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# KERALA CALLING

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## Harmonising Growth

Kerala's Sustainable Model Charms the Nation



# നാടോടി മുന്തോട്ട

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# Kerala's Tryst with Progressive Governance

In the ever-evolving discourse of sustainable development, Kerala's tryst with progressive governance shines bright. The State's comprehensive initiative, the Nava Keralam action plan, is a formidable stride towards aligning with the United Nations' Sustainable Development Goals (SDGs). It exemplifies an earnest endeavour to weave an environmentally sustainable socio-economic fabric, standing as a proof to the state's innovative frameworks. Over the years, Kerala has won national applause for its citizen-centric governance, successfully bridging developmental gaps, and thereby setting a precedent for other states to emulate.

The core of Nava Keralam is to enhance the state's past achievements, tackle existing shortcomings, and navigate new challenges with a pragmatic outlook. Its laudable performance in the Sustainable Development Goals India Index, as reported by NITI Aayog, underscores the State's unyielding commitment towards the well-being of its populace. The strides towards alleviating poverty, championing gender equality, and stewarding environmental sustainability resonate profoundly with the SDGs' ethos. The focus on pivotal targets like zero hunger and affordable clean energy epitomizes Kerala's proactive approach to fostering a sustainable socio-

economic ecosystem.

Kerala's journey towards sustainability is holistically encapsulated in its alignment with the 17 global goals laid down by the United Nations. The remarkable progress in gender equality and ensuring clean water and sanitation stands as a testament to the state's meticulous, objective-driven planning. Moreover, the accomplishment of a 100 percent score in affordable and clean energy underscores Kerala's earnestness towards environmental stewardship, aligning well with the global discourse on sustainable development.

In this edition, as we traverse through various discourses from World Suicide Prevention Day to World Literacy Day, and reminisce the musical legacy of KS Chithra, the overarching narrative of sustainable development from the Kerala experience binds these disparate threads into a coherent narrative. The Nava Keralam action plan transcends regional boundaries, offering lessons in sustainable governance and agricultural resilience. As we go through these pages, the Kerala narrative invites us to envision a world where localised solutions echo within the global amphitheatre of sustainable development, fostering a future that is not just prosperous but equitable and resilient.

**T.V. Subhash IAS**  
**Editor**



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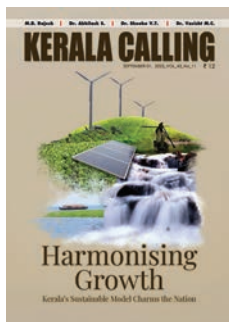
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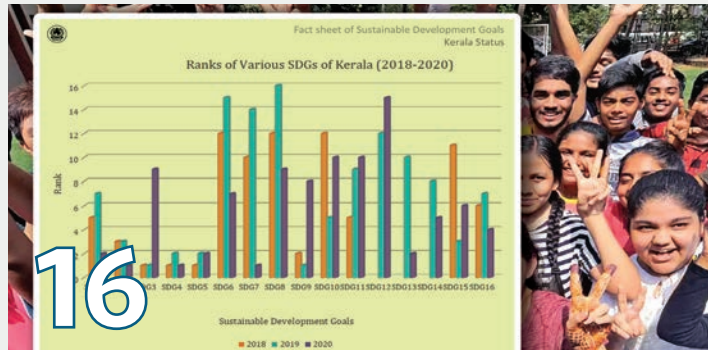
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# Kerala's Decentralized Success Story

## **M.B.Rajesh**

*Minister for Local Self Governments, Rural Development and Excise*

**Kerala's decentralized planning has transformed communities and empowered women in a quarter of a century.**

**T**he Local Self-Government Department in Kerala is metamorphosing into local governments in its fullest sense. From realizing the decentralization of power to rational distribution of resources, the local self-government bodies are also rendering excellent service to the various facets of public life. A wide range of programs, from total sanitation to eradication of extreme poverty, are now being initiated by the local self-government bodies. They have also made great strides into the creation of wealth and thereby raising the income and standard of living of the people. As decentralization and people's planning completes a quarter of a century of their existence, Kerala's experience is that the roots of democracy, in its comprehensive sense, have penetrated to their lowest levels ever. The key task undertaken by the local self-government bodies is to reflect decentralization in economic activities as well as in the manufacturing sector as strongly as it can. The government regards local economic development as an important program.

The Fourteenth Plan emphasizes on expediting the economic development of Kerala. The core aspect of this program is to enhance the growth of the local economy and job creation. In the context of further decentralization of economic activities, the local self-governing bodies are making the most of such opportunities and are executing



projects to provide employment and income to the people. Necessary steps have been initiated to ensure sustainable economic growth by consolidating the gains that Kerala has already achieved. Plans are afoot to develop the state's economy in a knowledge-based manner, and priority is being accorded to revive the manufacturing sector with modern knowledge. The Local Self-Government Bodies in Kerala have kick-started the mission of decentralizing this process and implementing it effectively.

The Pinarayi Vijayan governments of Kerala have taken continuous efforts to transform the local self-governing institutions, which neither had any significant responsibilities to execute nor maintained a close relation with people's life five decades ago, into agencies that make a comprehensive approach towards



public life. A cursory glance at the current status of the administrative reforms initiated by the EMS ministry of 1957 is enough for one to realize that no other state in the country has approached the decentralization of power so comprehensively as Kerala.

In fact, Kerala could set a good example of decentralization of power even before the parliament passed the 73rd and 74th constitutional amendments in 1993. The District Councils, which came into effect through the District Council elections in January 1991, had been bestowed with extensive powers by the then Government of Kerala. It also included the transfer of as many as 150 powers, which had been originally held by the state government, were transferred to these district councils. The powers of the district councils, however, were drastically curtailed during the tenure of the government that came to power subsequently.

The criticism raised by EMS about the 73rd and 74th constitutional amendments passed by the Parliament still holds relevance. The law was framed by separating the administrative systems for urban civic bodies and panchayats into two watertight compartments. It, however, has the limitation that the administration of a district cannot be done by considering it as a single revenue unit. Municipalities and Corporations have been kept outside the jurisdiction of the District Panchayat. Another criticism raised by EMS, meanwhile, pertained to a proposal by the

central government to devolve power to the states without actually delegating its power or resources.

Despite this limitation, Kerala took this opportunity—of passing the 73rd and 74th Constitutional Amendments by the Parliament—to transfer more powers and resources to the local administrative mechanisms. Through the People's Planning campaign, ordinary citizens gained the power to decide on the development programs required for them, and this way, regional development projects were implemented in a widespread manner.

It was the Left Democratic Front government of 1996 that took up decentralization and public planning as an important program. It has made inclusive governance and development a reality. Even though no major gains



could be made in the manufacturing sector, widespread development took place all over Kerala to address the key requirements of rural regions. As we examine it now, the second phase of public planning that started in 2017 has helped the manufacturing sector to achieve the progress that once remained elusive.

The key reason for this is that the local self-government bodies have now been able to access funds based on requirement. Apart from the assistance extended by the state government, new avenues for earning one's income have been opened up, and the collection of taxes was activated. If the total assistance given by the state government to the local self-government bodies in 1996, just ahead of the People's Planning, was Rs. 125 crores, it rose to 1046 crores in 1997-98. Currently, about 27.19 percent of the plan funds in the state budget have been earmarked for the local self-government bodies. 6.5 percent of the overall revenue income is given to the local self-government bodies as asset protection, besides another 3.5 percent as a general-purpose grant.

The development achieved in the rural sector during the first quarter-century of People's Planning is indeed astounding. The decentralization of power and resources through local self-governing institutions has played a major role in achieving this unique feat. If there were only 1.15 lakh km

of rural roads in Kerala during 1995-96, it now stands around 2.5 lakh kilometers. While about 20 lakh houses could be constructed for the homeless in the state till 2020, as many as 3.6 lakh houses have been constructed so far since the launch of the LIFE project. Complete elimination of open defecation too has been made a reality.

While about 28 percent of the population depended on the state's public health institutions till a quarter of a century ago, it has risen to 48 percent after the local self-governing bodies took control of these public health institutions up to the district hospitals. Over the years, these hospitals have also been subjected to an unprecedented scale of modernization. The infant mortality rate has fallen from 15 to six over the period, and Kerala now boasts the lowest poverty rate in India. As per the last report of NITI Aayog, poverty





in Kerala was 0.7 percent, and this has come down further to 0.55 percent in the latest report. 10 percent of the plan funds are now being earmarked for projects that are managed by and benefit women.

Over the last seven years, nearly two lakh students from unaided private schools moved to the government schools. Under the leadership of the local self-governing bodies, the public educational institutions have been able to emerge as the best provider of education.

In the second phase of People's Planning, which was launched in 2017, special emphasis was placed on the growth of agriculture and industry. The results of these initiatives are gradually beginning to show up. The total area under paddy cultivation has increased considerably. A special scheme for launching cultivation on barren land was implemented in association with agencies like Kudumbashree. Presently, there are around 74,000 Joint Liability Groups (JLGs) in the state to promote collective farming, while about 96,000 micro-enterprises are also functioning under Kudumbashree. The Local Self-Government bodies are also taking the initiative to prepare the necessary infrastructure for agriculture and allied sectors. A comprehensive plan to make 64,006 extremely poor people poverty-free in two years is being implemented meticulously. The Digi Kerala initiative is yet another proud project that aims to make the people digitally literate. Kerala is also the state that runs the employment guarantee scheme most

effectively.

More than half of the elected representatives in local self-government bodies are currently women. And not just in their representation of leadership, women in Kerala have also been empowered to a considerable extent as beneficiaries of development and as key contributors to the process of wealth creation. The Kudumbashree, which plays an important role in development and wealth creation, boasts a strong membership base of 46.16 lakh.

This way, Kerala has been able to achieve comprehensive growth that left a mark on all sectors within a quarter of a century of decentralized planning and decentralization of power. Let's work together to make these gains stronger and more sustainable.

# Perumbadappu Panchayat: A beacon of sustainable water conservation



**Ramya T.P.**

*Information Assistant, Malappuram*

**Perumbadappu Grama Panchayat in Malappuram district has become a shining example of environment stewardship, winning national acclaim for its remarkable efforts in water conservation. The restoration of Anarakulam and Valiyakulam ponds was one of the remarkable accomplishments of Perumbadappu Panchayat in its water conservation endeavours.**

**T**he Union Government has honoured the panchayat with the Deen Dayal Upadhyay Satat Vikas award instituted for the best panchayat in the country, recognizing the outstanding achievements in preserving its aquatic bodies consisting of ponds, lakes and coastline. This award is given to the top three panchayats that excel in the nine categories of sustainable development indicators. Perumpadappu Panchayat proudly secured second rank in the category of best Water Sufficient Panchayat, a testament to its successful and enduring initiatives in the areas of drinking water supply, water quality enhancement and water conservation.

Perumbadappu is a region blessed with diverse geographical features ranging from the coastline to Ponnani Kole wetlands and Connolly Canal. Given the rich tapestry of the landscape, the task of developing sustainable water conservation projects posed significant challenges. The Panchayat recognised that effective water conservation hinged on comprehensive, scientifically driven environmental protection activities. In addition to



the annual plan of the gram panchayat, the Panchayat spearheaded collaboration activities with various agencies such as Mahatma Gandhi National Rural Employment Guarantee Scheme, district panchayat, Green Kerala Mission and State Biodiversity Board. In the fiscal year 2021-22, a substantial amount of Rs 2 crore was allocated for water conservation activities. The panchayat also sought the guidance and expertise of Kerala Forest Research Institute and Kerala Fisheries and Ocean Studies University in its endeavours.

A well water conservation blueprint served as the cornerstone of Perumbadappu Panchayat's winning initiatives. The plan involved the creation of new water sources and the preservation of existing ones. The initial phase of the plan involved raising awareness through programmes like 'Jala Gram Sabhas' and Water Walks conducted at ward levels. Simultaneously, endeavours to rejuvenate existing water sources in the panchayat were launched. This included the maintenance of natural ponds like Valiyakulam and Anarakulam, restoration of Conolly and Anara canals, thorough cleansing of Nooradi channel, soil erosion prevention through the use of coir bhoovastra (a geotextile made of coconut husk) and enhancement of water storage capacity. Additionally, the panchayat reinforced the Kole wetland embankments and implemented an advanced drainage system to shield public



**Valiya Kinar**



**Anarakulam**

water bodies from contamination. To bolster the water supply infrastructure, two new innovative water supply systems were planned and executed. Creating over 10,000 rain pits and constructing 60 wells under Mahatma Gandhi Employment Guarantee Scheme also significantly contributed to the water conservation efforts. Rainwater harvesting systems were made mandatory for all buildings with more than 100 square metres of area. Filters were installed to prevent rainwater from washing garbage into the sea and causing pollution. To combat coastal erosion, a bio-fence made of mangroves was built. Unique initiatives such as a biodiversity park, a biodiversity nursery, a mangrove nursery and a green cover (pachathuruth) were also established to bolster the coastal protection measures. Planting Ramacham and bamboo along the Connolly coast further fortified the region against coastal erosion.

The water bodies, which were previously in a dilapidated condition, were revitalised to meet the various needs of the community. Anarakulam pond, with its potential to store water for agricultural purposes, underwent a comprehensive renovation at a cost of Rs 75 lakh. Similarly, Valiyakulam pond, which could address the drinking water scarcity experienced in the region, was renovated at a cost of Rs 30 lakh. Green Kerala Mission oversaw the restoration activities of both the ponds.

### **Project Puzhamulla**

Aimed at protecting the coast by creating a bio-fence using Puzhamulla (Cleroden Drum

**Perumpadappu Panchayat proudly secured second rank in the category of best Water Sufficient Panchayat, a testament for its successful and enduring initiatives in the areas of drinking water supply, water quality enhancement and water conservation.**

Inerme), Project Puzhamulla was another remarkable initiative by the panchayat. Launched on the International Day for Biodiversity, this project focused on reviving the coastal area extending over 500 metres along the Puthiyiruthi beach. The project was a joint effort by the grama panchayat, Biodiversity Management Committee, Employment Guarantee Scheme and local residents.

### **A water source that is a remnant of history**

Perumbadappu Swaroopam at Vanneri is a historic landmark where the coronation ceremony of Cochin rulers used to be performed. The giant well (Valiya Kinar) at Vanneri, which is considered to be one of the remnants of Perumbadappu Swaroopam, was given a much-needed facelift at a cost of 8 lakhs. The renovation activities were carried out under the supervision of the Archeology Department. "Perumbadappu Panchayat focuses on implementing eco-friendly water conservation activities using the expertise of the likes of Kerala Forest Research Institute, Kerala Fisheries and Ocean Studies University. The panchayat intends to implement more such initiatives in the coming years with increased responsibility", Bineesha Mustafa, President, Perumbadappu Grama Panchayat.

# Nava Keralam and Sustainable Development Goals



**Dr. Joy Elamon**

*Director General, KILA*

**The Nava Keralam action plan embodies Kerala's endeavour towards a transformative and sustainable socio-economic development trajectory aligned with the United Nations' Sustainable Development Goals (SDGs), showcasing a replicable model of progressive governance and holistic development aimed at eradicating poverty, promoting equity, and ensuring environmental sustainability.**

**K**erala is a state that has won many national level awards and accolades over the past several years across the different spheres of socio-economic development. These awards also serve as a recognition of its unique initiatives, which, in turn, has enabled the state to lead the way for its counterparts in almost all aspects of development and set an example for others.

