KSDMA-UNICEF JOINT PROGRAMME

ANNUAL REPORT

2022

'Towards a safer state'

സുരക്ഷായനം

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Prelude

Focusing on three priorities of Sendai framework on Disaster risk reduction namely (i) Understanding disaster risk; (ii) Strengthening disaster risk governance to manage disaster risk; (iii) Investing in disaster reduction for resilience, KSDMA launched a project in partnership with UNICEF in 2019 titled "Mainstreaming Disaster risk resilience". The thrust areas of the project were Child Centered Risk Informed Planning, School Safety Programmes and Strengthening Inter Agency Group activities. As part of the project a Project Coordinator is appointed at KSDMA jointly by UNICEF and KSDMA and is funded by the programme.

This report deals with the activities undertaken under the programme in the year 2022.

Contents

1. Activities

1.1 International Day for Disaster Risk Reduction

The United Nations General Assembly has designated 13 October as the International Day for Disaster Risk Reduction (IDDRR) to promote a global culture of disaster risk reduction. In 2022, the observance focused on Target G of the Sendai Framework for Disaster Risk Reduction, which aims to substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information for people by 2030. Accordingly, the theme for the year was "Early Warning and Early Action for All."

In line with this global objective and its commitment to strengthening disaster risk reduction, the Kerala State Disaster Management Authority (KSDMA) observed IDDRR 2022 with due significance by organizing a series of awareness and capacity-building programmes across the state focusing on Education sector and the stakeholders related to school. The day was observed in collaboration with District Disaster Management Authorities (DDMAs), Kerala Fire and Rescue Services, and the Education Department. The observance holds relevance in Kerala, as enhancing disaster literacy at the grassroots level plays a crucial role in reducing vulnerability, improving preparedness, and ensuring safer and more resilient communities.

The State-level inauguration of the International Day for Disaster Risk Reduction (IDDRR) 2022 was held on 13 October 2022 at Government L.P. School, Panancherry Grama Panchayat, Pattikkadu, Thrissur district. The programme marked the formal commencement of statewide IDDRR observance activities organized by the Kerala State Disaster Management Authority (KSDMA).

The inaugural function was formally inaugurated by the Hon'ble Minister for Revenue, Sri. K. Rajan. The event was presided over by Sri. T.N Prathapan, Hon'ble Member of Parliament, who appreciated the sustained and dedicated efforts of KSDMA in strengthening disaster management systems across the state. The IDDRR Day message was delivered by Dr. Sekhar L. Kuriakose, Member Secretary, KSDMA, highlighting the importance of early warning systems and community preparedness in reducing disaster risks. Sri. P.K Devis Master, District Panchayat President, offered a felicitation address. The programme was attended by several elected representatives and officials who also addressed the gathering. The function concluded with a vote of thanks by Smt. Haritha V. Kumar, IAS, District Collector, Thrissur.

About 3000 people including children from different schools, children from special schools, school management committee members, Panchayath representatives, teachers, civil defense volunteers, SPCs, JRCs, Panchayath ERTs and the public attended the state level inauguration program.

1.2 USchool App

On IDDRR 2022, KSDMA launched the school safety webapp - Uschool in Kerala. The launch of the app was done by Sri. T.N Prathapan (Hon. M.P). The app was developed by KSDMA in

collaboration with UNICEF, KITE and C-Dit. The web app's goal is to create school specific disaster management plans for all state schools. The USchool app has specific segments integrated.

Smt. Hyun Hee Ban (Chief, Social Policy, UNICEF India) also attended the program as a special guest and addressed the gathering. The program was live translated to sign language by Smt. Srilakshmi from the National Institute of Speech & Hearing, Thiruvananthapuram. The whole program was live streamed on the youtube and facebook

Schools are among the most critical and sensitive institutions in society, accommodating large numbers of children who are particularly vulnerable during disasters. Kerala, being prone to multiple hazards such as floods, landslides, cyclones, lightning, and heat stress, has recognized the need for a structured and systematic approach to school safety and disaster preparedness. In this context, the USCHOOL Webapp (Ur Safety in School) was developed by the Kerala State Disaster Management Authority (KSDMA) as a digital tool to strengthen disaster risk reduction and preparedness at the school level.

The USCHOOL App was launched as part of KSDMA's broader efforts to mainstream disaster risk reduction into the education sector and to ensure that every school in the state has a functional, updated, and context-specific School Disaster Management Plan (SDMP).

