



GOVERNMENT OF KERALA

Abstract

Local Self Government Department- Resilient Kerala Program for Results (PforR) DLI 5 - Disaster Risk Management and Climate Action Tracking Tool (DCAT) - Guidelines – Approved - Orders issued.

LOCAL SELF GOVERNMENT (EWB) DEPARTMENT

G.O.(Ms)No.137/2022/LSGD Dated,Thiruvananthapuram, 29-06-2022

Read 1 e-mail message dated 28.06.2022 from KILA

ORDER

The State of Kerala has had to face a number of disasters in recent years that has revealed the extent of vulnerability of the State to disasters prompted by climate change, on account of which local governments have been taking up initiatives to better their preparedness to deal with natural hazards and climate change shocks. Rebuild Kerala Development Programme (RKDP) was launched to rebuild Kerala better and to make Kerala resilient to future Disasters. The Disbursement Linked Indicator-5 (DLI-5) implemented by LSGD is a major component of the Program for Results intervention of the Rebuild Kerala Initiative-2. DLI 5 is targeted to support mainstreaming climate and disaster risk considerations into the development and implementation of local DRM plans. Local governments will invest in disaster risk management and climate actions. Such initiatives and investments made by the LSGIs will be measured and tracked for the purpose of incentivizing local governments with the help of a tool - ie the Disaster Risk Management and Climate Action Tracking Tool (DCAT). The tool will facilitate comprehensive overall assessment of LSGIs and would serve as a capability ladder for the LSGIs in taking up climate actions and disaster risk management activities. The tool will also provide local governments with a road map to action and benchmarks for local governments in the areas of disaster management and climate action. Thresholds are provided within the assessment so as to identify the local governments that would be eligible for incentive disbursement from the World Bank project. the DCAT will be in due course be deployed in all LSGIs, rural and urban, across the State. The tool is envisaged as an evolving instrument that can be

modified to suit changing circumstances and evidence from the ground as it comes in.

DCAT tool is set to be a comprehensive tool to capture all disaster and climate resilient initiatives of LSGIs along with details of mode and methods of quantitative evaluation of their performance.

Government are pleased to approve the Disaster Risk Management and Climate Action Tracking Tool (DCAT tool) as detailed above and to sanction the DCAT – Guidelines attached as Annexure to this Order.

(By order of the Governor)
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Section Officer

Disaster Risk Management and Climate Action Tracking Tool (DCAT)-Guidelines

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1.Introduction

1.1. The context of climate action and Disaster management

If timely interventions are not made to cut down the emissions, the world's average surface temperature is projected to surpass 3 degrees Celsius this century. In the next two decades the surface temperature is expected to increase 1.5°C in 2040 which will result in unavoidable and multiple extreme climatic events. At this rate of global warming additional 350 million people will experience water scarcity by 2030; and as much as 14% of terrestrial species will face high risks of extinction.

At present with the level of global warming which is 1.1 °C the world is experiencing, resulting climate change is already causing widespread disruption in every region in the world with just 1.1 degrees C of warming. Human induced climate change and more frequent and intense extreme climatic events have caused widespread adverse impact and loss and damages to the global ecosystems, people and nature. People and ecosystems least able to cope will be the most vulnerable and will face the majority of adverse impacts. International Panel on Climate Change (IPCC) in their recent report (AR6) in 2022, IPCC estimates that in the next decade alone, climate change will drive 32-132 million more people into extreme poverty. According to the projections, the impacts of these risks will compound one another as multiple hazards that can occur at the same time across the same regions. Reduced food crop yield of a small and marginal farmer due to climate change induced flood drought or increased temperature will reduce the nutritional security of the household and will also push the food prices which will have a compounded impact on the livelihood of the vulnerable communities. The IPCC calls for global actions for reducing greenhouse gas emissions so that the rise in temperature can be kept below 1.5°C.

Multiple mitigation pathways are already devised to achieve the substantial emissions reductions in the next two decades so that there is a 66% chance to limit the warming to 2°C. These migration pathways are goals set by the governments and any delay in taking up these initiatives will substantially increase technological, economic, social and institutional challenges associated with climate change such as, inequity, conflict and development challenges such as poverty, weak governance, and limited access to basic services like healthcare which can result not only in high sensitivity to hazards, but also constrain communities' ability to adapt to climatic changes. India at the national level has come up with a series of policies and strategies to achieve the goal set by these international agreements.

2.National level initiatives

2.1.Climate actions

As a response to the global agreements, most of the countries have agreed to publicly outline post-2020 climate actions which they will be taking to address global warming which is known as Intended Nationally Determined Contributions (NDCs). These NDCs will largely determine the future course of actions to address climate change globally towards a low-carbon, climate-resilient future. India has submitted its Intended Nationally Determined Contribution to the United Nations Framework Convention on Climate Change. India has a definite plan of action for clean energy, energy efficiency in various sectors of industries, steps to achieve lower emission intensity in the automobile and transport sector, a major thrust to non-fossil based electricity generation and a building sector based on energy conservation, Promotion of clean energy, enhancing energy efficiency, enhancing energy efficiency in industries, developing climate resilient urban centers, waste to wealth conversion, sustainable green transportation network, planned afforestation and sustainable forest management. The Government of India launched the National Action Plan on Climate Change (NAPCC) on 30th June, 2008 outlining eight National Missions on climate change. The NAPCC through the eight missions provides a strong framework for climate change as a core development issue. The successful implementation of NAPCC would largely depend on the governments at all levels, especially at the Local Self-Governments to translate the aims and plans in the NAPCC into effective action and projects at the grass root level

National Solar Mission: promote the development and use of solar energy for power generation and other uses.

National Mission for Enhanced Energy Efficiency: To achieve energy consumption reduction in large energy-consuming industries, with a system for companies to trade energy-saving certificates, financing for public–private partnerships to reduce energy consumption through demand-side management programs in the municipal, buildings, and agricultural sectors, and energy incentives, including reduced taxes on energy-efficient appliances.

National Mission on Sustainable Habitat: Promoting energy efficiency as a core component of urban planning through Energy Conservation Building Code, incentives for efficient vehicles use of public transportation and emphasizes on waste management and recycling

National Water Mission: to achieve a 20% improvement in water use efficiency through pricing and other measures to deal with water scarcity as a result of climate change and to prevent melting of the Himalayan glaciers and to protect biodiversity in the Himalayan region

National Mission for Sustaining the Himalayan Ecosystem: Aims at afforestation of 6 million hectares of degraded forest lands and expanding forest cover from 23 to 33% of India's territory.

National Mission for a Green India: Aims to support climate adaptation in agriculture through the development of climate-resilient crops, expansion of weather insurance mechanisms, and agricultural practices.

National Mission for Sustainable Agriculture: Aims to support climate adaptation in agriculture through the development of climate-resilient crops, expansion of weather insurance mechanisms, and agricultural practices.

National Mission on Strategic Knowledge for Climate Change: To gain a better understanding of climate science, impacts, and challenges, the mission envisions a new Climate Science Research Fund, improved climate modeling, and increased international collaboration.

The efforts of the nation towards meeting the commitments of mitigation agreement as per the NDC Paris agreement was appreciated in the climate transparency report of 2020. According to the report India is the only country on track among the G20 nations to meet its climate change mitigation commitments of “*To reduce the emissions intensity of GDP by 33-35% by 2030 from the 2005 level*”. The report found that India's “fair share” climate targets that it set under the 2015 Paris Agreement as well as the actions it's taken in the years since make it “*compatible*” with the upper goal of curbing global warming by 2 degrees Celsius by the end of the century.

2.2. Disaster Management

Considering the fact that the Indian subcontinent is among the world's most disaster-prone areas and 85% of India's area is vulnerable to one of multiple hazards. In order to address the extreme climatic events and disasters which the country is facing due to climate change, at the national level under provision and guidance of National Disaster Management Act, 2005 and National Policy on Disaster Management, 2009, the National Disaster Management Plan, 2019 provides a framework and direction to the governments to manage disasters. The provisions for institutional coordination mechanisms at National (National Disaster Management Authority and state level (State Disaster Management Authority) are also specified by the National Disaster Management Act, 2005, along with financial support through disaster response funds, disaster mitigation fund and reserve response fund. In alignment with the Sendai framework, these policies shaped the disaster management of the nation by providing a strong institutional support to move from a relief-based disaster management system to a more comprehensive disaster management cycle-based approach.

3. Disaster management and climate change action in Kerala

3.1. Geography of Kerala and its relation to climate impacts and vulnerability

The state is geographically boarded on the west by Arabian Sea and east by Western Ghats. It is located approximately between 8° 17' and 12° 47' North latitudes and 74 ° 52' and 77 ° 24' East longitudes. The area of the state is 38,863 km², accounting for 1.18% of the total geographical area of India. The state is bounded by Tamil Nadu to the east and Karnataka to the north. The state extends about 590 km from north to south along the Malabar Coast and about 30–130 km from east to west. Kerala is blessed with a unique set of geographical features with a network of 44 rivers, lagoon barrier complexes, and lush hill stations. The density of the population in the state is 860 people/km² (Census, 2011). There are 14 districts in Kerala. The 14 districts are further classified into 78 talukas, 27 revenue divisions, 1,670 villages, 941 Grama Panchayats, 87 municipalities, and 6 municipal corporations for administrative purposes.

The geographical location of Kerala with a long coastal line in the west and Western Ghats in the East makes the state vulnerable to multiple hazards. The terrain has a steep slope from east to west and the rainfall received at high elevation regions in the Western Ghats will flow downslope and reach the sea within twenty-four hours. As the terrain is a narrow strip with widths ranging from 30 km to 60 km, the length of these rivers is quite short. The extreme rainfall and sloping terrain cause flooding and speedy water runoff, which prevents water percolation to deeper aquifers. This unique topography itself leads to both floods and droughts in the same year. The state has a high density of population which has spread out to traditionally non occupied areas of wetlands and hills. The changing land use and land development and settlement pattern in the state is putting significant pressure on available land. The wetlands and *kayals* in Kerala used to help in receiving water and working as a natural mechanism to control floods. However, the shrinkage of the total wetland area caused inundation of more areas. The high rate of urbanization results in high per capita energy needs and can potentially contribute to the carbon intensity in the state.

3.2. Hazard profile of Kerala

Kerala state is frequently ravaged by the disastrous consequences of numerous hazards, so it is a multi-hazard prone state. Repeated extreme rainfall events in the consecutive years 2018, 2019, 2020, and 2021 have increased the vulnerability to different kinds of disasters. Kerala state experienced some of the most severe Extreme Rainfall Events (ERE) on record during 2018, 2019, 2020, and 2021. EREs caused extensive flooding in most of the river basins and landslides of high intensity in most of the districts of the state, resulting in severe damage to both the built and natural ecosystem. These phenomena are a result of major factors ranging from global climate change to local anthropogenic activities. The common natural hazards in the state include floods, landslides, droughts, lightning, earthquakes, coastal hazards, forest fires, sunburns, sunstrokes, heat waves, cyclones, tsunamis, human epidemics, etc. 14.52% of the total area of the state is prone to flooding. The Highlands of Kerala experience several

types of landslides, including debris flows, rock falls, slumps, and ground subsidence due to soil piping. 14.4% of the state's total area is susceptible to mass movements. The state experiences seasonal drought conditions every year during the summer season. Even in years of normal rainfall, summer water scarcity problems are severe in the midland and highland regions. Property damage due to lightning is very high in the state. It is noted that lightning causes deaths and damage to property, agriculture, and the telephone sector. The state has been included in zone 3, where the maximum expected magnitude is 6.5. The 590 km of coastline of Kerala is a densely populated land area and is highly exposed to storm surges, tsunamis, and cyclones. This natural phenomenon in turn results in random coastal erosion and consequent beach erosion. Around 215.5km long stretch of Kerala coast is susceptible to high erosion. Natural forest fires are reported in Kerala. It is usually the dry and moist deciduous forests of the state. Climate change and Global warming have caused cyclones to become more frequent. It is a new experience for Kerala, which was hit by the Ockhi cyclone of 2017 and has repeated threats of different cyclones. Instances of heatwaves, sunburns, and sunstroke have been reported in recent years. The tsunami that struck the Kerala Coast in 2004 has added a new dimension to the disaster scenario of the state as most of the low-lying and mid-land areas in the state have an altitude of only 4-6 meters. Climate and geographical factors are suitable for vector breeding and the state has experienced many human epidemics like malaria, dengue, Chikungunya, Nipah, and cholera. Global Warming and its subsequent climatic changes such as inter-seasonal variations in rainfall, environmental issues, and sea-level rise lead to increased vulnerability for this state.

3.3.Recent natural disasters in Kerala

Between June 1 and August 18, 2018, Kerala experienced the worst ever floods in its history since 1924. During this period, the state received cumulative rainfall that was 42% in excess of the normal average. The heaviest spell of rain was from 1–20 August, when the state received 771mm of rain. The torrential rains triggered several landslides and forced the release of excess water from 37 dams across the state, aggravating the flood impact. While Kerala was gradually recovering from the shock of the devastating disasters of 2018, another spell of incessant rains resulted in catastrophic floods and landslides in August 2019.

Nearly 341 landslides were reported from 10 districts. Idukki, the worst-hit district, was ravaged by 143 landslides. According to the latest reports from the state government, 1,259 out of 1,664 villages spread across its 14 districts were affected. The seven worst-hit districts were Alappuzha, Ernakulam, Idukki, Kottayam, Pathanamthitta, Thrissur, and Wayanad, where the whole district was notified as flood-affected. The devastating floods and landslides affected 5.4 million people, displaced 1.4 million people, and took 433 lives (22 May–29 August 2018). From August 6, 2019, onwards, the northern districts were on high alert for heavy rains. Extremely heavy rains were predicted for Kozhikode, Malappuram, and Idukki districts on August 8, 2019. All the districts in northern Kerala were expecting heavy rains.

Two massive landslides occurred on August 8, 2019, one at Puthumala in Meppadi panchayat of Wayanad district, and another one in Kavalappara in Pothukallu panchayat of Malappuram district, both in a span of a few hours. In Puthumala, almost an entire village and several people were buried under the debris from the landslide. The disastrous landslides which

resulted in a death toll in the last four years include Kuranchery, Thrissur (13) in 2018, Puthumala, Wayanad (12) and Kavalappara, Malappuram(59) in 2019, Pettimudi, Idukki (61) in 2020, Kokkayar in Idukki and Koottickal in Kottayam (17).

3.4.Damages

In the Agriculture sector due to the flooding in 2018, major crop systems in the state have been negatively impacted, with the plantation industry at risk of losing up to EUR 88 million and 40% of the current crops. Rice paddy was one of the worst-hit, with 26,106 hectares of farmland damaged. The flooding has also been reported to have affected tea, rubber, cardamom, and black pepper plantations, with an estimated 500 acres of plantation land having been destroyed due to landslides in Nilambur, Malappuram, and Kalikavu districts.