The direction of the state's development course has been clearly laid out right since the start of the first cabinet headed by EMS Namboothirippad after the formation of Kerala. A governance system that emphasizes on the welfare of the people, its policy and development approaches has helped in elevating Kerala to this level.

The Nava Keralam action plan, which aims at transforming the state and creating a New Kerala, has been launched with an eye on strengthening our achievements through the activities over the previous decades,



address the shortcomings and take up new demands and challenges. The awards and firsts that we have won all these years are also a reflection of the quantum jump that the state has made in the spheres of development. One of the most significant facet of these awards is our achievements in the areas of Sustainable Development Goals (SDG). It is a matter of pride that Kerala has been able to maintain the first position every time in the rankings by the NITI Ayog, which are based on the SDGs.

The methodology of the SDGs can help us to strengthen further our approach towards development as well as the activities in this direction. It is also expected to help strengthen the programs based on it and move forward.

The methodology of the SDGs can be used in particular for objective-oriented planning and implementation. Based on the policy approaches of the state itself, it will help to identify development gaps and shortcomings within the development framework and re-affirm the goals and

# SUSTAINABLE DEVELOPMENT GOALS



move forward. Given this backdrop, there is also a need to ascertain what are these SDGs and where does Kerala stand as far as SDGs are concerned.

The SDGs comprise a set of 17 targets set by the United Nations General Assembly with a view to end all forms of poverty, fight inequality, and tackle climate change by 2030. It includes interrelated goals in the areas of poverty, hunger, health, education, climate change, gender equality, water, sanitation, energy, urbanisation, environment and social justice etc.

The SDGs aim to eradicate poverty, protect the earth and ensure prosperity through equitable development and environmental sustainability. The concept of SDGs was formed in the light of the principles adopted at the International Conference on Environment and Development organized by the United Nations from 3 to 14 June 1992 in Rio de Janeiro.

The SDGs have been framed on the vision that a healthy and productive life in harmony with nature is a basic human right, as stated in the Rio Declaration. Sustainable development is a development approach in which the needs of the present generation are met without adversely affecting the ability and potential of future generations to meet their own needs.

Kerala too shares the vision. Thus in 2015, the United Nations adopted the Sustainable Development Goals (SDGs), also called the Global Goals, as a universal call for action to end poverty, protect the planet that we inhabit, and ensure that all people enjoy peace and prosperity by 2030.

## The Sustainable Development Goals are:

1. No poverty
2. Zero hunger
3. Good health and well-being
4. Quality education
5. Gender equality
6. Clean water and sanitation
7. Affordable and clean energy
8. Decent work and economic growth
9. Industry, Innovation and Infrastructure
10. Reduced inequality.
11. Sustainable cities and communities
12. Responsible consumption and production
13. Climate Action
14. Life below water
15. Life on land
16. Peace, justice and strong institutions
17. Partnership for the goals.

The composite score and rank of SDGs with respect to last three years of Kerala are as follows:

Goals	2018 composite score	2019 composite score	2020 composite score
SDG1	66	64	83
SDG2	72	74	80
SDG3	92	82	72
SDG4	87	74	80
SDG5	50	51	63
SDG6	62	77	89
SDG7	60	70	100
SDG8	61	61	62
SDG9	68	88	60
SDG10	72	75	69
SDG11	46	51	75
SDG12	0	57	65
SDG13	0	56	69
SDG14	0	0	0
SDG15	75	98	77
SDG16	82	77	80
<b>State Composite Score</b>	<b>69</b>	<b>70</b>	<b>75</b>
<b>India Score</b>	<b>57</b>	<b>60</b>	<b>66</b>

### Explaining The Sustainable Development Goals

1. No poverty (SDG1): End poverty everywhere by ensuring equitable access to resources, opportunities and basic services.
2. Zero Hunger (SDG 2): End hunger, achieve food security, improve nutrition and promote sustainable agriculture.
3. Good health and well-being (SDG 3): Ensure a healthy life for people at all ages with a focus on access to healthcare and disease prevention and promote well-being.
4. Quality Education (SDG 4): Ensuring Inclusive and equitable quality education and lifelong learning and promotes learning opportunities for all.
5. Gender Equality (SDG 5): Achieve gender equality and empower all women and girls, and eliminate discrimination and violence.
6. Clean water and sanitation (SDG 6): To address water scarcity and pollution, ensure access to water and sustainable management of water and sanitation for all.
7. Affordable and clean energy (SDG 7): Ensure access to affordable, reliable, sustainable and modern energy for all, and develop renewable energy sources.
8. Decent work and economic growth (SDG 8): To Promote sustainable, inclusive and sustainable economic growth, full-scale and productive employment and decent work for all.
9. Industry, Innovation and Infrastructure (SDG 9): Building infrastructure that is resilient and inclusive. Promote sustainable industrialization and innovation.
10. Reduce inequality. (SDG 10): Reduce Inequality within and between countries and ensure equal opportunities and benefits for all
11. Sustainable Cities and communities (SDG 11): Make cities and human settlements inclusive, safe, resilient and sustainable.
12. Responsible consumption and production (SDG 12): Ensure sustainable consumption and production practices, reduce waste and promote sustainable practices.
13. Climate Action (SDG 13): Take urgent action to combat climate change and its impacts. Emphasize on adaptation and mitigation strategies.
14. Life below water (SDG 14): To ensure sustainable development, conserve and sustainably use oceans, seas and marine resources.
15. Life on land (SDG 15): Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and prevent biodiversity loss.
16. Peace, Justice and Strong Institutions (SDG 16): Promote peaceful and inclusive societies for sustainable development, access to justice for all, and build effective, accountable and inclusive institutions at all levels.
17. Partnership for the Goals (SDG 17): Strengthening

the means of implementation and revitalizing global partnerships for sustainable development. Give Emphasis to collaboration between governments, civil society and the private sector.

These 17 Sustainable Development Goals are integrated to balance economic, social and environmental sustainability in such a way that the action in one area does not adversely affect the actions and outcomes of other areas while intervening in different areas for development.

'Transforming Our World, the 2030 agenda of Sustainable Development' came into effect from 01.01.2016 after 193 Member States of the United Nations General Assembly adopted the agenda in a summit held in New York in September 2015. As part of it, a series of 17 goals and 169 sub-goals have been set in the Millennium Development Goals and these targets are to be achieved by December 31, 2030. As a signatory to the United Nations Sustainable Development Goals, our country too is committed to achieving these goals in a timely manner.

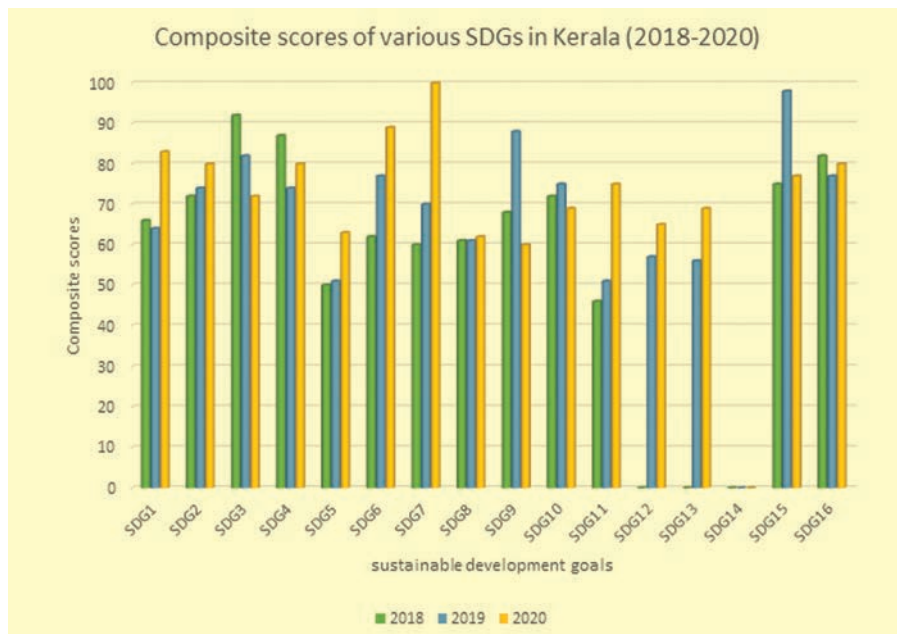
For this, the NITI Ayog has developed a set of national indices based on the Global Indicators developed by the United Nations. It is on this basis that Kerala has been ranked first in these indices over the previous years.

### Sustainable Development Goals India Index 1.0, Index 2.0

India's Sustainable Development Goals Index 1.0 (SDGII 1.0) was announced in December 2018 even before the finalization of the national index framework. The index was created using 62 indicators covering the 13 Sustainable Development Goals. But at the same time, targets 12, 13, 14 and 17 were not included in the first year due to lack of data at the state level. Targets 12 and 13, however, were added to it later. The index provided information on the social, economic and environmental conditions of the country and the progress recorded by states and Union Territories in achieving the SDGs.

All States and Union Territories are ranked on the basis their progress towards achieving the SDGs Sustainable Development Goals. After ranking in each of the objectives, they are graded on the basis of overall performance across different objectives to provide a composite score.

Those with scores less than 50 (aspirants) are given red color, while performers with scores above 50 are marked in yellow (score between 50 and 64-50,60 inclusive). Green is the colour code allotted to the Front Runners (scores between 65-99 inclusive – 65,99) while blue is used to denote achievers with 100 score.



↑ This figure shows the composite score of various Sustainable Development Goals of the state of Kerala from 2018 to 2020. The first two goals – zero

poverty and zero hunger – have exhibited steady and promising growth

It proves that hunger-free Kerala as well as the interventions towards eradicating extreme poverty and activities by the Kudumbashree have been effective. In terms of achieving gender equality (Goal 5) it shows a very significant growth during this period.

The targets of addressing water scarcity and pollution and ensuring access and sustainable management of water and sanitation for all (goal 6) exhibits a major change. A huge shift too can be seen in ensuring access to affordable, reliable, sustainable and modern energy for all and developing renewable sources.

The fact that the state has been able to score 100 percent in target 7 indicates that the mission to achieve Haritakeram (Green Kerala) as part of the Nava Keralam Action program is gradually moving towards the target. It is indicated that the activities carried out by various agencies as part of it are bearing fruits. The state's composite score rose from 69 to 75 over a period of three years. It is interesting to note that Kerala stands at 75 while the national score is just 66.

That the state has succeeded in maintaining the first position does not mean that there is room for complacency. We are guided by the realization that there is still more to advance in each of these goals and that is exactly why the second phase of Nava Keralam action plan was launched. By listing the sub-targets of each goal, the departments are planning time-bound programs to achieve the same.

At the same time, as a state that boasts a strong local self-government system, the development activities carried out at the grass roots should be target based. If all departments and local self-governing bodies work together to define goals and subgoals at different levels using the indicators and implement them in a timely manner, we can achieve these goals much before 2030 and set an example to the world.

It, in turn, will also give a major shot in the arm towards the creation of a Nava Keralam.

# Kerala leads India in Sustainable Development Goals Journey



**M.T. Sindhu IES**

State Planning Board

**Topping the national charts in multiple indices, Kerala showcases a remarkable stride towards achieving the United Nation’s Sustainable Development Goals, setting a robust example of localised action for nationwide advancement.**

As part of 2030 Agenda for Sustainable Development, United Nations Sustainable Development Summit, 2015 adopted 17 Sustainable Development Goals (SDGs) for its member countries. SDGs aims at development of critically important areas across globe such as eradicating poverty and hunger, providing healthy lives and quality education, achieving gender equality, providing modern energy, promoting sustainable economic growth, reducing inequality, etc. SDG Report, 2023 ranked India 112 out of 166 countries with country score of 63.4.

India followed robust localisation model to achieve SDGs and prepared state level SDG Index report for India. Kerala ranked top among the states in all indices of development including SDGs. SDG India Index, 2020-21 ranked Kerala first in the country with overall score 75, and whereas the corresponding national score was 66. Consecutively, over last three years (2018, 2019, and 2020), SDG Index, ranked Kerala top among the states. Many of the SDGs adopted by India have already been achieved by Kerala. Goal wise performance has also placed Kerala a frontrunner among the states. The proactive and multidimensional interventions of the Government helped to achieve these goals.

State wise performance ranked Kerala second among the states in ‘No poverty’ SDG (1), with 83 score, (Tamil Nadu ranked first with 86 score), and the corresponding score was 60 at national level. The robust implementation of MGNREGA in rural areas, Ayyankali Urban Employment Guarantee Scheme (AUEGS) in urban areas, one lakh new enterprises created as part of the ‘Year of Enterprises’ in 2022-23) which created 2,20,285 new employment opportunities



etc., are among the reasons contributed to reduce poverty. In 2021-22, under MGNREGA, about 16.45 lakh household received job and 1059.66 lakh persons day generated. Under AUEGS, about 2.45 lakh job cards were issued, and created 46.33 lakh person days in various Municipalities and Corporations in 2021-22. The poverty eradication mission in the name of Kudumbashree, Extreme Poverty Eradication Programme, Ashraya Programme, etc. are remarkable. Due to the concrete efforts, Kerala has the least Multidimensional Poverty (i.e. 0.002) among the states in the country according to NITI Aayog’s Multidimensional Poverty Index, 2023, i.e. the only states with less than one percent of people poor.

Kerala ranked first among the states with 80 score in SDG 2, ‘No Hunger’, and the corresponding national score is 47. The Government of Kerala is committed to food security to all sections of its people, especially vulnerable and marginalised. The system of universal PDS with coverage of 92.5 lakh families has been instrumental to wipe out





hunger from the state. The Government provide food grains at free of cost to AAY families, the poorest of the poor. Through Supplyco outlets, Government is retailing 13 essential goods at reasonable price below open market, about 40 lakh families monthly get benefited. Besides, hundreds of other consumable items are retailing through supplyco at price less than the open market, and whereby helped to control inflation in the state. Schemes such as 'Hunger Free Kerala scheme, community kitchen, Janakeeya Hotels, mobile ration shops, flood relief, festival food kits, COVID-19 pandemic food kit, etc., helped to wipeout hunger from the state. As a result of the comprehensive efforts, Kerala ranked first with 80 score among the states in 'No Hunger', SDG 2 and the corresponding national score is 47.

Our achievements in health, education and social justice have received worldwide recognition. Kerala, the only State in India with very high Human Development Index of 0.709, comparable to contemporary developed nations of the world. The state with highest literacy and 100 percent enrollment at elementary level and lowest dropout rate according to UDISE+ Report 2021-22. Gender gap in education is relatively low in Kerala. Therefore, in SDG of 'Quality Education', Kerala ranked first among the states.

Kerala has the universal access and coverage to health care facilities. According to NITI Aayog's State Health Index for 2019-20, Kerala retain its top rank among the larger States with an overall score of 82.2. In all health indicators like the life expectancy (75 years), Infant Mortality Rate (IMR, 6), Maternal Mortality Ratio (19), etc., the state ranked first among states. In SDG of 'Good Health and Wellbeing, Kerala is the front runner among the states. Aardram Mission like comprehensive scheme further improved health infrastructure in the States.

