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# Resilience in Action: Examining Re-settlement Efforts of Flood-Affected Farmers in the Chalakydy River Basin

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## Abstract

*The devastation caused by natural disasters, particularly in developing regions with limited resources and infrastructure, poses significant challenges to human lives and livelihoods. The 2018 Kerala floods, one of the worst in the state's history, wreaked havoc across the region, particularly affecting the Chalakydy River basin. This paper explores the resilience and resettlement efforts undertaken by flood-affected farmers in the Chalakydy River basin post-disaster. Drawing on a review of literature and empirical data, the study examines the various forms of assistance received, including emotional rehabilitation support, special loans, and subsidies. The findings highlight the remarkable resilience of the farming community amidst adversity, while also shedding light on disparities in aid distribution and the challenges encountered in the resettlement process.*

**Keywords: Floods, Resilience, Re-settlement, Emotional Rehabilitation.**

## Introduction

Natural disasters have a devastating impact on human lives and livelihoods, especially in developing countries where resources and infrastructure are scarce. In August 2018, the state of Kerala in India experienced one of the worst floods in its history, causing widespread destruction and loss of life. The Chalakydy River basin, one of the worst affected areas, witnessed massive damage to agricultural land, crops, and livestock, leaving farmers in a state of despair. Despite the magnitude of the disaster, the farmers in this region demonstrated remarkable resilience and adopted various resettlement measures to rebuild their lives. This paper aims to explore the resilience and resettlement measures adopted by flood-affected farmers in the Chalakydy River basin after the 2018 Kerala floods.

## Background Information

The 2018 Kerala floods were a result of heavy monsoon rains that lasted for over a month, causing severe flooding and landslides in the state. According to the Kerala State Disaster Management Authority, the floods affected over 5.4 million people, and around 483 people lost their lives (Kerala State Disaster Management Authority). The Chalakydy River basin, situated in the Thrissur district, bore the brunt of the disaster, with over 50% of the district submerged in water. The floods caused extensive damage to agricultural land, crops, and livestock in the region, leaving farmers in a state of shock and uncertainty.

## Review of Literature

The literature review explores resilience and resettlement measures among flood-affected farmers across different regions. Studies in Bangladesh, Cameroon, the Philippines, India, Nepal, and a systematic review across Asia shed light on various factors influencing farmers' resilience, including access to resources, social networks, community-based organizations, and resilient farming practices (Bhattacharjee and Behera; Alhassan; Rautela).

While some studies highlight the positive impact of timely assistance and community support on farmers' ability to recover, others point out challenges such as inadequate government support and the loss of agricultural land hindering the resettlement process (Parvathy and Thomas). Despite these challenges, studies on farmers in the Chalakudy River basin post-2018 Kerala floods demonstrate remarkable resilience, attributed to their adaptive capacity, strong social capital, and the formation of self-help groups, though challenges in resettlement persist, underscoring the importance of effective support mechanisms for long-term recovery (Sen et al.; Parvathy and Thomas).

## Materials and Methods

The area of research study is the Chalakudy River basin in the Thrissur district, Kerala. Chalakudy is a municipal town situated on the banks of the Chalakudy River, the fifth-longest river in Kerala. The Chalakudy River basin is highly vulnerable to flooding and the unprecedented flood in 2018 changed the entire ecosystem both on land and water.

It adversely affected the biodiversity, livelihood, and infrastructure of the region. The study is based on primary data aiming to explore the resilience and resettlement measures adopted by flood-affected farmers in the Chalakudy River basin. So, the research method is exploratory and descriptive.

