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Decentralised Governance and Climate Resilience

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Centre for Socio-economic & Environmental Studies

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Note from Chairperson, CSES

The Annual Memorial Lecture Series in remembrance of Professor K.K. George has once again been delivered by a distinguished person, Ms Sarada Muraleedharan, former Chief Secretary of Keralam. Her Lecture on **Decentralised Governance and Climate Resilience** not only reflected her administrative experience and insight, but also outstanding analytical insights too. Looking at the necessity for intelligent and skilled interventions by a local governance framework, and linking it up with the thoughts of Professor K.K. George on local self governance, Ms Sarada Muraleedharan portrayed the efforts that are taken now at the local governance level in Keralam in the area of climate change and disaster mitigation. Without limiting herself to empirical details, she boldly opened the gates for further planning and theoretical possibilities. As she has rightly pointed out what the experiment that is being held in Keralam is a shift; nevertheless crucial, of the location from national and international domains to the local. Such a shift in focus demands several technological adaptations, new fiscal models, and different kinds of new environment based perceptions. She is arguing for the local action and adaptations to become the cornerstone for global resistance.

Planning for climate change, as is well known, is of recent origin, even at the international level. Even what has been decided upon at international conventions has suffered heavily at the implementation level. As Ms Sarada Muraleedharan has pointed out, within India, even the constitution did not suggest management of disasters as a local transaction. Within the State of Keralam a greater role was expected to be played by the revenue administration than the local self government. All this has to be rethought in the wake of the Great Floods of 2018. It ended up in a new local self government level working group on biodiversity, climate change, environmental protection and disaster management.

The empirical premises of the local governments of Keralam that has caught the attention of the public were the remarkable tasks undertaken by them during the Great Floods 2018. The role played by local Governments in almost all aspects of activities pertaining to disaster management were well appreciated by the public mind. Ms Sarada Muraleedharan, without going into the details of the specific case of 2018 flood related activities, is picking up those steps undertaken by the local government beyond mere disaster management. Early warning and mitigation are areas of planning and intervention that come naturally to the local governments. She points out further areas of

decision making and planning that are open to effective local level bodies. It will require supportive legislative and rule based provisioning. It is in this context that Ms Sarada Muraleedharan discusses the experiment being undertaken by Keralam in this specific area of feasible planning and decision making amenable to local governments. With strong support from the various sections of government and the public, these steps are likely to grow into a singularly strong and flexible local basis for even the global action of climate resilience, action and adaptation. The significance of this 'experiment' cannot be neglected at all. This reorientation of Climate Action and Disaster Mitigation is likely to be a great transformation in public policy.

I consider it a privilege to present the revised version of the Professor K.K. George Memorial Lecture – 2025 by Ms Sarada Muraleedharan on **Decentralised Governance and Climate Resilience.**

Professor P. K. Michael Tharakan

Abstract

The year 2018 was a watershed year not only on account of the frightening realisation of how vulnerable Kerala was to the vagaries of climate change, but also with regard to the importance of local governments in disaster mitigation and climate adaptation. Professor George championed the cause of evidence based interventions of skilled communities for a more environment conscious local governance paradigm. Climate action for resilience has generally been regarded as the domain of national governments and the international community, but in Kerala a unique experiment has been unfolding in the local governance space—of risk informed master plans, tracking tools for disaster and climate implications, localised climate forecast modelling and local action plans to combat climate change. New technologies, new understanding, new fiscal models, and new systems approaches need to be deliberated upon so that local climate adaptation becomes a touchstone for global resistance and survival.

Keywords: climate change, decentralisation, disaster mitigation, resilience, local governance

About the Author:

Ms Sarada Muraleedharan, former Chief Secretary of the Government of Kerala, is distinguished by her deep commitment to social justice and development. She held several key positions at the Centre and in the State, including that of the Joint Secretary in the Ministry of Panchayati Raj, the Chief Operating Officer at the National Rural Livelihoods Mission and Additional Chief Secretary, LSGD, Kerala. Above and beyond positions held, her career is marked by the role she played in making governance inclusive and participatory. She also redefined leadership in public service. Her leadership in the Kudumbashree Mission was pivotal in conceptualising its core activities to address gender empowerment, poverty reduction and dignity at work. Ms Sarada Muraleedharan played a crucial role in promoting citizens' participation through the Gram Panchayat Development Plans (GPDP), emphasising people-centric policy making.

