krishna Nagar, Kurumbapet, Mettupalayam, and Pondicherry University, in both the pre and post-monsoon season, the pH is not within the 6.5–8.5 range. In Chevalier School, the nitrate level in post-monsoon season is 50.0 mg/L, which is higher than the permissible limit of 45 mg/L. During post-monsoon, the turbidity level in Mettupalayam and Maruthi School is 7.1 NTU (nephelometric turbidity units) and 15.7 NTU, respectively. Thus, it does not meet the permissible limit of 5 NTU and the cause of it may be sediments, especially clay and silt. The total solid waste generated in the whole of the union territory is 406 TPD (tonnes per day), out of which 340 TPD is generated in the Puducherry region alone. The total plastic waste generated is around 34.5 TPD.

The impact of climate change extends beyond environmental challenges and significantly affects public health in Puducherry. Climate change acts as a catalyst for the spread of waterborne and vector-borne diseases, aggravating the existing health risks. Increased instances of heavy rainfall result in waterlogging, flooding, and runoff, contaminating potable water sources and exposing communities to contaminated water. Consequently, diseases such as diarrhoea, exacerbated by climate conditions, pose a significant public health burden in the union territory.

The infrastructural aspects of Puducherry face critical issues that demand immediate attention. Disposal of silt from de-siltation of ponds and tanks, along with untreated sewage, poses a major challenge for the region. In 2019, Puducherry received a footfall of more than 1.8 million tourists. Rapid urbanization and the burgeoning tourism sector have strained the capacity of the water supply system and sewage management infrastructure. Cyclones, a recurrent phenomenon in the region, cause extensive damage to various sectors, including the fast-growing tourism industry. Waste management from tourism infrastructures requires special attention to preserve the natural environment.

Furthermore, Puducherry's transportation sector also significantly contributes to greenhouse gas emissions, primarily driven by the increasing number of vehicles. The rise in vehicular population has resulted in a considerable increase in greenhouse gas emissions. This emphasizes the need for sustainable transportation practices and initiatives to reduce emissions and promote alternative modes of transportation.

Fishermen in 39 marine fishing villages and 11 inland fishing villages are actively engaged in fishing. Puducherry's fisheries sector, both marine and inland, faces multiple challenges that threaten the region's aquatic resources. Fish and prawn production has witnessed a drastic decline from 2018 to 2021 (Directorate of Economics and Statistics 2021, 2022; Government of Puducherry 2020), attributed to factors such as the release of excessive industrial effluents and the changing composition of the fish catch due to climate change.

One of the prominent issues exacerbating this situation is the regular dumping of untreated sewage in areas where mangroves thrive. In particular, the discharge of untreated sewage into the Thengaithittu lagoon area poses a major concern, as it directly harms the mangroves and marine life. This practice hampers the growth and sustainability of mangrove ecosystems and has adverse effects on the diverse marine species that depend on these habitats for survival.

Along with the NCT of Delhi, Puducherry is entitled by special constitutional amendments to have an elected legislative assembly. In the face of these formidable challenges posed by climate change, better planning and accounting practices are essential for the union territory. One innovative approach is the adoption of green budgeting, a tool that involves budgetary planning to support coordinated policy design and identification of financial needs for achieving green objectives. The Puducherry Green budget significantly emphasizes schemes and policies to promote environmental sustainability towards meeting sustainable development goals. It allocates funds for renewable energy initiatives, sewage treatment management, water conservation, sustainable agriculture, groundwater management, coastal ecosystem enhancement, pollution abatement, and capacity building. These budget allocations reflect a strong commitment to combat climate change and foster sustainable development in the union territory.

In conclusion, Puducherry needs to mitigate several environmental challenges and be a model for following a green growth trajectory necessitating comprehensive planning, effective resource management, and coordinated efforts across sectors. Adopting green budgeting is a promising tool to address these challenges and steer Puducherry towards a green, sustainable, and climate-resilient future. By allocating resources to mainstream and integrate environmental objectives and by implementing green initiatives, Puducherry can safeguard its ecosystems, mitigate the adverse impacts of climate change, and ensure a prosperous future.

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2. GREEN BUDGETING: PRINCIPLES, FRAMEWORK, AND PROCESS

The urgency to realize sustainable development goals (SDGs) and address anthropogenic climate change, biodiversity loss, and environmental degradation requires coordinated efforts in terms of planning, coherent policy design, systematic approaches, strengthened institutions, and well-structured budgets. As all departments periodically undertake budget exercises, annual government budgets that consider climate and environmental dimensions can be a potential driver to mainstream SDGs and climate actions into the development activities towards achieving environmental targets. Furthermore, government budgets can also be used as a tool for the assessment of governments' activities on various environmental commitments. Moreover, 'green budgeting' is a mechanism of budgetary policymaking that can help in systematic mapping and tracking the sources of funds, outlays, expenditures, and policies, which, in turn, can support coordinated policy design and identification of periodic and continuous finance needs to achieve green objectives, that is, those relating to the climate and environmental dimensions.

Through ex-ante planning and ex-post reflection, departments need to reorient their goals, schemes, and policies to become more environmentally and climate sensitive.

Principles

The broader approach for green budgeting is based on bottom-up scheme-based identification, and accounting and planning on environmental sustainability components in various schemes. The policy innovation of green budgeting is based on the following four principles:

Principle 1: Green budgeting is a policy innovation that will follow a bottom-up process for identifying components of schemes and initiatives in the UT of Puducherry, which contribute to environmental sustainability.

Principle 2: Green budgeting exercise will align with public policy priorities and environmental issues of the state and with universal sustainable development goals related to the environment in areas such as climate, water, energy, ecosystems, and responsible consumption and production.

Principle 3: Green budgeting exercise will seek to mainstream and integrate environmental sustainability by involving departments and promoting innovations in existing schemes, initiatives, and budget lines within the existing fiscal space.

Principle 4: Green budgeting exercise will be mainstreamed through the institutionalization of the process and will further enhance transparency and accountability of resource allocation for environmental initiatives.

“ Every year, key departments contribute to preparing the green budget by specifying schemes involving environmental sustainability components and estimate the quantity of public expenditure in the state budget for these purposes. ”

Definition of Green Budgeting

The analysis team has taken the following working definition of green budgeting:

Pillars and Framework

As environmental regulation is the principal responsibility of environmental departments, the mandate for implementation lies with the line departments, and hence environmental sustainability initiatives must be mainstreamed across departments and sectors. Such mainstreaming will help shape the attitudes and commitments of various department officials and actors. As the annual budget process involves departments from various sectors, the finance department can lead the process of green budgeting in coordination with the environment department. The environment department can be the technical anchor to seek inputs from various departments in terms of identifying environmental sustainability components in the existing schemes and initiatives (and in the future bring in further innovations in the existing schemes and also design new initiatives). The exercise will result in reflections by various departments on where they stand and how much resource is allocated. The mapping of themes, activities, and SDGs will enable them to identify gaps in existing approaches wherein they can seek to identify other funding sources from domestic, international, and private sources. In the long run, states can also undertake

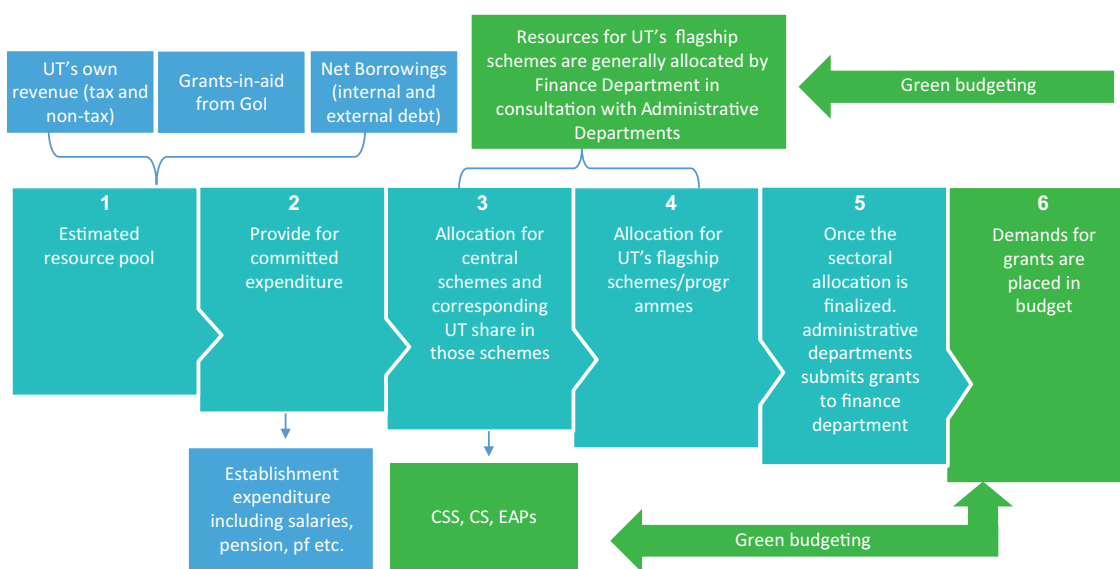


Figure 2.1. Framework for green budgeting for UT of Puducherry



impact evaluation in terms of implementation if tagged with, for instance, environmental SDG indicators, including those related to climate action. Green budgeting can provide deeper insights and pointers to policymakers and other stakeholders for environmental sustainability initiatives, resources available, and delivery reforms. See Figure 2.1. Green budgeting is envisaged to have six pillars with corresponding outcomes, as depicted in Table 2.1.