The Aquaculture of the state has been adversely affected to a great extent. Many government fishery farms, hatcheries, and other assets of the Department of Fisheries, such as National Fish Seed Farm and Centre for Freshwater Aquaculture at Neyyar Dam and National Institute of Fisheries Administration and Management (NIFAM) at Aluva were badly affected. Moreover, alternative livelihood flagship activities aimed at the fishermen's community (such as Theera Mythri program that impacts the fishermen's women) have also been badly hit. As many as 235 boats were fully damaged. Ernakulam district, where 96 boats have been damaged, leads the list. Out of the 1002 boats that have been partially damaged, 818 boats have solely been in Kottayam district. A total of 1748 nets have been fully damaged while another 1620 nets have been partially damaged in Kerala. The financial loss due to fully damaged nets is Rs. 45,44,800 whereas the loss due to the partially damaged nets is ₹34,02,000. Kottayam district suffered the highest loss due to damage of nets as 739 nets have been fully damaged and 965 nets have been partially damaged in the district. As far as damage to fish farms is concerned, a whopping 12,452.2 hectares have been affected due to the calamity. Palakkad district tops the list for the same as 4608.63 hectares of farms worth ₹3,77,90,766 have been affected in the district.

The calamity has also affected the Animal Husbandry sector. The unprecedented rainfall which triggered flooding in the state has resulted in the deaths of large numbers of cattle, buffaloes, goats, and poultry. Alappuzha is the worst affected district with regard to this sector, a total of 7146 cattle died, which includes 650 cows and buffalo, 2994 sheep, and 3502 calves. Around 500,792 poultry died in these flash floods. The 2018 Kerala floods caused an estimated loss of ₹17155 crores in productive sectors such as agriculture, fishery, and livestock.

3.5.State initiatives

In line with the national policies and framework, the state government through the Kerala State Disaster Management rules, 2007 established provisions for various institutions such as State Disaster management Authority, District disaster Management Authority and laid out the background for Kerala State Disaster Management Policy, 2010, and Kerala State Disaster Management Plan, 2016.

3.5.1. Rebuild Kerala Development Program (RKDP)

Through RKDP the state aims to develop, coordinate, facilitate and monitor the recovery process through a participatory and inclusive process. The recovery road map takes a sectoral framework focussing on 12 key sectors and four crosscutting sectors (Box). The RKDP constitutes the State’s strategic road-map for a Green and Resilient Kerala. The RKDP encompasses crosscutting and sector-based policy, regulatory and institutional actions as well as priority investment programs that are critical for resilient and sustainable recovery and rebuilding of the State. It aims to catalyse rebuilding of Kerala in a way that addresses key drivers of floods and other natural disasters and climate change risks and strengthens preparedness against future disasters. Through the RKDP, the government of Kerala aims to ensure a resilient recovery and development pathway for a *Nava Keralam*. A project titled *Nammal Namukkay* (“we for us”) was launched to enable the Local Self-Governments to mainstream disaster risk reduction in their development plans. A detailed framework, template, and guidelines were prepared and published by KSEOC and KILA for LSG Disaster Management Plan preparation. These efforts are elaborated in the next session on the ‘role of LSGs in disaster management and building climate resilience’.

12 Key Sectors of RKDP

- Integrated Water Resource Management
- Water Supply
- Sanitation
- Urban
- Roads and Bridges
- Transportation
- Forestry
- Agriculture
- Animal Husbandry and Dairy Development
- Fisheries
- Livelihoods
- Land

Four cross-cutting sectors

- Disaster Risk Management & Resilience,
- Environment and Climate Change,
- Strengthening Institutional Efficiency & Resilience and
- Open Data

3.5.2. Nava Keralam

Nava Keralam is the government’s vision of converting the crisis into an opportunity by more explicitly embedding the idea of building a green and resilient Kerala into the Approach

Paper to the Thirteenth Five-Year Plan, the Disaster Management Policy, the State Water Policy, and the Gender Equity and Women's Empowerment Policies of Kerala. The focus areas are integrated water resources management (IWRM), eco-sensitive and risk-informed approaches to land use and settlements, inclusive and people-centered approaches, knowledge, innovation, and technology.

3.5.3. Rebuild Kerala Initiative (RKI)

The core task of RKI is to develop, coordinate, facilitate and monitor the Rebuild Kerala Development Programme through a participatory and inclusive process so as to achieve the vision of a sustainable and resilient Nava Keralam.

It aims to catalyse rebuilding of Kerala in a way that addresses key drivers of floods and other natural disasters and climate change risks and strengthens preparedness against future disasters. The Government established the Rebuild Kerala Initiative to “bring about a perceptible change in the lives and livelihoods of its citizens by adopting higher standards of infrastructure for recovery and reconstruction, and to build ecological and technical safeguards so that the restructured assets can better withstand floods in the future”. With the World Bank support to the government of Kerala, the RKI in the next five years is focusing on the Pamba river basin districts, Alappuzha, Pathanamthitta, Kottayam and Idukki to build climate resilience and disaster management through the Program for Results (PforR).

Orange Book and State Emergency Operation Center

Kerala State Disaster Management Authority released standard operating procedures and adopted a new protocol for enhancing the emergency preparations and response capacity of various departments. Accordingly, the State Emergency Operation Center (SEOC) was established and has published a handbook on disaster management (“Orange Book”) which provides guidelines for monsoon preparedness and disaster response. The handbook contains an incident response system structure to be followed at the state, district, and taluk levels. The handbook provides details of the crisis management mechanisms in place in the state, the desk responsibilities of Emergency Operations Centers at the state and district levels, and the standard operating procedures to be followed during various hazard categories, including rainfall, flood, cyclone, tsunami, high waves, landslide, petrochemical transportation, accidents, and space debris. The handbook also contains an emergency support functions plan indicating the suo-moto responsibilities of various departments in the event of emergencies.

3.5.4. Kerala State Disaster Management Plan

The Kerala State Disaster Management Authority will act as the nodal agency for prevention, mitigation, and preparedness. Disaster preparedness includes prevention, capacity building, and mitigation, which are aimed at minimizing loss of life, disruption of critical services, and damage when a disaster occurs. The DM plan explains the preparedness measures, allocation of responsibilities and budgetary provisions, and guidelines.

The District Disaster Management Plans of the state are published on the website of KSDMA, which explains the hazard profile of the district, a matrix of past disasters, hazard seasonality mapping and capacity analysis.

3.5.5. Kudumbashree

As part of the post-flood activity, *Kudumbashree* initiated an innovative program to augment the skills of flood-affected people to suit the job market available in the flood-hit areas. ARISE (Acquiring Resilience and Identity through Sustainable Employment) aims to provide skill training to 50,000 candidates in 10 selected areas. It includes housekeeping, plumbing, electronic repair, electrical work, day-care, sales, data entry, and laundry & ironing.

3.5.6. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) Activities

Under the MGNREGS, wage employment has been provided to 10.78 lakh families since August 2018. Of these, 3.99 lakh households are new entrants into the scheme. Around 5 crore working days were created after the floods and Rs. 559 crore was distributed to the beneficiaries.

Even though MGNREGS is fundamentally designed to provide additional income to the low-income groups in rural communities by creating employment opportunities at the local level, the scheme also has another core objective of building sustainable rural infrastructure. The implementation of activities under the scheme such as water conservation and water harvesting works, drought proofing, irrigation provisioning and improvement works, and renovation of traditional water bodies have contributed to improved ground water levels, increased water availability for irrigation, increased area irrigated by ground and surface water sources and finally improved drinking water availability for humans and livestock. All of these activities are related to Ecosystem Based Disaster Risk Reduction (Eco-DRR) in multiple ways; however, these activities have been carried out according to the demands of communities and have not necessarily been undertaken to increase resilience in a systematic manner through the mainstreaming of Eco-DRR.

3.5.7. Ujjeevana Scheme

The State Disaster Management Authority has formulated and implemented a new scheme, '*Ujjeevana*' for reconstructing the lives of flood-affected people through bank loans. This loan scheme is instrumented through concerned departments to people coming under various sectors such as micro, small, and medium enterprises; commercial establishments, shops, animal husbandry, poultry, Kisan Credit Card holders, and beekeepers.

3.5.8. LIFE Mission

The Comprehensive Housing Security Scheme aims to provide safe and decent housing to all landless homeless people in Kerala within five years to enable them to be self-employed and earn a living, to participate decently in social processes and to benefit from all social welfare schemes, including financial services. The houses, which can be built at an area of 400 sq ft, will cost 4 Lakhs is one of the major initiatives to provide climate safe shelter and

rehabilitation from climate and disaster vulnerable regions of the state. In the context of Disaster recovery the mission has extended the support to provide housing for the people who lost shelter in the 2018 floods. Also the mission has approved flood resilient housing structures in their design. A total of 17,067 houses were completely damaged in the floods. The beneficiary led construction under the LIFE Mission provided houses to 12,240 families in the state.

3.5.9. Carbon neutral 2050

Kerala aims to achieve Carbon neutrality by 2050, and to develop the environment budget in 2023. The state should transform itself into a carbon-neutral by a series of interventions to curtail carbon emission as well as increasing the sequestration capacity.

Climate change resilient infrastructure was the State's long-term goal. In order to achieve this the Government promoted the construction of prefabricated homes to save on finite natural resources such as granite, timber, clay, and river sand. Kerala is also moving ahead with renewable energy production schemes.

4.Role of LSGs in disaster management and climate resilience

Built on the strong foundation of Local Self Governments and decentralization process, Kerala has been able to pioneer decentralised interventions for climate action and disaster management. In line with National and State policies and framework, the Local Self-Governments Department took many innovative steps to intensify climate action and disaster management at the grassroots level. The State initiatives in the previous section are mostly implemented through the Local Self Governments in the state. The other major initiatives of the LSGD are given in the following subsections

4.1. Working group on Disaster management, climate change, environmental protection and biodiversity management

The government order (G.O. (Rt) 2462/2018/LSGD; dated 19th September 2018) has made provision for an LSG level working group on biodiversity, climate change and disaster management to strengthen the planning, monitoring and implementation process of programmes and projects related to the focus areas. Every LSG in the state will be empowered through this working group to prepare towards a disaster resilient community and thereby achieve the vision of ‘towards a safer state’ thereby ensuring community resilience and a safer state. Through these working groups, the LSGs can prepare short and long term plans to achieve climate resilience and disaster risk reduction, preparedness and efficiency in disaster response.

4.2. Nammal Namukkai - Disaster Management Plan

The Local Self-Governments in Kerala are institutions with people's participation that are capable enough to effectively address the local level development challenges. The Sendai Framework underlines the importance of empowering the local authorities and local communities in disaster risk reduction through resources, incentives, and decision-making responsibilities while the state plays an enabling, guiding, and coordinating role. Despite the outstanding performance in the rescue and relief during the 2018 disasters, active involvement in the recovery and rebuilding process, and the huge potential in disaster risk reduction and management, the LSGs in Kerala have not traditionally had clearly designated role in disaster management. The report on Governance and Legal Compliance during Kerala Floods 2018, prepared by the Special Centre for Disaster Management Research at the Jawaharlal Nehru University, draws attention to the potential of the vibrant grassroots layer of governance in the state.

However, after the 2018 flood a paradigm shift happened in decentralising Disaster Management of the State. Considering the crucial role played by the LSG administration and the public during the relief, recovery and rebuilding process it became imperative to empower LSGs in disaster management and as a result the government initiated the state wide campaign “*Nammal Namukkai*” – participatory Disaster Management Plan for Local Self Governments. The disaster management plans were to have a component of situation

assessment through participatory processes including transect walks and focus group discussions, collection and analysis of relevant data (which relied on digital LSG level maps consolidated and made available by the KSDMA to the LSGs, as well as on inventorisation of human resources and equipment relevant to disaster management), and vulnerability assessment. The second part was projects in response to the assessment touching upon

1. Early warning systems
2. Creation and strengthening of emergency response teams
3. Search and rescue
4. Shelter management
5. Rehabilitation
6. mitigation

As a part of the Disaster Management plan initiatives were started to constitute a ward level Emergency Response Force consisting of eight members representing NGOs, youth organisations, community based organisations etc. Local Resource Group which contains 20 members from various social groups is responsible for preparing disaster management projects and data collections. Identification of the proposed buildings for relief camps and enhancement of infrastructure facilities is also a major project to be taken up by LSG.

While preparing the projects the LSG can depend on the hazard vulnerability index prepared by KSDMA. The projects prepared have to address all the phases related to the disaster management cycle. The pre disaster phase which includes projects related to preparedness, mitigation and prevention and post disaster phase include projects related to immediate response, relief and rescue, rehabilitation and recovery. The DM plan addresses the gaps in centralised planning and management of disaster cycle by considering community as the first responders during and ability of the community to utilize local knowledge, resources and solution to solve complex problems while acknowledging the role of community as the last mile entity with authority, funds and resources to make the change.

As of now all the LSG 100% (1034) LSG completed the preparation of their DM plan and 100% of them are also published and are available at KILA website. The DM plan is a dynamic document which is updated annually based on the changing local scenario and extreme climatic experiences. Review of all the DM plans are conducted by DM coordinators who are experts in disaster management. District wise review and sector wise review of the DM plans are conducted. Based on this review capacity building to address the gaps is provided to the LSG and the DM plans are updated based on this.

4.3. KILA'S Initiative for Localisation of Sustainable Development Goals

Localizing development means considering regional/local contexts in the achievement of the 2030 Agenda, from the setting of goals and targets to determining the means of implementation and using indicators to measure and monitor progress. Localising SDGs supports local leaders and communities in collaboratively incubating and sharing solutions, unlocking bottlenecks and implementing strategies that will become helpful in advancing the SDGs at the local level. The Global SDG framework has considered climate change, environment and disaster risks and the various factors which affect these in the SDG

framework. In this context, localization relates both to how local and sub-national governments can support the achievement of the SDGs through bottom-up action as well as how the SDGs can provide a framework for local development policy. These entail participatory planning, implementation, and evaluation. KILA has developed the Local Indicator Framework (LIF) and Dashboard to be used by the local governments for training, planning, implementation and monitoring. LIF is a solid framework of indicators and statistical data to monitor progress, dissemination of policy information and ensure accountability of all stakeholders for a robust follow-up and review mechanism for the implementation of the 2030 Agenda for Sustainable Development. Indicators act as the backbone for monitoring progress towards the SDGs at the local, national, regional, and global levels. It helps in developing implementing strategies and allocating resources by turning the SDGs and their targets into a management tool. They will also act as a report card to track progress toward sustainable development and ensure that all stakeholders are held accountable for attaining the SDGs.

National Indicators has to be transformed to the local level to implement SDGs and their targets at the grassroots. The LIF is prepared with continuous evaluation and studies conducted through various programs, workshops and discussions and is formulated with the help of stakeholders from different dimensions such as higher officials of departments, stakeholders from various organizations and elected representatives from the grassroots level, who work in the area of sustainable development of the society. Dashboard is a user interface that enables the Local Self-Governments to enter the data and analyse the data more efficiently. Information in the dashboard is organized and presented in a way that is easy to read and understand which makes the monitoring an effortless process. Through Localisation of the SDG and Dashboard in the local level will enable the thorough monitoring of sustainable development aspect of an area. Proper monitoring of SDG goals and targets will make local governments capable of drafting local action plans for themselves, for an example monitoring of Goal 13 and its interlinkages which relate to the climate action will act as strong base to build an action plan which will aid the climate scenario and disaster risk situation in the area.