Regarding other SDGs such as energy, clean water and sanitation, infrastructure, inequalities, climate actions etc., Kerala is frontrunner in the county. Kerala is the only State in the country with 100 per cent metered water and electricity connections. Kerala topped among the states for affordable and clean energy index of SDG in the country. Kerala is the second-best performing state as per NITI Aayog's State Energy and Climate Index (SECI) published in 2022. The road connectivity is high, and road density in Kerala is 548 km per 100 sq. km, which is roughly three times the national average. The hill highway, coastal highways etc. further enlarged road connectivity.

Robust implantations of the schemes, universal access to basic amenities of life like food, shelter, health, education etc., high material quality of life, comparable low gender gap in development, reduced rural urban gap etc. placed Kerala front runner among the states since the inception of SDGs in the country

# Sustaining Aquatic Ecosystems: Research Efforts for Life Below Water



## Grinson George

ICAR-Central Marine Fisheries Research Institute

**By instilling awareness and a sense of responsibility, Kerala is nurturing a generation of stewards dedicated to preserving the rich aquatic ecosystems that sustain life below water.**

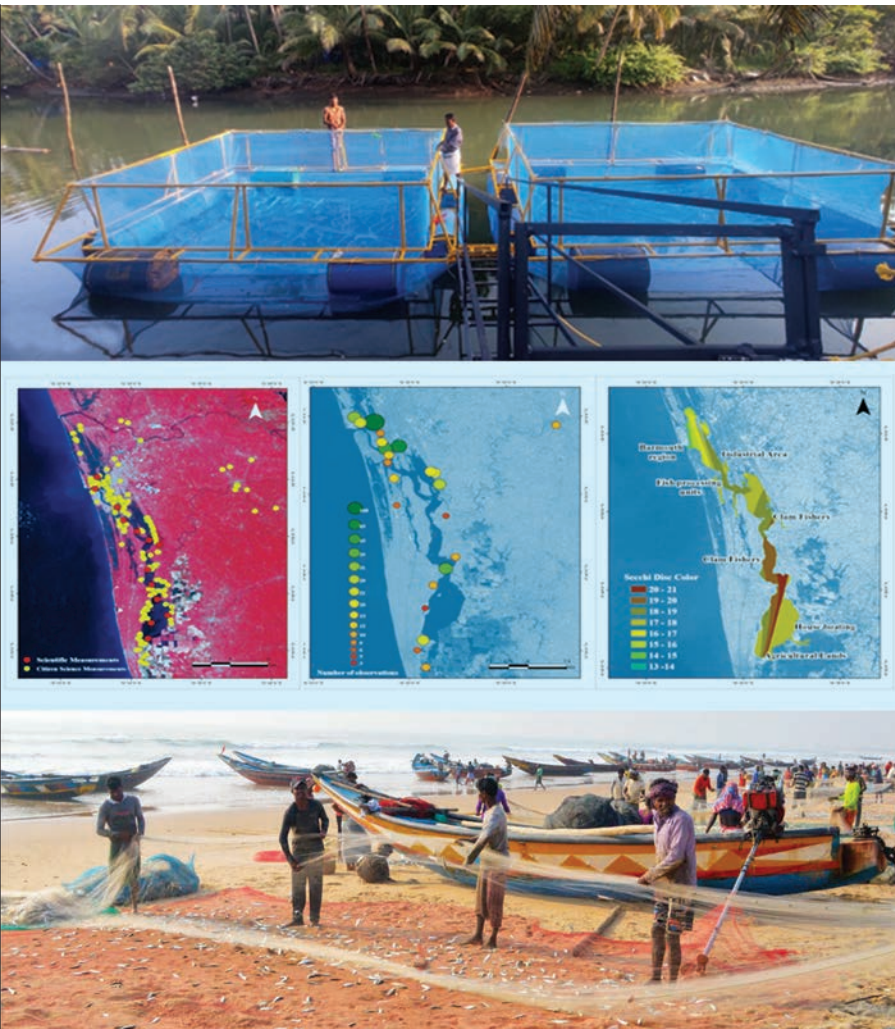
There is a world beneath the water's surface which is teeming with life, offering an abundance of consumable food such as fish and other associated resources, including molluscs and shellfish. In the global context, India stands out as a leader in these aquatic resources, and when we turn our gaze to Kerala, we discover a biodiversity hotspot unlike any other. Kerala's waters are home to a remarkable array of species, with nearly all of India's aquatic diversity thriving in these vibrant aquatic ecosystems. However, this wealth of aquatic life also presents a challenge - the need for sustainable harvesting and resource management.

Recent evaluations of 68 economically significant marine fish species in India have revealed that 86% of these species are currently being harvested in a sustainable manner. The State Fishery Management Plans, meticulously crafted by ICAR-CMFRI, encompass a spectrum of strategies and management alternatives, uniquely tailored to the circumstances of each coastal state. These comprehensive plans encompass measures designed to curtail overfishing attributed to growth and recruitment, incorporating the utilization of non-selective fishing gear alongside external controls for effective regulation. We can look into the innovations such as Minimum Legal Size (MLS) which paved way for a better regulated fishery.

One of the most pressing challenges in this effort is maintaining water quality in the coastal and marine ecosystems. Just as climate vulnerability affects marine species in the open sea, similar challenges confront the rivers and lakes of Kerala. To tackle these multifaceted challenges and safeguard both aquatic ecosystems and the well-being of coastal communities, various



measures have been in place. Among these initiatives, one of the most noteworthy is the recent emergence of Citizen Science. One of the primary indicators of water quality is its colour and clarity attributes that can be easily observed and measured. In addition, the quality of water also involves complex interactions with microorganisms and chemical components. CMFRI has made a notable effort to assess and improve water quality through a network of citizen scientists dedicated to preserving a unique tropical lake-estuarine system, the Vembanad Lake, which stretches over 100 km and plays a pivotal role in the livelihoods of approximately 1.6 million people. However, the deterioration of water quality in this vast ecosystem has led to frequent outbreaks of water-associated diseases, causing suffering and, tragically, even loss of life. The establishment of this citizen science network in Kerala was made possible through the active involvement of students from 16 colleges affiliated with three universities in the region, in conjunction



with research institutions and various stakeholders. These stakeholders encompass a diverse range of interests, including houseboat owners, non-governmental organizations (NGOs), inland fishermen, and local residents living near the Vembanad Lake, all eager to contribute to the cause. To assess water colour and clarity, mini Secchi disks equipped with Forel-Ule color scale stickers were employed. Additionally, a mobile application named “TurbAqua” was developed to facilitate the real-time transmission of data. To ensure the quality of the data collected, in-situ measurements by scientists were used to validate a subset of citizen-generated observations. The number of efforts, frequency of observations and colour mapping is provided in the image below. Providing citizens with the tools and knowledge to assess water quality empowers them to make informed decisions about the water they use, aligning with Sustainable Development Goal 6 - clean water for all. This grassroots approach to monitoring and improving water quality highlights the importance of involving local communities in the stewardship of their own natural resources.

In addition to water quality monitoring, CMFRI has also embraced mariculture activities in its coastal regions. Over the past decade and a half, efforts have been made to diversify the livelihood opportunities offered by coastal and marine ecosystems through cage mariculture activities. In India, cage culture is gaining momentum due to its successful and straightforward technology and the abundance of open water bodies. Kerala is no exception, with cage aquaculture becoming a prominent means of livelihood and a profitable venture for many. ICAR-CMFRI has played a pioneering role in advancing mariculture research within India, focusing on the cultivation

of marine species in enclosed structures in both inshore and offshore waters. The institute has established hatcheries and grow-out infrastructure to facilitate seed production and has achieved substantial progress in various facets of mariculture. These achievements encompass the development of brood stock, maturation, sex reversal, spawning, fertilization, and hatching for several potential marine finfish species, including cobia, pompano, groupers, snappers, and sea breams. ICAR-CMFRI has also achieved noteworthy breakthroughs in seed production and the rearing of highly sought-after sea cucumber species. Furthermore, the institute has identified 76 finfish and shellfish species with the potential for mariculture expansion, aiming to bolster seafood exports. Diverse mariculture technologies, such as coastal and marine cage culture, raft and longline cultivation of bivalves and seaweeds, integrated multi-trophic aquaculture (IMTA), and re-circulatory aquaculture systems (RAS), have been standardized for our aquatic environments. A cage farm from Kannur is shown in the image.

Notably, the cultivation of seaweed holds promise as a burgeoning sector, where advancements in culture techniques and post-harvest product development have the potential to substantially elevate domestic seaweed production and related exports. The promotion of molluscan-related farming activities has been a significant focus. This includes spat-based farming activities and hatchery improvement programs aimed at increasing seed production for molluscan farming systems.

Recognizing that environmental stress can have profound health implications, we have adopted the globally accepted framework of One Health Aquaculture. This framework encompasses health surveillance and the implementation of antibiotic maximum residue limits (MRL) to ensure the health and well-being of aquatic ecosystems. The increase in harmful algal blooms, a phenomenon known for producing biotoxins, poses another challenge to Kerala's aquatic ecosystems. On the southern coast, particularly in Calicut, mass mortalities of fish have been observed, indicating the harmful impact of algal blooms on the food chain. To further enhance the study of water quality and address these challenges, citizen science initiatives continue to evolve. Capacity-building efforts are ongoing, with a particular focus on educating and involving the younger generation.

# Kerala's Health Evolution: From Grassroots Innovation to Global Recognition



**Dr. Anju Angel Alex**

*Department of Health Services*

**Kerala's transformative journey in healthcare is a shining example of visionary planning and grassroots dedication, setting a global benchmark**

It was getting cloudy by the beach side in Ward XVI, which was ASHA worker Sulaja's area. She had a few more people to meet as part of the 'Shaili' survey and was determined to meet them all before she called it a day. This is a free android app developed by E Health, Kerala as part of the State Health App initiative. The screened people are assigned scores, and those with scores above 4 are asked to visit the nearest health center or HWC (Health and Wellness Centre), formerly called as Subcentre. The app was designed to help Asha workers in Kerala, provide lifestyle intervention to their beneficiaries. At almost the same time, Sindhu and Sabu, the palliative nurse and driver (names changed), were winding up their work. It was yet another busy day - changing catheters, inserting ryles tubes, cleaning bed sores and so on. Sindhu was relieved though, that she could spend more time caring for patients who needed actual palliative care because the past one year had seen tremendous changes with the introduction of Middle Level Service Providers (MLSPs) who visited and cared for patients who were 'Homebound' but otherwise quite well. They were the people who found it impossible to travel anywhere to even get their sugars and pressures checked due to various restraining conditions like being post-operative or being physically challenged.

George, a 70-year-old gentleman, used to be in the habit of procrastinating



his blood sugar checks and visits to the PHC because he lived in Ward X which was not exactly near to the PHC. But with the advent of the concept called HWCs, George is now regular with these. He is happy that his sugars are under control with more care from his side, thanks to the IEC (information, education, communication) he gets from his doctor and all the health staff.

In 2015, the countries under the UN (United Nations) had adopted the 2030 agenda for sustainable development. After all the efforts put in by every state, if in 2023 Kerala's ranking stands at 75 as against 121 for India, it is a testimony to the Innovation, Diligence, Hardwork, and above all, Vision Kerala has been putting into it. Among all these Goals, the one goal which cuts through all other goals and whose successful implementation would ensure achievement of all other goals would be Good Health and Well-Being

In 2015, the countries under the UN (United Nations) adopted the 2030 agenda for sustainable development. If, after all the



efforts put in by every state, Kerala's ranking stands at 75 in 2023 as against 121 for India, it is a testimony to the innovation, diligence, hard work, and vision that Kerala has been investing in it. Among all these goals, the one which cuts through all other goals and whose successful implementation would ensure the achievement of all other goals is Good Health and Well Being.

Shedding light on the tremendous changes taking place in the health sector, Dr. Anilakumari, who is now the Medical Officer of FHC Vengola, says, "Immunization is perhaps the only work we continue to do today, and that has been there since the early days. Everything else has changed. We have more medicines, funds, backing and support from various quarters, and newer projects. From being a sanctuary for those who couldn't afford a visit to a private hospital during fevers and other communicable diseases, our hospitals have turned into centers sought after by everyone. Our Asha workers—they are our extended arms and provide means of intervention even before the beneficiaries reach out to us. Hotel inspections done during Healthy Kerala Campaigns ensure food safety. Water chlorination, outbreak mitigation, universal immunization with more outreach sessions, free availability of expensive medications and injections like anticancer medicines and erythropoietin injections for renal patients, e-Health—we have come a long way. I'd say that Good Health and Well Being is directly or indirectly linked to the betterment of the other goals like eradicating poverty, for example." Her words give us an idea of how Kerala has managed to excel and how achieving this health-related goal, in turn, contributes to the betterment of indices included in the other goals.

With projects like Health Grant, funds have been made available to Local

Bodies to be implemented through Medical Officers wherein expensive tests like dengue tests, pregnancy tests, and malaria tests can be done even at the HWC level, either directly or by transporting the collected samples to the nearest laboratory through the hub-and-spoke model of transport, for which funds are also allotted.

"When I embarked on this job as a JPHN, initiatives like these were not even heard of," Jisha, a Junior Public Health Nurse whose fieldwork involves fishing harbours in the Goshree Islands of Ernakulam, says as she removes her surgical gloves after completing Pap smear collection for cervical cancer screening. Dr. Anitha smiled appreciatively as she oversaw the camp. "And to think that these women did not have to go to a tertiary care centre to get this service but visit their nearby local health center!" True, decentralization and empowerment of each person and each category are at the heart of Kerala's success.

Sheeba, a staff nurse in FHC Chittattukara, passionately elaborates on how Family Health Centres have become the solution and solace for a family's complete health needs. "As a staff nurse working in an FHC, the one change that I feel proud to be a part of, apart from the various clinics like SWAAS clinics for respiratory illnesses and Mental Health clinics and De-addiction clinics, is the pre-check session that we nurses do when a patient initially comes to the OPD. We have the best quality digital BP apparatus today with accurate calibration and enough glucose testing strips and glucometers. The scope for compassion, which forms the cornerstone of the ArDRAM Mission, is tremendous through all these interventions," she gushes.

Sindhu reflects on the time when she started out as a palliative nurse. "Very few patients registered with us then. Today, the way this program is run in Kerala is a matter of pride and a point of emulation for other states. Today, our beneficiaries even have Bipap machines, water beds, and air beds at home provided through the State's Palliative Care Program. There is an option for peritoneal dialysis, which is done as a home-based procedure. And, not only Palliative Nurses but also our MLSP nurses, physiotherapists, and doctors trained in Palliative Care visit these patients today," she says.

Thus, as one gets a glimpse into the health system in our state, one cannot help but be proud and awed at the vision and foresight that must have gone into making Good Health and Well-being a reality that we can be proud of.