Table 2.1. Pillars and outcomes of Green Budgeting

Pillar	Outcome
Pillar 1: Mainstreaming for environmental sustainability	Promoting innovations within existing schemes within the existing space
Pillar 2: Resource allocation for environmental sustainability	Increasing resources allocated for environmental sustainability within the existing fiscal space
Pillar 3: Planning and coordination for environmental sustainability	Planning for and factoring environmental sustainability within existing schemes
Pillar 4: Evaluation and monitoring for environmental sustainability	Tracking performance in environment-related SDG targets in the long term
Pillar 5: Transparency and accountability for environmental sustainability	Availability of information to the public on various initiatives on environmental sustainability
Pillar 6: Policy signals for greening initiatives	Change in attitudes of actors, including government officials, civil society, and business and industry

Considering that there is a global consensus in terms of an understanding of goals and targets around SDGs, the rationale of basing the framework of green budgeting on SDGs is

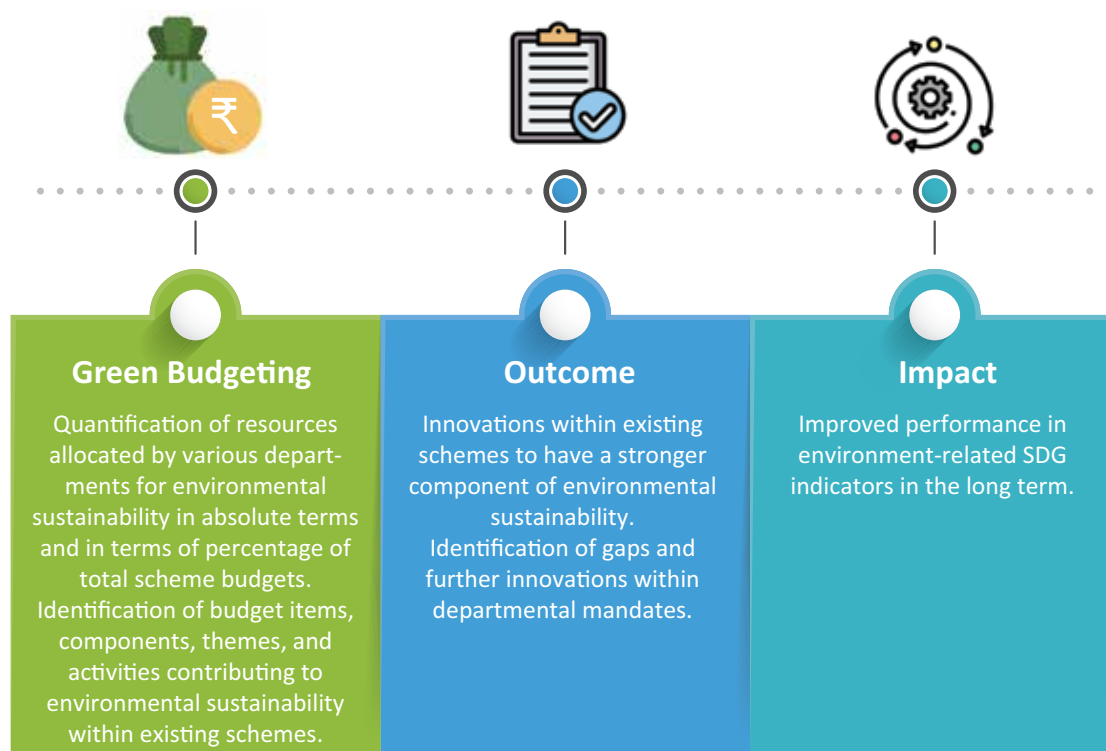


Figure 2.2. Green budgeting and its outcome and impact

that progress can be tracked. In line with the national indicator framework of SDGs, states/ UTs are expected to develop state indicator frameworks. The policy innovation of green budgeting, in the long term, can link green budgeting to mapping with environmental-related SDG indicators. Refer to Figure 2.2.

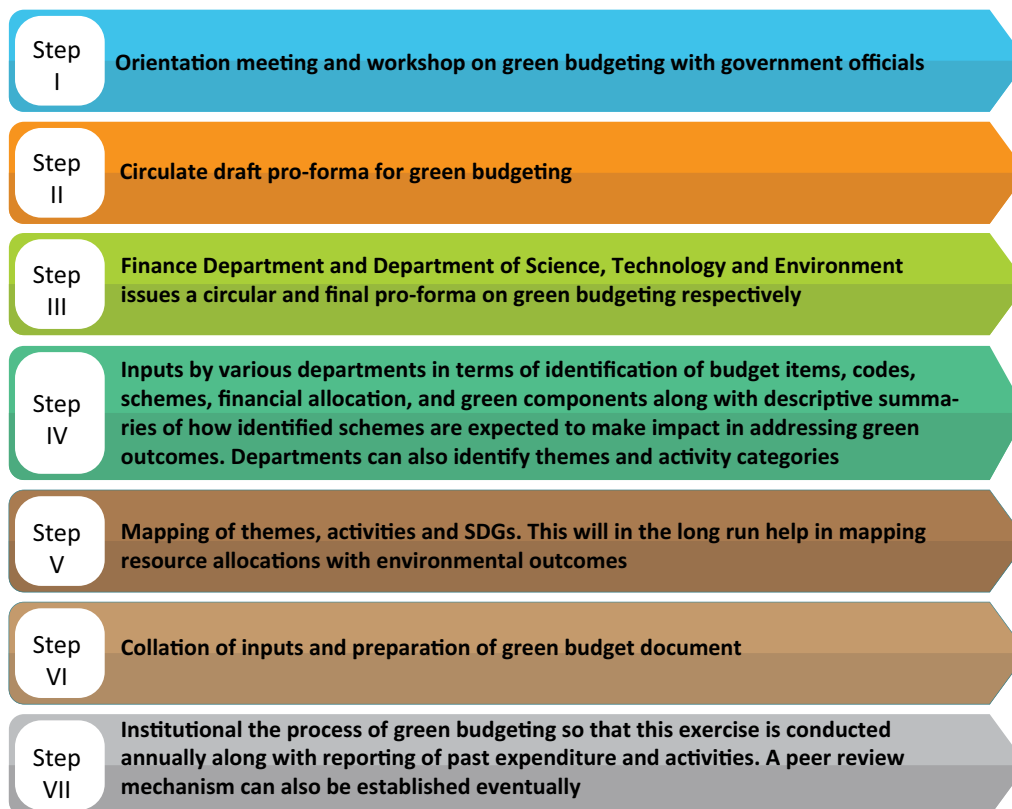


Figure 2.3. Step-by-step process for green budgeting

Process

Green budgeting involves a simple seven-step process, as Figure 2.3 depicts. The Finance Department and the Department of Science, Technology and Environment of the Government of Puducherry can facilitate the process. The analysis presented in this report builds on the above steps and on the information provided by departments in the proforma shared by DSTE and TERI. To the extent possible, as provided by the finance department, 15-digit codes for each budget item has been used. For some centrally sponsored schemes, 11/ 13-digit codes, provided by the finance department were used. Also, for some schemes, 16/17- digit code provided by the finance department has been used. All inputs used in the analyses are listed in Annexure 1. To aid comparison, only those budget line items were considered which have information on both the scheme budget and green budget. Since this is the first green budget and baseline setting exercise for the state, only department level mapping has been done. This can be made more granular for future green budgeting exercise.

Limitations

It is also important to flag here the limitations of green budgeting as a tool. Green budgeting as a first step seeks to serve as an accounting tool for reporting environmentally beneficial and an environment promoting expenditure and policy actions that can help inform stakeholders on: Who spends (which government department) money on what environment promoting activities? how much do they spend? and for which aspect do they spend?

Analysis of only positive expenditures does not tell the full story and at an early stage, a green budget does not evaluate the efficiency of environmental expenditure. The limitations, however, cannot take away the advantages of such an exercise. This exercise has the potential to bring together work streams on climate change, biodiversity, sustainable energy, sustainable urbanization, responsible consumption and production, ecosystems, environmental policy, budgeting, and tax policy, and inclusive sustainable growth. Agreed definitions and methodologies can support national and sub-national level green budgeting which can help improve synergy and coordination between national and sub-national policy design. This can also support international reporting obligations along with serving as a feedback mechanism for existing initiatives.

3. KEY INITIATIVES ON ENVIRONMENTAL SUSTAINABILITY

Department of Science, Technology, and Environment

Energy Education Park: The park features an exhibition hall with various rooms dedicated to interactive exhibits showcasing the benefits and applications of solar, wind, geothermal, biogas, and biomass energy. These exhibits aim to educate visitors about renewable energy sources. Additionally, the exhibition hall includes an audio-visual room and a lecture hall. The park offers indoor and outdoor gaming facilities, including computer-based energy games, energy quizzes, and Energy Pinball games, designed to inspire children's creativity and promote the use of renewable energy.

Development of Eco-friendly beaches: Developing eco-friendly beaches is a sustainable development initiative that aims to promote tourism and minimize the impact on the environment. Eco-friendly beaches prioritize environmental sustainability by promoting responsible tourism practices, reducing pollution, and preserving the natural habitat of the beach.

Purchase of mobile vehicular emission monitoring van: In this project, a mobile emission monitoring van is equipped with advanced sensors and monitoring equipment to analyse vehicle emissions on the road. This data will inform air quality management, environmental regulations, transportation planning, and public awareness efforts.

Demonstration of Plastic Recycling: A crusher machine will enable an enhanced recycling facility of plastic bottles, thereby reducing the volume for easier transport and disposal by crushing plastic bottles into small pieces or granules. These granules are then effectively utilized to pave plastic roads by mixing the granules at varying proportions with the typical road laying admixture. This will reduce the volume of plastic waste dumped in landfill sites and promote proper recycling of plastic bottles among the public.

Puducherry Climate Change Cell: Puducherry Climate Change Cell (PCCC) is the state climate change cell for the Union Territory of Puducherry, established with the financial support of the Department of Science and Technology (DST), Government of India, under The National Mission for Strategic Knowledge on Climate Change (NMSKCC). PCCC is the nodal agency for climate action and climate change knowledge management in the union territory and is responsible for collecting, collating, and disseminating region-specific climate information essential for planning and implementing strategic actions and policies on climate change. The cell is actively engaged in building knowledge networks and enhancing the research capability in climate science. The cell plays a key role in generating awareness and capacity-building among all the stakeholders to effectively address the vulnerabilities and risks posed



by climate change. Besides, the cell supports the Government of Puducherry in preparing, implementing, and monitoring the State Action Plan on Climate Change (SAPCC).

Environmental Information Awareness Capacity Building and Livelihood Programme: To reinforce India's efforts towards effective environmental management, the Environmental Information Awareness Capacity Building and Livelihood Programme (EIACP) has been envisaged. Awareness, skilling and research and development in the green sector form some of the major prerequisites for rational management of the environment. The broad objectives of EIACP are to facilitate technical and environmentally conscious industrial participation focused on sustainable development, to develop national and international collaboration for knowledge exchange and skilling, and facilitate the attainment of the SDGs, to aid sustainable livelihoods of the tribal population especially in NER based on traditional knowledge and crafts, to facilitate informed decisions and policymaking by catering to the demand for research, innovation and data on emerging issues related to the environment, to facilitate the transition to environmentally conscious futuristic citizens including awareness among public/communities on environment-related issues.

Department of Animal Husbandry and Animal Welfare

Hydroponic Green Fodder Unit: The initiative seeks to promote hydroponics as an environmentally friendly agricultural practice. Hydroponics allows for pesticide and herbicide-free crop cultivation, leading to higher yields (3-10 times more feed) in a smaller space with reduced water consumption (20 times less than conventional agriculture). It also minimizes water and soil contamination while offering adaptability in extreme conditions. To facilitate adoption, the initiative plans to provide 150 beneficiaries with fully subsidized hydroponic green fodder units, including seeds, at a cost of ₹35,000 per unit.