The USCHOOL App represents a significant step forward in institutionalizing school safety and disaster preparedness in Kerala. By providing a user-friendly digital platform for risk assessment, planning, monitoring, and review, the app enables schools to move beyond compliance-oriented planning towards practical, actionable preparedness. The initiative not only intend to devise safeguarding measures for students and staff but also contributes to the broader goal of building a disaster-resilient society.

The primary purpose of the USCHOOL App is to provide a standardized digital platform for schools to assess disaster risks, prepare and update safety plans, and improve overall preparedness.

The key purposes of the webapp are

- Enabling schools to prepare and maintain School Disaster Management Plans (SDMPs) in a digital format
- Facilitating hazard, risk, and vulnerability assessment at the school level


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- Promoting a culture of safety and preparedness among students, teachers, and administrators
- Providing district and state authorities with reliable, real-time data on school safety preparedness
- Supporting compliance with national and state school safety guidelines
- Assessing the hazard profile of schools

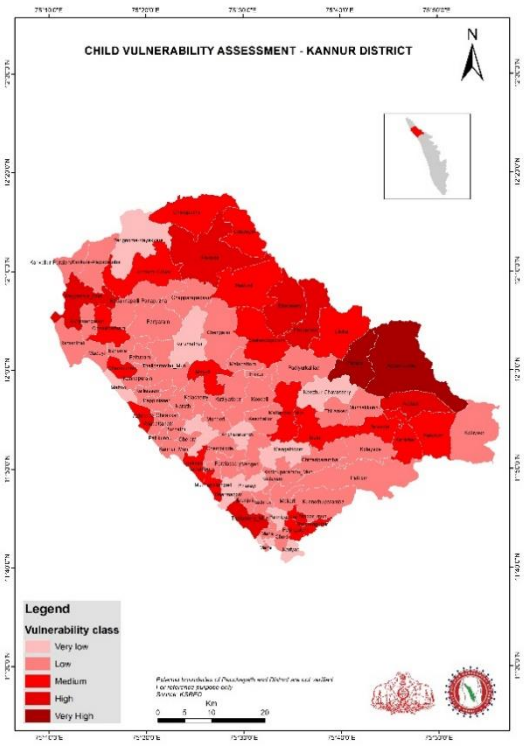
1.3 Exhibition as part of IDDRR

As part of the IDDRR observation, KSDMA organized an exhibition on the theme of 'early warning and early action for all' at Panancherry Gram Panchaytha Hall on October 13 and 14, 2022. The exhibition was inaugurated by Mrs. Hyun Hee Ban (Chief, Social Policy, UNICEF India). The exhibition was organized in collaboration with DDMA Thrissur. Along with KSDMA, Fire& Rescue Thrissur, The Health Department, The Forest Department and The Humane Society International India also presented their exhibits in the exhibition program.

As part of the state level inauguration a mock drill on fire safety was performed for the public at private bus stand, Pattikkadu on 13.10.2022. The fire safety mock drill was organized by KSDMA and DDMA Thrissur in collaboration with Fire& Rescue, Thrissur, NDRF force and Civil Defence volunteers.

1.4 Child Risk Impact Assessment report

Under the Child Risk Impact Assessment (CRIA – Kerala) initiative, an initial assessment of child risk was carried out at the grassroots level of Local Self-Governments (LSGs), covering both rural panchayats and urban local bodies. This initiative serves as an important planning tool for local governance institutions, enabling them to integrate risk-informed decision-making into their development plans. By mainstreaming disaster and vulnerability considerations, CRIA supports the preparation of more sustainable, inclusive, and resilient development plans.



Child vulnerability maps illustrating risks down to the anganwadi level have been prepared and incorporated for 10 districts. A state-level map depicting district-wise child-centric risk profiles has also been developed. A unique interactive GIS-based map in KML format was prepared, ranking panchayats within each district based on child risk

levels, with anganwadi locations overlaid to support decentralized planning and targeted interventions.

Child risk mapping was conducted for all Local Self-Governments across the state. As a baseline, hazard maps from the Kerala State Disaster Management Plan (KSDMP), 2016 were used. Five major hazards affecting Kerala were selected for analysis namely Flood, Drought, Landslide, Lightning, Storm surge in coastal areas. Using a GIS platform, potential hazard-prone areas were analyzed, and hazard-specific vulnerability indices were generated through a normalization process. Subsequently, a composite multi-hazard vulnerability index was derived for each local body by integrating vulnerability levels across all selected hazards.