# Kerala's Great Wisdom in Water Management



**Dr. Sheeba V.T.**

*Economist*

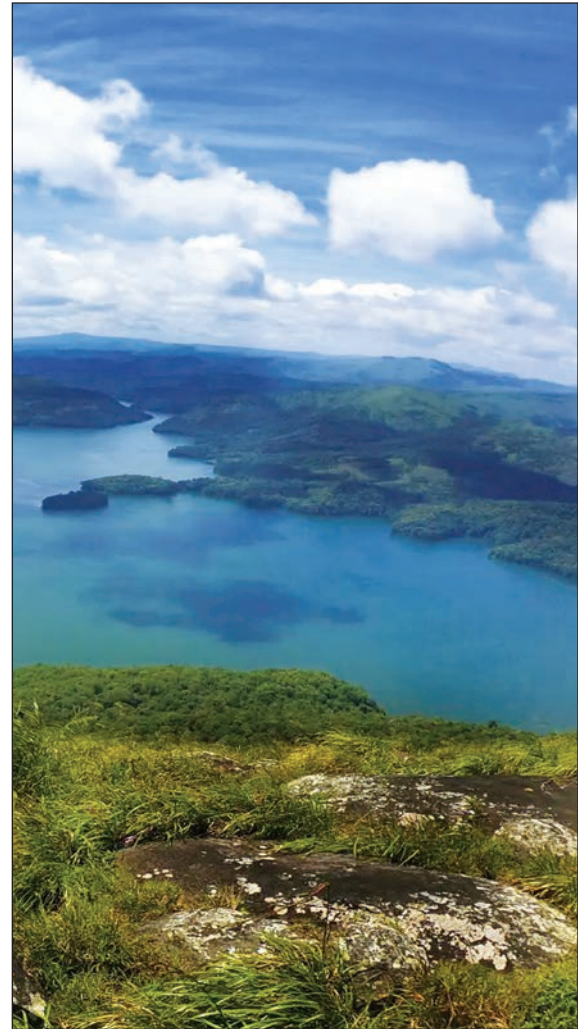
**Facing a mounting water crisis amidst rapid urbanisation and climate change, Kerala pioneers a transformative approach through its comprehensive water management strategies.**

**T**he world today has the same freshwater which it had a million years ago. However, today about 8 billion people share it. The total volume of water on Earth is constant. The hydrologic cycle is like a pump, cycling water through evaporation and precipitation.

But there is an uneven distribution of water on Earth. At the beginning of this century, researchers were aware that global consumption of water is doubling every 20 years, which is more than twice the rate of population growth (Maude Barlow and Tony Clarke, 2002). The increase in water utilization levels register a rise which is more than 2.5 times the increase in population growth. The U.N. estimates that by 2050, water resources will be shared by about 3 billion more people. The trend in monsoon and annual rainfall has been declining for the past 60 years and the number of droughts increased from that in 1961-70 to 1991-2000 (Rao et al. 2009). As for Kerala, a water-rich state with over 44 rivers, above 50 lakh wells, and over 3000 small streams, the state also has the highest density of wells in the world.

In Kerala, the water demand in the domestic sector has shown a higher growth rate than that of the population. The traditional cultural habit of very high consumption of water, high literacy rate, and healthcare awareness has pushed up the demand for quality water. Transformation of the traditional joint-family system to nuclear families and the shift to urban centers with no open water harvest structures, are increasing the pressure on the public water supply system. These factors cause a faster growth rate in demand for water and today, water intensity behind crops and water footprint behind commodities become very relevant concerns.

Land-use changes in favor of service and industrial sectors also reduce the water conservation level substantially, while they also cause an increase in



demand. In a land-scarce state, there has been a decrease in the gross cropped area of the state and about 7 lakh hectares of paddy have been lost from 1971 to 2020. Studies have pointed out that paddy lands are the kidneys of nature and one hectare of paddy land has the capacity to store approximately 5 lakh liters of water; their environmental value as bio-reserves can never be ignored. The state presents a history of climate devastations, destruction of natural vegetation, high consumption levels, and a construction boom - ecological destruction by anthropocentric intervention. Geographical features in Kerala are undergoing rapid alterations. Thus, the forces of supply and demand are forever moving in opposite directions. The signals of climate change, changes in land-use pattern, social attitudes and behavior, and demographic pressures indicate that the supply-demand gap may be widened in the future.

Vulnerability to water stress in Kerala is influenced by a number of factors



like cropping intensity and diversity, density of population, forest cover, quantum of small and marginal holdings, livestock population, net groundwater status, etc. These multiplicities of factors are also diverse and show highly variant intensities in different geographical locations in Kerala. Conservation measures and policies thereby require addressing local situations.

## **Water Wisdom in Management**

CWRDM (Centre for Water Resources Development and Management) is a premier R & D institution in the water sector established by the Government of Kerala which aims at water security for all. Kerala became the first state to adopt a water budget on April 17, 2023, not just as a solution to water scarcity but also for comprehensive water management. Water budgets are an effective instrument to ensure sustainable development and in Kerala, it involves recording the availability of water, its consumption, surplus, and deficit in 94 gram panchayats of the state. An excellent tool to address geographical variations in water availability, water budgeting can ensure equitable distribution of water. The state is blessed with an average rainfall of about 3000 mm, which is double the national average and equivalent to 5 times the rainfall received in Rajasthan or 3 times the rainfall received in Tamil Nadu. Hence, water management measures initiated by the government can go a long way in fostering water wisdom. Water security is the key to food security. We need the BLUE to keep the GREEN.

Kerala is a state with one of the highest proportions of small and marginal

holdings in the country. But even on a 5-cent plot, rainfall showers approximately 6 lakh liters of water. Harvesting even a portion of it can make a family comfortable during summers. There are around 65 lakh wells in Kerala and rooftop harvesting can be resorted to recharge the wells. The Kerala State Literacy Mission Authority had initiated a 'water literacy' campaign with the involvement of students, aiming to create awareness about the importance of water conservation. The water literacy campaign of the government enlightens people and makes them aware that today's wastage is tomorrow's shortage. It also explains how a free bounty of nature has transformed into an economic good with a price tag.

Conservation of resources like water is a state of harmony between men and land, and it is foolish to believe that someone else will save it. As Dr. M.S Swaminathan says, if conservation of natural resources goes wrong, nothing else will go right.

# Climate action: Critical to all SDG targets



## Dr. Abhilash S.

Director, Advanced Centre for Atmospheric Radar Research, CUSAT

**Kerala has implemented the pioneering initiative of developing a climate action plan for each of its local self-governing bodies, making it the first Indian state to do so.**

**C**limate action plans have long-term mitigation goals to reduce GHG emissions and short-term adaptation goals to improve resilience to climate change's effects on local infrastructure and services, public health, the economy, and natural resources. Integrating mitigation and adaptation planning with ecosystem restoration, job creation, urban-rural planning, general community planning, housing and infrastructure, agriculture, fisheries, animal husbandry, water resource management, and more should connect climate action plans to Sustainable Development Goals (SDGs). Land use and transportation, capital improvements, hazard mitigation, housing and infrastructure, agriculture, fisheries, animal husbandry, waste management, economic development, disaster management, and public health may all be part of climate action plans.

Kerala leads other Indian states in numerous SDG targets related to society, such as poverty, hunger, education, health, gender equality, cheap clean energy, inequality, and more, according to NITI Aayog's SDG Index. There is still room to enhance the score for SDG targets related to environment, ecosystem, and economic. To outline a clear route for Kerala to achieve SDG 13 by 2030 through effective climate change action while supporting Kerala's development ambitions and other SDG targets in the framework of sustainable and responsible development.

Kerala's high exposure (both society and assets) to a changing climate (rising temperatures, sea level rise, extreme rainfall, cyclones, storm surge, wind gust, lightning) and its social and economic sensitivity to those changes, along with its unique geographical location near the



Arabian Sea, Bay of Bengal, vast Indian Ocean, and disturbed Western Ghats, make it more vulnerable to climate change than other Indian states.

Limited information on short, medium, and long-term climate change hazards hinders planning at those time periods and geographical scales. An effective weather station network and forecasting and information management systems would improve Kerala's climatic information. These and greater partnership with the National Weather Service and other local academic institutions will strengthen early warning systems for significant weather disasters, building rural farmer and artisanal fisheries resilience. The Kerala School Weather Station (KSWs), a unique programme launched by Kerala General Education Department under Samagra Shiksha Kerala (SSK), will create local awareness with direct student and teacher participation and generate high-quality climate data.





Net-zero Emission Pledges Moving from voluntary pledges to mandatory regulations and standards is the best way to safeguard progress and assure collective action towards Kerala's 2050 net zero target, compared to 2070 nationwide. Kerala is dedicated to leading the way from a comprehensive climate risk priority to credible net zero pledges to participate in global efforts to reduce global temperature below 2.0 degrees.

Delivering Climate Justice and Loss and Damage Fund: Over 3 billion people are vulnerable to climate change, according to the IPCC 6th Assessment Report. Floods, droughts, and storms killed 15 times more people in vulnerable areas between 2010 and 2020. Nearly 70% of climate-related disaster deaths have happened in the 46 poorest countries over the previous 50 years. Meanwhile, people who are least responsible for the climate crisis are already suffering and need urgent assistance to adapt and recover.

### **Early Warning for All Initiative:**

The Early Warnings For All initiative demonstrates complete alignment with the 2030 global agenda, as it actively supports the fundamental provisions outlined in the Sendai Framework for Disaster Risk Reduction, the Paris Agreement on climate change, and the Sustainable Development Goals pertaining to poverty, hunger, health, water, clean energy, climate action, and sustainable cities. Multi-hazard early warning systems are only in place in half the world. Early warning systems have reduced weather, water, and climate-related deaths and losses. The Early Warnings for All initiative brings together the UN system, governments, civil

society, and development partners from the public and private sectors to improve collaboration and accelerate action to deliver people-centered, end-to-end multi-hazard early warning systems that leave no one behind. Kerala has major gaps in this direction, despite some efforts to enhance civil society participation in DDR, but coordination, collaboration, and synergy across projects and collaborations across sectors can overcome these limits.

### **Co-production of Knowledge and Participation of Stakeholders is Essential**

The concept of knowledge co-production is gaining prominence as a crucial factor in utilizing scientific advancements for the purpose of achieving sustainable development, as well as being a necessary condition for effectively adapting to climate change. Collaborative and participatory partnerships can be established to build integrated flood control and forest restoration initiatives, which offer several co-benefits associated with biodiversity conservation, improved crop yields, and enhanced livelihood diversification. Hence, the co-production of adaptation strategies can be effectively linked with poverty alleviation and empowerment in marginalized groups. The integration of indigenous knowledge systems with contemporary scientific knowledge has the potential to yield favourable outcomes.

Kerala has demonstrated commendable progress in attaining Sustainable Development Goals (SDGs) by effectively incorporating the primary objectives of climate action plans into the broader framework of all other SDG targets. The valuable insights and effective strategies derived from the "Vision Kattakkada" project, which seeks to harmonize climate action plans with several Sustainable Development Goals (SDGs), have the potential to be extended to other constituencies. By doing so, it is possible to enhance the independence of local communities and facilitate the restoration of the environment and ecosystem. Kerala possesses significant potential for advancing all Sustainable Development Goals (SDGs) pertaining to social, economic, and environmental sustainability through the implementation of integrated climate action plans. This potential is bolstered by robust institutional support, effective governance, a comprehensive education system, and active community engagement

# Sustainable Farming Practices - A Kerala Perspective



## Roy Stephen

*Professor of Plant Physiology & Dean of Faculty, Kerala Agricultural University*

The article explores a holistic approach towards sustainable farming in Kerala, integrating ecological, social, and economic principles with innovative techniques to address food security and environmental challenges, aiming for resilient agricultural advancement.

Feeding the growing population without overexploiting resources is a concern that can be addressed through the adoption of long-term sustainable production techniques. The concept of sustainable farming system lies in ecological, social and economic sustainability and the process is still evolving. Sustainability maybe considered as an optimization process that engages all participants including farmers, labourers, policy makers, retailers, consumers and researchers.

### Ecological, Social and Economic sustainability

Ecological sustainability emphasizes water and soil management, system sustainability, agrochemical handling, climate change adaptation, and risk analysis, promoting biodiversity, natural pest control, nutrient recycling, renewable energy, and integrating livestock with on-farm forestry. Social sustainability is achieved through food security, dignified employment, food education, and stronger associations. In Kerala, rice security is critical due to a significant production shortfall, necessitating a sustainable boost in rice production to meet the growing demand. Economic sustainability hinges on profitable enterprises, sound financial planning, proactive marketing, risk management, and adept overall management

### Diversification

Diversification in cropping by double cropping, mixed cropping, crop rotation and farming through incorporation of fishery, dairy, poultry, honey bee, mushroom etc can bring sustainability. Homestead farming, the traditional system of Kerala is essentially a low external input agro ecosystem. The high species diversity and complex structural arrangement of components with strong ecological foundations simulates the structure and function of a natural tropical forest ecosystem.



### Integrated nutrient management

Integrated Nutrient Management is the best approach for better utilization of available resources to produce crops with less expenditure. The comprehensive nutrient status of Kerala published revealed acidic soils with low to medium potassium, deficient calcium, magnesium, sulphur, copper, zinc and boron in majority of the samples.

KAU has developed a multi nutrient mixture "Sampoorna" for foliar application in vegetables and "Ayar" a micronutrient fertilizer mixture for banana. Biofertilisers such as Azospirillum, azotobacter, P solubilising bacteria, Arbuscular Mycorrhizal Fungi, rhizobium and PGPR Mix are some of the potential and preferred choice of farmers. This can be integrated into the integrated nutrient management system. Application of organic matter increases microorganism density and activity in the soil, thus decreasing population densities of pathogenic and soil borne fungi which restricts the requirement of chemical alternatives.

### Integrated pest and disease management

Integrated pest and disease management



uses resistant or tolerant varieties, cultural practices, use of parasites, predators, pathogens attractants, repellents, sterilants, growth regulators, male sterile techniques, suppression campaigns, quarantine measures and judicious use of pesticides. Different biocontrol agents available in Kerala Agricultural University includes *Pseudomonas fluorescens*, *Trichoderma*, *Beauveria bassiana*, *Laccaria lecanii*, *Metarrhizium anisopliae*, *Paecilomyces lilacinus*, PGPR MIX 11, *Trichogramma* and entomopathogenic nematode infested cadaver for the control of various diseases and pests of major crops of Kerala.

### Soil and Water management

The basic unit for sustainable farming should be based on watershed. Management of watershed involves the rational utilization of land and water resources for optimum production but with minimum hazards to natural and human resources. Agronomical and mechanical soil conservation measures are the approaches. Agronomical soil conservation practices are contour cropping/ planting, contour strip cropping, crop rotation, green manuring, cover cropping, mulching etc for milder slopes. Mechanical or engineering soil and water conservation measures are to be adopted in combination to agronomical measures in high and steep slopes. The bench terracing, contour bunding for gradual development of terraces, half moon terracing, grass water ways, drop pits, gully plugs, earth dams for water harvesting, contour trenching and staggered trenching for forestry land uses, drainage line treatment structures etc. are common mechanical methods adopted.