District Rural Development Agency

Mahatma Gandhi National Rural Employment Guarantee Scheme: The scheme aims to improve the economic security of rural households by providing a minimum of 100 days of guaranteed wage employment each year. The primary objective is to create sustainable assets and enhance the livelihood resources available to the rural poor. The activities under this scheme include water conservation, water harvesting, afforestation, tree plantations, construction of irrigation canals (including micro and minor irrigation works), development of rural marketplaces, construction of livestock shelters and fish drying yards, road construction, restoration of traditional water bodies, flood mitigation, drought resilience, desilting micro irrigation channels, and various plantation initiatives such as Moringa, horticulture, and road-side and canal-side plantations.

Nirmal Bharat Abhiyan - Swachh Bharat Mission: The main objective of the Act is to enhance the rural poor's livelihood resources by creating long-lasting assets. This includes various initiatives such as managing greywater and liquid waste, treating faecal sludge, and processing cow dung and other biodegradable waste through GOBARDHAN. The Act also aims to improve rural areas' overall quality of life by promoting cleanliness and hygiene and eliminating open defecation. It encourages the use of cost-effective and environmentally friendly technologies for sanitation. It emphasizes the development of community-managed systems for solid and liquid waste management, thus ensuring overall cleanliness in rural areas.

Department of Fisheries and Fishermen Welfare

Inland Fisheries - Fresh Water Aquaculture: The initiative promotes environmentally friendly practices in fish farming by encouraging composite fish culture and polyculture in freshwater bodies. The scheme provides input subsidies for freshwater aquaculture in Pondicherry, Yanam, Mahe, and Karaikal. Natural materials such as groundnut oil cake and rice bran are used as supplementary feed. At the same time, cow dung is utilized to enhance the growth of phytoplankton and zooplankton, which serve as natural fish feed. Mahua oil cake is also employed for pond preparation. These sustainable methods minimize the reliance on synthetic inputs and chemicals and reduce the potential negative impact on the environment. By utilizing naturally available materials and fostering a balanced ecosystem, the initiative supports the preservation of freshwater bodies and promotes environmentally conscious fish farming practices.

Marine fisheries with catamaran boats: This involves providing assistance to small-scale fishermen through a 50% subsidy for the procurement of catamaran boats without engines. This initiative aims to support an environmentally friendly approach to fishing and reducing carbon emissions by eliminating the use of engines and fuel. This will make the fishing activity more sustainable and less environmentally harmful. The focus on environment-friendly practices aligns with the objective of preserving marine ecosystems and minimizing the ecological impact of fishing activities.

Pradhan Mantri Matsya Sampada Yojana: The department also promoted environment friendly aquaculture practices under the centrally sponsored Pradhan Mantri Matsya Sampada Yojana scheme. The department promotes biofloc ponds that use biofloc technology (BFT), which is considered key to the 'blue revolution' as nutrients can be continuously recycled and reused in the culture medium, benefited from the minimum or zero-water exchange. BFT is an environment-friendly aquaculture technique based on in-situ microorganism production. In the backyard ornamental rearing unit, the department promotes waste management, optimum water usage, phytoplankton in the culture media, which serves as an additional source of increasing dissolved oxygen, and thus conserving energy. The department also seeks to promote the establishment of bio-toilets in mechanized fishing boats.

Establishment of artificial coral reefs: The department is also promoting the establishment of artificial coral reefs to enhance marine biodiversity.

Seaweed cultivation: To fight climate change, seaweed culture is encouraged as seaweed absorbs carbon emissions. Seaweed also contributes to regenerating marine ecosystems, creating biofuels and bioplastics, and acts as a nutrient supplement apart from serving as a marine habitat.

Relief for fishermen during lean season and natural calamities/during the fishing ban period: To promote the conservation of fishery resources and revive depleting fish populations, a ban on fishing is enforced during the breeding season. Fishing activities are prohibited from 15 April to 31 May on the East Coast and from 1 June to 31 July on the West Coast. This crucial measure provides an opportunity for fish to breed and allows larvae and juveniles to mature and reach their optimal biomass. By safeguarding this important period, the intention is to support replenishing fish population and preserve the ecological balance of marine ecosystem. In line with this conservation effort, each fisherman is provided financial assistance of ₹5500 across all regions of Puducherry.



Department of Forests and Wildlife

Social Forestry: The scheme focuses on various activities aimed at promoting environmental conservation. These include the creation, maintenance, and protection of green cover and the establishment and upkeep of forest nurseries for sapling production. The raised seedlings are then utilized for plantation across government lands, private lands, ponds, roads, temple lands, and other suitable areas. Another important aspect is restoring the Manapet Forest Area and safeguarding forest and coastal ecosystems through mangrove and coastal shelterbelt plantations. The scheme ensures the fulfilment of annual plantation targets set by the Ministry of Environment, Forests and Climate Change under the Twenty Point Programme. Additionally, it aims to popularize a high-income agroforestry model, which combines trees with pepper cultivation, demonstrated through the Institute of Forest Genetics and Tree Breeding.

Conservation and Management of Oussudu Sanctuary (CSS): Conservation and management of Oussudu Wildlife Sanctuary, i.e., monitoring, patrolling, and conservation of Oussudu Wildlife Sanctuary and conducting bird census in the Puducherry region.

Integrated Development of Wildlife Habitats (CSS): Protect wildlife by prohibiting hunting and poaching, protecting endangered species, and conducting an awareness campaign.

Intensification of Forests Management (CSS): This scheme aims to manage and prevent forest fires, purchase of firefighting equipment, and creation of awareness. In 2022–34, ₹2.00 lakh were utilized for skill development.

Public Works Department

Maintenance of Sewerage Scheme: The scheme focuses on enhancing the environmental aspects of urban and suburban areas, particularly in coastal cities and towns. It includes formulating sewage treatment plants in coastal areas and implementing integrated urban development projects and sewerage facilities in suburban regions. The primary objective is to improve the infrastructure, such as internal and approach roads, parks, and shopping/market complexes while prioritizing the development of sewage management systems. By addressing these environmental components, the scheme aims to enhance the overall environmental sustainability and quality of life in the urban and suburban areas of the Union Territory of Puducherry.

Maintenance of Integrated Urban Development Project (Town and Country Planning):

The Integrated Urban Development Project focuses on improving the environment through various measures. These include the construction and deepening of wells and tanks and the augmentation of surface water and groundwater potential recharge schemes. Infrastructure strengthening is carried out through activities such as desilting and deepening of tanks, lakes, ponds, and rivers and constructing bed dams, check dams, infiltration wells, regulators, and headworks. The project also emphasizes the protection of bonds, stabilization of existing ayacuts (irrigated areas) through channel improvements, and artificial groundwater recharge to maximize water storage. These initiatives aim to enhance environmental sustainability and water resource management within the urban development framework.

Maintenance works and repairing of water and irrigation tanks: The maintenance works for repairing water and irrigation tanks are undertaken to conserve water resources. These efforts involve repairing and maintaining the infrastructure to prevent water loss and ensure efficient water storage. Additionally, the augmentation of surface water and

groundwater potential recharge schemes is implemented to enhance water availability. This includes activities such as desilting and deepening of tanks, lakes, ponds, and rivers, and constructing bed dams, check dams, and other related infrastructure. Through these measures, the scheme aims to strengthen water infrastructure, optimize water storage, and promote sustainable water management practices.

Maintenance of irrigation water diversion channels: The maintenance of irrigation water diversion channels includes various construction activities aimed at enhancing their functionality and resilience. These activities include constructing retaining walls, revetments, side drains, masonry drains, protection walls, footbridges, culverts, causeways, flood regulators, and bridges. These infrastructure improvements contribute to the preservation and conservation of the environment in multiple ways. Retaining walls and revetments help prevent erosion and soil loss, while side drains and masonry drains aid in efficient water flow management. Protection walls safeguard the surrounding areas from flooding, and footbridges, culverts, causeways, and bridges facilitate safe passage. By incorporating these environment-centric measures, the scheme ensures the sustainable utilization of irrigation water diversion channels while minimizing potential environmental impacts.

Transport Department

Assistance for BS-VI Standard Buses: The scheme aims to replace old buses from BS III to BS VI standards, recognizing that transportation significantly contributes to air pollution, particularly in urban areas. The combustion of fossil fuels in transport systems leads to poor air quality and contributes to climate change. Encouraging public transport as an alternative to private vehicles is an effective strategy to reduce emissions and promote a cleaner environment. Shifting towards sustainable public transportation options helps decrease CO2 emissions and reduce atmospheric pollutants, leading to improved air quality. Additionally, the department intends to prioritize adopting electric vehicles, thus further enhancing the scheme's environmental impact.

Department of Agriculture and Farmers Welfare

Scheme for Crop Production Technology: The scheme aims to promote the adoption of crop production technologies among farmers, with a specific focus on environmental considerations. It encourages practices that enhance crop productivity while improving water use efficiency, diversifying crops, integrating nutrient management, and utilizing bio inputs. By implementing these environmentally friendly technologies, farmers can reduce the impact on natural resources, minimize the use of chemical inputs, and contribute to sustainable agricultural practices.

Integrated Programme for Seed Production Certification: IPSPC aims to enhance the availability of high-quality seeds for farmers by facilitating the production, certification, and distribution of certified seeds. By promoting certified seeds, the program encourages improved crop yields, better resistance to pests and diseases, and enhanced agricultural productivity. This, in turn, contributes to the overall growth and stability of the agricultural sector in Puducherry.

Plant Protection Promotion of Post-Harvest Technology and Establishment of Agriculture Clinics by Self-Employed Agriculture Technologists: Agriculture technologists will assist farmers in reducing post-harvest losses by providing enhanced threshing floors and storage structures. Additionally, farm machinery for post-harvest operations will be made accessible



through custom hiring, catering to the specific requirements of beneficiary members. To safeguard produce from unexpected rainfall, subsidized tarpaulins will be supplied. By minimizing losses and enhancing storage efficiency, the scheme promotes sustainable agricultural practices and reduces overall wastage. Furthermore, using subsidized tarpaulins helps protect the produce from damage caused by rainfall, reducing the need for re-harvesting and preventing unnecessary resource depletion.

Scheme for promoting crop insurance: The scheme includes a Crop Insurance Programme that mitigates risks while fostering climate resilience. By promoting the adoption of crop insurance, the initiative aims to protect farmers against potential losses caused by adverse weather conditions, pests, diseases, or other unforeseen events. This provides a safety net for farmers and contributes to environmental sustainability. The Crop Insurance Programme helps safeguard agricultural productivity and livelihoods, which are vulnerable to the impacts of climate change.