Achieving the objectives of SDGs can and should be built based on existing experience in goal especially in goal 13 (Climate action) setting, monitoring and implementation. The goals at LSG level taken through Themes, targets and indicators are aspirational in nature, relevant and placing the global goals that are universally applicable, in line with national policies and priorities as well as taking into account local realities in a concise and easy to communicate manner. Thus, the Localisation of Sustainable Development goals and making local action plans can also be linked with the framework of D-CAT tool which will make the process much easier and systematic. .

4.4. Suchitwa Mission

One of the major contributors to the CO₂ emission is the pollution caused from the improper management and disposal of the waste. The Suchitwa mission initiative of the LSG aims to achieve, waste free Kerala with an unpolluted environment, public hygiene and cleanliness with better quality of life leading to improved health and general wellbeing, economic gains,

better aesthetic surroundings and overall environmental upgradation. The mission functions are

- Technical Support Group for Local Self-Governments Institutions (LSGIs) in Waste Management sector
- Assist in achieving Total Sanitation coverage by LSGIs
- Providing policy, strategy, planning, implementation and monitoring support for Solid and Liquid Waste Management
- Organizing IEC campaigns and Capacity Building activities in Sanitation and Waste Management sector
- Promotion of Green Protocol compliance by individuals, institutions and various tiers of Government.

4.5. Kerala Solid Waste Management Project (KSWMP)

In the recent carbon inventory assessment conducted in the Local Self-Governments institutions by CWRDM, waste generation is found to be one of most important emission sources of carbon along with transportation energy. Under Suchitwa Mission, the KSWMP initiative of the state addresses this issue by supporting all the 93 Urban Local Self-Governments of the state to establish an integrated solid waste management system. The initiative includes establishment of both a centralized and decentralized system in the Urban Local Self-Governments with support in the areas of waste collection, safety precautions, green protocol, formal regulation advocate of rules and regulations at local and regional levels. Recognizing the urgency for improving solid waste management services, the Government of Kerala has taken several measures, such as Haritha Kerala Mission), which includes solid waste management as one of its core priorities; promoting a decentralized approach by asking local governments to improve source segregation, providing subsidies to households for managing biodegradable waste through composting or bio-digestion; and engaging women self-help groups for primary collection of plastic waste.

Other important efforts involving LSGs

Carbon neutral Kattakada

An initiative of “Carbon neutral Kattakada”, concept of ‘Carbon Neutral Kattakkada Legislative Assembly Constituency (LAC) puts forth the notions of zero carbon development, nature conservation, food and energy self-sufficiency, economic well-being and development at Local Self-Governments level. A total of 6 Grama panchayats were part of this project. The project aims to estimate the carbon footprint of Kattakada LAC for the year 2019 -2020 and develop an intervention plan for implementation in key sectors of carbon emission. The project is addressing an excess emission of carbon for all the 6 Grama panchayats ultimately leading to carbon positive in Kattakada.

Carbon neutral Meenagadi

Launched in June 2016, the carbon neutral project is one of the pioneering projects in terms of achieving net zero emission by any Local Self-Governments in India. The project aims to offset greenhouse gas emissions through a series of environment-friendly methods. The

project after taking the carbon inventory focused on key areas for intervention, such as, Zero Waste, Energy Efficiency & Energy Mix, Regenerative Agriculture, Climate Response Units and Tree banking. Under this initiative around 3 lakh saplings were planted with the support of Mahatma Gandhi National Rural Employment Guarantee Scheme workers and farmers received a sum of ₹3,80,950 for conserving the trees. The Local Self-Governments of Meenagadi is expected to be declared a 'carbon neutral panchayat' by the end of 2025. Other LSGs such as Udayagiri are following in the footsteps of Meeangadi. Udayagiri grama panchayat as the first step in combating climate change and natural disasters is preparing its carbon neutral plan.

Oorjayanam- India's first filament free Grama panchayath

Oorjayanam is a project which is being implemented by Peelikode Panchayats aimed replacing all Filament Bulbs in the Panchayat with more energy efficient LED bulbs and to promote a greener culture, such as expanding solar energy infrastructure, energy and environmental conservation programs and installing efficient energy saving public lights and other electronic equipment in public offices.

Filament free municipal corporation

Kozhikode municipal corporation is an early bird among other Local Self-Governments in Kerala which took a proactive approach towards finding a best fitting solution to the Street Lighting and its maintenance within the corporation. Over the years the Major roads and all the streets in Kozhikode municipal corporation were dominated by the conventional Fluorescent and compact fluorescent lamps sodium vapour and Mercury vapour lamps etc which were having so many disadvantages. By retrofitting the conventional streetlights with energy efficient LED streetlights would save millions of units of energy every year and thus help in reducing the effective CO2 emission and global greenhouse gas production.

Pacha Thuruthu

'Pacha Thuruthu' (green space) scheme, the ambitious project of Haritha Keralam Mission which aims at promoting green spaces in the state to effectively combat climate change. According to authorities, 'Pachathuruthu' will help accomplish the state government's Subhiksha Keralam scheme, which aims at promoting farming activities and making the state self-sufficient. Besides Local Self-Governments, agriculture department, biodiversity board, Mahatma Gandhi NREGS, social forestry departments are also helping implement the initiative.

Local Action Plan on Climate Change (LAPCC)

Following the institutional framework of NAPCC and SAPCC with the support of KILA LSGs have developed a Local Action Plan on climate change. Started in 2017, until now 12 LSGs have prepared their LAPCC. In 2019, with the support of UNDP, it was extended to another 11 LSGs in the districts of Thrissur, Idukki and Ernakulam. LAPCC involves extensive consultations with the communities on the manifestation of climate change at local level and its impact on the production sector, biodiversity and livelihood of the communities. In the action plan prepared, local solutions are also discussed and

interventions are suggested. These interventions are later converted into projects of the LSGs and are included in the annual plan of the LSGs.

One of the major state level post flood initiatives is the Rebuild Kerala Development Programme (RKDP). The RKDP is facilitated, monitored and coordinated by the Kerala Rebuild Initiative (RKI). Looking to the interventions being made at the local government level both for disaster management and climate action, the World Bank is now providing further support to the LSGD through the Program for Results (PforR). Risk informed master plans, localisation of weather forecasting, and augmentation of disaster response capability and strategic climate action are some of the results that are to be arrived at through the programme.

One of the Disbursement Linked Indicators (DLI) in the PforR is the D-CAT tool.

5.Purpose and objectives of the D-CAT tool

According to the World Bank funding norms the objective of the tool is disbursement linked so that the financial incentivisation of the LSGs is based on the performance evaluation of the LSGs in compacting climate change and disaster management. In addition to this objective, the design of the D-CAT tool can be of help to the Local Self Governments in multiple ways.

The tool can function as a capability ladder for the LSG in taking climate actions and disaster risk management activities. This is achieved through the tool by exposing the LSGs to a probable set of projects and governance strategies that can be incrementally incorporated into the planning process and interventions of the LSG. The tool being dynamic and incremental, facilitates the LSGs to take action incrementally according to their capabilities and local needs thus enabling the LSGs to develop climate leadership over time. Being an evolving tool, increasingly challenging thresholds and cut-offs are provided each year in D-CAT so that the LSGs can plan climate resilient and disaster management actions in a targeted goal and output oriented manner. The D-CAT tool and the associated training also enhance the capacity of the Local Self Governments to intensify the climate resilience building and disaster management activities by creating awareness among elected representatives, implementation officers and working groups. By conducting assessment at different levels (self-assessment by LSGs, peer assessment by LSGs and technical assessment by expert group), the tool provides scope and opportunity to foster peer learning among LSGs as well as to gather deeper insights from the technical groups about the climate action and disaster management measures. The D-CAT tool, after the LSG's technical level assessment, is also reviewed at the district and state level so that the challenges can be captured and opportunities can be explored and supported at a larger scale.

By being dynamic and evolving, the tool is able to adapt to the changing vulnerability scenario with respect to disaster risks at the LSG level.

The D-CAT tool has its components focussing on not only monetary interventions of the LSGs, but also good governance initiatives to build resilience in the state. The tool also assesses the convergence status of the projects in the LSGs at various levels.

Thus the tool in its scope and objectives ensures that a comprehensive overall assessment can be conducted and a capacity ladder can be provided for the LSG in terms of climate actions and disaster management of the LSGs.

Further details on the characteristics and scope of the tool is provided in the methodology section of the guideline.

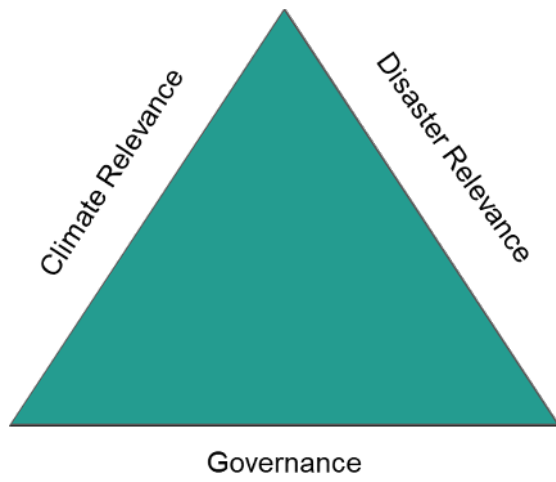


Fig 1. Major components of D-CAT tool

6.Approach and Methodology of D-CAT

6.1. Process of DCAT Tool Preparation

The DCAT is conceived as a joint initiative between the Government of Kerala and the World Bank to equip Local Self-Governments in Kerala with the necessary information for them to be able to prioritize and plan disaster and climate sensitive investments at the local level. The idea involves the evaluation of local developmental plans to assess percentage of their contribution or proportion of investment leading to climate risk adaptation or disaster risk reduction co-benefits can help identify areas to strengthen climate investments and relevant action plans. The intended benefits of the tool included;

- Provision of high quality analytics and scientific information on the specific climate change vulnerabilities and disaster risks that may adversely impact the local economy and development.
- Help in identifying targeted strategies and projects which build disaster and climate resilience along with ensuring long-term sustainability of the developmental interventions being carried out under their plans/projects
- Articulation of a clear and direct link between the specific activities and outputs of their plans/projects with quantifiable reduction in vulnerability to climate change and disaster risks.
- Assist in designing financial incentives to support LSGs in building disaster and climate resilience of their jurisdictions as well as implement measures that support low carbon and inclusive development.

The development of DCAT was initiated by the Kerala Institute of Local Administration (KILA) by organizing a two-day workshop on to collect ideas from participants from Kerala Grama Panchayath Association, Kerala Block Panchayath Association, Kerala State Panchayath Presidents Chamber, Chamber of Municipal Chairman-Kerala, Mayors Council-Kerala, Chairpersons & Secretaries from LSGs in the Pamba Basin Districts, State Planning Board and State Resource Group - Decentralised Planning, LSGD Planning, KSDMA, DoECC, KSLUB, KSREC, from institutions like GEC Thrissur, CUSAT, Haritha Kerala Mission, University of Kerala and UNDP. The workshop focussed on developing an initial idea about the purpose, nature and scope of DCAT tool in the context of Kerala, addressing disaster risk management relating to climate changes by the interventions of Local Self Government.

The workshop deliberated several possibilities on the development of the tool and the role of LSGs in supporting risk reduction planning methods by utilizing the tool. The extensive discussions on the microcodes of Sulekha under the sub-sectors like agriculture, soil-water conservation and sanitation, emphasised on the need to revise the microcodes in Sulekha to accommodate the DCAT tool in long run for effective decentralized planning process, which

resulted in conclusions like additions in the code, their modification and assessment based on the climate change induced risk analysis.

Based on the workshop the scopes for the tool were set to be a comprehensive tool to capture the initiatives for reducing carbon emission, improving carbon sequestration potential of the area, initiatives to adapt with climate change, initiatives to address disaster management and to build the capacities of the Local Self Governments for adapting with climate change, developing climate resilience, and enhancing disaster management capabilities.

The deliberation on the nature of the tools concluded with the overall consensus that

- Rather than a simple tracking tool, DCAT must be developed as a step ladder for empowering Local Governments in disaster management, climate action and sustainable development and also as an incentivising instrument for all of these.
- The tool should not be designed as a complex scientific instrument, but has to be designed to facilitate effective and systematic progress towards climate resilience among the Local Governments.
- DCAT tool should help in addressing regulatory, developmental and climate leadership of the Local Self Governments. It should also nudge towards more effective convergence of various sectoral projects apart from supporting self-evaluation.
- DCAT tool should help in reviewing the direct and indirect impact, (both positive and negative) of various sectoral and departmental projects in building local resilience.
- To complement DCAT and integrate the tool in the decentralized planning process, a timely revision of the micro codes needs to be taken so that it can capture most of the innovative initiatives, particularly activities which are not directly linked to fiscal behaviour such as governance initiative.
- DCAT is an evolving Tool. Preliminary model of the tool shall serve as the mechanism for LSGs for self-evaluation / self-rating in Disaster Management (DM) and Climate resilient actions. The template has to incorporate actions points (like a checklist) from the already available documents, guidelines and templates by choosing those which are relevant and basic with regard to the LSGs of Kerala.
- Various activities regarding Disaster management (Projects and other interventions like Early Response Systems, Early warning system, Shelter management, Actions for Disaster Risk reduction in Disaster Prone Areas etc) shall be captured and given due weightage. More complicated actions like Mitigation shall be given more marks or given more weightage. Similarly, climate related content shall have place for factors like energy, Carbon Neutral Facilitation, Green Rebate, Revival of sustainable indigenous practices, LED conversion etc.
- Yearly thresholds/incremental thresholds must be incorporated in the tool as criteria for evaluation.

- DCAT will facilitate capturing of Convergence (MGNREGS, Agriculture, health etc) and exploring potential linkages with the ongoing and proposed state and national level initiatives such as Carbon Neutral Panchayats, *Swachatha Sarvekshan*, AMRUT Mission 2.0 (water balance mapping) apart from mapping the unique initiatives of the Local Governments.
- Regulatory interventions including compliance of Guidelines should be captured. Negative interventions in Climate change like constructions that affect our topographic balance should also be captured in the tool.
- Coordination mechanisms shall be subject to evaluation to capture efficiency of the institutional/structural system.
- Local level Committees must serve as a platform to capture and assess physical results of the relevant projects with options peer evaluation and people's response.
- Due weightage for status of execution of the projects capturing details like completed, ongoing, started, not yet started, dropped
- Actual output should get preferential weightage. Good execution should get positive weightage and the Project/action not started can be given negative marks. Major indicators and extraordinary results achieved by LSGs should be rewarded by bonus points.
- Negative weightages where there is action inimical to climate resilience - like wetland conversion, inattention to waste management systems, reduction of green cover take place on scale with collusion or no active intervention from the local government.
- Weightages to be given to the various activities indicated in the checklist – separate marks for project formulation and for implementation (depending on the criticality of the intervention and the scale of difficulty of implementation)
- Comparatively accessible thresholds are to be set initially for basic DM activities and for basic climate action interventions, as a consolidation of scores. Over the course of the projects, Moderate thresholds for more engaged activities with a significant impact, at project level, governance level and implementation levels will be given. High thresholds will be provided when the DM and climate action intervention has matured, providing for exemplary action of LSGs in relevant sectors.
- Tools must provide separate checklist for sectoral interventions that can be taken up for disaster management and for climate action separately

6.2. Areas assessed by the DCAT

- Governance interventions that impact on disaster management and climate resilience (Example: sensitisation programmes, energy audits, paperless offices, green protocols, pedestrianisation, promoting green rebates, inventorying of resources for disaster response, vulnerability mapping, risk informed spatial planning etc.)