### Post harvest technologies

To attain the potential of increased productivity, a significant reduction in post harvest loss is required. The Hazard Analysis and Critical Control Point (HACCP) approach has been effective and is obligatory in developed country markets for all stages of food production after primary production. While Good Agricultural Practices cover the agricultural phase of food production,

the post agricultural phase needs proper management through Good Marketing Practices including Good post-harvest management, Consistent marketing and Efficient trade.

### Adoption of innovative technologies

Integration of innovative technologies reduce carbon emission, sustain ecosystem and improve economics of farm. Nanotechnology through use of nanofertilizers, nanopesticides, various sensors for monitoring quality of soil, plant and water, biotechnological tools for early and quick detection of plant diseases, harmful residues, introduction of new traits into plant species, genetic mapping, marker assisted selection, production of novel vaccinations, diagnostic tools to improve animal health, application of embryo technologies, precision farming through use of global navigation satellite system, geographic information system, yield monitoring, remote sensing, specific management decisions for soils and crops are innovative technologies for sustainable farming.

### Climate smart agriculture

Climate Smart Agriculture aims at sustainably increasing agricultural productivity and incomes, adapting and building resilience to climate change and reducing or removing green house gas emissions. A climate smart model suited for lowlands developed by Kerala Agricultural University consists of 0.2 ha, with major crop coconut, intercrops vegetables, fruit crops, spices, fodder and tuber crops, livestock, azolla and agroforestry consisting of teak, jack, breadfruit, garcinia and mango. The productivity enhanced ten-folds in Integrated Farming System compared to sole crop of coconut. The system was found climate-smart because of reduced use of chemical fertilizers and net negative emission of greenhouse gases mostly achieved through agroforestry.

### Coconut based Integrated farming system

Evolving a sustainable farming practice for a particular region should be based on watershed. The land use pattern of the watershed of a particular region has to be studied and soil map as well as soil fertility maps should be made. The sustainable system should be made very efficient incorporating innovative agricultural technologies, ensuring carbon neutrality, climate smart practices, adopting proper post harvest technologies and making an efficient marketing channel.

# KAU's Technological Vanguard

## **Dr. Madhu Subramanian**

*Director of Research, Kerala Agricultural University*

**Kerala Agricultural University (KAU) spearheads technological advancements in farming, addressing challenges like climate change, while fostering value addition and innovative practices in crop management**

Farming in Kerala is marked by extensive crop diversity and homestead farming, juxtaposed with challenges like fragmented holdings, labour shortage, and man-nature conflicts. This has led to lower productivity; for example, the rice yield in Kerala (3.06 t/ha in 2019-20) is lower compared to states like Punjab (4.03 t/ha). Addressing these issues requires multifaceted strategies with a significant emphasis on technological interventions. Kerala Agricultural University (KAU) plays a pivotal role in advancing agricultural technology in the state, covering areas like crop improvement, production, protection, and value addition. In crop improvement, KAU has released 70 high-yielding varieties of different crops in the last decade. They also focus on developing climate-resilient varieties. In crop production, they have standardized cultivation practices, promoting precision farming, and urban farming initiatives like Nutri stick for pot cultivation. In plant protection, efforts include breeding for resistance and novel pest management techniques like the KAU weed wiper. Value addition through secondary agriculture, like processing and 3D printing of foods, is being encouraged to ensure better income for farmers. Other advancements include integrated farming models, biocomposting techniques like KAU Biobin, and farm mechanization. KAU aims to integrate advancements from various tech streams like biotechnology, nanoscience, IoT, robotics, and AI to further benefit the farming community.

### **Crop Improvement**

Crop improvement via breeding is crucial for agricultural advancement. Kerala Agricultural University (KAU) has released 70 high-yielding crop varieties over the past decade, including notable varieties like Manu Rathna and Jaiva rice,



Swarna and Shonima watermelons, and Sindoor jackfruit. In response to climate change challenges, KAU is working on developing high-yield, stress-tolerant varieties, with Lavanya and Jyotsna rice being examples. Enhancing these efforts necessitates the use of biotechnological tools like gene editing and recombination.

### **Crop Production**

Ever since its inception, KAU has paid great emphasis on standardizing crop cultivation practices from seed to harvest. The results of innumerable experiments paved the way for the “Package of Practices recommendations for Crops”, considered as the bible in farm technologies by farmers and extension officials alike. Recommendations on planting time, planting methods, spacing, nutrient, and



*Nutri stick for pot cultivation*

water management are developed, evaluated through a rigorous process involving on-farm trials in farmers' fields, reviewed by experts, and finally approved by a statewide body of stakeholders. While

nearly sixty new recommendations find their way into every new edition of the PoP, some of the notable recent developments include the development of customized nutrient formulations Sampoorana and Ayar. Sampoorana is a micronutrient formulation developed for application in rice, vegetables,



KAU weed wiper

wilt in solanaceous crops. Quite recently, KAU has successfully automated the grafting procedure that can help more economical production of the grafted seedlings.

## Grafting of Solanaceous Seedlings

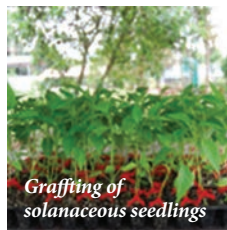
### KAU Weed Wiper

The KAU Weed Wiper is a patented technology that helps apply herbicide selectively on weedy rice alone in rice fields, thus helping manage them without any damage to rice and with minimal environmental contamination.

KAU also successfully released *Anagyrus lopezi*, the natural enemy of Cassava mealy bug, with support from NBAIR Bangalore. The parasitoid has been established well and is expected to provide permanent control of the mealy bug during the ensuing summer seasons.

### Value Addition

Secondary agriculture, involving processing and value addition, is vital for ensuring



Grafting of solanaceous seedlings

rural employment and better income for farmers. Kerala Agricultural University has, in the last decade, standardized technologies for nearly 45 value-added products and is offering the same for entrepreneurs at a prescribed fee.

### 3D Printing of Foods

The integrated farming system models based on coconut, rice, and banana, biocomposting techniques, and farm mechanization are other areas where KAU has made substantial technological progress. The KAU BioBin is a very compact biocomposting unit that is well suited for flats and small households.

### KAU BioBin:

In conclusion, Kerala Agricultural University has significantly advanced farm technologies in the state, and along with other NARS institutions, aims to harness rapid transformations in fields like biotechnology, nanoscience, IoT, robotics, and AI to ensure farmers benefit from these advancements through adaptive research in the near future



KAU Biobin

and banana and has been very well received by farmers all over Kerala, while Ayar is a secondary and micronutrient formulation for banana. Efforts by KAU scientists at standardization of foliar application of nutrients using drone gave a new fillip to efficient delivery of nutrients using drones, particularly in the rice tracts of Kuttanad and Thrissur, covering thousands of acres.

Precision farming in vegetables and standardisation of hydroponic cultivation of vegetables and its integration with components like pisciculture that KAU has developed represent new age solutions aimed at efficient and cost-effective use of key resources like water and nutrients.

KAU has also developed models for urban and peri-urban farming which can help small families, especially in towns

and flats, to enjoy growing and consuming fresh vegetables and greens within their confines. Of particular interest is the Nutri Stick, which is a slow-release formulation in the form of a chalk that can be placed in pots.

## Nutri Stick for Pot Cultivation

### Plant Protection

Insects, microbes, and weed pests account for about 20 per cent of crop losses and hence always command attention and effective yet eco-friendly solutions. The decade saw a number of invasive insects like the white fly complex in coconut, fall armyworm in maize, South American pinworm, and cassava mealy bug. KAU scientists were at the forefront in reporting the rugose whitefly and cassava mealy

bug for the first time in the country and in formulating adequate responses. Breeding for resistance is the most enduring strategy in pest management, and KAU was successful in developing bacterial wilt-resistant tomato varieties, Manuvarna and Manulakshmi, as well as mosaic-resistant cowpea variety, Geethika.



3D printing of foods

Grafting technique using resistant rootstocks has been an effective technology for the management of bacterial

# Transformation of vegetable cultivation in Kerala



**Pradeepkumar T. Prasanth K.**

*Department of Vegetable Science, Vellanikkara, Kerala Agricultural University*

**Agriculture is a pivotal sector for the economy to achieve the Sustainable Development Goals (SDG) of no poverty, zero hunger, and good health and well-being.**

**K**erala is bestowed with diverse climatic conditions and facilitates the cultivation of a variety of vegetable crops differing in temperature requirement and cultivation practices. The total area under vegetable cultivation is increasing in the state at a slow pace and Malappuram (11.69%), Palakkad (11.47%) and Idukki (10.27%) districts have 1st, 2nd and 3rd positions in the area under the cultivation of vegetables during 2021-22. But our production is stagnating and not sufficient to meet the States requirement. Kerala depends on neighbouring states to fill this huge gap.

The post-COVID period made considerable changes in the lifestyle of society which reflected in the agriculture sector too. The reliance on social media had a significant impact on this sector. The surge in market price and pesticide residues of major vegetables imported from nearby states led to a transforming change in vegetable cultivation in the State. The health awareness of people has led to a shift towards organic vegetable farming and homestead vegetable cultivation. According to the Department of Agriculture Development and Farmers Welfare, the area under organic cultivation had increased from 7,355.12 ha in 2017-18 to 73,543 ha in 2021-22. Vegetables are considered essential for well-balanced diets since they supply vitamins, minerals, dietary fibre, phytochemicals etc. Fruits and vegetables from the kitchen gardens are good sources of micronutrients. Nutrition gardens are a viable solution and



an affordable way of ensuring healthy food and balanced nutrition in households. A scientifically laid out nutrition garden helps to meet the entire requirements of fruits and vegetables for a family all year round.

Social media played a major role in the introduction and popularization of new crops or less popular crops to Kerala and gaining wider publicity. Crops like butternut, squash, summer squash, sweet corn in plains and kale, celery, and red cabbage in high ranges were a few crops recently getting attention. Sometimes, the information developed and shared through social media platforms may mislead the growers. The online seed purchase and distribution system has made availability of all the different varieties across the locations. This helps the popularization of many private-sector hybrids in vegetable crops. Commercial vegetable growers are quite aware of new vegetable hybrids as they are high-yielding, uniform in maturity, resistant to different stresses and have better quality produce. Hybrids increase the yield by 15-20% depending upon the crop and it can be further raised to 45% by adopting hi-tech crop management practices.

The changing climatic conditions, frequent crop failures, low yield, reduction in quality and increasing pest and disease problems render the vegetable production unprofitable.



It is imperative to bring vegetable production to self-sufficiency by growing high-yielding climate-resilient varieties under hi-tech production systems. Many research institutes in India have developed disease-resistant varieties in commercial vegetable crops. Only a few high-yielding varieties/ hybrids developed are recommended for cultivation in Kerala. Farmers are cultivating hybrids not specifically recommended to Kerala and seldom face crop failure. These varieties should be tested for their adaptability to a specific agro-ecosystem before venturing large-scale cultivation. Thus priority should be given to breeding high-yielding and stress-resistant hybrids for cultivation in varying agro-climatic regions of Kerala. This will be of great importance for an economic and environmentally safe approach. Kerala Agricultural University has developed hybrids in a few vegetable crops such as Heera and Subhra of cucumber, KPCH-1 of salad cucumber which is suitable for polyhouse cultivation and seedless watermelon hybrids, Shonima and Swarna. Hybrids in a few other commercial vegetables are also in the pipeline.

The response of inputs depends on the quality of the seeds. Good quality seeds can increase the yield up to 30 percent. The availability of quality seed is the major challenge faced by farmers. Quality seed availability can be ensured through a strong integration with the farms under State DoA. Hybrid seed production can be done with farmer participation. Trained youth can be involved in the seed production programme. Emphasis may be given to the development of nurseries for the production of quality vegetable seedlings. Grafted vegetable seedlings technology can be promoted to reduce disease susceptibility, and increase plant vigor and yield.

Promotion of innovative farming practices like precision farming, hydroponics, aquaponics, vertical farming etc, helps to attract more youth towards farming. This requires significant investment in specialized structures, training and proper maintenance. Various customized vertical farming models can be utilized for vegetable production in future, particularly in cities where space is limited.

Open-field vegetable cultivation is cumbersome during the rainy season. As a

result, the market price of vegetables goes up during wetter months. As a solution to this, rain-shelter cultivation should be encouraged during rainy seasons. Now, open precision farming in summer season vegetable cultivation has become popular in Kerala. Youths are being attracted to adopt these hi-tech production systems. This is a positive trend for vegetable production in Kerala. Precision farming primarily focuses on the precise application of nutrients, water, seeds and other agricultural inputs to grow more crops in a wide range of soil environments. Emerging technologies like the use of drones for precision nutrient management and pest and disease monitoring and management in vegetable production will make cultivation more scientific. Information and communication technologies (ICTs) have largely revolutionized agriculture. Through the assistance of ICT, farmers are able to stay updated with all recent information.

Formulation of radical vegetable development package plans focusing on major vegetable production units in Kerala will be beneficial. LSG-level interventions on vegetable development activities with a focus on marketing and value addition will help to strengthen the marketing channels and will be a boon for vegetable farming in Kerala.

# **Kerala Cooperative Society Comprehensive Amendment Bill receives assembly approval**



## **T.V. SUBHASH IAS**

*Registrar of Co-operative Societies*

**T**he Kerala Cooperative Society Comprehensive Amendment Bill has received unanimous approval from the Kerala Legislative Assembly, marking a new direction for the cooperative sector in Kerala through a comprehensive change aimed at eliminating irregularities. This significant amendment comes after 50 years, modifying the Kerala Co-operative Act of 1969. On 12.12.2022, Cooperative Minister. V.N Vasavan presented the Amendment Bill to the Assembly for the Select Committee's recommendations. The Committee conducted sittings in all 14 districts of Kerala, collecting feedback from cooperators, the general public, cooperative employees, representatives of cooperative apex institutions, organisational representatives in the cooperative sector, legal experts, and others. It also reviewed cooperative laws of other states, and directly studied the cooperative law and operations in the Maharashtra state. The amendment laws incorporated the suggestions provided by the Select Committee and received approval from the Legislative Assembly. The Cooperative Minister, also serving as the chairman along with 5 MLAs from the opposition parties included in the 15-member Select Committee, conducted over 15 sittings, and discussed each provision in the amendment bill in detail to shape its final form.

In the existing scenario, some individuals have continued as office bearers in cooperative societies for extended periods. While their services significantly contributed to many societies' growth, recent discoveries of some irregularities, particularly in societies with long-term office bearers, necessitated a change. Consequently, a differentiation provision was introduced stipulating that no individual can continue as a governing body member consecutively for more than two terms in any cooperative society.



The need for a united stance amongst cooperatives and the general public in Kerala transcending caste and political differences, became crucial. In light of this, discussions among the Chief Minister, the Opposition Leader, and the Minister for Cooperation led to a decision to change the two-term system to a three-term system for credit societies. The Kerala Legislative Assembly unanimously accepted this decision based on the foundational principle of cooperative differentiation rule.

The Amendment Act incorporates 56 provisions to the existing Co-operative Act, encompassing amendments and additions. Notable provisions include three terms for governing body members in credit societies, updated definitions of primary credit societies, other credit societies, and primary societies, establishment of youth cooperatives, formation of social cooperatives for differently-abled individuals and transgender persons, administrative audit, common software for societies, computerisation of societies, accounting and audit, Team Audit, and more.