Special Component Scheme for Integrated Horticulture Development Programme through Diversification in Agriculture: The Special Component Scheme for Integrated Horticulture Development Programme through Diversification in Agriculture focuses on expanding horticulture by promoting various practices such as crop diversification, rotation, inter-cropping, multi-cropping, and multi-tier cropping. The scheme emphasizes the introduction of low water-consuming crops and encourages water conservation by using fertigation with water-soluble fertilizers. This approach enhances horticultural productivity and highlights its positive environmental impact.

National Food Security Mission (CSS): To incentivize farmers and contribute to food security and environmental sustainability.

National Mission on Sustainable Agriculture: The National Mission on Sustainable Agriculture is focused on promoting organic farming among rural youth, farmers, consumers, and traders, and disseminating the latest technologies in organic farming. It aims to utilize the expertise of experts from the public agricultural research system in India. With a strong emphasis on environmental conservation, the mission encourages adopting sustainable agricultural practices that minimize synthetic chemicals, protect soil health, conserve water resources, and reduce greenhouse gas emissions. By fostering organic farming and supporting knowledge transfer, the mission contributes to India's more environmentally friendly and sustainable agricultural sector.

Soil and Water Conservation Pradhan Mantri Krishi Sinchayee Yojana (CSS): The program aims to integrate water sources, distribution, and efficient usage through appropriate technologies and practices. It focuses on improving on-farm water use efficiency, promoting precision-irrigation and water-saving technologies, enhancing aquifer recharge, and implementing sustainable water conservation practices. Additionally, the programme emphasizes the integrated development of rain-fed areas using the watershed approach, which includes soil and water conservation, groundwater regeneration, runoff management, and livelihood options for sustainable natural resource management.

Electricity Department

Purchase of Power: To adhere to the regulations set by the Joint Electricity Regulatory Commission (JERC) in 2010, the Electricity department in Puducherry has been purchasing

renewable energy (Green Power) since 2022-23. This procurement is in line with the Renewable Purchase Obligation (RPO) of 9% (254.37 MUs) for solar energy and 9.35% (264.26 MUs) for non-solar energy, totalling 518.64 MU. This initiative of procuring renewable energy from solar and wind power plants significantly addresses climate change and reduces CO2 emissions, promoting a greener and more sustainable environment.

Local Administration Department

Implementation of AMRUT Mission by LAD (CSS): The objective of the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) is threefold. First, it aims to provide every household access to a tap for water supply and a sewerage connection, ensuring access to basic amenities. Second, it focuses on enhancing the quality of urban life by developing green spaces and well-maintained open areas such as parks, improving cities' overall aesthetic and amenity value. Lastly, AMRUT strives to reduce pollution and promote sustainable transportation by encouraging public transport and constructing infrastructure for non-motorized modes such as walking and cycling. AMRUT aims to create liveable, sustainable, and environmentally friendly urban areas by pursuing these goals.

Swachh Bharat Mission (CSS): The primary goal is to improve living standards in rural areas by promoting cleanliness and hygiene and eliminating open defecation. This entails advocating for affordable and appropriate technologies and prioritizing ecologically safe sanitation practices. The focus is on implementing community-managed sanitation systems and scientifically designed Solid and Liquid Waste Management systems to enhance overall cleanliness. The objective is to achieve Open Defecation Free (ODF) status in all gram panchayats by constructing individual toilets or access to public/community toilets.

Police Department

Purchase of electric vehicles for the use of Police Department: The aim is to decrease dependence on fossil fuel and minimize pollutant emissions by encouraging the adoption of clean transportation and sustainable mobility practices.

Port Department

Dredging at Pondicherry Port: The scheme aims to conduct dredging in the Pondicherry Port channel and the mouth portion of the river to ensure unobstructed navigation for fishing and cargo vessels. The sand obtained from dredging is deposited alongside the Pondicherry coast, creating expansive sandy beaches along the Puducherry town coastline. This deposition of dredged sand along the coast mitigates erosion, safeguards the shoreline, and nourishes the beach.

District Industries Centre

Support to Eco-friendly Handicraft Industry: The training program focuses on utilizing locally sourced and naturally available materials to produce a range of items, including terracotta products, papier mâché crafts, cotton stuffed dolls, and wooden toys, among others. The goal is to provide participants with the skills to establish their manufacturing units. This approach highlights the environmental component by promoting sustainable and eco-friendly materials and reducing reliance on synthetic or harmful substances.

Support for Eco-friendly Coir Industry: The objective is to foster the coir industry's growth and offer training opportunities to rural communities to produce coir-based products,



leading to increased employment and livelihood opportunities. This initiative highlights the environmental component by promoting sustainable and biodegradable coir materials, contributing to the conservation of natural resources, and reducing reliance on non-biodegradable alternatives.

Tourism Department

Tourism promotional activities: The department seeks to promote ecotourism in the Union Territory of Puducherry. An amount of ₹25 lakh is earmarked under green budgeting for renewing the Blue Flag certificate issued to the Eden Beach of Puducherry. The Blue Flag Certification is a globally recognized eco-label accorded by Foundation for Environment Education in Denmark (FEE). This will promote sustainability and other development in the tourism industry of the Union Territory of Puducherry.

Directorate of Health and Family Welfare Services

Promotion of environment and energy management in medical facilities: Medical institutions are required to allocate funds from their budget in the fiscal year 2023–24 specifically for green initiatives. These funds are intended for maintaining environmental sustainability, managing, and disposing of bio-medical wastes, conserving energy, and implementing sewage treatment plants. The objective is to promote the intersection of health and climate concerns by ensuring that medical facilities prioritize environmentally friendly practices and contribute to sustainable healthcare operations.

4. GREEN BUDGET ANALYSIS

The process for green budgeting draws on the experience of gender budgeting and child budgeting in India. Unlike gender and child-budgeting, green budgeting is more complex considering the multifarious challenges associated with the environment. To help navigate through this complexity, the team identified themes, activities, and SDGs as three lenses that could aid in analyses and eventually budgetary and overall planning by various departments. The analysis presented in this section aims to set a baseline and identify baseline indicators for green budgeting in Puducherry. Departments wise-themes and activities were mapped which helped in SDG mapping.

Even though departments have different mandates, considering the changes in policy goals, a common mandate can undertake activities that are environmentally sensitive. Towards this, a process needs to be in place so that departments reorient their goals, schemes, and policies to become more greener and climate adaptive. By doing so, each department will be able to assess how they are contributing towards environmental sustainability and climate change. The policy innovation of green budgeting can act as a self-assessment tool.

Department-wise Green Budget for FY 2022-23 and FY 2023-24

After the circulation of the pro-forma through the circular by the Finance Department, and the Department of Science, Technology and Environment, fifteen departments from the Union Territory of Puducherry provided information and justification on green budgeting in the format of the circulated pro-forma. Annexure 1 contains the submissions by the departments. Through consultative meetings with individual departments supplemented the information to make it more aligned and aggregate to the process of green budgeting. For FY 2022-23 (baseline year), 120 budget items for the green budget were identified, and for FY 2023-24, 134 budget heads were identified. The finance department helped by providing unique codes for each budget item that would help in tracking the budget line items over time. The Public Works Department had the highest number of budget line items, followed by the Directorate of Health and Family Welfare Services, Department of Agriculture and Farmers Welfare, Department of Fisheries and Fishermen Welfare, and Department of Science, Technology and Environment. It is important to note that the number of budget line items does not solely determine the level of commitment of a department towards environmental sustainability. Even departments with fewer budget items or schemes can contribute significantly to environmental sustainability through effective utilization of resources and implementation of sustainable practices.

The baseline year considered for the Green Budget of Puducherry is FY 2022-23, for which the budget for identified schemes was approximately ₹2,461 crore, in which environmental



sustainability components amounted to ₹191 crore. See Table 4.1.

Table 4.1. Department-wise green budget for FY 2022-23

S. No	Department	Scheme Budget (2022-23) (₹ '000)	Green Budget Component (2022-23) (₹ '000)	% of Green Budget
1	Electricity Department	1,59,00,000	6,19,400	32.46
2	Public Works Department	11,32,492	5,81,492	30.47
3	Department of Agriculture and Farmers Welfare	3,84,601	3,84,601	20.16
4	Transport Department	2,76,600	1,73,000	9.07
5	Department of Fisheries and Fishermen Welfare	3,02,193	1,11,908	5.86
6	District Industries Centre	1,40,050	21,030	1.10
7	Directorate of Health and Family Welfare Services	62,72,165	11,100	0.58
8	Department of Forests and Wildlife	74,275	3,926	0.21
9	Department of Science, Technology and Environment	38,107	1,670	0.09
10	District Rural Development Agency	-	-	-
11	Department of Animal Husbandry and Animal Welfare	-	-	-
12	Local Administration Department	-	-	-
13	Police Department	-	-	-
14	Port Department	-	-	-
15	Tourism Department	-	-	-
	Grand Total	2,45,20,483	19,08,127	100.00

RE 2022-23 (₹ '000)	11,50,00,000
% of Identified Scheme Budget	7.78
% Green Budget of RE 2022-23	1.66

Note: RE stands for Revised Estimates

With approximately 32% of the green budget contributed by the electricity department, it had the highest share of the total green budget. This was closely followed by the Public Works Department (~30%) and the Department of Agriculture and Farmers Welfare (~20%). Nine departments provided inputs for the baseline year (FY 2022-23). For FY 2023-24, this was further increased to 15 departments.

For FY 2023-24, the budget for identified schemes was approximately ₹2,944 crore, of which environmental sustainability component amounted to ₹4,834 crore. The electricity department again contributed the highest share of the total green budget with approximately half of the green budget being contributed by it. This was followed by the Public Works Department (~18%) and the Department of Agriculture and Farmers Welfare (~11%). Considering that the state is a coastal state, more budget can be allocated for marine conservation and sustainability activities and the Department of Forests and Wildlife further empowered. It must be noted that even a small budget allocation can lead to a significant

change in environmental sustainability. Refer to Table 4.2.