Chalakudy river basin consists of six Block Panchayats - Chalakudy, Kodungallur, Mala, Mathilakam, Vellangallur and Parakkadavu and two Municipalities - Chalakudy and Kodungallur. The worst flood-affected Block Panchayats were Chalakudy, Mala, Vellangallur, and Parakkadavu in the Chalakudy river basin. Parakkadavu Block

Panchayat is situated in the Ernakulam district. Hence the study is limited to the Thrissur district and three block panchayats were selected namely Chalakudy, Mala, and Vellangallur from the Chalakudy River basin. 422 farmers were selected proportionally from the six worst flood-affected gramapanchayats of the Chalakudy river basin which formed the sample size for the study. A structured questionnaire was prepared to collect first-hand information from the sample units.

## Resilience of Farmers in the Chalakudy River Basin

Despite the catastrophic impact of the floods, the farmers in the Chalakudy River basin demonstrated remarkable resilience and determination to rebuild their lives. One of the key factors contributing to their resilience was their strong community support system. The Chalakudy River basin is home to a tightly-knit community of farmers who have lived and worked together for generations. This sense of community and camaraderie enabled them to come together and support each other during the difficult times of the floods.

Moreover, the farmers in this region have a deep understanding of the local climate and topography, which helped them in making timely decisions to mitigate the impact of the floods. For instance, they were able to anticipate the rise in water levels and quickly move their livestock to higher ground. This proactive approach helped them minimize the loss of their livestock, which is a crucial source of livelihood for them.

## Resettlement Measures Adopted by Flood-Affected Farmers

The floods caused massive damage to agricultural land, crops, and livestock in the Chalakudy River basin, leaving farmers in a state of distress and uncertainty. However, they did not lose hope and adopted various resettlement measures to rebuild their lives. After the floods, resettlement efforts typically involve the establishment of temporary relief camps for displaced individuals. These camps provide shelter, food, and medical care. Concurrently, the government and NGOs initiate house rebuilding programs, and counseling services

are offered to address trauma and emotional support for affected communities. Long-term rehabilitation efforts may include financial assistance and infrastructure restoration. Moreover, steps were taken to improve disaster preparedness and reduce future flood risks. The Kerala model was effective in rehabilitating the flood victims as per the need (Parel and Balamurugan).

**Shifted from home due to the flood**

The massive flood in Kerala has been declared a calamity of severe nature. Over one million in relief camps, focus on rehabilitation. A total of 10,28,000 people were housed in 3,274 camps in the flood-hit districts (Times of India). The biggest challenge before the authorities in the flood aftermath turned into managing the over 5,500 relief camps housing more than 7,00,000 people across the state. Table 1 presents the data on the responses of people who were forced to shift from their homes due to flooding in three areas: Chalakudy, Mala, and Vellangallur. The responses are categorized into three options: “Not shifted,” “Flood camp,” and “Relative’s house.”

**Table 1 People Shifted from Home due to the Flood**

| Response         | Block        |               |              | Total         |
|------------------|--------------|---------------|--------------|---------------|
|                  | Chalakudy    | Mala          | Vellangallur |               |
| Not shifted      | 14<br>(9.9)  | 5<br>(2.9)    | 5<br>(4.6)   | 24<br>(5.7)   |
| Flood camp       | 71<br>(50.0) | 125<br>(73.1) | 96<br>(88.1) | 292<br>(69.2) |
| Relative’s house | 57<br>(40.1) | 41<br>(24.0)  | 8<br>(7.3)   | 106<br>(25.1) |
| Total            | 142<br>(100) | 171<br>(100)  | 109<br>(100) | 422<br>(100)  |

Out of the total of 422 individuals included in the analysis, the majority of individuals from all three areas stayed in flood camps, with percentages ranging from 69.2% to 88.1%. The percentages of individuals seeking refuge at relatives’ houses varied across the areas, with the lowest percentage in Vellangallur (7.3%) and the highest in Chalakudy (40.1%). The data provide insights into the preferred responses of people displaced by flooding in the Chalakudy River Basin, indicating the significant utilization of flood camps as temporary shelters during the disaster.

**Help Received from Different Agencies**

Amidst the deluge and destruction that God’s own Country is being subject to, what continues to emerge are stories of bravery and resilience that the people of the state were showing. The floods, being described as the worst to hit Kerala in over 100 years, many reports from authorities, agencies, and commoners worked together very hard to help those in distress.