For the Social Vulnerability Indicators data from the Annual Survey (2017–2018) conducted by the Department of Women and Child Development were used to assess household-level vulnerabilities. From this dataset, the following five key indicators were selected to capture child-related social vulnerability: Women-headed households, Families with differently abled children, Families with mentally challenged children, Families where one or both parents are alcoholic, Families with a history of domestic violence. The integration of hazard exposure data with social vulnerability indicators enabled the identification of high-risk areas and populations, providing a robust evidence base for child-focused, risk-informed planning at the local level.

Then 10 maps have been prepared for the 10 districts of Kerala and based on the composite physio-social vulnerability index, colour coding was given to the jurisdictional area of each local self-government.

There are 5 classes and each one has been assigned a different color ranging from pink to brown. Brown indicates very high vulnerability whereas pink indicates very low vulnerability. Based on these maps the local self-government can prepare risk informed development plans. Each of the local self-government will find this to be a very useful planning tool. They can use this for advocacy for children, for fund raising and earmarking more funds for children and women of vulnerable sections of society.

Limitations

- The assessment is based on 2018 Women and Child Development data and existing KSDMA hazard maps, which need updating as newer datasets become available.
- Social vulnerability was assessed using a limited number of variables, which may affect precision; inclusion of more socio-economic indicators would improve accuracy.
- The risk classification requires validation using historical data on children affected by past disasters to strengthen the reliability of the model.

Future Possibilities (Brief)

- Integrate LSG-level climate change projections and flood return period maps published by KSDMA into the Child Risk Index.
- Prepare panchayat-level child risk maps using updated and expanded datasets and incorporate them into LSG Disaster Management Plans.
- Design targeted interventions for multi-hazard high-risk zones to enhance child resilience.

- Strengthen school safety and development programmes by adopting a child risk–informed planning approach.

1.5 Joint Rapid Needs Assessment

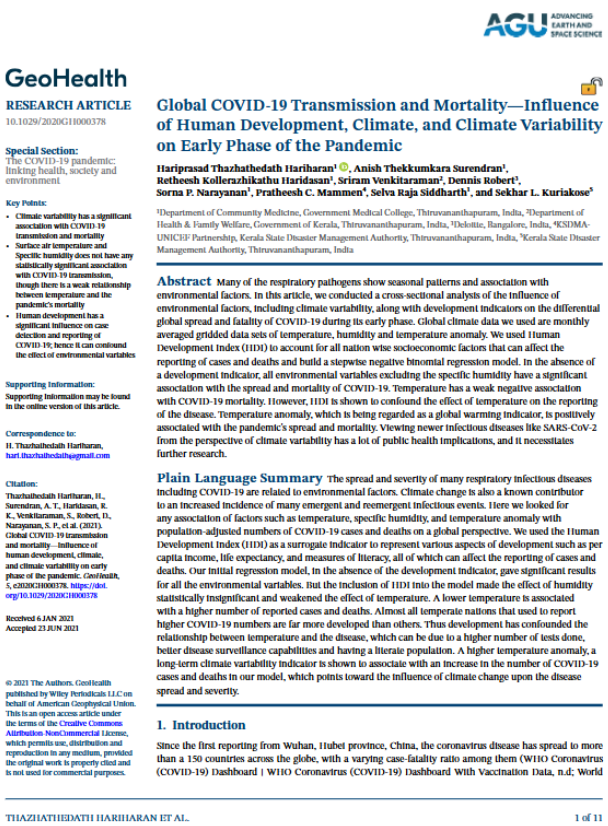
Kerala experienced one of its most devastating series of floods and landslides in 2018 and 2019, resulting in significant loss of life and extensive economic, social, and infrastructural damage. In October 2021, the state was once again affected by torrential rainfall, leading to severe flooding and multiple landslides. Of the 57 reported fatalities, the highest number occurred in Kottayam, followed by Idukki. A total of 353 houses were completely damaged and 2,230 houses partially damaged, along with significant damage to roads and bridges, which hampered rescue operations.

Response measures included the evacuation of people from vulnerable areas to safer locations. 176 relief camps were opened across the affected districts, sheltering over 14,000 people for approximately one week. Twelve NDRF teams and two helicopters supported rescue operations. The coordinated efforts of state, district, block, and panchayat authorities significantly reduced fatalities and ensured timely shelter and basic services.