Table 4.2. Department-wise green budget FY 2023-24

S. No.	Department	Scheme Budget (2023-24) (₹ '000)	Green Budget Component (2023-24) (₹ '000)	% of Green Budget
1	Electricity Department	1,69,00,000	24,13,900	49.93
2	Public Works Department	19,33,100	8,83,392	18.27
3	Department of Agriculture and Farmers Welfare	5,40,257	5,40,257	11.18
4	Local Administration Department	4,70,322	4,70,322	9.73
5	Department of Fisheries and Fishermen Welfare	2,89,480	1,54,681	3.20
6	District Rural Development Agency	1,40,000	1,20,000	2.48
7	Transport Department	2,79,708	1,00,000	2.07
8	Port Department	1,08,796	85,952	1.78
9	Directorate of Health and Family Welfare Services	83,15,728	22,100	0.46
10	Department of Science, Technology and Environment	60,628	21,870	0.45
11	Department of Animal Husbandry and Animal Welfare	49,610	5,300	0.11
12	Police Department	36,499	5,000	0.10
13	District Industries Centre	1,28,305	4,637	0.10
14	Department of Forests and Wildlife	85,451	4,210	0.09
15	Tourism Department	1,00,000	2,500	0.05
Grand Total		2,94,37,884	48,34,121	100.00

BE 2023-24 (₹ '000)	11,60,00,000
% of Identified Scheme Budget	16.42
% Green Budget of BE 2023-24	4.17

Note: BE stands for Budget Estimates

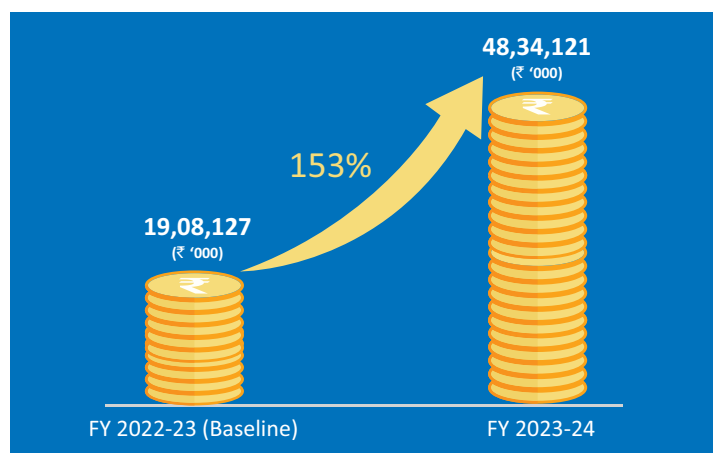
Baseline Indicators

Based on departmental consultations conducted in December 2022, FY 2022-23 is considered a baseline year for the green budget exercise for the UT of Puducherry. Five key baseline green budget indicators have been proposed as per the information provided, these include (i) Green Budget (₹ '000); (ii) % of Green Budget of Identified Scheme Budget; (iii) % Green Budget of RE/BE; (iv) Number of departments that identified schemes and green components; and (v) Number of budget line items with green components.

The green budget increased by 153% from ₹191 crore in the baseline year to ₹483 crore in FY 2023-24 (Figure 4.1). The percentage of the green budget in the identified schemes increased from 7.78% to 16.42%. As a share of total expenditure (revised estimates for FY 2022-23 and budget estimates for FY 2023-24), the green budget component increased from



1.66% to 4.17%. In the baseline year, 9 departments identified both schemes and green components, while in FY 2023-24, 15 departments identified both schemes and green components. Regarding budget heads, the baseline year includes 120 heads while for FY



2023-24, 134 budget heads were identified.

Indicators	FY 2022-23	FY 2023-24
RE/ BE (₹ '000)	11,50,00,000	11,60,00,000
Scheme Budget (₹ '000)	2,45,20,483	2,94,37,884
Green Budget (₹ '000)	19,08,127	48,34,121
% of Green Budget of Identified Scheme Budget	7.78	16.42
% Green Budget of RE/BE	1.66	4.17
Number of Departments that identified schemes and green components	9	15
Number of budget line items with green components	120	134

Figure 4.1: Baseline indicators for green budget

Theme Mapping of Green Budget

The team identified 30 themes based on stakeholder consultations, of which 29 were mapped to various departments based on descriptions provided by them on schemes and activities (Figure 4.2). Ten departments had activities on climate change mitigation followed by sustainable consumption and production, clean/green technology, pollution abatement, climate adaptation, water management, waste management, energy conservation, and water quality. Water audits can be included in future activities.

Activity Mapping of Green Budget

The team identified 17 activities based on stakeholder consultations, out of which 15 were mapped to various departments based on descriptions provided by them on schemes and activities (Figure 4.3). Thirteen departments had activities under the category of programme/ scheme implementation followed by green technology and infrastructure, regular operation and maintenance, policy action, IEC (information, education, and communication), skilling, capacity-building, and subsidies. The UT can identify resource allocation for education and awareness and curriculum development in the education department and in scientific and research institutes. Moreover, more budget heads can be identified on green public



Figure 4.2: Theme mapping of green budget



Figure 4.3: Activity mapping of green budget



procurement, considering that every department has to be involved in public procurement. The UT can also undertake more research and scoping studies that can guide policy action and investment.

Department-wise SDG Matrix

Based on the description provided by various departments on schemes and activities, an SDG mapping at the goal level was undertaken and a matrix was prepared at the department level (Figure 4.4).

	SDG 1 NO POVERTY	SDG 2 ZERO HUNGER	SDG 3 GOOD HEALTH AND WELL-BEING	SDG 4 QUALITY EDUCATION	SDG 5 GENDER EQUALITY	SDG 6 CLEAN WATER AND SANITATION	SDG 7 AFFORDABLE AND CLEAN ENERGY	SDG 8 DECENT WORK AND ECONOMIC GROWTH	SDG 9 INDUSTRIAL INNOVATION AND INFRASTRUCTURE	SDG 11 SUSTAINABLE CITIES AND COMMUNITIES	SDG 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	SDG 13 CLIMATE ACTION	SDG 14 LIFE BELOW WATER	SDG 15 LIFE ON LAND
Department of Agriculture and Farmers Welfare														
Department of Animal Husbandry and Animal Welfare														
Department of Fisheries and Fishermen Welfare														
Department of Forests and Wildlife														
Department of Science, Technology and Environment														
Directorate of Health and Family Welfare Services														
District Industries Centre														
District Rural Development Agency														
Electricity Department														
Local Administration Department														
Police Department														
Port Department														
Public Works Department														
Tourism Department														
Transport Department														

Figure 4.4. SDG matrix for various departments

In terms of SDG mapping, out of the 15 departments, 12 departments contributed to SDG 13, making climate action a major focus of green/ environmental sustainability activities. SDG 6 (clean water and sanitation), SDG 7 (affordable and clean energy), and SDG 12 (responsible consumption and production) were included in the activities of eight departments. SDG 3 (good health and well-being) and SDG 11 (sustainable cities and communities) were included in the activities of seven departments. Considering that the UT of Puducherry is a coastal region, SDG 14 (life below water)-related activities can be further integrated into departmental activities. For example, the police department, as a part of its civic responsibilities, can contribute to beach protection along with the Department of Forests and Wildlife. The idea of SDG mapping is to track long-term impacts with the state indicator framework on SDGs. Some departments contribute across many SDGs, which must not be construed as being more significant as some departments may contribute to specific SDGs considering their mandates. In the long run, target-level and eventually indicator-level mapping can take place. The next iteration of the green budget can analyse budget-item-level mapping of SDGs.



5. CONCLUSION AND WAY FORWARD

Overall Suggestions on Green Budgeting Process

Based on departmental consultations conducted in December 2022, FY 2022-23 is considered a baseline year for the green budget exercise for Puducherry. Five key baseline green budget indicators have been proposed as per the information provided. These include: (i) Green Budget (₹'000), (ii) % of Green Budget of Identified Scheme Budget, (iii) % Green Budget of RE/BE, (iv) the number of departments that have identified schemes and green components, and (v) the number of budget line items with green components. Existing and additional departments may include more budget line items with green components, for which the departments may further innovate within existing schemes, themes, and activities to strengthen the green budget process.

The year 2022-23 is meant to serve as a baseline year for green budgeting for Puducherry. Next year and in future years, the green budget components may be reported in terms of 'actuals'. The Finance Department may help keep the budget codes uniform so that budget items can be tracked over time.

Eventually, an expert and independent review process may be established. The Planning and Research Department and the Economic and Statistics Department of Puducherry may develop the SDGs state indicator framework (SIF) for the Union Territory, which can, in the long term, be linked to the green budget and other issue-based budgeting processes.

Departments should highlight the green components clearly in each scheme/budget line item. Presently some departments only have one item under green budgeting. As these increase, activity, theme, and SDG mapping may be undertaken for each budget item identified for individual departments. The departments may also include centrally sponsored schemes (CSS) if they have a separate budget code. The departments may also provide supplementary information on CSS. The proforma given in Annexure 2 can be followed.

Components of green public procurement may be further enhanced across departments. For instance, the purchase of recycled paper, energy-efficient appliances, green construction materials, and eco-products made from local materials can be highlighted. Departments that have a mandate for renewable energy, disaster reduction/management, school and higher education, civil supplies, stationery and printing, town and country planning, industries, commerce, building programme, and labour can play a crucial role in shaping the green budget more robustly. Identifying and reviewing the existing schemes can also play a vital role in their inclusion in the green budgeting process.

Department-wise Suggestions

This section includes suggestions for departments who provided inputs in the first green budgeting process for the UT of Puducherry.

Department of Science, Technology and Environment

The department can work with the Finance Department to draw an action plan on green public procurement that can further goals on the circular economy, clean energy, and climate impact, besides boosting green skills and green entrepreneurship.

Considering the cross-cutting nature of SDG 12 (responsible consumption and production), Puducherry can draw up a comprehensive action plan on sustainable consumption and production, including the government mandate on lifestyle for the environment (LiFE). This can be done by nudging individual consumer behaviours, supported by policy and industry measures, including eco-labels/certifications/standards. The department can also enhance public awareness campaigns and educational programmes to promote green initiatives, sustainable practices, and environmental consciousness.

Department of Animal Husbandry

Apart from hydroponic fodders, the department can implement more waste management systems to handle animal waste, including manure, and promote a circular bioeconomy. This can be done by encouraging the use of efficient manure management techniques such as anaerobic digestion, composting, or nutrient management plans, to minimize environmental pollution and utilize animal waste as a resource.

Farmers can be encouraged to adopt renewable energy sources on farms, including biogas. Incentives and support can be extended to the farmers for installing solar panels, wind turbines, or biomass digesters to generate clean energy for farm operations.

The department can also promote water conservation practices in animal husbandry operations. This can include implementing efficient irrigation systems, water recycling, rainwater harvesting, and promoting responsible water usage in livestock production. Education and training programmes for farmers and livestock producers can be conducted on sustainable animal husbandry practices, green skilling, and awareness-raising best practices in animal husbandry.