Transparency in cooperative societies' appointments is enhanced, with organizations like Vanitafed, Labourfed, Tourfed, and Hospitalfed now under the PSC's purview for appointments. Previously, recruitment for positions above Junior Clerk in Credit societies was handled by the Co-operative Examination Board. Under the new provisions, this Board will oversee appointments for all societies above Junior Clerk.

The amendment also increases the reservation for differently-abled persons in appointments from three to four percent. The existing general reservation for OBC categories through PSC recruitment to cooperative sector institutions remains, with the Co-operation Minister assuring the Assembly of a committee appointment to study the Act's application to primary Societies.

Democracy in the cooperative sector is further strengthened by ensuring that members of the Administrative Committee replacing the Governing Body should be members of the respective society. The registration process timeline for cooperative societies has been reduced from 90 to 60 days, offering clearer provisions for valuation of collateral for loans against property by cooperative societies, and for purchase and sale of property for cooperative societies' purposes.

Youth representation is encouraged with reservations made for one woman and one other person below the age of 40 years in governing bodies. The Act incorporates strict provisions for detecting irregularities, reporting criminal offenses directly to the police, notifying the Anti-Corruption Department of any such offense, reducing the time limit for disposal of investigations, and providing for liability.

Provisions have been made for prompt resolution of cooperative arbitration proceedings, and appointment of Judicial Service officers

as presiding officers in cooperative arbitration courts.

Subsidiaries are not to be started under other legal regimes under societies; stringent conditions are set for providing financial aid to existing subsidiaries, presenting the accounts of subsidiaries in the general body meeting of the societies, and making cooperative audits mandatory for the subsidiaries.

A provision has been included requiring that the liability of the members of the management committee of the society, employees, and their family members be presented in the society's general body meeting.

Amendment to Section 3 of the Kerala Cooperative Society Comprehensive Amendment Bill stipulates that instead of appointing any individual as the Registrar, an official from the Indian Administrative Service can only now be appointed, marking a noteworthy alteration.

Furthermore, Amendment to Section 16 has established the age limit for obtaining membership with voting right in youth societies at 45 years, with a provision made for transitioning said members to nominal/associate membership status upon reaching this age threshold. In a move towards enhancing the electoral process within the cooperative sector, Amendment to Section 28 (b) mandates that the election of the governing body for both the State Cooperative Union and the Circle Cooperative Union will now be conducted under the auspices of the State Cooperative Election Commission. Another significant change comes with the Amendment to Section 66, where a provision has been crafted for the establishment of a special inspection team to conduct inspections within Apex, Central, and Federal Societies.

These some of the prominent amendments in the Comprehensive amendment Bill. These amendments signify a milestone in augmenting transparency, accountability, and inclusivity in Kerala's cooperative sector, receiving unanimous approval from the Kerala Legislative Assembly. Through meticulously crafted amendments, the Bill not only addresses longstanding irregularities but also modernises the cooperative framework, showcasing a collaborative legislative endeavour to align the sector with contemporary needs and standards, thus reflecting a progressive stride in Kerala's legislative narrative.

# Towards Hydrogen Economy



**Prof. (Dr.) A. Biju**

Principal, MES Asmabi College, Kodungallur

**Hydrogen is undoubtedly a new source of energy in the coming decades of the 21st century. Kerala government have declared carbon free energy source with an aim to become a cent percent renewable energy depended state by 2040 and a net carbon neutrality state by 2050.**

In the budget speech for 2023 -24 Kerala finance minister K N Balagopal declared the commitment of the govt. towards the goal of green energy. The state has a favourable atmosphere for the production of green hydrogen which is also called clean energy.

There are four types of hydrogen available in the world depending on the method of origin. They are known as green hydrogen-obtained from the electrolysis of water using solar or wind energy ,grey hydrogen obtained from petroleum products with the emission of carbon dioxide, blue hydrogen -produced with catenation technology from hydrocarbons and pink hydrogen produced using atomic power or from nuclear reactors.

Green hydrogen produced using renewable energy can play an important role in eco-friendly development. Using hydrogen fuel in long-haul vehicles including trucks, buses and ships will reduce carbon emissions to a great extent. A scheme of 200 crore is announced for viability gap funding or grant or equity support to set up green hydrogen hubs in Kochi and Thiruvananthapuram in the next two years. An amount of Rs 20 core is earmarked additionally for this, the finance minister declared.

Now the state government has nominated the Agency for New and Renewable



Energy Research and Technology (ANERT) as the state nodal agency for green hydrogen initiatives. ANERT is entrusted with the role of a single nodal agency for drafting and publishing the green hydrogen policies, assisting investors, developing a single window system for approvals and a grievances redressal mechanism and liaisoning with state and central government agencies.

In January 2022 the union government approved the national green hydrogen mission to make India energy-independent by 2047 and achieve net zero by 2070. The state government has chalked out an action plan for generating electricity from eco-friendly green power sources. Hydrogen fuel is good for heavy vehicles including trucks, buses and containers which will eventually reduce carbon emissions.

The state of Kerala has kick-started the process of creating a green hydrogen policy, which will point the way forward for developing capabilities and opportunities in this emerging era along the lines of the national green hydrogen mission. Kerala is a totally electrified state, the first of its kind in India, and to include hydrogen-powered



mobility in the zero-emission mobility policy.

The state is No.1 in the number of electric vehicles mobility in the country. The government has constituted Kerala's hydrogen economy mission to contribute strategic inputs and facilitate partnerships and collaborations towards transforming the state into a green hydrogen hub. The state government is planning to devise a strategic roadmap, policy formulation and implementation plan to facilitate investment in the green hydrogen domain and transform the state into a green hydrogen hub. Kerala has 8000 MW of renewable energy potential of which only about 10 per cent is utilised. Indeed, 70 per cent of the power demand of the state of Kerala is imported from the national grid so the reservoirs and solar continue to be future sources of electricity. Green hydrogen could be generated by the splitting of water through electrolysis. An analysis cited that the green hydrogen produced is economically viable, cheaper than traditional fossil fuel energy and can cater for local energy demand and green hydrogen could be exported to the global market. As electrolysis is done with the help of solar energy will also be cheaper.

Even though India is energy deficient now the nation has become an exporter of power. India became a net exporter of power with the world's third largest energy guzzler exporting 2,410 million units to

**The government has constituted Kerala's hydrogen economy mission to contribute strategic inputs and facilitate partnerships and collaborations towards transforming the state into a green hydrogen hub.**

Bangladesh, Nepal and Bhutan in FY 23. We have become a power-surplus country from being a power-deficit one. In the last nine years, our energy shortage has reduced from 4.2 per cent in FY 14 to 0.2 per cent in FY 24. India under world nations is moving towards renewable sources of energy, the European nations give special trust to the development of hydrogen fuel as an alternative energy source. The European nations depended on the oil-rich Russia for the energy source for decades, i.e. crude oil and gas. In view of the Russia-Ukraine war, they set the research and development projects for alternative sources of energy including renewable energy and green hydrogen other than fossil fuels. Moreover, the increase in the percentage of carbon dioxide in the atmosphere causes the greenhouse effect and leads to global warming, melting of snow and inundation of lowlands. Now the percentage of carbon dioxide in the atmosphere is 0.03 per cent which could be used for photosynthesis of plants. Any further increase of carbon dioxide in the atmosphere is disastrous to mankind as it leads to global warming. So much so that the green hydrogen economy is the answer for future generations.

# Right to Service Act: A Leap in Governance



**M. Muhammed Haris**

*Freelance Writer*

**The Kerala State Right to Service Act ushers in an era of transparent, accountable, and prompt service delivery from government offices, fortifying the trust between citizens and the administration.**

The Kerala State Right to Service Act 2012 came to force with an aim of good governance which is essential for sustainable development on both economic and social arena of public life. The Right to Service Act empowered the people to seek hassle free, corruption free and time-bound service delivery mechanisms in government offices. The main objective of the act is to deliver time-bound services without any hassle which also improves the credibility of government offices. The act ensures three essential elements of good governance i.e. transparency, accountability and responsiveness of the administration. As the government is concerned with effective, efficient and prompt service delivery to public and to improve and strengthen the relationship between the citizens and government officials seems necessary. The government have already introduced citizen charter based on the recommendation of the third Kerala Administrative Reforms Committee to ensure transparency in administration, the Right to Information Act 2005 (central act 22 of 2005) is in force. So the Right to Service Act is a key administrative initiative built on the idea of the citizen charter – while citizen charter define the quality of public services, the act takes it a step further while making a citizen's right to public service within the stipulated time legally binding, failing which the concerned officials is liable and penalised. Accordingly the Right to Service Act represent the commitment of the State towards the standard, quality and time frame of service delivery in time-bound manner. The act aims to reduce corruption among the government officials and to increase transparency and accountability.

As per the directions of the United Nations most of the member countries



have implemented right to service act. In India Madhya Pradesh was the first Indian state to legislate a Public Service Guarantee Act in August 2010 and Bihar was the second to enact this act on 25 July 2012. That has been followed by enactment of Right to Service Act in states of Delhi, Punjab, Rajasthan, Himachal Pradesh, Kerala, Uttarakhand, Haryana, Uttar Pradesh, Jharkhand, Karnataka, Chhattisgarh, Jammu and Kashmir, Odisha, Assam, Gujarat, West Bengal and Goa. The Madhya Pradesh act won the United Nation Public Service Award for 2012 from among 483 nominations from 73 countries under the category 'improving the delivery of public services'. In Madhya Pradesh, the Department of Public Service Management was created, to give impetus to the implementation of the act.

The Right to Public Service derives its moral and ethical basis from the Gandhian philosophy. In this connection



Mahatma Gandhi's famous statement in his speech in South Africa in 1890-

"A customer is the most important visitor on our premises.

He is not dependent on us. We are dependent on him.

He is not an interruption of our work; he is the purpose of it.

He is not an outsider of our business; he is part of it.

We are not doing him a favour by serving him.

He is doing us a favour by giving us the opportunity to do so" is worth emulating by the governments.

Now several institutions have taken up a study to compare different services guarantee acts in terms of number of services and departments covered, penalty and timelines for delivery of services, etc.

The Kerala State Right to Service Act 2012 came into force on the 1 November 2012 as per G O (P) No.55/2012/P&ARD. It provides effective time bound redress of grievances of citizens, delivery of service to the public and making government servants liable in case of default. Through the induction of the bill, the government servants are made answerable in terms of their function, duties, commitment and obligations towards the people. The bill provides two-tier appellate system to redress grievances. Section 5 of the act underlines the duty of the designated officer who own receipt of an application for service, will provide it or reject the application within the time limit counted from the day the application is received. In case of rejection, the officer should justify it in writing.

The designated officer is liable to pay a fine not less than Rs 500 and not more than Rs 5000 in case of breach of the terms of the bill. Section 3 of the act says every government department, Head of the department, local self- government institution and statutory body should within six months of commencement of the Act , notify the service that will be rendered by each of them and the designated officers for providing services and stipulated time limit for doing so. The Act lays down the procedures for filing appeals and the method of handling appeals by the first and second appellate authorities. The two appellate authorities will have the powers of civil court in matters of requiring production and inspection of documents and issuing summons for hearing the designated officer and the appellant and other matter that may be prescribed. Now almost all the departments and statutory bodies have formed relevant regulations to implement the Act.

# Kerala State Literacy Mission; Making Great Strides Towards Nava Keralam



## **Chithra Narayanan**

*Asst. Editor, KSLMA*

**Promoting literacy for a world in transition and building the foundation for sustainable and peaceful societies is UNESCO's message for this year's World Literacy Day.**

**U**NESCO has decided to observe September 8 as the World Literacy Day from 1965 onwards. The objective of celebrating the World Literacy Day is to underline the need and importance of literacy for all across the globe. With this, UNESCO also puts forward the aim of mobilising public interest and support in literacy activities as well.

Literacy activities in Kerala have been a huge success and serves as a model to the world. It has also contributed immensely to the gains that the state has made in the formal and non-formal education sectors too. We have been able to ensure such proud achievements in the educational sector because we have been able to take it up and implement it with popular support.

Even as emphasis is given on digital literacy towards the formation of a New Kerala, the literacy movement in Kerala is still embracing letters and numbers. And this is the message that UNESCO seeks to convey on the World Literacy Day 2023.



The meaning of literacy changes over time and according to the needs of the respective societies. While in the past the goal of literacy was to learn the alphabet, the focus remains on digital literacy in today's world driven by technology.

But the decision taken by UNESCO in 1965 is to celebrate Literacy Day until there is at least one illiterate left in the world. Kerala can take heart from the progress of its education sector because these decisions are being implemented and continued as part of a socially progressive programme. What we can understand from this is that each and every idea that Kerala picks up and initiates goes on to become a model for the whole world.

Kerala is also moving forward with the vision that not even a trace of illiteracy should be left even while emphasizing on digital literacy to build a knowledge society. As a part of this, the Kerala State Literacy Mission has launched a new digital literacy scheme along with implementation of various literacy programmes.

In order to make the remaining group of



illiterates literate, the Literacy Mission is undertaking and implementing the New India Literacy Program, besides a host of other social literacy projects such as Pauradhwani and Munnetam. As part of its digital literacy initiative, the Mission is also implementing a programme titled 'E-Muttam'. While the New India Literacy Program aims to wipe out illiteracy to the last strain, the E-Muttam project aims to bridge the digital divide and ensure the delivery of government services to the entire population.

Kerala is aiming to achieve complete digital literacy by the upcoming Kerala Piravi Day (day of the state's formation). The E-Muttam project, launched by the Literacy Mission to achieve this, is being implemented efficiently in the districts. Although women are at the forefront of educational, political and social spheres of the Kerala society, violence against women and denial of their rights have not been eradicated completely even today. The inequality experienced by women in workplaces, public places and even at their homes have come in the way of their growth and progress. It is in the backdrop that the Kerala State Literacy Mission and the Kerala Mahila Samakhya Society have jointly launched a project called "Munnetam" with the aim of empowering women.

In addition to it, a project called Gender Literacy is being implemented as a social awareness program to develop gender awareness. Yet another project, HOPE, is being implemented in association with Kerala Police by including children who have passed 7th standard and are not able to continue their studies. As many as 35 children have enrolled in the 10th standard equivalency course under the scheme.

Meanwhile, the Changathi scheme launched for making literate workers migrated from other states has completed three phases. The project

is currently being implemented on a massive scale across the Palakkad district, where a huge number of these non-state workers are located. Along with this, a Complete Tribal Literacy Project is being implemented in the tribal settlements of Attapadi in Palakkad District, besides the Wayanad Tribal Literacy Project in Wayanad District.

The Nava Chetana project, which aims at eradicating illiteracy across the Scheduled Caste colonies, is progressing without much hiccups. Along with this, the literacy mission has been able to conduct equivalency courses from 4th standard to higher secondary in a prompt manner.

Over and above ensuring that no drop outs are taking place in the field of education, the Literacy Mission is giving an equal thrust to both formal and informal education sectors. At a time when it has commenced efforts towards transforming the state into a New Kerala (Nava Keralam), the agency is also making significant efforts to take together different types of people in the informal education sector.