- Regulatory activities (Example: controlling illegal garbage dumps, protecting river banks from encroachment, preservation and protection of existing green cover, scientific zonation, action for violation of building rules, permit conditions pertaining to pollution etc.).
- DM interventions (early warning systems, search and rescue interventions including equipment procurement and Emergency Response Team (ERT) training, shelter management, rehabilitation of affected or at risk populations, mitigation interventions in disaster prone areas through watershed based natural resource management, water source augmentation, embankment strengthening, etc.
- Sectoral interventions for climate action/resilience such as
 - Sustainable waste management, including management of plastics
 - Energy conservation interventions (solar panelling, biomass and biofuel promotion)
 - Natural barriers like mangrove forests to protect estuaries, other nature based solutions to address climate change and disaster risk reduction
 - Regenerative Agriculture, Climate smart agriculture, agroforestry, soil enrichment
 - Carbon sequestration, greenhouse emission reduction interventions like electric vehicles
 - Protection of vulnerable communities - senior citizens, disabled, marginalised communities etc.
 - Sustainable nutrition interventions, safe food
 - Promotion of green technologies and start-ups – adoption of innovative carbon footprint reduction interventions.

6.3. Methodology

6.3.1. Identification of Major Domains that Capture the Relevance of Projects

The development of the Disaster Risk Management and Climate Action Tracking Tool (DCAT) involves devising an underlying method that captures the performance of an LSG with regard to disaster management and climate action. Accordingly, three major domains that can quantitatively evaluate the performance of LSGs in these areas are defined. They are as follows:

6.3.2. Disaster management

This dimension concerns the performance of an LSG with regard to both short-term and long-term goals to reduce the vulnerability of the LSG to specific disasters they are susceptible to.

This domain consists of fourteen assessment queries that encompass the disaster management cycle (Table 1).

a. The first query (D1) concerns the prevention of disasters and asks about the projects designed by incorporating scientific assessments of the disaster risks and vulnerability of the LSG and assigns 2 points for studies incorporating a scientific assessment of the disaster risks and vulnerability. This includes projects to reduce the adverse effect of a previous project based on their own realisation or a scientific assessment in this regard. However, projects that yield direct or indirect adverse effects on the environment/ecology will be assigned 2 negative points in this category if they are planned or implemented in the assessment year.

b. The second and third queries (D2 and D3) pertain to disaster preparedness of the LSG. The second question asks for projects to keep ERTs active and updated and projects that develop or strengthen the search, rescue, and evacuation systems required in the LSG. Such projects will get 1 point. The question provides an additional one point if the LSG has developed alternate communication systems to keep the live connections with emergency operation centres (EOC) at the state, district, and taluk levels. The third question asks for projects that are undertaken to strengthen the community health system in the LSG. Here, the projects such as pre-monsoon preparations, additional measures during monsoon seasons, initiatives such as medical camps, training for health workers, projects that ensure adequate medicine supply during times of epidemics, etc. will receive one point while those projects involving the general public, CBOs, NGOs, residents' associations, etc. will receive an additional score.

c. The fourth question asks for projects that involve purchasing or hiring equipments for rescue and relief operations, projects that involve construction or retrofitting of shelters or buildings identified as shelters, etc. Such projects will receive one point. There will be an additional point for projects that involve ensuring adequate toilet facilities, adequate medicine supply, adequate availability of safe-to-eat food, etc. in the relief camps.

d. The fifth question asks for projects that follow the guidelines of State Disaster Response Fund or State Disaster Response Fund provided by KSDMA and avail financial support from these funds. This is basically an awareness-building question which arose from the consensus in the workshop that, despite having these two funds in place, none of the LSGs have claimed them so far. The LSG will get two points if they have projects belonging to these classifications.

e. The sixth question asks for projects involving tailor-made solutions for rivers in the jurisdiction of LSGs to maintain the free flow and buffer space of the water body in compliance with the "more room for river" initiative of the state government. The LSG will get two points if they have projects belonging to these classifications.

f. The questions D7, D8, D9, D12, and D13 pertain to rehabilitation, reconstruction, and recovery. The seventh question asks for projects to reconstruct the critical assets damaged in disasters. All related projects will receive one point while green, blue, and green-blue hybrid constructions will receive an additional one point. The eighth question asks for projects that involve the evacuation of the populace and moving of critical assets or means of livelihood

from an area identified as fragile by an expert team designated by KSDMA for rehabilitation in safe locations. The LSG will get two points if they have projects satisfying the requirements in the question. The ninth question asks for projects to prevent any disasters in the event of extreme rainfall events and to rebuild the tourism projects that are managed by the LSG and affected by a disaster. The LSG will get two points if they have projects satisfying the requirements in the question. The twelfth question concerns projects to support the recovery of livelihood of the people who depend on agriculture, animal husbandry, and allied activities in a disaster-affected region. The LSG will get two points if they have projects satisfying the requirements in the question. Question D13 asks for projects that help to restore the local natural environment or ecosystems damaged in a disaster. Scores will be awarded on the basis of the direction and extent of influence that the project makes on restoring the ecosystem.

g. The tenth question pertains to disaster preparedness, relief, and recovery. This question asks for projects that ensure safe drinking water, sanitation, hygiene during and after disasters. Projects that ensure availability of water will receive one point while WASH programs will receive an additional score.

h. Questions D11 and D14 pertain to disaster mitigation and resilience building. Question eleven asks for projects that mitigate the disaster impact on micro, small, and medium enterprises. Projects for mitigation will receive positive scores while those projects that cater resilience building will receive an additional score. Question D14 asks for projects that involve or promote constructions or retrofitting of existing constructions to enable them to withstand disasters relevant to the region.

6.3.3. Climate action:

This section covers the performance of LSGs with regard to long-term goals to reduce its vulnerability and contribution to climate change. It includes nine sub-components and assessment questions.

a. The first question concerns the assessment of the LSG regarding its long-term vulnerability to climate change. The question specifically asks whether the LSG has performed an assessment on its own or if it considers the scientific assessments performed by accredited agencies while designing projects. The LSG will get two points if they have projects satisfying the requirements in the question.

b. The second question pertains to agriculture and food security in the LSG. It specifically asks for projects that involve changes in the crop varieties, cropping patterns, optimal use of water, and fertilizers in ways that take into account the agroecology of the region, climate change, characteristics and nutrient availability of the soil, etc. The LSG will get two points if they have projects satisfying the requirements in the question. The projects that involve cultivation of crop varieties that do not suit the agroecology of the region will be awarded negative scores (-2).

c. The third question asks for projects that involve monitoring public health issues, particularly those that are linked to climate change and the projects that are made for the

management of community health systems. For projects made to deal with health issues arising out of rising temperature, torrential rainfall and floods, droughts, etc., the LSG will get two points if it has projects satisfying the requirements in the question.

d. The fourth question asks for projects that involve energy conservation and the ones that promote optimal use of energy. Positive or negative scores will be awarded on the basis of the nature and direction of influence that the project makes on energy conservation and optimal use of energy.

e. The fifth question asks for projects that reduce the emission of greenhouse gases in the LSG and for the projects that promote carbon sequestration. Specifically, the projects that reduce the use of non-renewable resources and fossil fuels, projects to promote green constructions, projects that promote optimal energy use at household level, projects to encourage the use of public transport systems, projects related to the use of electric vehicles and e-charging stations, projects such as clean mobility, grid-neutral LSG etc will receive one point whereas those projects meant for encouragement of afforestation at household levels and in publicly owned enterprises, initiatives to enrich biodiversity and enhance green cover, etc. will fetch the LSG an additional one point.

f. The questions C6 and C7 concern sanitation and waste management. The question C6 asks for projects for the treatment, recycling, and management of liquid waste and septage and for projects to ensure hygiene and sanitation in the society. The LSG will get two points if they have projects satisfying the requirements in the question. The seventh question asks for projects that involve the treatment, disposal, and management of solid waste in the region. Projects for household level waste management, projects for the collection and sorting of inorganic waste etc. will fetch the LSG an additional score of 1.

g. The eighth question pertains to the projects for conservation and management of water resources in the LSG. Projects for the recharging of watertable, projects that enhance the depth and width of water bodies, and the projects for cleaning water resources will receive one point. Those projects to protect the riverbanks using bio means will receive an additional score of 1.

h. The ninth question asks for projects for the management of land use and land cover in the LSG. Specifically, the projects for the conservation of soil, wetlands, projects for preventing soil erosion, etc. will receive one point. Those projects meant for bio fencing, living soil, reuse of abandoned quarries for water supply and irrigation will receive an additional score of 1.

6.3.4. Governance efficiency

This dimension evaluates the governance initiatives, decision making, implementation, and interventions of LSGs in the areas of disaster management and climate action. Since, governance initiatives play a prominent role in dealing with climate change and disaster, this section assesses the systems and processes involved in the governance of climate action, disaster management, conservation of natural environment and biodiversity, etc. There are 28 questions for the assessment of governance. The self-assessment schedule includes 8

questions and the assessment of experts has 20 questions. A detailed explanation of the questions is provided herewith.

a. The first question (G1) asks whether the LSG has been able to make its functioning paperless over the years. Though the exact magnitude of gains is indeterminate, e-governance is observed to have positive influence on service delivery, transparency, and environmental profile of the service delivery. The LSG will fetch the full score if it has a paperless office.

b. The second question (G2) asks whether the LSG has a record of all the disasters that happened in its jurisdiction which is readily made available for the public for reference. The LSG will fetch 0.5 scores if any of all the disasters happened in its jurisdiction. An additional score (1) will be provided if the LSG has made arrangements to disseminate the same for the general public. If these records are kept in electronic form, the LSG will get 0.5 points additionally.

c. The third question (G3) concerns the wetland masterplan. If the LSG has comprehensive information on wetlands in its jurisdiction, it will get 25% of the score. If the LSG has prepared a plot level net plan, the LSG will score an additional 25%. If projects based on the wetland masterplan gets incorporated in the annual project of the LSG, it will fetch them an additional increment of 25% of the maximum score. If the wetland plans are implemented in convergence with MGNREGS, the LSG will get a further increment of 25% of the maximum score.

d. The fourth question (G4) concerns the performance of LSGs in biodiversity conservation. 25% of the maximum score will be awarded to the LSG if the Biodiversity Management Committee has convened more than one meeting during the year of assessment. If the LSG has prepared and implemented projects based on the biodiversity register for conservation purposes, the LSG will score an additional 25%. If the biodiversity register of the LSG is made accessible to the public in electronic format, it will fetch them an additional increment of 25% of the maximum score. If the LSG has made arrangements for access and benefit sharing initiatives with regard to the financial gains from biodiversity richness, the LSG will get a further increment of 25% of the maximum score.

e. The fifth question (G5) asks about the Local Action Plan on Climate Change (LAPCC) in the LSGs. If the LSG has prepared a LAPCC document, it will get 25% of the maximum score. If the LSG considers the climate change effects mentioned in the LAPCC while designing projects, it will fetch them an additional increment of 25% of the maximum score. If those projects prepared on the basis of the LAPCC get incorporated in the annual project of the LSG, it will fetch them an additional increment of 25% of the maximum score. If the projects based on LAPCC are implemented in convergence with central and state projects and schemes, the LSG will get a further increment of 25% of the maximum score.

f. The sixth question (G6) asks about the revision of the DM Plan of LSGs. If the LSG has collected the latest information for the revision of the DM Plan and performed an analysis of various issues based on this information, it will get 25% of the maximum score. If the LSG has designed projects to resolve the issues identified in the initial analysis, the LSG will get an increment of 25% of the maximum score. If those projects prepared on the basis of the

DM Plan get incorporated in the annual project of the LSG, it will fetch them an additional increment of 25% of the maximum score. If the projects based on DM Plan are implemented in convergence with central and state projects and schemes, the LSG will get a further increment of 25% of the maximum score.

g. The seventh question (G7) pertains to Suchitwa Padavi status of the LSGs. If an LSG has scored points between 60 and 69 in the Suchitwa Padavi assessment, the LSG will get 25% of the maximum score. If the score of the LSG is between 70 and 79, then they will get 50% of the maximum score. The LSG will fetch the full score if it has scored points above 80.

h. The eighth question (G8) concerns the representation of women in BMCs and DMCs. If the representation of women in these committees is between 1 and 10% of the total membership of these committees, the LSG will get 25% of the maximum score. If the representation of women in BMCs and DMCs is between 11 and 30%, then they will get 50% of the maximum score. If their representation is between 31 and 49%, then the LSG will get 75% of the maximum score. The LSG will fetch the full score if the representation of women in BMCs and DMCs is 50% or more.

i. The ninth question (E1) deals with the actions to encourage green constructions. The LSG will get 25% of the maximum score if the LSG is providing tax exemptions such as Green Rebate. If the LSG provides financial assistance to encourage green constructions, it will get an increment of 25% of the maximum score. Additionally, if they provide technologies, implements and services required for green constructions to the public, then the LSG will get a further increment of 25% of the maximum score. If the LSG is promoting the use of technologies that are locally sustainable and local resources for green constructions, then they will get a 25% additional increase in the score.

j. The tenth question (E2) deals with the convergence of projects. The LSG will get 25% of the maximum score in this category if they have projects jointly implemented with projects and schemes of the Central and State Governments. 25% of the maximum score will be awarded to the LSG if they have implemented joint projects with CBOs, NGOs, Co-operative Societies, *Kudumbashree*, etc. The LSG will fetch 25% of the maximum score if they have projects implemented using the CSR/CER funds of the public or private enterprises. 25% of the maximum score in this category will be awarded if the LSG has implemented joint projects with other LSGs.

k. The eleventh question (E3) concerns community involvement in the planning and implementation of projects and interventions in the areas of climate change, disaster management, and biodiversity conservation. Community level interventions to reduce the usage of plastic in the LSG will fetch 25% of the maximum score. Community participation in the cleaning, rejuvenation, and conservation of water bodies/water resources will fetch 25% of the maximum score. 25% of the maximum score in this category will be awarded to peoples' participation in cleaning, sanitation, and waste management initiatives. Participatory monitoring of local climate variations and community involvement in disaster relief actions.

l. The twelfth question (E4) concerns the coordination and cooperation among the working groups in the LSG. 50% of the scores will be provided if the expert committee finds that the working group on biodiversity, climate change, environmental conservation and disaster management considers the opinions and suggestions of other working groups in their functioning. An incremental 50% of the scores will be provided if the working group on biodiversity, climate change, environmental conservation and disaster management assesses the environmental impacts of projects recommended by the rest of the working groups.

m. The thirteenth question (E5) asks for actions of the LSG to conserve its geodiversity. Expansion of cultivable paddy fields will fetch the LSG 25% of the maximum score. Expansion of green cover without compromising the original structure of the land cover will get the LSG an incremental increase of 25% of the maximum score. If the LSG has initiated actions to protect the common property resources and has initiated legal steps to evict the encroachments on common property resources, then they will get an additional 25% of the maximum score. If the LSG has initiated steps to rehabilitate the populace to conserve the structure of land cover, biodiversity, etc. then this will fetch an incremental hike by 25% of the maximum score.