Department of Rural Development

The department can facilitate the deployment of water conservation and watershed management in rural areas. Through public works, activities that enhance resilience and prevent salt-water intrusion can be carried out considering that Puducherry is a coastal area and vulnerable to saline ingress into groundwater.

The department can work in convergence with the Forest and other departments to undertake activities that encourage nature-based solutions and contribute to both climate adaptation and mitigation.

Department of Fisheries

The department can develop and enforce measures to minimize by-catch, which refers to the unintentional capture of non-target species in fishing operations. It can promote the use of selective fishing gear, such as turtle excluder devices (TEDs) or circle hooks, to reduce by-catch and protect non-target species.



Apart from providing relief to fishermen during the fish ban season, the department can work with the Department of Forests and Wildlife to map marine protected areas and enhance the mandate on conservation.

Department of Forests and Wildlife

The department can focus on preserving and enhancing marine biodiversity and habitats. Considering the transboundary implications, the department can be further empowered to work with neighbouring states and the centre to protect coral reefs and mangrove areas. It can further enhance the practice of biodiversity registers to identify and protect critical habitats for endangered species. The department can implement measures to combat wildlife poaching, illegal trade, and encroachment. It can promote the conservation of native flora and fauna, including rare and endemic species. A special focus on mangrove protection and coral reefs can be highlighted. The focus should be given to the conservation and restoration of wetlands; these are vital ecosystems supporting diverse plant and animal life. The department can implement measures to mitigate pollution and protect wetland habitats. Moreover, the department along with the tourism department can further encourage responsible tourism practices that respect wildlife and ecosystems.

Directorate of Health and Family Welfare Services

Apart from waste management, the directorate can prioritize the procurement of environmentally friendly and sustainable products and services in healthcare facilities, besides giving preference to suppliers and vendors that follow sustainable practices, such as those providing energy-efficient medical equipment, eco-friendly cleaning products, and sustainable packaging.

The directorate can promote clean energy and promote sustainable transportation options for healthcare workers, patients, and visitors. Solar panels and other decentralized energy systems can be encouraged along with water harvesting in medical buildings. The directorate may also conduct or commission studies on the impact of environmental degradation and climate change on human health and health systems in the UT.

The department may support sustainable and locally sourced food systems in healthcare facilities. Further, the directorate can promote the use of organic and seasonal produce in hospital cafeterias and patient meals through partnerships with local farmers, thus promoting healthy and sustainable dietary choices.

Public Works Department

This department has huge budget allocations and activities that have major implications for various aspects of the environment. The department should encourage green infrastructure on roads by planting trees, shrubs, and plants. The department can work with other departments for better programmatic convergence and for implementing nature-based solutions.

The department plays a huge role in infrastructure development and maintenance. Considering climate impacts, the department can play a key role in increasing infrastructure resilience, including measures to address salt-water intrusion. The department can play a significant role in implementing green procurement policies that prioritize purchasing environmentally friendly and sustainable materials for infrastructure projects. Factors such as resource efficiency, recycled content, and environmental certifications when selecting vendors and suppliers can be considered.

In respect of new buildings construction, the department may adopt a policy of constructing only GRIHA certified buildings. In respect of renovation and modernization of existing buildings, retrofitting the same with energy efficient appliances, water saving fixtures, water harvesting, gray water reuse, tiling roofs with reflective tiles and double glazing of windows, etc. may be carried out.

Department of Tourism

The Department of Tourism can provide information on budget line items that encourage tourists to support local economies by promoting local handicrafts, organic food, and sustainable products. The department should highlight businesses that prioritize fair trade practices, support local communities, and utilize environmentally friendly production methods.

Budget line items can also include activities that help develop and disseminate educational materials and interpretive signage to raise awareness about the importance of environmental conservation, cultural heritage, and sustainable tourism practices. The department can offer guided tours and workshops that educate visitors about local ecosystems, biodiversity, and traditional knowledge.

The department can prepare an indicator framework for sustainability and eco-tourism and promote sustainable tourism standards. It can encourage tourism businesses, including hotels, resorts, and guesthouses, to adopt eco-friendly practices. This can include implementing energy-efficient measures, utilizing renewable energy sources, promoting water conservation, and offering recycling programmes. Budget line items can be specified that contribute to waste management programmes in tourist destinations, including proper waste segregation, recycling facilities, and initiatives to reduce single-use plastics.

Department of Transport

Apart from promoting BS VI vehicles, the department can further promote the adoption of electric vehicles (EVs) by offering incentives and subsidies for purchasing electric cars, buses, and taxis. A network of EV charging stations can be established, which support EV infrastructure development. It can encourage the use of EVs in government fleets and public transportation. The department should promote pollution abatement activities.

The department can encourage adopting green freight practices by promoting efficient logistics, route optimization, and using low-emission vehicles in freight transport. It can collaborate with logistics companies to develop sustainable supply chain initiatives and incentivize the use of eco-friendly transport options. In the future, the department can also explore opportunities to integrate renewable energy sources into the transport infrastructure. This can include the installation of solar panels or wind turbines at transportation hubs, charging stations, or transit depots to power electric vehicles and reduce the reliance on conventional energy sources.

Department of Agriculture

The department can further justify green components from existing schemes in each budget line items. The department may have dedicated units on green skilling because agriculture is significant in terms of natural resource management and socio-economic impact. The department can also work further with the rural development department to enhance nature-based solutions, including agroforestry. Agriculture is also a key sector that will face adverse climate impacts; hence, preparedness for climate adaptation is crucial based on infrastructure and technology, input management and intensification, ecosystem-based



adaptation measures and socio-economic and institutional development. Climate services can be further enhanced, considering future needs.

Department of Electricity

The department can contribute significantly to the green budget. Apart from procurement of clean energy, the department can promote public awareness campaigns and educational programmes to promote energy conservation, renewable energy adoption, and sustainable electricity consumption practices. It can provide information on the benefits of green energy, energy-saving tips, and the role of individuals in reducing carbon emissions. The department, together with the Renewable Energy Agency, can enhance activities around energy conservation and renewable energy. The future of offshore wind farms and other decentralized energy sources can be further explored.

Local Administration Department

The department can incorporate green infrastructure elements into urban planning and development projects. This can include creating green spaces, parks, and urban forests, and preserving natural areas. The department can also conduct awareness campaigns and educational programmes on environmental conservation, sustainability, and climate change.

The department can implement green procurement policies that prioritize purchasing environmentally friendly products and services, encourage using recycled and sustainable materials in public projects, and promote environmentally conscious procurement practices among local businesses.

Police Department

The department can establish dedicated units or personnel to address environmental crimes, such as illegal logging, wildlife trafficking, or pollution. It can collaborate with environmental agencies and enforcement agencies to combat environmental offenses and ensure the protection of natural resources.

As Puducherry is an important tourist destination, a tourist police unit may be set up, which apart from preventing and investigating crime that targets tourists, also help sensitize the tourists on environmentally responsible conduct, as a part of civic responsibility. The department can also collaborate with community organizations, schools, and environmental groups to organize educational campaigns, tree-planting initiatives, or litter clean-up activities. It can encourage community involvement in environmental conservation efforts. Within the police department, it can also promote digitalization and paperless operations. It can also encourage the use of electronic documentation, online reporting systems, and digital communication channels to minimize paper usage and reduce waste.

District Industries Centre

The department can encourage the development of green entrepreneurship and start-ups in the district, along with support for green skilling. The agency can provide support, mentorship, and financial incentives for entrepreneurs and small businesses engaged in sustainable and environmentally friendly practices. It can foster an ecosystem encouraging innovation in green technologies and business models.

Department of Ports

Considering the potential of green ports and green shipping, the department can promote the use of fuel-efficient vessels and incentivize shipowners and operators to adopt clean technologies, such as hybrid or electric propulsion systems, along with implementation and

enforcement of emission standards for ships to reduce air pollution and greenhouse gas emissions.

The department can encourage the adoption of sustainable freight services in terms of packaging standards and eco-labels. The department can promote initiatives like Clean Seas or Zero Emission Ports to encourage public participation in environmental protection.

It can also support developing and installing renewable energy infrastructure at ports and harbours. This can include solar panels, wind turbines, or wave energy converters to generate clean energy for port operations. The department can enhance port infrastructure to promote environmentally friendly practices, which may involve building charging stations for electric ships, improving waste management systems, and providing facilities for ballast water treatment to prevent the spread of invasive species.

5.3. Conclusion: Sustaining and Strengthening Green Budgeting

It is essential to emphasize that as the government's policy goals have changed over time with increased attention to the environment, Accordingly implementation must respond to these policy goals, along with planning and resource allocation processes, including budgetary planning.

Other issue-based budgeting exists—gender budgeting (Statement 13); child budgeting (Statement 12); and many states/UTs and the central government have mainstreamed these. Similarly, green budgeting can be implemented to give adequate attention to environmental sustainability. Green budgeting is an opportunity to put in place an SDG-linked process. For the FY 2023-24 budget session, the finance department introduced three issue-based budgeting processes, namely green budgeting, gender budgeting, and youth budgeting.

Institutionalizing the entire process would require two things. First, every year, all departments must report on the implementation of their respective green budgets. These should be consolidated and reviewed, first by the Chief Secretary, and then by the Chief Minister. Second, is that for each year's demand for grants, along with the budget document, an additional memorandum may be submitted to the legislative assembly, based on the consolidated reports of the departments, accepted by the Chief Minister. This memo to the legislature may indicate the progress report of the accomplishments of the green budget over the past fiscal year, as well as the anticipated enhancements in the new fiscal year.

For the green budget for FY 2023-24, 15 departments provided green budget inputs in the pro forma. The process can be further strengthened with justification for each line item. More departments must participate and reorient their goals, schemes, and policies to become environment and climate sensitive. By doing so, departments would also be able to assess how much a particular department contributes to addressing climate change. Green budgeting can thus act as a self-assessment tool.

Green budgeting is a tool that can contribute to the institutionalization and integration of environmental sustainability in various government initiatives and promote a system-wide approach. It is a sincere hope that Puducherry will champion the cause of environmental protection through continuing and further strengthening the policy innovation of green budgeting.