Decentralised Governance and Climate Resilience[1]

Sarada Muraleedharan

Introduction

Professor George championed the cause of evidenced based interventions and skilled communities for a more environment conscious local governance paradigm. Climate action for resilience has generally been regarded as the domain of national governments and the international community, but in Kerala, a unique experiment has been unfolding in the local governance space. New technologies, new understanding, new fiscal models, and new systems approaches need to be deliberated upon so that local climate adaptation becomes a touchstone for global resistance and survival.

This is the premise of the memorial lecture that I am making today in honour of Professor K K George and his legacy. He shall remain a giant associated with giving direction to the early days of decentralised governance in Kerala. I am grateful to

[1] This is a revised version of Professor K K Geoerge Memorial Lecture delivered at the Cochin University of Science and Technology in November 2025. Author may be reached at saradalsg@gmail.com.

the School of Management Studies, CUSAT and Centre for Socio-economic and Environmental Studies for giving me the opportunity to deliver the memorial lecture and for choosing this topic that poses both present danger and immense opportunity.

Global Context

The challenges of climate change have been primarily discussed at the level of the global community. The threat, is indisputably, to the planet in its entirety. It was the United Nations Framework Convention on Climate Change (UNFCCC), during the Earth Summit in Rio de Janeiro which attempted for the first time to make countries accountable to reduce greenhouse gas emissions. Later, the Paris Agreement produced a global commitment to bring global temperature rise to well below 1.5 to 2 Degree Centigrade. Despite its 198 signatories, these global efforts have not been successful in reining in temperature rise because of the difficulties participant countries face in controlling consumption, development and unsustainable practices. The UN Environment Programme (UNEP) and the International Energy Agency (IEA) reports indicate that the 1.5 degree window is fast closing, if not closed already.

For countries, the fight against climate change has been about policy restructuring, funding

commitments, rejigging socio economic activity, including large scale projects, enforcing responsible consumption and protecting the environment without disrupting their prevailing development mantra. On the global map, climate change is impacted by international trade agreements and policies which accelerate or decelerate certain types of policies and development initiatives with significant impact, and therefore the issues of climate change have always been seen as matters to be handled by International bodies, Nation states and regional entities. That there might be a local footprint that can be worked on has not been a matter of study or action research.

Evolving Policy Mandate

The Disaster Management Act of 2005 was the first to look at calibrated response at multiple levels of nation, state and local, to the incidence of disasters in the country. At the time however, the consequences of climate change for disaster had not been considered, although prevention and mitigation find frequent mention. The Act does acknowledge the role of local governments, which has been made in Chapter VI on Local Authorities.

In Kerala, ever since the constitutional amendments, local governments played a minor role in shelter management—collecting clothing and daily essentials for people moved to relief camps, and

supporting the taluk/district administration in providing food for the people in the camps. The larger role was played by the revenue administration in the district – from the district collector to the village officer, aided by the police, who were generally first responders in a disaster. The LSG – its elected committee, its various people's committees, and its core personnel- were not actively engaged in disaster management or relief. The district administration very often would press for the services of field officers of the line departments attached to the LSGs, but their activity was coordinated through the concerned line departments and not the LSG per se.

August 2018 changed all that. The floods that hit panchayat after panchayat, town after town not only caught the system by surprise, but were merciless in the scale and pace of escalation. It had been all hands to the deck and all of the government disaster response mechanism, the NDRF, the SDRF, the armed forces – were pressed into immediate action. The role of fisherfolk and Kudumbashree in the extraordinary effort was acknowledged widely.