# Manipravalam Literature's Depiction of Kerala's Material Life



**Dr. Vasisht M.C.**

Historian

**Manipravalam literature paints a vivid picture of medieval Kerala's culture and commerce through its unique linguistic blend and tales.**

The writings of Manipravalam signify a pivotal evolution in Malayalam literature. Combining both Sanskrit and non-Sanskrit words, Manipravalam's works are prevalent in all South Indian languages, including Malayalam, Tamil, Telugu, and Kannada. These are predominantly categorized into Champus and Sandesa Kavyas and are perceived as the cultural offspring of medieval Kerala's political landscape.

The emergence of the Naduvazhi Swaroopams coincided with the disintegration of the second Chera dynasty (1124 CE) across Kerala, leading to its fragmentation into various cultural and linguistic territories. This era was also marked by a proliferation of literary creations. The most compelling literary depictions of the post-Chera Period are manifested in champus like "Unniyachi Charitham," "Unniyati Charitham," "Unni Chirutevi Charitham," and Sandesa Kavyas like "Unnuneeli Sandesam" and "Kokasandesam."

Champus adopt a prose-poetry form. For instance, "Unnichirutevi Charitham" comprises thirty prose pieces interspersed with three poems. In comparison, "Unniyati Charitham" houses 138 poems

enveloped by 32 prose fragments, while "Unniyachicharitham" consists of 27 poems and 30 prose pieces.



Manipravalam

Manipravalam's writings primarily focus on the lives of dancers. The female protagonists in the Manipravala poetry, namely Unniyach, Unniyati, Unnichirutevi, and Unnuneeli, were dancers from medieval Kerala. These dancing heroines, predominant in Kerala's Manipravala poems from the 13th to the 16th centuries, were likely affiliated with courts and temples, receiving accolades from kings, chiefs, merchants, priests, and scholars for their aesthetic appeal and artistic expertise.

Yet, these literary treasures extend beyond chronicling dancer narratives. They also illuminate the material lifestyle of medieval Kerala.

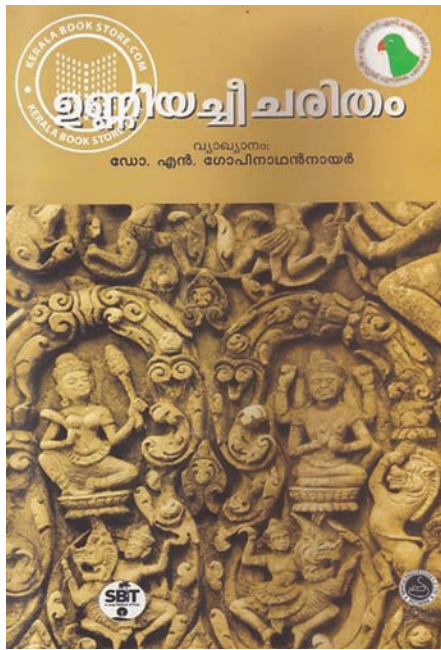
Manipravalam's writings unveil key insights into the markets and trade centers of that era. References to the angadis of Sri Parvatham and Mattam in "Unniyadi Charitham" indicate their governance under the Vempolinadu naduvazhi. "Ananthapura Varnam" details Ananthapuram, situated near the Padmanabha Sawmi temple, while "Unniyachi Charitham" describes Thirumarthur angadi, positioned close to the Tirunelli Temple in Wayanad.

Poetic renditions of the city of Kodungallur grace the Sandesa Kavyas like "Sukasandesam," "Unnuneeli Sandesam," and "Kokasandesam." "Unnichirutevi Charitham" mentions Sukapuram and Paniyur villages in Anayar, as well as Chitta Angadi on the



path to Unnichirutevi's residences.

Although no medieval Keralan coins have been discovered,



*Unniyachi Charitham*

a male lover bequeaths to his beloved. Drawing inspiration from Kalidasa's "Meghasandesam," subsequent Sandesa Kavyas emulated its structure. "Unnuneeli Sandesam" bifurcates into "Purvasandesam" with 136 slokas and "Uthara Sandesh" with 101 slokas, totaling 237 slokas.

The narrative revolves around Unnuneeli, a dancer hailing from the Mundakkal tharavad of Kaduthruthi. The hero, after a night with Unnuneeli, is transported by a gandharva to Trivandrum's Sree Padmanabh Swami Shrine. Here, he encounters Adi Varma, Kollam's monarch. As the story unfolds, the hero's journey, punctuated by his interactions with various locales, is elaborately charted.

Slokas 69 to 86 of "Unnuneelisandesam" capture the 'prosperity of Kollam City,' painting a vivid tableau of the economic strides made by medieval Kerala's urban nuclei. These verses hint at an elite class in Kerala's medieval cities, comprising traders, Brahmin landholders, and foreign goods dealers. Kollam, or Kurakkeni Kollam, was a bustling trade epicenter. Arab travellers' accounts from this epoch echo the grandeur of its markets, further corroborated by contemporary Malayalam literature.



*Unnichirutevi Charitham*

Manipravalam teems with references to coinage. Coins like Achu and Anachu are cited in "Anantapura Varanam," "Unniyach Charitham," "Unnuneeli Sandesam," and "Unniyati Charitham." These texts also mention the coin kambi/salaka. Such allusions underline the pervasive monetary circulation in medieval Kerala, indicating an upswing in trade and commerce. This suggests a broadened use of coin currency, especially for petty transactions, revealing the penetration of monetary practices into the socio-economic substratum.

Among Manipravalam's oeuvre, "Unnuneeli Sandesam" is particularly renowned. This Sandesa Kavya focuses on messages

The Kollam Era, or Malabar Era, remains the predominant dating method in Kerala. Tracing the origin to the inception of Kollam as a pivotal pattanam or port town, it commenced in

825 CE. Kollam supported the Venad chieftains, while Kozhikode propelled the Samutiris to ascendancy.

Slokas in "Unnuneelisandesam" offer glimpses of Kollam's market, detailing commodities ranging from varied paddy to an assortment of fish. Sloka 84 reveals that trade in Kollam thrived on both barter and monetary exchange, attracting traders of diverse linguistic origins.

For long, medieval Manipravalam literature was perceived as sensual texts focusing on courtesans. Today, they stand recognized as vital conduits to resurrecting Kerala's medieval history, offering a rich tapestry of the state's material culture. These works chronicle trade hubs, merchants, and commodities



*Meghasandesam*

while elucidating the socio-economic landscape of Kerala's medieval angadis.

In essence, Manipravalam literature highlights the pulchre and indulgences of Kerala's elite, a class that burgeoned due to increased agricultural surpluses that, in turn, fostered trade and commerce. Kollam, as delineated in "Unnuneelisandesam," emerges as a thriving port city of the medieval era, drawing traders and explorers globally. This stature is further solidified by Kollam's historical inscriptions and the testimony of the Suyrian Copper Plates, underscoring its significance in global commerce.

# Transgenders in Nursing



## Joby Baby

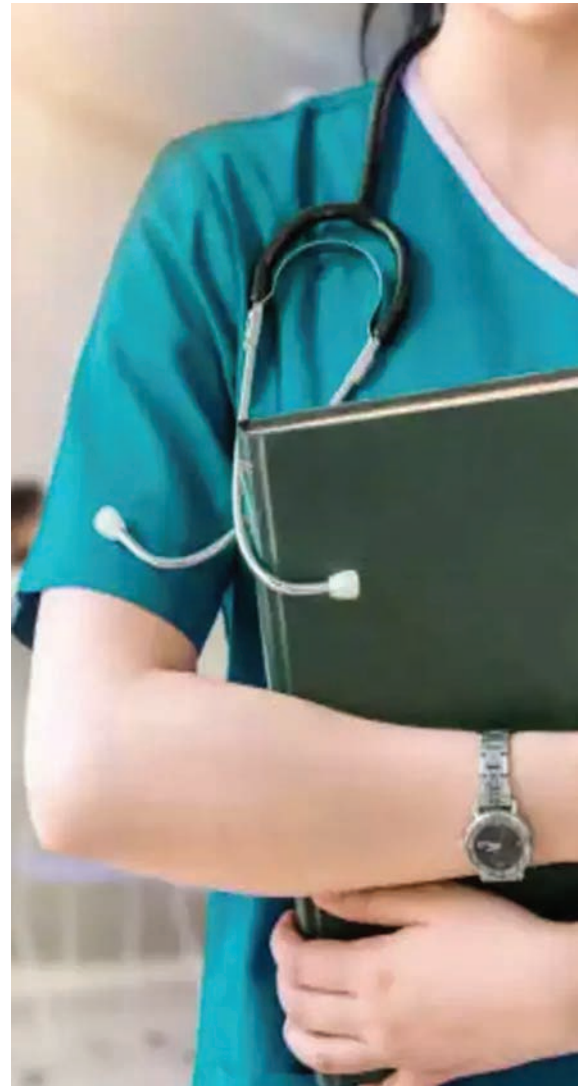
Writer

**This is for the first time in the history (of the State) that reservation has been granted for Transgenders in the field of nursing.**

The Kerala government has announced its decision to grant reservations to transgender students pursuing nursing courses in the state. With this, one seat each would be reserved for the Transgender members for the BSc nursing and general nursing courses from 2023 onwards. The state government has been taking great initiatives for the upliftment of the marginalized community and reservation in the nursing sector is part of such efforts. The reservation is envisaged to ensure the representation of the community members in the Nursing sector. "This government has been making major strides towards the empowerment of the transgender community. This step is a continuation of that process to ensure the involvement of the community in the state's health sector", Health Minister Veena George wrote on Facebook.

"The cabinet has approved the reservation quota for transgender students in nursing courses. It will soon be added to the college prospectus and implemented in the current academic year itself. One of the seats in BSc nursing will be added at the Government College of Nursing, Thiruvananthapuram and the other in general nursing course likely at the Lal Bahadur Shastri Centre for Science and Technology," Jayaprakash, senior superintendent (academic) of the Directorate of Medical Education.

Daya Gayathri, a transwoman and theatre-film artiste, opined it as extremely happy news. "I am very glad to hear about the state



government's decision. This will go a long way in realizing the dreams of people from the community who want to enrol as a nurse. We are a part of the minority, and if we need to keep up with others, reservation is crucial as it ensures equity. The quota should be extended to other professional courses like MBA and medical," said Daya, who was among the first students to be enrolled as part of the trans person reservation quota at the Maharaja's College in Ernakulam in 2018. The landmark order then of the state government, keeping aside two additional seats in all universities and affiliated arts and science colleges for trans persons, was a result of efforts by Daya and a few of her friends. Sruthy Sithara, another trans artist and winner of the Miss Trans Global beauty pageant in 2021, said the decision was affirmative, but late. "It's certainly a very positive development. But it has come quite late, in fact, five years



after reservation was applied for arts and science degree courses. Professional courses like nursing are important as they help transpersons secure jobs after their education,” she said.

It is to be noted that the reservation has been announced only in the education sector and not in the employment sector. The Supreme Court, in its 2014 judgment in the National Legal Services Authority of India (NALSA) v Union of India case, had said that trans persons in India have the right to reservation. The court had also asked the Union and state governments to treat trans persons as a “socially and educationally backward class,” besides directing the governments to extend “all kinds of reservation in cases of admission in educational institutions and for public appointments.” Nine years have passed since the order, but it is yet to be implemented in India.

### **A Step Forward from the 2015 Transgender Policy**

It is worth noting that Kerala was the first state

**Thus, this reservation can be seen as a significant step forward from the 2015 policy and a move towards a more inclusive and diverse society.**

to introduce a transgender policy in the country in 2015. However, a large section of transgender persons are facing discrimination in the state. Thus, this reservation can be seen as a significant step forward from the 2015 policy and a move towards a more inclusive and diverse society.

### **The Road Ahead**

The decision to grant reservations to transgender students in nursing courses is not just a landmark move in promoting diversity and inclusivity, but it also paves the way for other states and countries to follow suit. It signifies that when it comes to empowering marginalized communities, every step counts and it is these small yet significant strides that eventually lead to a more inclusive and equal society

# You are Not Alone



### **Dr. Arun B. Nair**

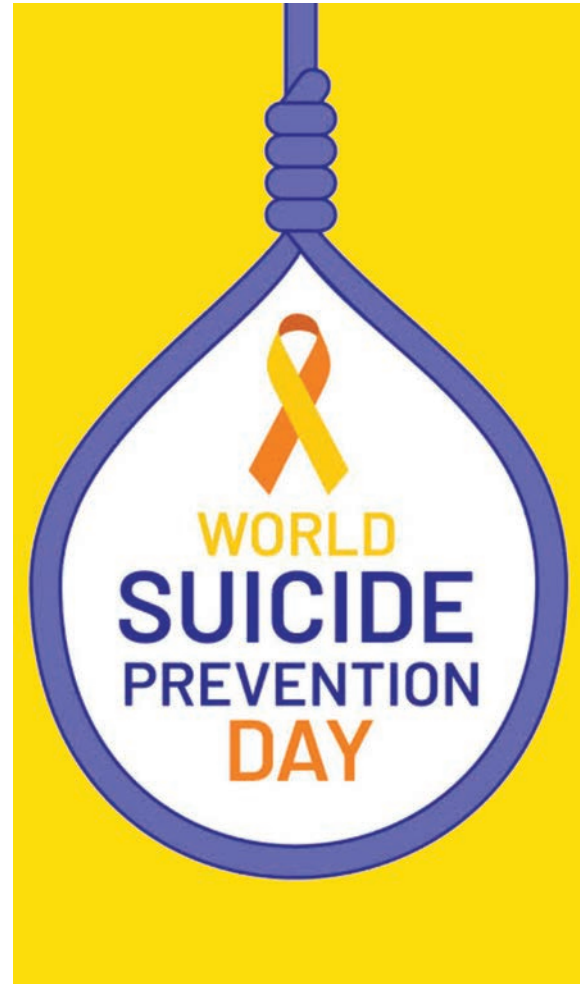
*Professor of Psychiatry, Medical College Trivandrum*

**The alarming rate of suicide that has been increasing over the last decade in Kerala is a major concern that every individual should be bothered about suicide prevention.**

**F**rom 1992 onwards September 10 is observed as world suicide prevention day by World Federation for suicide prevention. Every year a theme relevant to suicide prevention in the present context is selected as the message. World suicide prevention day message for this year is 'create hope through action.' This encourages the common man to understand more about suicide prevention and be supportive of each other in preventing suicide. The statistics of the National Crime Records Bureau 2022 show that the suicide rate in the whole of India is 11.3 per one lakh of the population. The suicide rate in Kerala in the year 2022 is 28.8 per one lakh population. It is a fact that 10162 people have committed suicide in Kerala in a single calendar year of 2022. The suicide rate of Thiruvananthapuram, the district with the highest suicide rate in Kerala is 44 per one lakh while Kollam with a rate of 43.1 is in second position.

Suicide is a complex bio-psycho-social problem with biological, genetic psychological, social, financial and cultural dimensions. The alarming rate of suicide that has been increasing over the last decade in our society is a major concern that every individual should be bothered about suicide prevention.