n. The fourteenth question (E6) concerns the organizational forms and innovative interventions to strengthen the agricultural sector. If an active '*Karshika Karma Sena*' is present in the LSG, it will get 25% of the maximum score. The presence of farmers' self-help groups (SHG) and farmers' cooperatives will fetch the LSG an increment by 25% of the maximum score. Farms schools and training programs based on model farms will fetch the LSG with another increment of 25% of the maximum score. If the expert team finds that there is a farmer producer company (FPO), then they can award the LSG, a further 25% of the maximum score.

o. The fifteenth question (E7) is about maintaining and managing an active local market for agricultural/food commodities. The LSG will get 25% of the maximum score for organising agricultural markets locally. An additional 25% of the maximum score will be provided for setting up storage facilities for the market. Establishment of commodity processing units will fetch the LSG a further 25% of the maximum score. Efforts for branding and organic certification of the products will fetch an increment by 25% of the maximum score.

p. This question (E8) asks if the LSG has put forward any innovative ideas pertaining to climate change, disaster management and biodiversity conservation under the title "One LSG, one innovative idea" (*oru thaddesha sthaapanam, oru noothana aashayam*). If the LSG proposes innovative projects for assessment, the panel of experts may evaluate the innovativeness of the project and assign appropriate scores.

q. The question E9 is about a local action plan for food security. If the LSG has put forward any such projects or interventions in the assessment year, the expert committee shall evaluate the same and assign appropriate scores.

r. The question E10 is about good governance practices in the LSG. The panel of experts shall evaluate the planning of projects, system of functioning, coordination of

services offered by different entities for enhancing the flow of benefits to the citizens, efficiency in identifying and gathering financial resources, and precautionary initiatives, etc.

s. The nineteenth question on governance (E11) concerns the regulatory interventions to prevent the disposal of liquid waste into water sources. If no cases are reported in an LSG, the expert committee shall assign one negative point. If cases are reported, but the LSG has not taken any actions, then the panel of experts shall assign zero scores. If the LSG has initiated legal proceedings in 1-5% of the total cases reported, then they should get 25% of the maximum score. In case the LSG has initiated legal proceedings in 6-10% of the total cases reported, then they should get 50% of the maximum score. The LSG will get 50% of the maximum score if it has initiated legal proceedings in 11-20% of the total cases reported. The LSG will get full scores if it has initiated legal proceedings in 21% or more of reported cases.

t. The twentieth question (E12) on governance concerns the violations of the Kerala Conservation of Paddy Land and Wetland Act- 2008. If no cases are reported in an LSG, the expert committee shall assign one negative point. If cases are reported, but the LSG has not taken any actions, then the panel of experts shall assign zero scores. If the LSG has initiated legal proceedings in 1-5% of the total cases reported, then they should get 25% of the maximum score. In case the LSG has initiated legal proceedings in 6-10% of the total cases reported, then they should get 50% of the maximum score. The LSG will get 50% of the maximum score if it has initiated legal proceedings in 11-20% of the total cases reported. The LSG will get full scores if it has initiated legal proceedings in 21% or more of reported cases.

u. The twenty-first question (E13) on governance is about the violations of Kerala Coastal Zone Management Rules 2018. If no cases are reported in an LSG, the expert committee shall assign one negative point. If cases are reported, but the LSG has not taken any actions, then the panel of experts shall assign zero scores. If the LSG has initiated legal proceedings in 1-5% of the total cases reported, then they should get 25% of the maximum score. In case the LSG has initiated legal proceedings in 6-10% of the total cases reported, then they should get 50% of the maximum score. The LSG will get 50% of the maximum score if it has initiated legal proceedings in 11-20% of the total cases reported. The LSG will get full scores if it has initiated legal proceedings in 21% or more of reported cases.

v. The twenty second question (E14) pertains to the violations of Kerala Panchayat Building (Regularisation of Unauthorised Construction) Amendment Rules, 2021 and Kerala Municipality Building Rules, 2019. If no cases are reported in an LSG, the expert committee shall assign one negative point. If cases are reported, but the LSG has not taken any actions, then the panel of experts shall assign zero scores. If the LSG has initiated legal proceedings in 1-5% of the total cases reported, then they should get 25% of the maximum score. In case the LSG has initiated legal proceedings in 6-10% of the total cases reported, then they should get 50% of the maximum score. The LSG will get 50% of the maximum score if it has initiated legal proceedings in 11-20% of the total cases reported. The LSG will get full scores if it has initiated legal proceedings in 21% or more of reported cases.

w. The twenty third question (E15) pertains to the violations of Plastic Waste Management Rules, 2016. If no cases are reported in an LSG, the expert committee shall assign one negative point. If cases are reported, but the LSG has not taken any actions, then the panel of experts shall assign zero scores. If the LSG has initiated legal proceedings in 1-5% of the total cases reported, then they should get 25% of the maximum score. In case the LSG has initiated legal proceedings in 6-10% of the total cases reported, then they should get 50% of the maximum score. The LSG will get 50% of the maximum score if it has initiated legal proceedings in 11-20% of the total cases reported. The LSG will get full scores if it has initiated legal proceedings in 21% or more of reported cases.

x. The twenty fourth question (E16) asks about making a rainwater harvesting facility mandatory for buildings with an area above 300 m². If 1-5% of the buildings with an area above 300 m² in the jurisdiction of the LSG have rainwater harvesting facilities, then they should get 25% of the maximum score. If 6-10% of the buildings with an area above 300 m² in the jurisdiction of the LSG have rainwater harvesting facilities, then they should get 50% of the maximum score. If 11-20% of the buildings with area above 300 m² in the jurisdiction of the LSG have rainwater harvesting facilities, then they should get 75% of the maximum score. The LSG will get full scores if 21% or more number of buildings with an area above 300 m² have rainwater harvesting facilities.

y. The twenty fifth question (E17) asks about making solar panels mandatory for buildings. If 1-5% of the buildings in the jurisdiction of the LSG have solar panels, then they should get 25% of the maximum score. If 6-10% of the buildings have solar panels, then they should get 50% of the maximum score. If 11-20% of the buildings have solar panels, then they should get 75% of the maximum score. The LSG will get full scores if 21% or more number of buildings have solar panels.

z. The twenty sixth question (E18) concerns the number of green constructions within the jurisdiction of the LSG. If 1-5% of the buildings in the jurisdiction of the LSG comply with the guidelines for green constructions, then they should get 25% of the maximum score. If 6-10% of the buildings comply with the guidelines for green constructions, then they should get 50% of the maximum score. If 11-20% of the buildings comply with the guidelines for green constructions, then they should get 75% of the maximum score. The LSG will get full scores if 21% or more number of buildings comply with the guidelines for green constructions.

aa. The twenty seventh question (E19) asks whether a functioning mini MCF is present in the wards of LSG. If the share of wards with a mini MCF is less than 50% the total number of wards in the LSG, then it should get 25% of the maximum scores. If 50-70% of the wards have a functioning mini MCF, then the LSG should get 50% of the maximum scores. If 70-90% of the wards have a functioning mini MCF, then the LSG should get 75% of the maximum scores. The LSG will get full scores if all wards have a functioning mini MCF.

bb. The twenty eighth question (E20) asks whether a well-maintained crematorium is functioning in the LSGs. The LSGs with a functioning crematorium will get full scores for this question.

More details of the questions are provided in the assessment form (Annexure).

6.4. Scoring Criteria

A scale with minimum -2 and maximum 2 points is set for the assessment. The scoring criteria is incremental in nature wherein projects, actions and initiatives of elementary nature (those understood as easily achievable) will secure a low fraction of the maximum score. In some of the questions, a ladder is easily visible wherein difficult actions, targets, projects succeeding the easy ones and an LSG will be able to achieve only one target at a time. Here, the target deemed to be an advanced level will fetch the LSG a larger share of the score out of the maximum score for each question. In some other questions, the LSG will be able to achieve multiple targets within the same question. Then each fraction of the points assigned to the specific targets will add to form the total score of the LSG out of the maximum score. Zero score will be awarded to the LSG when there are no projects/initiatives/interventions in the required categories associated with each question. However, this is different for the questions related to the regulatory interventions in the assessment checklist for the panel of experts. In the case of regulatory intervention targets set for the LSGs, the incidences where in violations of rules and regulations not getting reported is considered as a compromise. In such cases an LSG will get negative scores and zero scores will be awarded when cases are reported and no legal actions have been initiated by the LSG against it. Other incidences of negative scores arise when situations that are classified as undesirable under certain questions arise. In all cases, the volume of marks awarded will be specified in the assessment checklist. In the case of assessment by an expert panel, certain questions are very subjective in nature, like evaluating innovative projects, good governance initiatives, etc. In such cases, the panel of experts are instructed to perform a subjective evaluation based on the checklist provided.

6.5. Assignment of Weights

Weights are assigned to incorporate the effects of elements that are not captured by the measurement scales. In the present framework, three types of weights have been assigned to the scales. Weights for disaster management are assigned exclusively based on the information provided by KSDMA. For the assessment of projects related to disaster management, all LSGs are provided with weights on the basis of the vulnerability matrix provided by KSDMA. The KSDMA vulnerability matrix provides risk status of LSGs to 11 types of hazards -flood, landslide, drought, lightening, earthquake, coastal risks, forest fire, heat, major accident hazards, and multiple hazards. For each hazard, the extent of risk is represented by four categories – no risk, low risk, moderate risk, and high risk. We assigned numerical values to these categories. No risk was assigned with 0, low risk was assigned with 0.34, moderate risk was assigned with 0.67, and high risk was assigned a numerical value of 1. For each assessment question in the disaster management domain, we selected the weights of appropriate hazards. For questions that are applicable across hazards, the weight value of multi-hazard index is used. For climate action and governance, equal weights will be assigned to all LSGs. During assessments, these values shall be communicated to the LSGs and they will be able to contest the respective weightages assigned to them on the basis of supporting evidence.

These thresholds have to undergo validation on the ground, and the extent of applicability needs to be confirmed. So the thresholds will be subject to change as needed based on how the tool operates on the ground. The compulsions for disaster management and climate action could change with the nature and extent of disasters and extreme weather events that the State may be facing in the future, as well as global ramifications of climate change. Evolving Policies and priorities at national and state level may also have an impact on the nature of the tool. Therefore the tool is envisaged as an evolving instrument that can be modified to suit changing circumstances and evidence from the ground as it comes in.

6.6. Calculation Process

Table 2.1 shows the analytical interface designed for the DCAT tool. Here, L_i represents the concerned LSG. The columns C1, C2, . . . , C9 represent the criteria for assessing the projects (P) that are relevant to climate action, the columns D1, D2, . . . , D14 represent the criteria for assessing the projects that are relevant to disaster management, and the columns G1, G2, . . . , G8 represents the criteria for assessing the governance efficiency of L_i . The value X_{ij} is the score of the LSG L_i for P_j in the category ‘climate action’ calculated using equation 1.

$$X_{ij} = \sum_{k=1}^9 C_{kij} \quad (1)$$

In this equation, C_{kij} stands for the scores assigned to the projects under each criterion k in the ‘climate action’ category. The maximum score that a project can fetch under the ‘climate action’ category is 18. The value Y_{ij} represents the disaster management score L_i for P_i calculated using equation 2.

$$Y_{ij} = \frac{\sum_{k=1}^{14} W_{kij}^D D_{kij}}{W_{kij}^D} \quad (2)$$

Here, D_{kij} stands for the scores assigned to the projects under each criterion and W_{kij}^D is the weight assigned to L_i for each of the questions under this category. 28 is the maximum score that a project can fetch under the ‘disaster management’ category. The value Z_i in column G represents the governance efficiency score of L_i calculated using equation 3.

$$Z_i = \sum_{k=1}^8 G_{ki} \quad (3)$$

Here, G_{ki} stands for the scores assigned to L_i under each criterion k . The j th component is absent for governance since it is assessed at LSG level and not at project level. 16 is the

maximum score that a project can fetch under the ‘governance’ category in the self-assessment.

The total score of an LSG in climate action, L_i^C is calculated by scaling the value obtained by dividing the sum of total scores fetched by different projects in climate action by the sum of maximum scores for each project to 20. The total score of an LSG in disaster management L_i^D is calculated by scaling the value obtained by dividing the sum of total scores fetched by different projects in disaster management by the sum of maximum scores for each project to 30. For the governance component in self-assessment, Z_i will be the counterpart of L_i^C and L_i^D , and it will be scaled to 25. The total score in the self-assessment will be calculated as the sum of L_i^C , L_i^D , and Z_i and the denominator will be 75. This score can be revised in the scrutiny of the panel of experts during the technical assessment. The technical assessment will have another 20 questions with maximum marks 40. The total scores obtained in the technical assessment (A_i) will be scaled to 25 and the resulting value (L_i^{EA}) will be added to the revised score from self-assessment (L_i^{SA}) to arrive at L_i^{DCAT} . The value of L_i^{DCAT} will range between 0 and 100, and can be used for comparisons or ranking purposes. Table 1 shows the analysis interface of the DCAT tool.

6.7. Threshold score of DCAT assessment

In the scoring criteria, various weightages are given for climate, disaster and governance components. Considering this the thresholds scores are defined for each component and a combined threshold is also set up for the overall evaluation. These thresholds are based on the expert consultations conducted during the process of DCAT development. The thresholds shall be changed based on the actual distribution of scores following the first year of the assessment and based on the suggestions from the advisory committee.