In the immediate aftermath, interestingly, there was hardly any formal recognition from the State Government or the civic community of the role that the elected representatives of LSGs had played in combating the disaster. There was a smattering of commentary, especially from the central forces that

participated in the relief and rescue effort, of the incredible local understanding that the LSGs displayed as first responders, and of their ability to harness resources for the rescue effort, and how that made all the difference and was responsible for keeping the casualties in an event of this scale so low. It had become evident to exhausted district administrations too, of how critical LSGs were in coordinating the post disaster clean up and restoration effort.

On 19.9.2018, a new LSG Level Working Group on biodiversity, climate change, environment protection and disaster management was instituted in all LSGs. But the State's acceptance of a larger role for local governments first emanated out of a decision to involve LSG personnel in the assessment of damage and loss to households created in the wake of the disaster. It burgeoned into a reluctant acceptance that the coordination of the community effort in disaster management was best done by LSGs. This was consolidated in the 'Nammal Namukkayi' campaign that sought to consolidate the gains of voluntarism generated by the disaster, and which centred the role of local governments in civil defence and creation of 'Sannadha Senas'.

The DM Plans

A critical step taken at the time was to formulate an exercise of creation of DM plans for all local

governments, posit it as a mandatory component of the 2020 annual plan, and to undertake a community based intervention under the supervision of local governments to formulate the LSG DM Plans. Kerala State Remote Sensing & Environment Centre (KSREC) and Kerala State Disaster Management Authority (KSDMA) together provided around 25-32 LSG wise maps showing topography, rainfall, flood patterns, cropping patterns, road and other infrastructure, settlement patterns, heat signatures etc. to enable assessment based on locally relevant data. Temporal shifts would be discernible in these maps.

The gist of the instructions contained in GO. (MS) NO.156/2019/LSGD dated 4.12.2019 for the formulation of the DM plans was as follows:

- Emergency response teams and local resource groups were to be formed in each LSG
- The local resource groups would undertake situation analysis through a community based exercise applying PRA techniques like transect walks, focus group discussions etc. This would capture changes over time in weather patterns, risk assessment of disaster, inventorisation of local infrastructure and local Human resources, and of equipment/tools likely to come handy in the event of a disaster

- LSG and ward level SWOT analysis to be undertaken
- Vulnerable communities and settlements to be identified, Evacuation plans to be drawn up
- Preparedness, search and rescue, shelter management, restoration, rehabilitation and mitigation
- Kerala Institute of Local Administration (KILA) and KSDMA were to undertake the capacity building for the effort jointly

From looking at only floods, cyclones and landslides, to appreciating rising temperatures, heat waves, droughts, wild fires, lightning strikes, there was a pronounced shift leading to a disaster- climate change adaptation continuum.

It is to be remembered that when Schedules 11 and 12 of the Indian Constitution were drawn up, the global challenge that climate change adaptation would pose had not been anticipated. The Schedules do not indicate that the management of disasters had a local footprint, and therefore, you will find that no aspect of disaster management – from warning to mitigation find mention in the Schedules. However, it may also be seen that agriculture, soil conservation, watershed development, social forestry, village industries, fuel

and fodder, non conventional energy, health and sanitation, vulnerable communities and community assets do find place in Schedule 11. The Schedule 12 includes urban planning, regulation of land use, water supply, public health and sanitation, urban forestry and protection of the environment, cattle pounds, fire services and safeguarding the interests of weaker sections. Despite the fact that many of the items of the Schedules have been picked up and augmented in the Kerala Panchayati Raj Act and the Kerala Municipalities Act, the Acts cede the disaster management space to the district administration, and do not articulate a clearly defined role for local governments. There is mention of draining flood waters and of increasing environmental awareness. Now that the vagaries of erratic climate behaviour are known to impact all of these aforesaid sectors, it becomes imperative that the local governments develop the capability of playing their role responsibly so as to minimise damage and enhance resilience particularly in the areas where they have a Constitutional mandate.

While almost all LSGs undertook the DM planning exercise, given the short time frame, as well as the complete diversion of attention that COVID brought, many elements of the plan did not evolve. But the inventorisation and information regarding community resources came as a life saver during the COVID shutdown and helped the local

governments to identify and engage with vulnerable persons and households, set up institutional quarantine arrangements, and set up first level triage and treatment centres at a turnaround speed that was not possible elsewhere in the country.