Government issued GO (Rt) No. 759/2021/DMD dated 24-11-2021 authorizing the conduct of JRDNA.

1.6 Collaborative scientific publication on COVID 19 transmission

A paper titled 'Global COVID-19 Transmission and Mortality—Influence of Human Development, Climate, and Climate Variability on Early Phase of the Pandemic' was a joint academic venture between KSDMA under the leadership of Dr. Sekhar Kuriakose and doctors from the Department of Public Health, Medical College under the leadership of Dr. Anish Thekkumkara with a group of doctors in which the Pratheesh C Mammen, Project Coordinator, KSDMA-UNICEF was involved and the study was published in the journal 'GeoHealth' by American Geophysical Union.



AGU ADVANCING EARTH AND SPACE SCIENCE

GeoHealth

RESEARCH ARTICLE

10.1029/2020GH000378

Special Section:
The COVID-19 pandemic: linking health, society and environment

Key Points:
- Climate variability has a significant association with COVID-19 transmission and mortality
- Surface air temperature and Specific humidity does not have any statistically significant association with COVID-19 transmission, though there is a weak relationship between temperature and the pandemic's mortality
- Human development has a significant influence on case detection and reporting of COVID-19; hence it can confound the effect of environmental variables

Supporting Information:
Supporting Information may be found in the online version of this article.

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Citation:
Thazhathedath Hariharan, H., Surendran, A. T., Haridasan, R. K., Venkitaraman, S., Robert, D., Narayanan, S. P., et al. (2021). Global COVID-19 transmission and mortality—Influence of human development, climate, and climate variability on early phase of the pandemic. *GeoHealth*, *5*, e2020GH000378. https://doi.org/10.1029/2020GH000378

Received 6 JAN 2021
Accepted 23 JUN 2021

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Global COVID-19 Transmission and Mortality—Influence of Human Development, Climate, and Climate Variability on Early Phase of the Pandemic

Hariprasad Thazhathedath Hariharan[1], Anish Thekkumkara Surendran[2], Retheesh Kollerazhikathu Haridasan[3], Sriram Venkitaraman[2], Dennis Robert[3], Sorna P. Narayanan[3], Pratheesh C. Mammen[4], Selva Raja Siddharth[3], and Sekhar L. Kuriakose[5]

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Abstract Many of the respiratory pathogens show seasonal patterns and association with environmental factors. In this article, we conducted a cross-sectional analysis of the influence of environmental factors, including climate variability, along with development indicators on the differential global spread and fatality of COVID-19 during its early phase. Global climate data we used are monthly averaged gridded data sets of temperature, humidity and temperature anomaly. We used Human Development Index (HDI) to account for all nation wise socioeconomic factors that can affect the reporting of cases and deaths and build a stepwise negative binomial regression model. In the absence of a development indicator, all environmental variables excluding the specific humidity have a significant association with the spread and mortality of COVID-19. Temperature has a weak negative association with COVID-19 mortality. However, HDI is shown to confound the effect of temperature on the reporting of the disease. Temperature anomaly, which is being regarded as a global warming indicator, is positively associated with the pandemic's spread and mortality. Viewing newer infectious diseases like SARS-CoV-2 from the perspective of climate variability has a lot of public health implications, and it necessitates further research.

Plain Language Summary The spread and severity of many respiratory infectious diseases including COVID-19 are related to environmental factors. Climate change is also a known contributor to an increased incidence of many emergent and reemergent infectious events. Here we looked for any association of factors such as temperature, specific humidity, and temperature anomaly with population-adjusted numbers of COVID-19 cases and deaths on a global perspective. We used the Human Development Index (HDI) as a surrogate indicator to represent various aspects of development such as per capita income, life expectancy, and measures of literacy, all of which can affect the reporting of cases and deaths. Our initial regression model, in the absence of the development indicator, gave significant results for all the environmental variables. But the inclusion of HDI into the model made the effect of humidity statistically insignificant and weakened the effect of temperature. A lower temperature is associated with a higher number of reported cases and deaths. Almost all temperate nations that used to report higher COVID-19 numbers are far more developed than others. Thus development has confounded the relationship between temperature and the disease, which can be due to a higher number of tests done, better disease surveillance capabilities and having a literate population. A higher temperature anomaly, a long-term climate variability indicator is shown to associate with an increase in the number of COVID-19 cases and deaths in our model, which points toward the influence of climate change upon the disease spread and severity.