The reasoning behind these thresholds is, first, considering the current disaster vulnerability of the state and increasing frequency of disaster management activities by the LSGs are given a higher priority and hence the in the initial years are given a lower threshold in the beginning . However for incentivizing the disaster management actions from the part of LSGs, the thresholds for the disaster component will be gradually elevated to a higher scale in the subsequent years. In the case of climate change actions the considering a long term and regular intervention, comparatively a lower marginal annual increase in the thresholds is adapted. The individual thresholds for each year is as given below

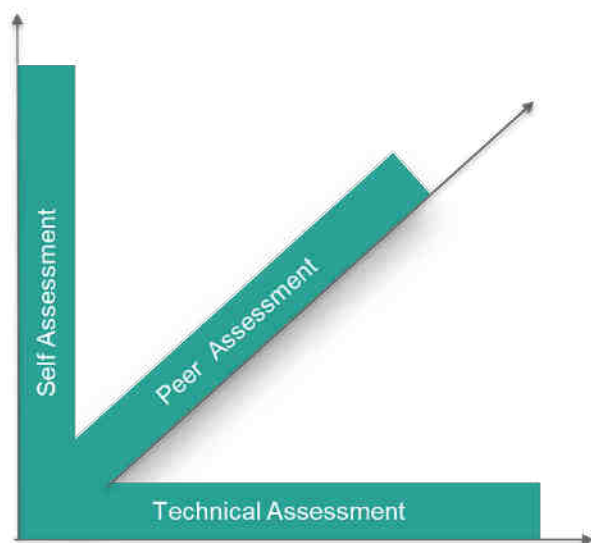
Assessment type	Components	Year Score 1	Year Score 2	Year Score 3	Year Score 4	Year Score 5
Self-Assessment (out of 75)	Disaster management (Out of 30)	4.5(15%)	9(30%)	15(50%)	18(60%)	22.5 (75%)
	Climate action (Out of 20)	4(20%)	5(25%)	6(30%)	10(50%)	15(75%)
	Governance (out of 25)	7.5(30%)	10(40%)	12.5(50%)	15(60%)	18.75(75%)
	Combined (out of 75)	18.75(25%)	30(40%)	37.5(50%)	45(60%)	56.25(75%)
Self-Assessment + Technical assessment (out of 100)		25(25%)	40(40%)	50(50%)	60(60%)	75(75%)

Table 1. Analytical Framework of DCAT tool

Criteria		Climate Action					Disaster Management					Governance					Technical Assessment by Experts					LSG _{EA}	Total Score	
LSG	Projects	C ₁	C ₂	...	C ₉	C	D ₁	D ₂	...	D ₁₄	D	G ₁	G ₂	...	G ₈	G	LSG _{SA}	E ₁	E ₂	...	E ₂₀	E		
L_i	P ₁	C _{1i1}	C _{2i1}	...	C _{9i1}	X _{i1}	D _{1i1}	D _{2i1}	...	D _{14i1}	Y _{i1}	G _{1i}	G _{2i}	...	G _{8i}	Z _i	L _i ^{SA}	E _{1i}	E _{2i}	...	E _{20i}	A _i	L _i ^{EA}	L _i ^{DCAT}
	P ₂	C _{1i2}	C _{2i2}	...	C _{9i2}	X _{i2}	D _{1i2}	D _{2i2}	...	D _{14i2}	Y _{i2}													
													
													
													
	P _j	C _{1ij}	C _{2ij}	...	C _{9ij}	X _{ij}	D _{1ij}	D _{2ij}	...	D _{14ij}	Y _{ij}													
													
													
P _n	C _{1in}	C _{2in}	...	C _{9in}	X _{in}	D _{1in}	D _{2in}	...	D _{14in}	Y _{in}														

7.Evaluation process of the D-CAT tool

As described in the previous section the D-CAT tool evaluation is done in three stages. 1. Self-Assessment, 2. Peer Assessment, 3. Technical Assessment by an Expert group. The objective of this section is to provide guidelines to LSGs in choosing the relevant project. LSG peer groups and expert groups help LSGs in selecting relevant projects after evaluation using the D-CAT tools at three stages. The first and second stage evaluation is done at the LSG level whereas in the third stage, the expert group with support of the LSG will be conducting the evaluation.



In order to ensure the smooth functioning of the D-CAT assessment the following institutional arrangements shall be established:

7.1. State level Advisory committee

For monitoring the progress and providing support, revisions and review of the assessment a State level Advisory shall be constituted which includes members from LSGD- planning, LSGD- Engineering, KILA, KSDMA, Department of Panchayats, Urban Affairs Department, IKM and Planning Board SRG.

7.1.1. Roles and responsibilities of the State level Advisory Committee

- State level advisory shall serve as a apex body and shall steer and lead the process of D-CAT assessment
- Convene periodic review meetings of the D-CAT process
- Suggest revisions concerning the weightages, criteria and components in the D-CAT tool
- Conducting review of the D-CAT tool after a disaster event and suggesting necessary revision in the tool.

- Act as a grievance redressal body at the state level in all the three stages of assessment.

7.2. District level committee

In order to ensure the effective implementation and monitoring of the D-CAT process a district level committee shall be constituted. The district level committee acts as an interface between the LSGs, technical expert group and the state level advisory committee. Hence plays a very crucial role to have a successful D-CAT assessment and to give inputs for the dynamic updation of the D-CAT based on the changing climate and disaster vulnerability scenario in the district.

- This committee will be responsible for the district level approval of the D-CAT assessment after the technical assessment by the expert group based on the checklist.
- The committee shall be responsible for assigning LSGs into peer groups for peer assessment.
- Call for expression of interest and selection of academic institutions to conduct the technical assessment of the LSGs
- The district committee shall assign the expert group the cluster of LSGs to be assessed for technical evaluation.
- The committee shall monitor and review the progress of the technical expert group to conduct a technical assessment.
- The committee shall monitor and review the progress of the self and peer assessment at LSG level.
- Assign block level clusters of LSGs for peer assessment
- Monitoring and support for conducting peer assessment.
- Provide support and assistance to the expert group to conduct technical assessment with support for the assigned LSGs.
- Act as a grievance redressal body at the district level in all the three stages of assessment.

7.2.1. Composition of the committee

The District Planning Committee Chairperson shall be the chairperson for the district level committee and the convener shall be the Joint Secretary (Co-ordination) of DPC. The convener shall also take the role of the nodal officer at district level. The member of the committee shall include;

- Deputy Director of Panchayats
- Joint Director, Panchayats

- Project Director, CRD
- Executive engineer - LSGD
- DDMA
- DM coordinators of each districts
- District Level Facilitators, The People's Planning Program
- District officer, Social Justice
- District officer, Women and Child Development
- District Medical Officer
- Principal Agriculture Officer
- Deputy Director , Education
- District Animal Husbandry Office
- SC ST District Officer
- District Officer, Fisheries

7.3. LSG level coordination

The D-CAT tool of assessment requires understanding not only about all the projects undertaken by the LSGs but the non-financial governance initiatives and regulatory commitments made by the LSG. Being such a comprehensive tool, a strong institutional mechanism and coordination is required at the LSG to ensure effective working of the tool. The coordination mechanism at the LSGs hence must be capable of accessing, processing and analysing multiple levels of information in the LSGs as a part of the assessment. The D-CAT is largely built up in line with the activities, the roles and responsibilities and mandate of the disaster management working group. Hence, at the LSG level the disaster management working group shall be responsible for the overall process of conducting D-CAT assessment. The chairperson of the working group is the president/Chairperson/ Mayor of the LSG and the convener is secretary. LSG Secretary shall be the nodal officer at LSG level to coordinate assessment related activities. The working group shall be assisted by a technical assistant in the LSG.

7.3.1. Roles and responsibilities of the disaster management working group

- The working group will be responsible for conducting the self as well as peer assessment of the LSGs
- Collecting details on the projects and initiatives of the LSGs which are relevant to climate change and disaster management
- Compiling project and governance initiative of the LSGs and assigning sectors.
- Conducting consultations with implementing officers and other working groups on the climate change relevance and disaster management relevance of the project undertaken by the LSGs.

- Uploading of the initial list of screened projects to the MIS (Management Information System)
- Based on the consultations, assign projects to the relevant sub-criteria of each question in the assessment MIS frontend.
- Participate in the peer assessment of other LSGs in the cluster and provide suggestions
- Based on the peer assessment suggestions, make changes in the self-assessment of the LSG
- Support the expert group for conducting technical assessment of the LSG.
- Provide inputs, clarifications and supporting documents for the technical assessment team.
- Actively participate in the discussions with the expert group representing the LSG while reviewing the self-assessment.

7.4. State Technical group

Under the leadership of a nodal institute such as KILA, a group of technical experts shall be set up with the objective of providing training and capacity building of the LSGs, disaster management working group, expert assessment group and district nodal officers.

7.4.1. Composition of the State Technical group

- KILA
- KSDMA
- Planning board- SRG
- Academic/ Research institutions
- Information Kerala Mission
- LSGD- engineering
- Kerala State Biodiversity Board
- Department of Agriculture Development and Farmers Welfare
- Department of Fisheries
- Department of Animal Husbandry
- Department of Health

7.4.2. *Roles and responsibilities of State Technical group*

- Developing training material and conducting training to ensure smooth functioning of D-CAT at all levels
- Conduct review of the process, collect feedback and based on the suggestions of the advisory committee incorporate changes in the D-CAT tool.
- Based on the technical knowledge and scientific evidence, 1. Provide suggestions for improvement of the D-CAT tool 2. Yearly updation of the D-CAT tool
- Provide suggestions to the MIS team in generating D-CAT report of the LSG
- Take initiatives for integrating D-CAT tool with other decentralized planning MIS

7.5. MIS with a dashboard

At the state level, an MIS is required to assist the LSG in conducting the assessment. The MIS makes sure that the assessments will be transparent and accountable and ensures efficient coordination of activities. User credentials must be provided to LSGs, DPCs, Expert group nodal officers, and State groups.

A dashboard should be designed where the LSGs and the public can view the projects and the assessment scores of the LSGs. The MIS shall serve as a front-end with multiple functions;

- Monitoring the progress during the assessment stage
- Dissemination of information and assessment reports to LSGs and public
- Consolidation of assessments at block, district and state levels
- As a database to securely store the assessment data.
- Providing an interface for the LSGs and expert group to conduct the assessment in an organised manner.
- Conducting back-end calculations needed for the assessments and developing visualizations and reports for the dashboard.

7.6. Self-Assessment

7.6.1. Objectives of Self-Assessment

- Facilitates resource mobilization and financial incentivization for climate actions, disaster management activities, and good governance in the area of climate change and disaster risk reduction.
- Aids in identifying and critically evaluating the actions taken by LSGs to combat climate change and disaster management.
- To facilitate the LSG to take up projects which are more complex, integrate climatic and disaster risk relevant projects incrementally so that the LSGs can gradually assume the leadership of climate actions and disaster resilience building initiatives
- Identifying gaps and opportunities in the planning and development of disaster management and climate change action projects of the LSGs.
- Oversee operations in disaster and climatic areas, and eventually facilitates the implementation of more complex, long-lasting, and sustainable projects through a capacity ladder approach.
- To increase the possibility of LSG to gather external financial resources from the CSR/CER initiatives of public and private enterprises
- To let the LSG identify the resources required for the climate change and disaster management initiatives
- To design and implement projects that are tailor-made to the climate change and disaster requirements of various locations in the LSG efficiently

7.6.2. Process of Self-Assessment

Preparation Phase

The preparation for the D-CAT assessment starts with the active engagement disaster management working group of the LSG. This working group is responsible for collecting the list of projects undertaken by the LSG during the year of assessment as part of preparation for the assessment. The list of projects might include the projects uploaded in Sulekha, MGNREGA projects, and projects undertaken as part of other state and central missions/schemes. For collecting project lists and Sulekha projects of the assessment year, the disaster management working group shall be assisted by the technical assistant of the LSGs. Before the assessment begins, the convener of this working group must ensure that the list of projects is collected.

Consultation Phase

During the consultation phase the disaster management working group with the support of a technical assistant shall conduct a series of consultations with agriculture officer, health inspector, assistant engineer, assistant secretary, village extension officer. These consultations

must focus on identifying disaster management and climate change relevant projects during the assessment financial year. These consultations must also focus on excluding all other projects non-related to building climate resilience and disaster management (Repetitive, irrelevant, insignificant projects concerning climate change and disaster management are excluded). However, projects such as construction of roads which are part of disaster response/evacuation routes, roads to the disaster relief shelters, increasing connectivity to remote areas to address the vulnerability of communities, and rebuilding or reconstruction of roads which are damaged due to a disaster can be included. At the end of the consultation phase, the disaster management working group initially must categorise the selected projects from the consultation phase into sectors such as agriculture, animal husbandry, fisheries, biodiversity management, public works, MGNREGA projects, disaster management projects, health and education projects. This list shall be uploaded to the MIS prepared for the purpose using the login credentials provided.

Assessment Phase

The disaster management working group, with the support of the nodal officer, technical assistant, and clerk in the next stage, shall evaluate and scrutinize the list of projects based on indicators given in the D-CAT framework. If necessary, additional information on the project may be collected from the concerned implementation officer or the concerned working group in the LSG. Based on the consultations, assign projects to the relevant sub-criteria of each question in the assessment MIS frontend. The nodal officer shall be responsible for submitting the self-assessment of the LSG into the MIS. After submitting the draft self-assessment in the MIS, it will be ready for peer assessment.

7.7. Peer Assessment

The peer assessment should be the next step after self-assessment. The peer groups list shall be prepared by the district level committee. This shall be conducted by considering the vulnerability profile and socio-economic profile of the LSGs in the district. Not more than four and a minimum of two LSGs shall be part of a cluster. It shall be the responsibility of the District committee to schedule the peer assessment for the clusters in the district.

7.7.1. Objectives of peer assessment

- Review the self-assessments made by each local government body.
- It provides an opportunity to assess and deduct the limitations of self-assessment.
- Set up Local Self-Governments for the next stage of technical evaluation.

7.7.2. Process of peer assessment

Clusters of Local Self-Governments should be formed under each block, and evaluations should be carried out. There must be two to four LSGs in each cluster. In peer assessment, the results of each LSG should be presented with the self-assessment reports downloaded from the MIS, and others should provide their insightful comments and suggestions. Considering these suggestions and comments, LSGs should focus on removing limitations, evaluating

themselves, and improving their performance. The governance and project initiatives included in the self-assessment should be reviewed. Based on the peer assessment, the project in the self-assessment can be reviewed and changes can be made if necessary. Self-assessment can be modified in accordance with the suggestions in the peer assessment. Once finalized, the draft after peer assessment is uploaded to the MIS.

After submitting the assessment in the MIS, the nodal officer must get the final approval of the governing council. The Nodal officer shall take approval from the governing council within one week of initial submission of the assessment made by the working group. Only after the approval of the governing council the assessment will be complete and will be ready for technical assessment.

Peer assessment shall be conducted after two weeks of approval of the self-assessment.

7.8. Technical Assessment by Expert Group

The third stage of assessment in the D-CAT is the technical assessment by an expert group.

7.8.1. Objectives of Technical assessment

- Inspecting and analysing the authenticity, consistency, relevance, and limitations of the projects which are related to climate change, disaster management, and resilience building of the concerned LSG and are considered in the self and peer assessment.
- Examine the association between the specified project's title and the actual work that was performed.
- Evaluate whether the physical objectives of the projects have been achieved.
- Examine whether the LSGs followed the indicators outlined in the self-assessment.
- On the basis of indicators, assess the quality of LSG planning and governance in the areas of climate change, disaster management, and biodiversity conservation.

7.8.2. Process of technical assessment by expert group

The District Planning Committee (DPC) in each district should prepare academic notifications for institutions that can conduct technical inspections in each block and be identified through public notification. A panel of experts should be formed under the leadership of these institutions, in collaboration with the institutions in the respective block or other parts of the district. The technical team will be assigned to one or more clusters based on the number of clusters in each block. The district level committee shall be responsible for forming the clusters and assigning expert groups to each cluster. These experts should conduct the technical inspection under the supervision of the LSGs entrusted with the technical inspection. The technical evaluation team will consult with the LSGs, inspect the documents and visit the project areas as part of the technical inspection as needed. The working group on disaster management, climate change, environmental protection, and biodiversity management shall provide necessary assistance for the technical inspection. During the technical assessment the team should verify that none of the projects in the

relevant areas of climate and disaster management relevance are omitted from the assessment. Negative scores should be assigned to any project with an adverse impact on the environment or a high risk of disaster. The team shall examine the connection between the specified project's title and the actual work that was performed and whether the physical objectives of the projects have been achieved. An existing project that is irrelevant based on the indicators should be removed and its score will be recalculated in the MIS.

The technical team shall also provide the opportunity to the disaster management working group of the LSG to contest, review and suggest changes in the technical assessment. Following the discussions, the expert committee will be responsible for finalizing the technical evaluation. The technical assessment report shall be uploaded to the MIS by the panel of experts using the login credentials. The technical assessment shall be completed within 15 days after the approval of the assessment by the governing council of the LSGs.