Rebuild Kerala Initiative (RKI)

The RKI set the ball rolling for a larger, more ambitious space in the matter of disaster management and climate adaptation. The questions that were being asked were:

- Can climate information and modeling be undertaken at local levels to permit local adaptations that are more evidence based?
- Can spatial planning be undertaken by LSGs that incorporates risk information?
- Can a governance paradigm be created to assimilate responsible and sustainable elements into projects to improve climate based resilience?
- What are the local policy initiatives required to incentivise climate resilient adaptations into infrastructure and housing, lifestyles, and livelihoods?

The thinking that went into the programme was that it might be possible to get local governments to be invested in disaster management, and **incrementally bring in the need for climate change adaptation** into their sphere of activity. **Creation of**

local resource pools that were concerned about the environment and the fragility of ecosystems would necessarily **veer the discourse into long term, sustainable solutions** while looking at immediate response measures. Any discussion on reducing the risk of disaster would lead to the need for mitigation, preparedness, and adaptation to reduce or neutralise long term risk. Some of these measures would be about the ability to handle aberrant climate patterns, but some of them would also be about contributing to reducing the negative impact on the environment.

Climate adaptive measures would include

- natural resource management
- responsible construction
- reduction of heat signature
- rehabilitation of persons
- responsible consumption

Risk Informed Planning

Two important initiatives were rolled out under the RKI Programme for Results (P for R) – one was the Risk Informed Master Plan (RIMP) for Urban Local Bodies (ULBs), and the other was the DCAT (Disaster Climate Action Tracking) tool – which scored LSGs on the nature of their climate adaptive interventions. Both of these looked to **bringing evidence based inputs into the gamut of LSG planning** and interventions. The area of operation of

both of these were the districts that comprised the Pamba basin. Simultaneously, feeding off the technical inputs from these projects, Local Action Plans for Climate Change (LAPCC), which brought up the community engagement aspect to the fore were also facilitated in these LSGs by KILA. Since KILA was also anchoring the RKI intervention, bringing synergy and collaboration across the projects became a fairly doable proposition.

The Kerala Town and Country Planning Act 2016 was amended in 2021, incorporating risk information and spatial planning into the Master Plan process. It also telescoped the period of planning, and made the master plan 'agile' in its ability to modify and reinvent itself according to changing scenarios and knowledge. This, along with the community based situation analysis of 'Nammal Namukkayi' formed the backdrop for the RIMP process. The RIMP was an effort to converge people's lived experience and understanding with scientific data and climate modelling to enable master plans that would have incorporated a detailed understanding of climate risks, appropriate adaptation and resistance interventions and provide doable solutions that balanced the need for growth with the need to conserve and secure the environment for the future. The data to be used included KSDMA maps at a scale of 1:50000, satellite imagery (Sentinel 1 and 2), rainfall data from India

Meteorological Department (IMD), soil data from soil conservation department, information from traffic and transportation studies, GIS flood analysis data, including flood accumulation, precipitation, soil type, infiltration, slope and elevation, geomorphology, as available. Flood simulation software was used, and reconciliation with field data was undertaken.

It has always been a challenge to get the local governments to see the master plan as a fine honed tool to ensure sustainable development. It has only been seen as a regulatory axe, no matter that it is the LSG itself that approves the plan. Evidence based planning will work only if there is ownership by the local government and its people. So, an important challenge is to get both elected local governments and local communities to see the benefit and common good in the nature of planning that goes into risk informed master plans. This ownership does not come easy. It requires unbundling of data analysis into common parlance, consistent engagement and explanation, debunking myths but communicating that the perils of the future constitute a clear and present danger. It requires assuaging concerns and softening costs, so that the transition into a responsible climate adaptive economy becomes a matter of local demand.