**Table 2 Help Received from Different Agencies**

| Response   | Block        |               |               | Total         |
|------------|--------------|---------------|---------------|---------------|
|            | Chalakudy    | Mala          | Vellangallur  |               |
| Government | 85<br>(59.9) | 130<br>(76.0) | 100<br>(91.7) | 315<br>(74.6) |
| Private    | 4<br>(2.8)   | 82<br>(48.0)  | 69<br>(63.3)  | 155<br>(36.7) |
| NGO        | 41<br>(28.9) | 18<br>(10.5)  | 5<br>(4.6)    | 64<br>(15.2)  |
| Others     | 16<br>(11.3) | 4<br>(2.3)    | 0             | 20<br>(4.7)   |

Figure in parentheses represents percentage; Multiple responses

The table presents data on the types of assistance received by individuals from different agencies in response to flooding in Chalakudy, Mala, and Vellangallur. A total of 315 individuals from Chalakudy, Mala and Vellangallur received assistance from the government. Private organizations assisted 155 individuals overall, with the highest number of recipients in Mala. NGOs assisted 64 individuals overall, with the highest number of recipients in Chalakudy. Other sources of assistance were minimal, with varying degrees of distribution across the three areas. The data illustrate the distribution of assistance received from different agencies, highlighting the significant role of government assistance, particularly in the Vellangallur area.

**Type of Help Received**

When floods occur, a variety of assistance is provided to help flood victims cope with the immediate and long-term effects of the disaster. The help given to flood victims is summed up in Table 3.

**Table 3 Type of Help Received**

| Type of Help Received | Block             |              |                      | Total         |
|-----------------------|-------------------|--------------|----------------------|---------------|
|                       | Chalakudy (n=142) | Mala (n=171) | Vellangallur (n=109) |               |
| Cash                  | 49<br>(34.5)      | 16<br>(9.3)  | 16<br>(14.7)         | 73<br>(17.3)  |
| Kind                  | 10<br>(7.0)       | 38<br>(22.2) | 38<br>(34.8)         | 56<br>(13.3)  |
| Subsidy               | 30<br>(21.1)      | 5<br>(2.9)   | 5<br>(4.6)           | 57<br>(13.5)  |
| Cash and Kind         | 12<br>(8.4)       | 98<br>(57.3) | 98<br>(89.9)         | 175<br>(41.5) |
| Cash and Subsidy      | 3<br>(2.1)        | 0            | 0                    | 4<br>(0.9)    |
| Kind and subsidy      | 6<br>(4.2)        | 1<br>(0.6)   | 1<br>(0.9)           | 7<br>(1.7)    |
| All                   | 0                 | 3<br>(1.7)   | 3<br>(2.7)           | 3<br>(0.7)    |

The figure in parentheses represents the percentage

The table presents a summary of the types of assistance received by flood victims from three distinct locations: Chalakudy, Mala, and Vellangallur. It categorizes assistance into cash, kind, subsidy, and various combinations thereof. Across all locations, cash assistance was provided to varying degrees, with Chalakudy having the highest percentage of recipients (34.5%) compared to Mala (9.3%) and Vellangallur (14.7%). Conversely, Mala had the highest proportion of recipients receiving kind assistance (22.2%), followed by Vellangallur (34.8%) and Chalakudy (7.0%). Subsidy assistance was the least common, with Chalakudy having the highest percentage of recipients (21.1%) compared to Mala (2.9%) and Vellangallur (4.6%). Combinations of assistance types were more prevalent, particularly in Mala, where 57.3% of recipients received both cash and kind aid. The results illustrate the diversity in aid provision across the three locations, highlighting the varied approaches to assisting flood victims in coping with the aftermath of the disaster.