1. Introduction

Since the first reporting from Wuhan, Hubei province, China, the coronavirus disease has spread to more than a 150 countries across the globe, with a varying case-fatality ratio among them (WHO Coronavirus (COVID-19) Dashboard | WHO Coronavirus (COVID-19) Dashboard With Vaccination Data, n.d; World

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temperature anomalies, the authors employed negative binomial regression models to assess associations while accounting for socioeconomic differences through the Human Development Index (HDI). The results show that HDI was a dominant factor influencing reported cases and deaths, highlighting the role of surveillance capacity, healthcare infrastructure, and demographic structure. After adjusting for HDI, mean temperature and humidity showed limited or weak associations with COVID-19 outcomes, whereas temperature anomalies (climate variability) remained significantly associated with higher transmission and mortality. The study concludes that socioeconomic context strongly mediates apparent climate–COVID-19 relationships and emphasizes the importance of considering both developmental and climate variability factors when interpreting global pandemic patterns.

1.7 SIEMAT Kerala online training programmes

Foundation Level Online Leadership Enhancement Program (LEP) for the Principals of Higher Secondary Schools for the academic year 2022 were conducted by SIEMAT Kerala.

According to the course module, by the end of the programme, participants will gain a clear understanding of the importance of preparing a School Safety Plan or School Disaster Management (DM) Plan in the context of climate change and recurring disaster events, including both structural and non-structural hazards. Participants will be familiarized with the systematic steps involved in the preparation of a School DM Plan and the range of school-level safety activities that need to be implemented with the active involvement of students, teaching staff, non-teaching staff, and school management. The preparation, annual review, and periodic revision of the School DM Plan will enable schools to effectively document risks, update safety measures, and plan solutions such as retrofitting, maintenance, and other risk reduction interventions required to ensure safe learning environments. Additionally, the process will support stakeholders in developing clear and practical response strategies, thereby significantly enhancing the disaster resilience of the school community.

The sessions facilitated by the Programme Coordinator, KSDMA- UNICEF. On an average around 50 headteachers attended the training programme.

- 12th & 13th January 2022
- 28th & 29th January 2022
- 9th & 10th February 2022.
- 22nd & 23rd February 2022
- 14th & 15th September 2022
- 6th & 7th October 2022

1.8 IAG repository

The IAG repository consists of details of 171 IAG member organizations from all the fourteen districts of Kerala. The data was collected through the notification via email communication to all district IAG conveners and IAG Member organizations notified under the proceedings of DDMA chairperson. The notification was released via email on 03 June 2021. Following a strict equal opportunity for all

member organisations, reminder emails have been sent to all member organisations on 14 July & 13 August 2021

A total of 227 entries were received. Taking into consideration IAG membership as per DDMA proceeding, 171 nominees were shortlisted for the document.

Through an online platform (Google Form), data is being taken from each organization. The database consists of information of the name of the member organization, its contact information, Website, contact persons of the organization with contact number, registration & accreditation details of the organization, area of expertise, etc. The IAG repository was officially handed over to KSDMA for utilizing it during emergencies.