Some of the interventions that came out of integration of risk analysis and spatial planning in the RIMP were:

- Need for locating critical infrastructure outside flood prone areas
- Replacement of overhead electric lines with underground cables in flood plains
- Raised platforms for transformers
- Retrofitting of septic tanks with control valves and inspection chambers
- Emergency communication systems
- Disaster resistant infrastructure – bridges and roads
- Climate smart agricultural land use
- Flood forecasting and warning systems
- Buffer zones around rivers and streams
- Sponge parks for holding excess waters
- Freeing up of riparian areas for smooth water flow

Many of these interventions would not raise hackles with the community if properly explained. In these cases, the reluctance may arise from the elected body itself, where the additional costs would be felt to being unnecessarily incurred, unless the value and benefit of these incremental improvements were appreciated. Some of the interventions would not be seen as having any immediate or visible impact, and therefore not regarded as worthy of prioritisation. Some of these would be seen as affecting the

livelihood, housing and lifestyle choices of local populations and would meet with greater recalcitrance and pushback. The challenge that the RIMP faces, therefore, is that of unbundling scientific data analysis, ensuring clear communication, facilitating informed decision making, and committing funds to climate smart adaptations. Very clearly, informed communities that are able to connect climate change with their lives and the wellbeing of their communities, as well as envision pragmatic local solutions are critical to steer the local governments into climate resilient strategies.

Local Action Plans for Climate Change

Alongside the DM plans and the RKI intervention, KILA had independently with the support of the UNDP, involved itself in the creation of Local Action Plans to Combat Climate Change (LAPCC). Much of the thoughts swirling in the RKI and DM plan space were absorbed in the LAPCC template, which covered Regulatory measures, Climate leadership, Awareness creation and Capacity building at the LSG level.

The LAPCC problem statement that came from facilitated discussions in the field threw up many interesting issues that were brought into the purview of climate change. These included:

- Wetland reclamation and loss of paddy fields
- Coastal erosion
- Flooding and salt water intrusion affecting drinking water and agriculture, polluted canals
- Increase in temperature affecting livestock health and productivity
- Decline in agricultural yields
- Disappearance of local fish varieties
- Increase in vector borne and water borne diseases
- Decline in the population of beneficial insects and earthworms
- Increase in the population of pests, flies, and migratory birds
- Changes in flowering time of various local flower/fruit varieties and loss of different shrub varieties including mangroves, and medicinal plants
- Increase in invasive plant varieties and aquatic weeds
- Avian flu
- Accumulation of non-biodegradable waste

The discussions also made suggestions about changes in projects, governance and civic behaviour, which includes:

- Elevated constructions to withstand flooding (Houses, toilets, cattle sheds), Strengthening of bunds
- Soft stabilisation techniques to prevent coastal erosion
- Restoration of water sources, Rain water harvesting, conservation of water sources and wetlands, Water budgeting
- Planting of mangroves and protection of sacred groves
- Integrated Pest Management
- Promotion of millet cultivation and Climate smart farming techniques
- Comprehensive plan for animal husbandry and livestock management
- Scientific waste management and no burn policy
- Green protocol for all events to address non-biodegradable waste generation
- Sewage and septage treatment plants
- Effective pre-monsoon sanitation to reduce the spread of mosquito-borne diseases
- Green constructions (includes solar panels, rain water harvesting and well recharging)
- Usage of electric vehicles and establishment of charging stations

- Cultivation of bioenergy crops
- Conservation of local biodiversity with provision for income generation
- Developing carbon neutral and filament free LSGs

Disaster Climate Action Tracking (DCAT)

The role of DCAT was to be able to evaluate the interventions made by LSGs from a climate perspective. It therefore looked across the broad spectrum of LSG activity, from its sectoral projects to its regulatory mechanisms and other governance initiatives. The evaluation, which was connected to the LAPCC process, enabled both the LSG and the community to reflect on the intended and unintended impacts of both local action and inaction, and to redirect the nature of its development and governance efforts. It was also felt that an incentivisation – dis-incentivisation mechanism that assessed where the LSGs stood in this regard would help to nudge LSGs along the path of climate adaptation and to secure outcome-oriented action.