The technical assessment report shall be approved by the District Planning Officer/Joint Director (LSGD) in the MIS.

7.8.3. Structure of Technical Assessment expert group

Climate Change/Climate Change Adaptation, Disaster Management, Civil Engineering, Environmental Engineering, Botany, Zoology, Geology, Geography, Environmental Science, Economics, Sociology/Social Work, Agriculture/Agricultural Science, and Local Self-Government experts comprise the expert committee. The heads of the relevant academic institutions, who are the nodal officers for evaluation, possess sole responsibility for determining the committee's members and chairperson. If experts from these institutes are not available in the respective institutes, the head of the institute should appoint experts in the aforementioned subjects from other institutes. In each cluster, a nominated member from the disaster management working group of each LSGs in the cluster shall also be part of the technical expert group.

Disaster Risk Management and Climate Action Assessment Tool - Self Assessment

Sl. NIL.	Query NIL.	Assessment Query	Scores and scoring criteria					Notes	Notes	
			0	1	1	-1	-1			N.A.
DISASTER MANAGEMENT										
1	D1	Does the project consider the LSGs disaster risk and vulnerability? List them according to the classifications given here.	NIL	Projects that include ; studies conducted directly by LSG as part of the project, projects prepared based on studies conducted by any accredited agencies, projects prepared on the basis of the DM plan, and projects intended to mitigate or reduce the impact based on perceptions of the impact or negative effects of prior actions, etc.		Projects that increase the severity of natural disasters		The question is not applicable to the LSG. Give explanation.	Environmental problems due to obstruction of water flow in the area (floods, droughts, landslides, etc.) Drainage projects Projects involving the conversion of ponds, fields and wetlands into any other land use Environmental problems caused by unscientific structures (e.g. Culverts) Environmental problems due to road construction without canals Environmental issues due to unscientific cultivation, construction and rainpits on sloppy areas Constructions without considering coastal issues (coastal erosion, saltwater intrusion, and discharges into the sea).	When to score 2 ? Projects to be listed based on studies conducted in LSG, Projects prepared on the basis of study reports of Kerala State Disaster Management Authority or other recognized institutions, If project helps to mitigate the impact of projects implemented in the previous year if they have had adverse effects. When to score -1? Some projects will eliminate disaster risk, but they will open the door to other disasters. For instance, check dams and rain pits help to raise the groundwater table, but if the mountain's slope is greater than 22 degrees or it is located in a hazardous area, it is recommended to give it a negative score because it increases the risk of landslides. If the projects implemented in coastal areas that promote coastal erosion, encroachment and waste disposal, a negative score will be given. When to score 0? The score is 0 if the proposed project does not take into account the disaster risk of the area. Assume that the area is drought prone, as per records. It is irrelevant if the LSG suggests purchasing a boat.
2	D2	Does the project assist in conducting effective emergency interventions? List them.	NIL	D2 The projects to build capacity of ERT and enabling the quick response in the case of an event.It includes search,rescue ,first aid and evacuation .	Establishment alternate communication systems to communicate with with the Emergency Operation Centre(EOC) or strengthening the existing system.		The question is not applicable to the LSG. Give explanation.	Procurement of equipments or machinaries for post disaster operations such as bulldozers, excavators, generators, hittachi with chain belts,boats, tree cutting machinaries.Opening of rescue routes,developing the existing rescue routes.	Projects related to post disaster operations? Part1: Project related to build response capacity of ERT. Procurement of equipments or machinaries for Post disaster rescue,route clearance,removal of debris opening of rescue routes, Part 2: Setting up of alternative communication system to communicate with EOC or strengthening the existing one. If the LSG is proposing a project included in part 1or part 2 score 1 is awarded.If the projects in both parts are addressed a score of 2 is awarded.	

3	D3	Is the project enables the local public health system to deal with disasters? List them.	NIL	Premonsoon preparedness such as health alert project s, medical camp s during monsoon, training for health workers, distribution of medicine s to public during epidemics, cleaning water bodies etc.	Project s ensuring participation of Kudumba sree ,Thozhil urappu , citizens,CBO s,NGOs,Resi dents association .			The question is not applicable to the LSG. Give explanation.		<p>Premonsoon preparedness</p> <p>Part1: Health alert projects, training for health workers, medical camps during monsoon, distribution of medicine to public during epidemics, cleaning water bodies etc.</p> <p>Part 2:Projects ensuring participation of Citizens,Kudadamba sree, Thozhil urappu ,CBOs ,NGO s, Residents association.</p> <p>If the project included in Part 1or Part 2 alone is included score 1is awarded.If both parts are addressed full score 2is awarded.</p>
4	D4	Whether any projects to organize disaster relief equipment, and improve existing relief camp/shelters in the area? List them.	NIL	Project aimed at retrofitting and improving the infrastructure facilities such as toilets in already identified relief camps., project related to procurement of medicine,foo d, potable water in relief camps.	Project aimed at retrofitting and improving the infrastructure facilities such as toilets in already identified relief camps., project related to procurement of medicine,foo d, potable water in relief camps.			The question is not applicable to the LSG. Give explanation.	<p>Providing and facilitating disaster response equipment such as Bulldozers, excavators, generators, boats, Hitachi with chain belts, and lumberjacks, opening up new rescue routes and upgrading existing ones, providing medicine to relief camps, and supplying clean and safe drinking water, etc will be considered.</p>	<p>Relief camps /shelters</p> <p>Part 1 Project for setting up new relief shelters</p> <p>Part 2 Project aimed at retrofitting and improving the infrastructure facilities such as toilets in already identified relief camps., project related to procurement of medicine,food, potable water in relief cam.Project aimed at retrofitting and improving the infrastructure facilities such as toilets in already identified relief camps., project related to procurement of medicine,food, potable water in relief camps.</p> <p>If any one part is addressed score 1 can be awarded,If both parts are addressed full score 2can be awarded.</p>

5	D5	Are there any projects that can assist from funds prepared in accordance with the guidelines of the KSDMA State Disaster Mitigation Fund or State Disaster Response Fund? Make a list.	NIL	Yes			If the answer is no, then all the projects considered for evaluation should be given 0 marks and the reason must be specified. The question is not applicable to the LSG, NA will be given. Give explanation.		<p>Projects making use of State Disaster Mitigation Fund, State Disaster Response fund as prescribed in orange book.</p> <p>Part 1:SDMF (G.O Ms Nil 3/2022/DMD dtd.8.05.2022) is related to Live lihood, health, education, social security, climate change. This fund can be utilised for reducing the hazard risk potential in the area.</p> <p>Part 2: State Disaster Response fund is exclusively for response activities (https://sdma.kerala.gov.in/notified-disasters) pertaining to already notified disasters. If any of these parts is addressed a score of 1 is awarded. If both parts are satisfied score 2 is awarded.</p>
6	D6	The project involves tailor-made solutions for rivers in the jurisdiction of LSGs to maintain the free flow and buffer space of the water body in compliance with the "more room for river", initiative of the state government? List them.	NIL	Yes			The question is not applicable to the LSG. Give explanation.		<p>Project related to Room for River</p> <p>The project helpful for facilitating free flow of water in rivers and rivulets located in the LSG, restoring the natural flood plains etc.</p> <p>The rejuvenation of natural drainage, sewage channels which have been silted up. Any other projects which avoid inundation. Score 2 is awarded for any such projects.</p>

7	D7	Are there any projects that will contribute to reconstructing the critical assets damaged in disasters? Make a list. NILte that projects with green, blue, or green-blue hybrid constructions may be given additional	NIL	Rebuild critical assets damaged in the disaster or involve any construction works.	Inclusion of green technologies and constructions in rebuilding of critical assets damaged in the disaster. Reconstruction projects include water conservation, purification of water resources and drainage methods. Projects for Liquid waste management (septage, sewage, storm water drainage).			The question is not applicable to the LSG. Give explanation.	Projects or activities that facilitate drainage by removing barriers under the bridges and culverts	<p>“Projects that involve the reconstruction of critical assets damaged in a disaster or involve any related construction work. Part 1 if the project is related to the reconstruction of critical assets, a score of 1 will be given. Remove barriers under the bridge, culverts Part 2 if the project is related to Green Building, a score of 1 will be given. Green construction includes water conservation, energy conservation, installation of solar panels, and liquid waste management.</p> <p>A score of 2 is obtained if both parts are addressed satisfactorily.</p>
8	D8	Does the project involves the evacuation of the populace and the moving of critical assets or means of livelihood from an area identified as fragile by an expert team designated by KSDMA for rehabilitation in safe locations. List them.	NIL	Yes				The question is not applicable to the LSG. Give explanation.		<p>“Plans to rehabilitate people from disaster recurring areas, areas that have been deemed uninhabitable by a panel of experts by the DDMA / KSDMA, and to evacuate property or livelihoods.” If any involves a score of 2 can be given. ”</p>

9	D9	Whether the projects help to rebuild tourism projects and prevent disasters in the event of extreme weather events?	NIL	Yes						<p>The question is not applicable to the LSG. Give explanation.</p> <p>Consideration may be given to projects where signboards are set up in disaster-prone areas or high hazard zone or accident zones.</p> <p>The tourism projects in the locality often invites new disaster like flash floods, landslips, rockfall, coastal erosion etc. Any projects designed to nullify the effect is eligible for score 2. Eg. Hazard sign boards, move to elevated places in tsunami prone coastal areas, water level rise along river banks etc..</p>
10	D10	Does the project improve society's capability to ensure safe drinking water, sanitation (WASH programs), and hygiene during and after disasters?	NIL	Projects that provide victims with safe drinking water during the disaster phase	Social education, awareness and training on post-disaster hygiene practices and training for sanitation workers.					<p>The question is not applicable to the LSG. Give explanation.</p> <p>The project that provide access to clean water, and reliable sanitation, and to promote basic hygiene practice s(WASH) during and after a disaster event.</p> <p>Part 1 Projects that provide victims with safe drinking water during the disaster phase Part 2 Social education, awareness and training on post-disaster hygiene practices and training for sanitation workers. If any of these parts is addressed a of score 1 is awarded. If both part is satisfied score 2 is awarded.</p>
11	D11	Does the project aim to mitigate the disaster impact on micro, small, and medium enterprises or traditional commercial enterprises in the disaster-affected areas? List them.	NIL	Disaster risk reduction projects	Project that build resilience					<p>The question is not applicable to the LSG. Give explanation.</p> <p>The Projects that assist Micro, Small, and Medium Enterprises (MSMEs) in disaster hit areas. Part 1 Projects that restore operations, infrastructure repairs, and impact on employee health and safety Part 2 Project that build resilience. Eg- Insurance schemes, and capacity development initiatives</p> <p>If any of these parts is addressed a of score 1 is awarded. If both part is satisfied score 2 is awarded.</p>

12	D12	Does the project aids in the recovery of the livelihoods of people in the disaster-affected areas who depend on agriculture, animal husbandry, and allied activities, etc.	NIL	Yes						The question is not applicable to the LSG. Give explanation.	"Projects aimed at reviving agriculture, livestock, and related livelihoods in disaster-affected communities. A score of 2 may be given if any projects are related to this area. "	
13	D13	Is the projects that help to restore the local natural environment or ecosystem damaged in the disaster. List them according to the following classifications.	NIL	Indirect positive effect	Direct positive effect	Indirect negative effect	Direct negative effect			The question is not applicable to the LSG. Give explanation.	(waste management, rejuvenation of biodiversity, conservation of rare species, rejuvenation of waterbodies, protection of vulnerable areas, biodiversity enrichment, rejuvenation of wetland, conservation of mangroves, sacred groves, lateritic mounds, etc.	Projects that restore ecosystem and geodiversity. Score 1 will be given if a project has a positive direct or indirect impact, and -1 will be given if the project has a negative direct or indirect impact. A project to replace mudslides or rocks in a flooded area if they impede the smooth flow of water under a bridge. If the wells are covered, plans to deepen them, remove debris, and bury the dead will be on the list of those that will directly benefit the area. However, biodiversity conversion is an indirect benefit to the environment. Therefore, the score is one. Developing the paddy fields into roads will adversely affect the environment. Therefore, it should be a negative score. Projects that involve the destruction of mangroves, sacred groves and cutting hills should receive a negative score as well.
14	D14	Does the project promotes construction or retrofitting of existing structures to enable them to withstand disasters relevant to the region	NIL	Yes						The question is not applicable to the LSG. Give explanation.	Projects that promote disaster-resilient structures/constructions in the area Plans to repair, maintain, and strengthen of public buildings such as Anganwadi, Community Hall, School, and Relief Camp. Any project in this category will get a score of two.	

CLIMATE ACTION

15	C1	Whether a study has been carried out with regard to climate change and its possible impacts in your locality? List the projects according to the proposed categories.	NIL	A study has been done by the LSG or other agencies and the project is devised based on the report			The question is not applicable to the LSG..Give explanation.		If the proposed project is based on the local level studies carried out by LSG or some other accredited agencies and the project must help in reducing the possible impact due to climate change If the project satisfies this objective then score 2 can be allocated. . .
16	C2	Whether there are projects which are suitable to agroclimatic regime of the locality or it falls under the climate smart farming category?If so list such projects.	NIL	The projects that involve changes in the crop varieties, cropping patterns, optimal use of water, and application of fertilisers that take into account the agroecologic condition of the locality ,climate change, characteristics of nutrient availability in soil etc.	The projects that involve cultivation of crop varieties that does not suit the agroecology of the region		The question is not applicable to the LSG..Give explanation.	The soil with organic content and nutrient rich (Living Soil project)	If the projects involve changes in the crop varieties, cropping patterns, optimal use of water, and application of fertilisers that take into account the agroecologic condition of the locality and soil nutrient availability ,climate change, characteristics etc., Score 2 can be allotted. If the project is NIL, it suitable to the agro ecology of the region and uses excess fertiliser without assessing the soil fertility, over use of water then a negative score (-2) may be given.
17	C3	Whether there are projects that involve monitoring public health issues, particularly those that are linked to climate change and the projects that are made for the management of community health systems .Categorise the projects and list them.	NIL	The projects which deals with health issues related to rise in heat index (temperature, humidity) ,torrential rainfall and floods, drought			The question is not applicable to the LSG..Give explanation.		If the objective of the project is to improve the public health system and to mitigate the effect of climate change related health issues such as sunstroke/sunburn, communicable diseases etc. the score 2 can be allotted.