2. Funding

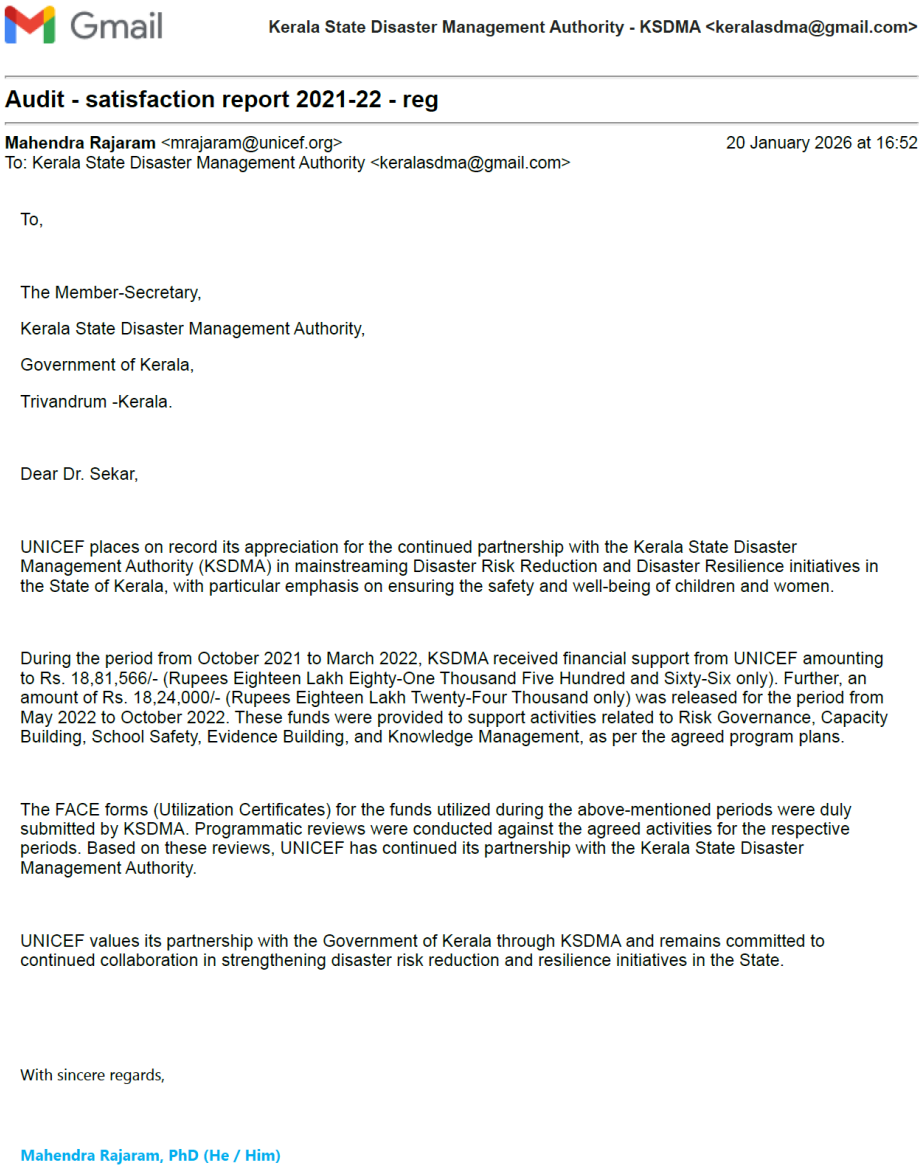
2.1 Oct 2021 to March 2022

- Funds released - ₹ 18,21,185/-
- 26 March 2022 funds expended - ₹ 18,81,566/-
- The balance amount expended by KSDMA was reimbursed by UNICEF

2.2 May 2022 to Oct 2022

- Funds released – ₹14,36,000/-
- Funds expended - ₹ 18,24,000/-
- The balance amount expended by KSDMA was reimbursed by UNICEF

2.3 Audit satisfaction report from UNICEF



Gmail — Kerala State Disaster Management Authority - KSDMA <keralasdma@gmail.com>

Audit - satisfaction report 2021-22 - reg

Mahendra Rajaram <mrajaram@unicef.org> 20 January 2026 at 16:52
To: Kerala State Disaster Management Authority <keralasdma@gmail.com>

To,

The Member-Secretary,

Kerala State Disaster Management Authority,

Government of Kerala,

Trivandrum -Kerala.

Dear Dr. Sekar,

UNICEF places on record its appreciation for the continued partnership with the Kerala State Disaster Management Authority (KSDMA) in mainstreaming Disaster Risk Reduction and Disaster Resilience initiatives in the State of Kerala, with particular emphasis on ensuring the safety and well-being of children and women.

During the period from October 2021 to March 2022, KSDMA received financial support from UNICEF amounting to Rs. 18,81,566/- (Rupees Eighteen Lakh Eighty-One Thousand Five Hundred and Sixty-Six only). Further, an amount of Rs. 18,24,000/- (Rupees Eighteen Lakh Twenty-Four Thousand only) was released for the period from May 2022 to October 2022. These funds were provided to support activities related to Risk Governance, Capacity Building, School Safety, Evidence Building, and Knowledge Management, as per the agreed program plans.

The FACE forms (Utilization Certificates) for the funds utilized during the above-mentioned periods were duly submitted by KSDMA. Programmatic reviews were conducted against the agreed activities for the respective periods. Based on these reviews, UNICEF has continued its partnership with the Kerala State Disaster Management Authority.

UNICEF values its partnership with the Government of Kerala through KSDMA and remains committed to continued collaboration in strengthening disaster risk reduction and resilience initiatives in the State.

With sincere regards,

Mahendra Rajaram, PhD (He / Him)