In the year 2012, the suicide rate in Kerala was 24.3 per one lakh. But over the last 10 years, it has increased to 28.8 per one lakh. There has been 19.7 percentage increase in the rate of suicide in Kerala compared to the year 2021. The alarming increase in the rate of suicide in adolescents and adults shows that these people should receive special care and consideration when any action plans regarding suicide prevention are planned. Unidentified and untreated mental illnesses, chronic physical problems, family conflicts, substance use disorders and financial issues are the common causes of suicides. Along with this depression, bipolar disorder, delusional disorder,



schizophrenia and substance use disorders can lead to Suicide in a major way. WHO itself has claimed that depression is the most widely prevalent and easily preventable cause of suicide world wide. But what happens is that depression is largely unidentified and untreated in our society. Only 15% of people with depression are identified and given proper treatment in India.

### **How do we identify a person with person depression?**

The person having five out of the following nine symptoms prolonged for continuous two weeks may be suffering from a depressive disorder and requires medical care. The symptoms are :

1. **Continuous sadness from morning till evening for at least 2 weeks**
2. **Reduced interest in previously pleasurable activities**
3. **Unexplained tiredness**
4. **Sleep disturbance**
5. **Appetite disturbance**



6. Concentration impairment
7. Slowness of thoughts and actions
8. Depressive thoughts including hopelessness, helplessness, worthlessness and inappropriate guilt
9. Death wishes and suicidal ideas.

A person having at least five symptoms prolonged for two weeks the person should be referred to a mental health professional for immediate attention. The stigma surrounding mental illness is another major problem to be addressed in the context of suicide prevention. Many people used to hide mental illnesses and refuse to take proper treatment due to this social stigma. As a result, many problems which are easily treatable and completely curable do not get addressed. Because of this, things will get worse and lead to suicide sometimes.

A widespread mental health literacy campaign educating the common public about mind and mental illness and its preventable factors should be undertaken at the government level as well as by non-governmental organisations. Making mental health literacy as part of the academic curriculum in schools, campaigns on mental health first aid, giving training to the general public, teachers, lawyers,

**Life skill education should be made a mandatory part of the school curriculum so much so that the younger generation can be empowered regarding facing difficult situations and failures in life.**

and counsellors help in attaining suicide prevention goals.

### **Five steps to adopt on mental health first aid**

- Approach that person in distress and enquire what is troubling him
- Listen to them patiently and non-judgmentally, understanding their problem in its entirety
- Give information correcting his misconception and giving reassurance.
- Encourage professional help
- Encourage social support

Life skill education should be made a mandatory part of the school curriculum so much so that the younger generation can be empowered regarding facing difficult situations and failures in life. Taught assertiveness thereby empowering them to remain away from substances and also impart necessary social intelligence and emotional intelligence which should help them to assess any person going through a distressful state in their knowledge.

# A singer like a member of our family : K.S. Chitra



## Ramesh Gopalakrishnan

Music Critic

As our own 'Nightingale of Kerala' celebrates 60th birthday this year, she has been honoured with many accolades which is also proof of a vibrant cultural community that supports and cares for a brand of music named K. S. Chitra. The naturalness of her tone, her rendition that gave the impression of innocence, and the beauty of her voice were the qualities that made her eligible to sing the songs.

Many of the Malayalam films that came out in the 1990s attempted to capture rural lifestyles and cultures that were fast disappearing from view. Temples, festivals, customs and rituals and the joint family system became part of the narrative scheme of such films. As a natural outcome, what the songs in these films tried to capture were nostalgic memories of rural life and culture. And the voice that was most suited to rendering them effectively was K. S. Chitra's.

A majority of the songs of that period were about a house in the countryside, its surroundings, and its ecosystems. The repetition of words like wind, breeze, fragrant air, gentle wind, soft whiff, butterfly, parrot, courtyard, rain, sweet parrot, branch, mango tree, flower, sparrow, jasmine, turmeric, vermilion, perfumed sandal paste, moon, star, cloud, illam, field and so on in those songs are proof of that phenomenon. "Thaimanikunjuthennal," "Shivamallippopozhikkummargazhikatte," "Chellatathepaadaanvaa," "Aadi



thodiyiletho," "Akuthikuthaadaanvaayo," "Cheerapoovukalkummakodukkunna," "Maarikkudilininullil," "Thumpappookodiyuduthu," "Chempakamettileentemulamkudilil," "Choolamadichukaranginadakkum," "Athipazhathil ilaneerchurthum," "Mazhavilkothumbilerivanna," "Ammummakkilivaayaadi," "Olachangaali," "Thumpayum thulasiyum," "Thaaramvaalkannadinokki," "Thaimaavinthanalil," "Njaattuvlakiliye," "Kunnathekonnaykkum," "Ponmothiram," and other songs that Chitra sang during that period were nostalgic picturizations of a house and the surrounding ecosystems. They were reminders of the bounties of Nature that were vanishing quickly from our daily life. They generated in the hearts of listeners an impression that they were listening to the voice of a neighbour, and inspired a feeling of affection towards the singer. It even felt like the voice of an elder sister or a younger aunt. The songs caressed us like the fragrant breeze flowing gently from our courtyard or terrace. If we listen to Chitra's sad melodies, we realize that her intonation, rendered as though she were uttering a holy mantra, and the soft and



One Snehatheeram Bangalore North which begins with the phrase “Kokkorasumen”. Besides singing in her own youthful voice, she impersonates an old woman and a man too. In the film Maanathe Vellitheru, the duet she sings along with K. J. Yesudas carries one line which is rendered by her in a child’s voice, and that lends a heartiness to the entire song. The classical beat that Chitra rendered for a dance sequence picturized in the film Abhimanyuis another instance of her musical genius, in which for a span of twoandthree-quarters of a minute, she has been able to sustain a blend of raagalaapana, tarana and swaraalaapana in a beautifully mature manner. What it showcases is the restraint with which she is able to render the classical segment. The Kaikottikkali song “KovilanumKannakiyum” which she sang for the film Aakaashaganga is another significant contribution of Chitra’s. It begins in a very rhythmic fashion but as it proceeds, the voice demands a transformation into the vengeful tone of an abused girl, and Chitra has been able to pull off that tonal morphing with finesse. Even as the song picks up speed and changes in tone, Chitra maintains the essential musicality of the song, its beauty and its pleasantness.

Chitra has won numerous awards and honours in India like the Padma Shri (2005) and the Padma Bhushan (2021). Among the international awards, the one that stands out was the recognition she earned from the Chinese government. Every year witnesses the festival of rivers at Qinghai, near the banks of the Yellow River, to spread awareness about environmental pollution. Prominent singers from all over the globe are invited to participate in the festival, and K. S. Chitra was invited by the government in 2009 to represent India. The song she rendered there was a keerthanam

“Thungatarangegange” written by Sadasivabrahmendra. Its background score was composed by Thiruvananthapuram Krishna Kumar. In a sense, in honouring K. S. Chitra, the Chinese government was acknowledging every Malayali. As she celebrates her 60<sup>th</sup> birthday

this year, every award and acknowledgement she receives is also proof of a vibrant cultural community that supports and cares for a brand of music named K. S. Chitra.



low pitch of the voice are the factors that have made them immortal. They bring the heart of the listener close to the heart of the singer. As her strains like “Thaanepoliyumkaithiri pole,” “Swaram swayammarannuvoshaarrike,” “Aalmaramchaayumneram,” “Sindoorasandhyeparayu,” “Kilivaathilinkaathorthunjaan,” “Chaayampoyasandhyayil,” “Orunoorujanmampiraviyeduthaalum,” “Marakkumoneeyentemaunagaanam,” and “Vaarthinaludikkaathavaasantharaathriyil,” fall on our ears, we unknowingly dissolve into the emotional ambience they create. In a similar way, her voice is so special that when she sings in group songs like “Aayiramkannumai,” “Kiliyekiliyenaruthenmozhiye,” “Baggy jeansumshoesumaninju,” “Choolamadichukaranginadakkum,” “Nellikadchuttinaaduchuttivaa,” “Thalayodutharitharivala,” “Nammalkoyyumvayallellaam,” it is completely in sync with the chorus, and yet imparts a unique auditory experience to the listeners. This is another facet of the tonal quality that imparted poignancy to her sad songs.

K. S. Chitra has sung duets with K. J. Yesudas, P. Jayachandran, G. Venugopal, M. G. Sreekumar and others. Among them P. Jayachandran’s voice is closest to Chitra’s in terms of a harmonious blend of aesthetic sense (that is able to emote the dramatic situation picturized in the song sequence) and a genuineness of linguistic enunciation. Besides, the slightly feminine timbre of Jayachandran’s voice merges beautifully with Chitra’s, and this has given birth to many a mesmerizing duet. “Ariyaathe, ariyaathe,” “Pulari pookkalaal pudavacharthiyo,” “Devaraagame mele meghatherilninnumpaadviva,” “Vattayilapandalittu,” “Ponnushassinumneeraduvaanvarumme,” “Kannilkannilminnumkannaadiyil,” “Poove poovepalapoove,” “Deepankurampoothorungumaakaasham,” Kalabhamchaarthiyashaaradayaminivaravai,” and others are proof of it.

Chitra has also surprised us by manipulating her voice in certain songs. One of the prominent songs that belongs to this category features in the film Number

# Chaliyar



## Johnny Thekkethala

**A**fter Periyar, Bharathapuzha and Pamba, Chaliyar is the fourth longest river in Kerala, with a length of 169 kilometres. The rain falling over 2933 square kilometres drains to this river. Out of this, 388 square kilometres runs through Tamil Nadu. The river Chaliyar originates from Ooty at an elevation of 2067 metres above mean sea level. The river is also called as Chulika River, Nilambur River or Beypore River as it 'embraces' the Arabian Sea at an estuary near the historic village Chaliyam in Kozhikode District of Kerala.

The Portuguese constructed a fort at Chaliyam in the year 1530. The village is also famous for the Guinness World Records holder Mohammed Adil who covered seven kilometres in the river with his hand and legs tied with ropes. It flows through Wayanad, Malappuram and Kozhikode districts. Kallai near Kozhikode was an important centre in the world for timber business in the 19th and 20th centuries. Kallai River of forty kilometres joins the Chaliyar. The logs and timber from the Nilambur forest are tied together and rolled into Kallayi to be used in mills. Timber trading was the main business in the area engaging 20,000 labourers and handling 2,00,000 cubic metres annually. Through the Beypore harbour nearby, wood was being exported to the Arab, far Eastern and European countries. At present only 5,000 cubic metres are handled in a year.

The oldest man-made teak plantation in the world is located near Nilambur. Many tributaries join the main river in its course. The waterfalls and rapids are spectacular.



Travellers love to visit major waterfalls which have a significant place on the tourism map. The globe trotters can enjoy the beauty of surrounding villages through boat trips in the river and tributaries. A view from the Kallai Bridge is a perfect spot to watch a breathtaking sunset.

Chaliyar River is one of the venues for the Malabar River festival and international white water kayaking championships. The sentinel rock falls of 200 metres near Meppadi in Wayanad district offers a cliff face for rock climbing. Chaliyar River is a major source of drinking water and for agriculture. Apart from that generating units of 16.6 megawatts utilise 308 million cubic metres of water. The Konnara Dargali is on the bank of Chaliyar. It is the holy resting place of a Muslim saint which hundreds of pilgrims visit regularly.

**The river is also called as Chulika River, Nilambur River or Beypore River as it 'embraces' the Arabian Sea at an estuary near the historic village Chaliyam in Kozhikode District of Kerala.**

The bank of river Chaliyar in the Nilambur region is also known for its natural Goldfields. It is estimated that around 2.5 million cubic metres of gold are available in the Chaliyar bank. 0.1 gram of gold can be separated from 1 cubic metre of the ore. It is said that people used to wash and collect pure gold from the mud and sediments during the summertime.

Nestled on the banks of Chaliyar is Beypore, a land wrapped in the magic of Arabian dreams! Ur, also known as fat boat, a type of dhow (paikappal), is handcrafted here. Beypur urus is a symbol of Kerala's trade relations with the Gulf countries. These are wooden sailing vessels/ships hand-crafted by skilled artisans and carpenters. They are made of premium wood. There are many centres in Kozhikode where one can buy the models of urus.





*Edith Grossman*

## **Farewell**

# **The Voice Beyond Words**

**Rajesh C. Bose**

**A Farewell to Edith Grossman, the translator par excellence**

**T**here is a magical dimension to literature, one that sometimes gets taken for granted. It is the connection we feel, even when the story comes from a land far removed from our own or is penned down in a language we do not speak. This connection became palpably clear to me one evening in Varkala, with the amber hues of the sunset as my backdrop and Gabriel García Márquez's "Love in the Time of Cholera" in my hands.

My friend Shah, who is no longer, knowing my penchant for immersive tales, had given me this book. And from the first page, it felt like not just a reader but a companion to Florentino Arizo in his quest for Fermina's love. Márquez's genius is universally acknowledged, but as the pages turned, another name emerged from the shadows, connecting me to this story in my native tongue: Edith Grossman.

It's one thing to translate words and another to translate emotions, culture, and the soul of a narrative. As the story unfolded, a feeling of being in Latin America, amidst its vibrant streets and passionate people, enveloped the senses. Grossman's work wasn't a mere word-to-word translation. She ensured that readers could feel the beats of the Latin American heart in the prose. She bridged a gap, not just linguistic but cultural, and in doing so, offered a profound experience.

Her loyalty to Márquez's original narrative was evident. It was as though she had donned the cloak of a guardian, ensuring that the story's essence remained untouched, preserved in its pristine form. The depth of emotion she conveyed was unparalleled; the love, longing, and despair were palpable, making me wonder: Was this a translation or an original creation in English?

This sentiment lingered as other works translated by Grossman were explored, from the writings of Mario Vargas Llosa to those of Alvaro Mutis. There was a signature, a touch, a feeling that was quintessentially hers, yet never overshadowing the original author.

Perhaps that's the mark of a great translator: to shine while allowing the author's brilliance to remain at the forefront, to bridge worlds without building walls. In Edith Grossman, not just a translator was found, but a co-narrator. Through her, stories from lands never visited felt close to home.

The world of literature is vast, and while authors are its pillars, the translators are its bridges. They ensure that tales of love, despair, hope, and adventure reach us, irrespective of the language they were first penned in. As I reflect on that serendipitous evening in Varkala, I feel immense gratitude for Edith Grossman. For, through her, the learning occurred that the soul of a story is universal, transcending borders and breaking linguistic confines. ■



*Chief Minister Pinarayi Vijayan inaugurating the organizing committee office and website of Keraleeyam 2023 at Kanakakunnu Palace Thiruvananthapuram.*



*K.S. Chitra inaugurating Keraleeyam 2023 media cell. G.R. Anil, Minister for Food and Civil Supplies can be seen.*

# HUMAN *by* NATURE



kerala  
God's Own Country



കേരളീയം Keraleeyam

# കേരളീയം

മലയാളത്തിന്റെ മഹോത്സവം

നവംബർ

1-7

തിരുവനന്തപുരത്ത്

<https://keraleeyam.kerala.gov.in/>

സെമിനാറുകൾ • പ്രദർശനങ്ങൾ • ട്രേഡ് ഫെയർ • സാംസ്കാരിക സന്ദേശങ്ങൾ • ഫുഡ് ഫെസ്റ്റിവൽ  
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