ANNEXURE 1. DEPARTMENT-WISE GREEN BUDGET INPUTS

(₹ '000)

S. No	Budget Code	Programme/Scheme Name	Scheme Budget (2022-23)	Scheme Budget (2023-24)	Green Budget Component (2022-23)	Green Budget Component (2023-24)
Department of Science, Technology and Environment						
1	302810008000201	Energy Education Park	970	970	970	970
2	303425608000701	Department of Science, Technology and Environment	37,137	56,608	700	20,000
3	305425008000201	Department of Science, Technology and Environment		3,050		900
Department of Animal Husbandry and Animal Welfare						
4	042403000010201	Subsidy		49,610		5,300
District Rural Development Agency						
5	292505021010101	MGNREGA		80,000		60,000
6	292505021010401	NBA-SBM (G)		60,000	100	60,000
Department of Forests and Wildlife						
7	032406011020101	Social Forestry	72,365	71,430	3,726	4,010
8	2406011020944060110202	Intensification of Forests Management (CSS)	1,910	14,021	200	200
Directorate of Health and Family Welfare Services						
9	162210010010101	Directorate of Health and Family Welfare Services, Puducherry	1,11,667	13,566	200	500
10	162210010010802	O/o the Deputy Director (Immunization), Karaikal	85,890	98,785	200	1,000
11	162210011020201	Employees' State Insurance Hospital, Puducherry	1,19,809	1,17,070	250	300
12	162210011100101	General Hospital, Puducherry	13,47,483	13,82,247	1,500	2,500
13	162210011100102	General Hospital, Karaikal	5,69,300	5,30,042	1,000	2,000
14	162210011100103	General Hospital, Mahe	2,31,016	2,45,050	500	1,000
15	162210011100104	General Hospital, Yanam	2,09,048	2,31,050	500	1,000

(₹ '000)

S. No	Budget Code	Programme/Scheme Name	Scheme Budget (2022-23)	Scheme Budget (2023-24)	Green Budget Component (2022-23)	Green Budget Component (2023-24)
16	162210011100201	Rajiv Gandhi Women and Children Hospital, Puducherry	7,54,205	7,16,020	1,500	2,500
17	162210011100301	Mahatma Gandhi Government Leprosy Hospital, Puducherry	20,985	25,600	200	500
18	162210011100401	Government Hospital for Chest Diseases, Gorimedu Puducherry	1,08,071	1,25,080	250	500
19	162210011100901	Government Pharmacy, Puducherry	6,42,501	10,58,675	500	1,000
20	162210031040101	Community Health Centre, Karikalampakkam	47,992	50,280		200
21	162210031040201	Community Health Centre, Mannadipet	26,923	39,400		200
22	162210031040302	Community Health Centre, Thirunallar	35,110	37,910		200
23	162210031040403	Community Health Centre, Mahe	43,801	47,830		200
24	162210031100101	Rural Dispensaries, Puducherry	4,22,050	5,63,451	500	1,000
25	162210031100102	Rural Dispensaries, Karaikal.	43,242	54,026	500	1,000
26	162210051050101	Setting up of a Medical College, Puducherry	8,26,760	18,85,906	1,500	2,500
27	162210051050401	Dental College, Puducherry	4,63,870	8,41,904	1,000	2,000
28	162210051050501	Mother Theresa Post Graduate Institute of Health Sciences and Research Institute, Puducherry	1,62,442	2,51,836	1,000	2,000
Public Works Department						
29	272215021050101	Maintenance of Sewerage Scheme	1,03,500	1,23,000	3,500	3,000
30	271622150210501	Maintenance of Sewerage Scheme	1,00,000	1,20,000	1,00,000	1,20,000
31	272217050010601	Maintenance of Integrated Urban Development Project (Town And Country Planning)	87,000	50,000	70,000	50,000
32	272217050010701C	Maintenance of Sewerage (Urbanizable Area)	1,800	2,000	1,800	2,000
33	272217050010701	Maintenance of Sewerage (Urbanizable Area)	40,000	53,000	40,000	53,000
34	272217050010702	Maintenance of Sewerage (Urbanizable Area)	6,500	6,500	6,500	6,500
35	272217057890201	Maintenance of Sewerage (Urbanizable Area)	1,000	1,000	1,000	1,000



S. No	Budget Code	Programme/Scheme Name	Scheme Budget (2022-23)	Scheme Budget (2023-24)	Green Budget Component (2022-23)	Green Budget Component (2023-24)
36	272402001020102	Maintenance Works Repairing of Water Tanks	200	200	200	200
37	272702011010101	Construction and Deepening of Wells and Tanks	700	1,000	700	1,000
38	272702011010401	Repairs and Maintenance of Irrigation Tanks	11,800	15,000	11,800	15,000
39	272702011010504	Maintenance and Stabilizing of Channel Areas	1,400	1,500	1,400	1,500
40	272702011030201	Maintenance of Irrigation Water Channels	30,000	15,000	30,000	15,000
41	272702011040201	Maintenance of Ayacuts (irrigable area end-user)	2,000	2,000	2,000	2,000
42	272702017890401	Maintenance of Irrigation Tanks	500	2,000	500	2,000
43	272702017890402	Maintenance of Irrigation Tanks	500	700	500	700
44	272702017890501	Maintenance of Irrigation Water Diversion Channels	200	1,000	200	1,000
45	272702017890502	Maintenance of Irrigation Water Diversion Channels	800	600	800	600
46	272702017890601	Maintenance of Ayacuts	400	500	400	500
47	272702018000201	Maintenance and Special Repairs	500	600	500	600
48	272702018000202	Maintenance and Special Repairs	9,000	10,000	9,000	10,000
49	272702018000301	Maintenance and Ordinary Repairs	5,000	8,000	5,000	8,000
50	272702018000302	Maintenance and Ordinary Repairs	15,000	15,000	15,000	15,000
51	272702018000304	Maintenance and Ordinary Repairs	2,500	3,000	2,500	3,000
52	272711011030201	Maintenance of Embankments	3,000	8,000	3,000	8,000
53	272711011030202	Maintenance of Embankments	860	1,000	860	1,000
54	272711017890201	Maintenance of Embankments	1,000	5,000	1,000	5,000
55	272711031030202	Maintenance of Drainage Channels	5,000	5,000	5,000	5,000
56	272711038000301	Maintenance for Bank Protection	500	1,000	500	1,000
57	274059018000101	Improvements	21,000	20,000		392
58	274216011060101	Construction of Quarters For Government Servants	16,000	60,000	1,000	5,000
59	274217600010102	Extension of Sewerage Facilities to Urbanizable Area	80,000	1,20,000	80,000	1,20,000

(₹ '000)

S. No	Budget Code	Programme/Scheme Name	Scheme Budget (2022-23)	Scheme Budget (2023-24)	Green Budget Component (2022-23)	Green Budget Component (2023-24)
60	274217600010103	Extension of Sewerage Facilities to Urbanizable Area	10,000	5,000	10,000	5,000
61	274217600010104	Extension of Sewerage Facilities to Urbanizable Area	10,000	25,000	10,000	25,000
62	274702001010201	Ground Water Recharge Scheme	5,000	20,000	5,000	20,000
63	274702001010202	Ground Water Recharge Scheme	500	1,000	500	1,000
64	274702001010504	Formation of Inter Linking French Channel	100	100	100	100
65	274702008000201	Creation of Infrastructural Facilities (Negotiated Loan)	10,000	1,00,000	10,000	1,00,000
66	274702008000202	Creation of Infrastructural Facilities (Negotiated Loan)	5,000	1,00,000	5,000	1,00,000
67	274702008000401	Creation of Infrastructural Facilities (Negotiated Loan)	1,300	1,300	1,300	1,300
68	274702008000402	Creation of Infrastructural Facilities (Negotiated Loan)	100	100	100	100
69	274711011030101	Embankment Schemes	4,000	10,000	4,000	10,000
70	274711011030102	Embankment Schemes	500	500	500	500
71	274711011030103	Embankment Schemes	2,000	3,000	2,000	3,000
72	274711011030104	Embankment Schemes	4,000	3,000	4,000	3,000
73	274711017890101	Embankment Schemes	5,000	5,000	5,000	5,000
74	274711017890102	Embankment Schemes	500	500	500	500
75	274711031030101C	Drainage Schemes Channels	22,300	20,000	22,300	20,000
76	274711031030101	Drainage Schemes Channels	10,000	10,000	10,000	10,000
77	274711031030102	Drainage Schemes Channels	1,000	2,000	1,000	2,000
78	274711037890101	Drainage Schemes Channels	350	5,000	350	5,000
79	274711037890102	Drainage Schemes Channels	1,000	1,000	1,000	1,000
80	274711038000101	Bank Protection Scheme	4,000	4,000	4,000	4,000
81	274711038000102	Bank Protection Scheme	500	1,500	500	1,500
82	274711038000201C	Improvements to Drainage Channels	14,000		14,000	
83	274711038000201	Improvements to Drainage Channels	2,381	4,000	2,381	4,000



S. No	Budget Code	Programme/Scheme Name	Scheme Budget (2022-23)	Scheme Budget (2023-24)	Green Budget Component (2022-23)	Green Budget Component (2023-24)
84	274711038000202	Improvements to Drainage Channels	2,717	4,000	2,717	4,000
85	274711038000401	Creation of Infrastructural Facilities (Negotiated Loan)		40,000		40,000
86	274711038000402	Creation of Infrastructural Facilities (Negotiated Loan)	50,000	50,000	50,000	50,000
87	274711038000601	Creation of Infrastructural Facilities (Negotiated Loan) (State Share)	100	1,500	100	1,500
88	274711038000602	Creation of Infrastructural Facilities (Negotiated Loan) (State Share)	4,000	2,000	4,000	2,000
89	274711038000604	Creation of Infrastructural Facilities (Negotiated Loan) (State Share)	16,484		16,484	
90	275054048000101	District and Other Roads	84,500	2,12,000		500
91	275054048000901	Creation of Infrastructural Facilities (Negotiated Loan)	3,13,500	6,50,000		6,400
Tourism Department						
92	343452801040701	Tourism Promotional Activities	56,000	1,00,000		2,500
Transport Department						
93	363055001900101	Assistance to PRTC for Various Purposes Including Payment of Road Tax to Interstate Buses	2,76,600	2,79,708	1,73,000	1,00,000
Department of Agriculture and Farmers Welfare						
94	032401-00-102-01-01-33 032401-00-102-01-02-33 032401-00-102-01-04-33	Scheme for Crop Production Technology	2,31,034	3,17,105	2,31,034	3,17,105
95	032401-00-789-01-01-33 032401-00-789-01-02-33 032401-00-789-01-04-33	Special Component Scheme for Crop Production Technology	22,500	22,200	22,500	22,200
96	032401-00-103-02-01-33 032401-00-103-02-02-33	Integrated Programme for Seed Production Certification	1,150	1,400	1,150	1,400

(₹ '000)