The DCAT assessments specifically looked into:

Disaster management interventions (early warning systems, shelter management, mitigation interventions in disaster prone areas)

Sectoral interventions for climate action and resilience (sustainable waste management, energy conservation interventions, climate smart agriculture, agroforestry, soil enrichment, carbon sequestration, sustainable nutrition interventions, safe food)

Governance interventions that impact disaster management and climate resilience (example: sensitisation programmes, energy audits, water budgeting, green protocols, pedestrianisation, promoting green rebates).

The queries of the DCAT tool are classified into two broad categories based on their relevance, direct or indirect, to the context of climate change and disasters. The interventions or lack of interventions associated with the queries resulting in negative impacts will have negative scores. Unconnected interventions were at zero and a positive impact would get one point. The queries of the DCAT tool are classified into Universal and Varying categories based on their applicability to LSGs. The queries are prepared against micro sectors in *Sulekha*. LSGs are provided with differential weights based on the hazard risks applicable to them. In general, the weights are assigned according to the Hazard, Vulnerability and Risk Assessment (HVRA) table prepared by KSDMA. The application of the DCAT to the LSG gave it a sense of where it was on the disaster preparedness and climate adaptation scale.

It also showed areas to improve upon, and interventions to avoid or minimise. The DCAT thus has the potential to function as an evidence based tool to guide the LSG towards more climate adaptive action, as well as to prioritise such action based on risk perception.

There are other concerns too which are spin offs of the climate change story. Increased human-wildlife conflict is at least in part due to disruption of natural habitats from invasive species, human intrusion, water scarcity and unpredictable weather patterns, leading to rupture in the fabric of ecosystems. Zoonotic diseases, of which Kerala has become a global hotbed also have direct connect to this rupture. But what we have seen in the examples above is that the local governance space is one where there can be immense resilience generated to both combat and adapt to climate change if only we do it right.

Role of the State in empowering LSGs for climate resilience

The State has a responsibility of providing and augmenting the policy framework – to incentivise green constructions, to ensure responsible infrastructure development, to enforce comprehensive waste management solutions, to redirect its subsidy regimes towards climate resilient socio- economic behaviour, to explore new

funding mechanisms and to harness new technologies and new information to provide decentralised information critical to taking appropriate decisions.

Today, space technology and access to data have generated a capability of assimilating and decoding data like never before. The precision to which this information can be provided is also unprecedented, and LSG's access to such information can be a game changer. However, it is important to note that assuming capability within an LSG of decoding, analysing, interpreting and applying data so as to inform its action is a utopian ask. There has to be a support grid led by the State that helps making this information relevant and usable. It could be considered whether a separate technical wing can be set up in KILA, replete with AI tools to facilitate all the LSGs of the State by accessing, interpreting and demystifying data for all LSGs undertaking this agenda. There has to be a strategy of constant engagement with communities to ensure they stay connected with climate imperatives, which could also be ably anchored by KILA.

There has to be a systemic integration of the climate agenda into the functioning of the LSG. This will become sustainable only if outcome based planning and implementation become central to the local governance paradigm. It would be problematic to create information and campaign fatigue in the

system, and not to provide the incubation time and services for the assimilation of such a complex ask by local governments. The LAPCC and DCAT, to an extent demand data analytics and spatial planning similar to the RIMPs, and there have to be community-oriented professionals who can undertake the role of facilitating climate adaptation needs, possibilities and challenges. This would necessitate the augmentation of the planning wing of the LSGD beyond the districts and ULBs.

Hand holding of Special Action Plan formulation and execution that provides proof of concept and can become peer learning opportunities for other LSGs is also a strategy that can be attempted. A funding innovation that takes a substantial portion of the LSG allocation and makes it performance grants linked with objective assessment of performance and intent through a refined DCAT evaluation methodology would perhaps generate the interest to go for the long haul in climate resilience. All this would require a strong political will to be created for the long term sustainability of the climate agenda.

A beginning has been made, which has opened the window to the possibilities of effective climate change adaptation at the local level. It is to be seen whether this experiment will get absorbed and institutionalised as a model of survival and strength in the arena of global climate change.

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