18	C4	Whether the proposed project assist in the conservation of energy?List the projects based on categories. .	NIL	The project helps directly in conservation of energy	The project helps indirectly in conserving energy	The project indirectly helps in energy conservation	The project directly helps in energy conservation	Energy audit,,energy conservation projects,alternative energy sources at house hold level,alternative energy sources in production sectors like Agriculture,fisheries,industries...	The project which has direct or indirect positive impact on energy conservation is assigned score 2 and those with negative impact with a score negative 2.
19	C5	Whether the proposed project assist in reducing greenhouse gas emissions and the carbon emission?List the projects based on categories. .If the project help in carbon sequestration?List the projects according to the categories	NIL	Projects that reduce the use of non renewable resources and fossil fuels,projects to promote green constructions, project that promote optimal energy use at household level,projects	Afforestation projects at institutional and household level,project to enhance biodiversity,p project to increase land cover,(Pachathuruthu,Miyawaki)			The question is not applicable to the LSG..Give explanation.	Projects to reduce the carbon emission or increase in carbon sequestration Part1 :Projects that reduce the use of non renewable resources and fossil fuels,projects to promote green constructions,project that promote optimal energy use at household level,projects to encourage the use of public transport systems,projects related to the use of electricvehicles and charging stations,projects such as clean mobility,grid neutral LSGetc.Part 2 Afforestation projects at institutional and household level,project to enhance biodiversity,project to increase land cover,(Pachathuruthu,Miyawaki).if project in part 1 and part 2 is proposed score 2 can be assigned.If project in one of the parts is proposed only score 1 is allotted
20	C6	Whether any projects for treatment,recycling,and management of liquid waste and septage and for projects to ensure hygiene and sanitation in the society?List the projects and categorise.	NIL	Recycling of liquid waste ,septage at house hold and institutional level				The question is not applicable to the LSG..Give explanation.	If any projects for treatment,recycling,and management of liquid wasteand septage and for projects to ensure hygiene and sanitation in the society is eligible for a score2..

21	C7	Whether any projects for treatment, disposal, and management of solid waste in their locality? List the projects and categorise.	NIL	Organic waste treatment at source, both household and Institutional level. Collection and segregation of non organic wastes at source.	Segregation of non biodegradable waste and facilities to store them (MCF/MRF). Facilities to hand over non biodegradable/non recyclable waste to collection agencies or project for land filling sites.			The question is not applicable to the LSG. Give explanation.	Projects related to conversion of organic wastes to fertilisers using aerobic or anaerobic decomposition, project which promote reduction of wastes, projects such as plastic free gramam.	Any project which is related to solid waste disposal or management. Part 1: Processing of biodegradable waste at source (both institutional and household level). The segregation and collection of non biodegradable at source. Aerobic or anaerobic conversion of organic wastes into organic fertilizers, projects reduce the use of plastic and quantity generated as wastes like plastic free gramam. Part 2: Collection facilities for non biodegradable wastes (MCF, MRF). Arrangements for collecting non biodegradable waste, rejects which cannot be recycled and hand over such wastes to external accredited agencies. If the project is related to part 1, score 1 can be allocated, if it is related to part 2 score 1 can be given. If project of both part 1 and part 2 are included score 2 can be allocated.
22	C8	Whether any proposal for water conservation and water resource development?	NIL	Recharging of waterbodies, wells, widening and deepening of water bodies, cleaning of water bodies, soil conservation projects,	Biofencing to stabilise the riverbank					Biofencing to stabilise the riverbank

23	C9	Whether any project related to landuse,land cover,land morphology conservation and management exist?	NIL	Watershed management projects,soil conservation projects	Biofencing, project related to enhance organic content in soil,projects to reuse abandoned quarries for water storage and use them as a source for irrigation or drinking water .Or use these quarries for recreational purposes.				The question is not relevant for the LSG.If so give an explanatory note.	The project s which help in existing land morphology,increase in land cover extent, conservation of water sources can be considered .	The project which conserve land morphology, landuse in the region. Part 1:Include watershed management project,soil conservation projects Part 2: Biofencing,increasing the moisture content in soil,reusing abandoned quarries as a source of drinking water , irrigation, recreation activities. If projects related to part 1alone is proposed score 1 is allocated and if part 2 only is addressed sore 1is provided and if both parts are addressed score 2is provided.
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GOVERNANCE

Sl. NIL.	Query NIL.	Assessment Query	Scores and scoring criteria						Notes	Remarks
			0	0.5	0.5	0.5	0.5	N.A.		
24	G1	Whether the LSG has been able to make the functioning paperless over the years?	NIL			Yes			The question is not relevant to LSG .If so give an explanatory note.	If the LSG has succeeded in making it's functioning score 2 can be allocated.If the procedures initiated done a score 0.5 can be awarded.Score 1can be awarded if the process has partially completed.

25	G2	Whether the LSG has recorded all the past disaster events occurred in its jurisdiction and made readily available for the public for reference?	NILA	LSG keeps records of past disaster events.	LSG has provision to hand over the details to public on request		All the past disasters are recorded in electronic form.	The question is not relevant to LSG.Give explanation note.	<p>Past disaster events occurred in the LSG jurisdiction is recorded and make available to public ?</p> <p>Part 1A record of past disaster events is maintained in the office.</p> <p>Part 2 Provision to hand over the details to public on request</p> <p>Part 3 The data is available in electronic form</p> <p>If part 1is satisfied score 1 can be awarded,if part 2is also done additional score of 0.5 can be given.</p> <p>If par3 also has done full score 2 may be awarded.</p>	
26	G3	Whether a Watershed management plan is prepared?	NIL	LSG has a prepared a detailed plan	A plot level net plan available	If projects based on watershed plan gets incorporated in annual project of the LSG	If the water shed plan are implemented in convergence with NREGS	The question is not relevant to LSG.Give explanation note.	<p>Whether Water shed management plan prepared?</p> <p>Part 1LSG has prepared va detailed plan</p> <p>Part 2A plot level net plan is available</p> <p>Part 3Projects based on watershed plan get incorporated in annual project</p> <p>Part 4Watershed plan are implemented in convergence with NREGS</p>	

27	G4	Whether project/actions related to biodiversity conservation is implemented	NIL	Biodiversity Management Committee convened more than once .	Conservation projects based on biodiversity register implemented.	Biodiversity register is made accessible to the public in electronic form	Arrangements for access and benefits sharing initiatives with regard to financial gains from the biodiversity richness.	The question is not relevant to this LSG.Give explanation.	Bio diversity projects/actions related to biodiversity conservation is implemented Part1 Biodiversity Management Committee convened more than once in the previous year Part 2Conservation project s based on Biodiversity register implemented Part 3 Biodiversity register is made accessible to the public in electronic form Part 4Arrangements for access and benefits sharing initiatives with regard to financial gains from the Biodiversity richness.For each part 0.5score is awarded.	
28	G5	Whether the LSG has prepared plans to mitigate the effect of climate change (LAPCC)	NIL	Prepared LAPCC document	LAPCC prepared based on ea the vulnerability and risk factors	If the LAPCC get incorporated in the annual project of LSG	LAPCC are implemented in convergence with central and state projects	The question is not relevant to this LSG.Give explanation.	To mitigate the effect of climate change Whether LSG has prepared LAPCC Part 1 LAPCC has been prepared Part 2While preparing LAPCC the vulnerability and risk factors are taken into consideration Part3LAPCC has been incorporated in the annual project of LSG Part 4 LAPCC are implemented in convergence with central and state projects 0.5marks are awarded for each part.	

29	G6	Whether the DM plan prepared in 2019 has been revised with required information.?	NIL	Updated with all informations	Any projects designed to combat the effect of potential hazards	Whether the projects evolved in DM plan is incorporated in the annual budget of the LSG	If the projects are implemented in convergence with central and state schemes.	The question is not relevant to this LSG. Give explanation.	DM plan updated? Part 1 Updated with all informations Part 2 Any projects designed to combat the effect of potential hazard Part 3 Projects evolved in DM plan is incorporated in the annual budget of LSG Part 4 The project are implemented in convergence with central and state schemes. For each part 0.50 score is awarded. If all the parts attempted the LSG is eligible for full score of
30	G7	What is the ranking of LSG in suchitwa padavi Status?	NIL	Mark scored between 60-69	Mark scored between 70-79	Marks scored above 80		Not applicable to LSG	Susithwa padavi Score Part 1 Suchitwa padavi score between 60 and 69 Part 2 Score between 70-79 Part 3 score above 80 If it falls in part 1, 0.5 score is allocated, if it falls in part 2, the LSG is eligible for a score of 1 and if it falls in part 3, the LSG gets full score ie. 2
31	G8	Whether representation of women in BMC and DMC ?	NIL	Representation 1 to 10 percent	Representation 11 to 30 percent	Representation 31 to 49 percent	Representation above 50 percent	Not applicable to LSG	Women representation in BMC and DMC Part 1: 1-10 percent Part 2: 11-30 percent Part 3: 31-49 Part 4: above 50 percent If falls in part 1, eligible for a score of 0.5, if in part 2 eligible for a score of 1, if in part 3 gets a score 1.5, if in part 4 gets full score of 2

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Sl. NIL.	Query no	Assessment Query	Scores and scoring criteria				
			0	0.5	0.5	0.5	0.5
1	E1	Activities supporting green constructions	NIL	Tax subsidy/Green rebates	financial assistance	The LSG is providing technological assistance, infrastructural support and service support for the public to encourage green construction.	LSG is promoting/ utilizing technologies / resources which are locally available/ developed locally for promoting green constructions

2	E2	Project convergence	NIL	The LSG have projects jointly implemented with projects and schemes of the Central and State Governments	the LSG if have implemented joint projects with CBOs, NGOs and Co-operative Societies	The LSG is utilizing CSR/CER funds and /or is involved in public private partnership to implement projects/deliver services/to provide support which encourage green constructions	Initiation of the programmes in convergence with other Local Self Government Institutions
3	E3	LSG ensure community participation in Climate change actions, disaster management and biodiversity conservation related to planning/ implementation of concerned projects	NIL	Ensures community engagement focusing at reduction in plastic use	Ensures community participation and involvement in restoration and cleaning of waterbodies	LSG ensures community participation in waste management and sanitation management	LSG ensures community participation in local climate reporting and in providing livelihood support and recovery following a disaster (developing disaster resilience)

4	E4	Functional coordination / integration of working groups	NIL	Working group on biodiversity conservation, climate change, environmental protection and disaster management considers the opinions and suggestions of other working groups in their functioning		Working group on biodiversity, climate change, environmental conservation and disaster management examines the opinions and suggestions of other working groups while planning projects.	
5	E5	LSG is taking steps to ensure bio/geo diversity conservation	NIL	Due to the LSG involvement there is an increase in the area of paddy fields/ cultivation in the LSG in the assessment year	The LSG in the assessment year has ensured increase in green cover without compromising the original structure of the land cover	The LSG has initiated actions to protect the common property resources and has initiated legal steps to evict the encroachments on common property resources	The LSG has initiated steps to rehabilitate the communities/ population to conserve the structure of land cover, biodiversity in order to protect the natural resources.

6	E6	Whether institutional mechanism/ innovative interventions have been implemented to strengthen the agricultural sector	NIL	Presence of active Agricultural labour forces (Karshika Karma Sena)	Both Farmer's Self Help Groups/ Farmer's cooperatives / Farmer's Agricultural Societies are functioning	Farm Schools and Trainings based on model/demonstrative plots are undergoing in the LSG	There are active Farmers Producer Companies in the LSG established with the involvement of LSG
7	E7	Maintaining and managing an active local market for agricultural/food commodities	NIL	Organising of local agricultural markets	Setting up storage facilities for agricultural and allied sector commodities	Establishment of commodity processing units	Branding and Organic Certification

8	E8	LSG has put forward any innovative ideas pertaining to climate change, disaster management and biodiversity conservation under the title “One LSG, one innovative idea” ?	NIL	If the LSG proposes innovative projects for assessment, the panel of experts may evaluate the innovativeness of the project and assign appropriate scores. Activities such as water budgeting, water auditing, carbon auditing, carbon footprint assessment, involvement of co-operative sector or private partnerships to promote public transport, promote natural resource dependence - reducing manufacturing practices, and increase food self-sufficiency through local production can be also taken into consideration here.
9	E9	Local action plan for food security	NIL	LSG has put forward any such projects or interventions in the assessment year, the expert committee shall evaluate the same and assign appropriate scores.
10	E10	Good governance practices in the LSG.	NIL	The expert committee can assign marks based on the evaluation of the efficiency of planning, system of functioning, coordination of services officered by different entities, resource accumulation and precautionary initiatives.

11	E11	Whether any action has been initiated against the disposal of waste into water bodies	NIL	If the LSG has initiated legal proceedings in 1-5% of the total cases reported	If the LSG has initiated legal proceedings in 6-10% of the total cases reported	If the LSG has initiated legal proceedings in 10-20% of the total cases reported	if it has initiated legal proceedings in 21% or more of reported cases.
12	E12	Violations of the Kerala Conservation of Paddy Land and Wetland Act- 2008.	NIL	If the LSG has initiated legal proceedings in 1-5% of the total cases reported	If the LSG has initiated legal proceedings in 6-10% of the total cases reported	If the LSG has initiated legal proceedings in 10-20% of the total cases reported	if it has initiated legal proceedings in 21% or more of reported cases.
13	E13	Violations of Kerala Coastal Zone Management Rules 2018	NIL	If the LSG has initiated legal proceedings in 1-5% of the total cases reported	If the LSG has initiated legal proceedings in 6-10% of the total cases reported	If the LSG has initiated legal proceedings in 10-20% of the total cases reported	if it has initiated legal proceedings in 21% or more of reported cases.

14	E14	Violations of Kerala Panchayat Building (Regularisation of Unauthorised Construction) Amendment Rules, 2021 and Kerala Municipality Building Rules, 2019.	NIL	If the LSG has initiated legal proceedings in 1-5% of the total cases reported	If the LSG has initiated legal proceedings in 6-10% of the total cases reported	If the LSG has initiated legal proceedings in 10-20% of the total cases reported	if it has initiated legal proceedings in 21% or more of reported cases.
15	E15	Violations of Plastic Waste Management Rules, 2016.	NIL	If the LSG has initiated legal proceedings in 1-5% of the total cases reported	If the LSG has initiated legal proceedings in 6-10% of the total cases reported	If the LSG has initiated legal proceedings in 10-20% of the total cases reported	if it has initiated legal proceedings in 21% or more of reported cases.
16	E16	Is there a rainwater harvesting facility for buildings with an area of 300 m2?	NIL	If 1-5% of the buildings with an area above 300 m2 in the jurisdiction of the LSG have rainwater harvesting facilities	If 6-10% of the buildings with an area above 300 m2 in the jurisdiction of the LSG have rainwater harvesting facilities	If 10-20% of the buildings with an area above 300 m2 in the jurisdiction of the LSG have rainwater harvesting facilities	if 21% or more number of buildings with an area above 300 m2 have rainwater harvesting facilities

17	E17	how many buildings have solar panels installed according to Kerala Panchayat Building (Regularization of Unauthorized Construction) Amendment Rules, 2021 and Kerala Municipality Building Rules, 2019	NIL	If 1-5% of the buildings in the jurisdiction of the LSG have solar panels	If 6-10% of the buildings in the jurisdiction of the LSG have solar panels	If 10-20% of the buildings in the jurisdiction of the LSG have solar panels	if 21% or more number of buildings have solar panels.
18	E18	The number of buildings that have been constructed in accordance with the Green protocol	NIL	If 1-5% of the buildings in the jurisdiction of the LSG comply with the guidelines for green construction	If 6-10% of the buildings comply with the guidelines for green constructions	If 11-20% of the buildings comply with the guidelines for green constructions	if 21% or more number of buildings comply with the guidelines for green constructions.
19	E19	whether a functioning mini MCF is present in the wards of LSG	NIL	if 21% or more number of buildings comply with the guidelines for green constructions.	If 50-70% of the wards have a functioning mini MCF	If 70-90% of the wards have a functioning mini MCF	if all wards have a functioning mini MCF

20	E20	Whether a well-maintained crematorium is functioning in the LSGs	NIL	YES
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