S. No	Budget Code	Programme/Scheme Name	Scheme Budget (2022-23)	Scheme Budget (2023-24)	Green Budget Component (2022-23)	Green Budget Component (2023-24)
97	032401-00-107-03-01-33 032401-00-107-03-02-33	Plant Protection Promotion of Post-Harvest Technology and Establishment of Agriculture Clinics by Self-Employed Agriculture Technologists	525	550	525	550
98	032401-00-789-13-01-33	Promotion of Post-Harvest Technology and Establishment of Agriculture Clinics by Self-Employed Agriculture Technologists	375	500	375	500
99	032401-00-108-04-01-49	National Mission for Sustainable Agriculture Paramparagat Krishi Vikas Yojana (CSS)	5,050	21,202	5,050	21,202
100	032401-00-110-02-01-33	Scheme for Promoting Crop Insurance	20,000	45,000	20,000	45,000
101	032401-00-119-07-01-31	National Horticulture Mission (CSS)	16,171	15,000	16,171	15,000
102	032401-00-119-08-01-33 032401-00-119-08-02-33 032401-00-119-08-03-33 032401-00-119-08-04-33	Integrated Horticultural Development Programme through Diversification in Agriculture	25,152	21,400	25,152	21,400
103	032401-00-789-14-01-33 032401-00-789-14-02-33 032401-00-789-14-03-33 032401-00-789-14-04-33	Special Component Scheme for Integrated Horticulture Development Programme through Diversification in Agriculture	1,000	1,400	1,000	1,400
104	032401-00-789-18-01-33	National Food Security Mission (CSS)	2,474	4,000	2,474	4,000
105	032402-00-102-02-01-33	Soil and Water Conservation Pradhan Mantri Krishi Sinchayee Yojana (CSS)	5,000	5,000	5,000	5,000
106	032702-02-001-03-01-33	Minor Irrigation Ground Water Direction and Administration Integrated Scheme for Development, Harvesting, Recharging and Conservation of Ground Water	7,400	6,000	7,400	6,000
107	032702-02-789-02-01-33	Special Component Plan for Scheduled Castes Integrated Scheme for Development, Harvesting, Recharging and Conservation of Ground Water	1,340	1,000	1,340	1,000
108	032401-00-800-17-01-31	Sub Mission on Agricultural Extension	17,600	18,500	17,600	18,500



S. No	Budget Code	Programme/Scheme Name	Scheme Budget (2022-23)	Scheme Budget (2023-24)	Green Budget Component (2022-23)	Green Budget Component (2023-24)
109	032401-00-800-16-01-33 032401-00-800-16-02-33	Sub Mission on Agricultural Mechanisation	26,829	40,000	26,829	40,000
110	032401-00-800-18-01-49	Sub Mission on Seeds and Planting Material	1,001	20,000	1,001	20,000
Electricity Department						
111	122801058000101	Purchase of Power	1,59,00,000	1,69,00,000	6,19,400	24,13,900
Local Administration Department						
112	242217808000901V	Implementation of AMRUT Mission by LAD (CSS)		1,65,370		1,65,370
113	242217801911701V	Swachh Bharat Mission (CSS)		3,04,952		3,04,952
Police Department						
114	1740550020701	Purchase of Electric Vehicles for the Use of Police Department	33,042	36,499		5,000
Port Department						
115	5051022000501	Dredging at Pondicherry Port		1,08,796		85,952
District Industries Centre						
116	202851001040101	Village and Small Industries - Handicraft Industries - Development of Handicraft Industries - Puducherry Region	9,421	3,435	6,920	520
117	202851001040102	Handicraft Industries - KKI	281	250	280	250
118	202851001040103	Handicraft Industries - Mahe	2	2	2	2
119	202851001040104	Handicraft Industries - Yanam	61	155	60	150
120	202851001050101	Village and Small Industries - Khadi and Village Industries - Development of Khadi and Village Industries - Puducherry Region	1,19,530	1,22,544	3,014	1,800
121	202851001060101	Village and Small Industries - Coir Industries - Development of Coir Industries - Puducherry Region	7,881	834	7,880	830

(₹ '000)

S. No	Budget Code	Programme/Scheme Name	Scheme Budget (2022-23)	Scheme Budget (2023-24)	Green Budget Component (2022-23)	Green Budget Component (2023-24)
122	202851001060102	Coir Industries - KKI	100	200	100	200
123	202851001060104	Coir Industries - Yanam	60	150	60	150
124	202851001070101	Village and Small Industries - Sericulture Industries - Development of Silk Industries - Puducherry Region	2	2	2	2
125	202851001070201	Village and Small Industries - Sericulture Industries - Development of Sericulture Industries - Puducherry Region	2	2	2	2
126	202851007890201	Village and Small Industries - Special Component Plan for SC - Dev. of Handicraft Industries - Puducherry Region	1,450	150	1,450	150
127	202851007890202	Handicraft Industries - KKI	280	150	280	150
128	202851007890204	Handicraft Industries - Yanam	35	30	35	30
129	202851007890401	Village and Small Industries - Special Component Plan for SC - Dev. Of Coir Industries - Puducherry Region	600	171	600	171
130	202851007890402	SCP Coir - Karaikal	270	150	270	150
131	202851007890404	SCP Coir - Yanam	75	80	75	80
Department of Fisheries and Fishermen Welfare						
132	142405000010101	Inland Fisheries - Freshwater Aquaculture - Input Subsidy for Freshwater Aquaculture - Puducherry	1,117	2,200	1,117	2,200
133	142405000010102	Inland Fisheries - Freshwater Aquaculture - Input Subsidy for Freshwater Aquaculture - Karaikal	1,050	1,200	1,032	1,200
134	142405000010104	Inland Fisheries - Freshwater Aquaculture - Input Subsidy for Freshwater Aquaculture - Yanam	8	4.5	7.5	4.5
135	262405001030501	Marine Fisheries - Development of Marine Fisheries through Mechanization and Reimbursement of Sales Tax on HSD Oil and Assistance to Small-Scale Fishermen Grant of 50% Subsidy for Procurement of Catamaran without Engine	34,124	35,000	1,650	



S. No	Budget Code	Programme/Scheme Name	Scheme Budget (2022-23)	Scheme Budget (2023-24)	Green Budget Component (2022-23)	Green Budget Component (2023-24)
136	142405008002001	Other Expenditure - Relief for Fishermen during Lean Season and Natural Calamities - Relief to Fishermen's Families during the Fishing Ban period	98,044	95,875	98,044	95,875
137	142405008002201	CSS-PMMSY- Construction of New Pond for Freshwater Aquaculture	1,67,849	1,55,200	10,057	55,401

ANNEXURE 2. REVISED PRO-FORMA

1. Name of department
2. Name of contact person
3. Designation
4. Contact details

Phone:

Email:

5. Green budget

(Fill the table below. Feel free to add/ delete rows)

S. No.	Budget Code	Programme/ Scheme Name	Scheme Budget*		Green Budget Component*		Justification	Theme (Refer to Exhibit A)	Activity (Refer to Exhibit B)	SDG (Refer to Exhibit C)
			2022-23 (₹ '000)	2023-24 (₹ '000)	2022-23 (₹ '000)	2023-24 (₹ '000)				

*This can be edited and information can be added on 'actuals' and the fiscal year can also be advanced.

6. Description of scheme-wise green/environmental significance along with any performance indicators?
7. Supplementary information
(Please include any information such as centrally sponsored schemes or any other activities in which your department is involved with and which does not get reflected in the UT budget document)
8. Any other comments/ questions/ doubts:



Exhibit A: Environment sustainability themes

S. No.	Themes
1	Agroforestry
2	Biodiversity, wildlife, and ecology (coasts)
3	Biodiversity, wildlife, and ecology (land)
4	Clean/green technology
5	Climate change adaptation
6	Climate change mitigation
7	Disaster risk reduction
8	Drip irrigation/water conservation in agriculture
9	Eco-tourism/sustainable tourism
10	Energy audits
11	Energy efficiency/conservation
12	Environmental education and awareness
13	Forestry and green cover
14	Green buildings/infrastructure
15	Mangrove protection
16	Pollution abatement
17	Renewable energy
18	Research and studies on the environment
19	Sewage treatment plants
20	Sustainable agriculture
21	Sustainable consumption and production
22	Sustainable fisheries/aquaculture
23	Sustainable land use and watershed management
24	Sustainable mobility/transport
25	Waste management
26	Water audits
27	Water harvesting/recharge
28	Water management
29	Water quality
30	Water recycling

Exhibit B: Activity category

S. No.	Activities
1	Capacity building of institutions and departments
2	Demonstration project
3	Education and curriculum development
4	Green innovation and enterprise development
5	Green technology and infrastructure
6	Information instruments (eco-label/certification/standards)
7	Information, education, and communications/awareness
8	Investment project
9	Policy action/innovation/regulation/benchmarking/visioning/target setting
10	Pre-investment study
11	Programme/scheme implementation
12	Regular operation and maintenance
13	Research (including science, technology, and innovation)
14	Risk management (including crop insurance)
15	Green skilling (of specific beneficiaries such as farmers and youth)
16	Subsidies/incentive/relief for green activities
17	Sustainable/green public procurement

Exhibit C: List of sustainable development goals (SDGs)

Goal 1	No Poverty
Goal 2	Zero Hunger
Goal 3	Good Health and Well-being
Goal 4	Quality Education
Goal 5	Gender Equality
Goal 6	Clean Water and Sanitation
Goal 7	Affordable and Clean Energy
Goal 8	Decent Work and Economic Growth
Goal 9	Industry, Innovation and Infrastructure
Goal 10	Reduced Inequality
Goal 11	Sustainable Cities and Communities
Goal 12	Responsible Consumption and Production
Goal 13	Climate Action
Goal 14	Life Below Water
Goal 15	Life on Land
Goal 16	Peace and Justice Strong Institutions
Goal 17	Partnerships to achieve the Goal



[illegible]

[illegible]

[illegible]

[illegible]

ABOUT THE REPORT

Green budgeting is a policy innovation that serves as a planning and assessment tool that can contribute to institutionalizing and integrating environmental sustainability in various government initiatives and promote a system-wide approach. Through ex-ante planning and ex-post reflection, departments need to reorient their goals, schemes, and policies to become more environmentally and climate sensitive. By doing so, departments could also assess how much a particular department contributes to climate change. Green budgeting can act as a self-assessment tool. The Green Budget Report of the Union Territory of Puducherry for FY 2022-23 (baseline year) and FY 2023-2024 is a comprehensive document that outlines the green budget allocation, highlights sustainability initiatives, maps activities to promote environment-sensitive planning, accountability, aligns with the sustainable development goals, and provides valuable recommendations for departmental budgeting. It serves as a road map for fostering sustainable development and promoting a greener future in Puducherry. It is a sincere hope that the Union Territory of Puducherry champions the cause of environmental protection by further integrating environmental components in more budget line items by various departments.



Government of Puducherry

Finance Department

Department of Science, Technology and Environment

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