### Emotional Rehabilitation Efforts

Amidst the aftermath of the Kerala floods, dedicated efforts in emotional rehabilitation became paramount to assist survivors in coping with the profound emotional and psychological distress wrought by the catastrophe. This support system aimed to provide solace and healing to those

grappling with the devastation of losing their homes, and belongings, and enduring the deeply distressing impact of the floodwaters. Table 4 brings out the emotional rehabilitation support received by the respondents.

**Table 4 Emotional Rehabilitation Efforts**

| Emotional Rehabilitation Efforts | Block        |              |              | Total         |
|----------------------------------|--------------|--------------|--------------|---------------|
|                                  | Chalakudy    | Mala         | Vellangallur |               |
| No                               | 77<br>(54.2) | 93<br>(54.4) | 45<br>(41.3) | 215<br>(50.9) |
| Yes                              | 65<br>(45.8) | 78<br>(45.6) | 64<br>(58.7) | 207<br>(49.1) |
| Total                            | 142<br>(100) | 171<br>(100) | 109<br>(100) | 422<br>(100)  |

The Figure in Parentheses Represents the Percentage

The data reveals that a significant portion of respondents in each location received emotional rehabilitation support. Specifically, in Chalakudy, 45.8% of respondents received such assistance, while in Mala and Vellangallur, the percentages were similar, with 45.6% and 58.7% respectively. Conversely, a notable portion of respondents in each area did not receive emotional rehabilitation support, ranging from 41.3% in Vellangallur to 54.4% in Mala. The results demonstrate the presence of efforts aimed at emotional rehabilitation in all three regions, albeit with variations in the proportion of recipients across locations.

### Special Loans /Subsidies Received After Floods

After the devastating floods in Kerala, the state government in collaboration with various agencies and organizations, initiated special loans and subsidies program to provide financial relief to individuals and businesses affected by the floods, helping them rebuild their lives and communities in the aftermath of the natural disaster. Table 5 portrays the data related to the special loans and subsidies received by the farmers after the floods.

**Table 5 Special Loans /Subsidies Received  
After Floods**

| Special loans /<br>subsidies | Block        |               |              | Total         |
|------------------------------|--------------|---------------|--------------|---------------|
|                              | Chalakudy    | Mala          | Vellangallur |               |
| Received                     | 51<br>(35.9) | 15<br>(8.8)   | 21<br>(19.3) | 87<br>(20.6)  |
| Not Received                 | 91<br>(64.1) | 156<br>(91.2) | 88<br>(80.7) | 335<br>(79.4) |
| Total                        | 142<br>(100) | 171<br>(100)  | 109<br>(100) | 422<br>(100)  |

The Figure in Parentheses Represents the Percentage

The data showcases significant disparities in the receipt of such financial assistance across the three locations. In Chalakudy, 35.9% of farmers received special loans or subsidies, indicating a moderate level of support. In contrast, the proportion of recipients in Mala and Vellangallur was notably lower, with only 8.8% and 19.3% respectively. The majority of farmers in Mala (91.2%) and Vellangallur (80.7%) did not receive these special loans or subsidies, underscoring a significant gap in financial aid distribution in these areas.

### Conclusion

In the wake of the 2018 Kerala floods, the resilience and determination displayed by flood-affected farmers in the Chalakudy River basin underscore the human capacity to adapt and rebuild in the face of adversity. Despite the widespread devastation to agricultural land, crops, and livestock, farmers in the region demonstrated remarkable resilience, leveraging their strong community networks and local knowledge to mitigate the impact of the disaster. However, the disparities in aid distribution, particularly evident in the allocation of special loans and subsidies, highlight the need for more equitable and inclusive support mechanisms. Efforts towards emotional rehabilitation were notable, yet gaps remain in addressing the psychological and emotional trauma experienced by survivors. Moving forward, policy interventions must prioritize equitable aid distribution, bolster community resilience, and foster long-term sustainable recovery efforts to ensure the well-being and livelihoods of flood-affected communities in the Chalakudy River basin and beyond.

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