

# Awareness, knowledge and Perception of forest dependent communities on Climate Change in Malawi: A case of Mchinji and Phirilongwe Forest Reserves in Malawi

Harold L.W. Chisale\*

1. *Forest Science Postgraduate Programme, University of Pretoria, Pretoria, South Africa*
2. *Department of Forestry, Lilongwe University of Agriculture and Natural Resources, Lilongwe, Malawi, Email: [u18264248@tuks.co.za](mailto:u18264248@tuks.co.za) or [chisale.harold2@gmail.com](mailto:chisale.harold2@gmail.com), ORCID Number: 0000-0002-5267-8791*

Paxie W. Chirwa

1. *Forest Science Postgraduate Programme, University of Pretoria, Pretoria, South Africa, Email: [paxie.chirwa@up.ac.za](mailto:paxie.chirwa@up.ac.za), ORCID Number: 0000-0002-7544-973X*

Folaranmi D. Babalola

2. *Department of Forest Resources Management, University of Ilorin, Ilorin, Nigeria, Email: [babalola.fd@unilorin.edu.ng](mailto:babalola.fd@unilorin.edu.ng), ORCID Number: 0000-0002-8837-0991*

\* *Corresponding author: Harold L.W. Chisale, E-mail: [chisale.harold2@gmail.com](mailto:chisale.harold2@gmail.com)*

**Supplementary Table 1: Explanatory variables used in the binary logistic regression model**

| No. | Explanatory Variable        | Possible Responses |              |
|-----|-----------------------------|--------------------|--------------|
|     |                             | 1                  | 0            |
| 1.  | Employment status           | Employed           | not employed |
| 2.  | Household size              | >6                 | <6           |
| 3.  | Education qualification     | Formal             | Informal     |
| 4.  | Farming skills              | Yes                | No           |
| 5.  | Livestock keeping skills    | Yes                | No           |
| 6.  | Culture and language skills | Yes                | No           |
| 7.  | Carpentry Skills            | Yes                | No           |
| 8.  | Hunting skills              | Yes                | No           |
| 9.  | Art and crafts skills       | Yes                | No           |
| 10  | Age of respondent           | >35                | <35          |
| 11. | Gender of respondent        | Male               | Female       |

**Supplementary Table 2: Participants Perception in the changes of onset and offset of Seasons**

| SEASONS                          | Response  | Proportion of Respondent (%) |                  | Chi-square Results |         |
|----------------------------------|-----------|------------------------------|------------------|--------------------|---------|
|                                  |           | Mchinji (n=227)              | Mangochi (n=195) | $\chi^2$           | P-value |
| <b>Onset of Rainy Season</b>     | Early     | 22.5                         | 31.3             | 4.027              | 0.259   |
|                                  | Delayed   | 74                           | 65.6             |                    |         |
|                                  | No change | 0.9                          | 0.5              |                    |         |
|                                  | Not sure  | 2.6                          | 2.6              |                    |         |
| <b>Onset of Cold-wet Season</b>  | Early     | 49.3                         | 46.7             | 5.948              | 0.114   |
|                                  | Delayed   | 26.4                         | 36.9             |                    |         |
|                                  | No change | 16.8                         | 8.2              |                    |         |
|                                  | Not sure  | 7.5                          | 8.2              |                    |         |
| <b>Onset of Hot-dry season</b>   | Early     | 46.3                         | 50.2             | 0.175              | 0.982   |
|                                  | Delayed   | 33.9                         | 31.8             |                    |         |
|                                  | No change | 12.8                         | 11.3             |                    |         |
|                                  | Not sure  | 7                            | 6.7              |                    |         |
| <b>Offset of Rainy season</b>    | Early     | 59                           | 83.1             | 38.345             | 0.000   |
|                                  | Delayed   | 24.7                         | 14.4             |                    |         |
|                                  | No change | 11.5                         | 1.5              |                    |         |
|                                  | Not sure  | 4.8                          | 1                |                    |         |
| <b>Offset of Cold-wet season</b> | Early     | 34.8                         | 20               | 21.455             | 0.000   |
|                                  | Delayed   | 44.9                         | 66.2             |                    |         |
|                                  | No change | 12.8                         | 7.1              |                    |         |
|                                  | Not sure  | 7.5                          | 6.7              |                    |         |
| <b>Offset of hot-dry season</b>  | Early     | 29.1                         | 44.1             | 12.451             | 0.006   |
|                                  | Delayed   | 49.8                         | 39.5             |                    |         |
|                                  | No change | 12.3                         | 9.7              |                    |         |
|                                  | Not sure  | 8.8                          | 6.7              |                    |         |

**Supplementary Table 3: Respondent's Willingness to embrace Behavior changes to tackle climate change**

| Behaviour   | Response          | Proportion of Respondent (%) |                  | Chi-square Results |         |
|---|-------------------|------------------------------|------------------|--------------------|---------|
|   |                   | Mchinji (n=227)              | Mangochi (n=195) | $\chi^2$           | P-value |
| Stop unregulated harvesting of forest resources   | Strongly agree    | 79.7                         | 59               | 33.25              | 0.000   |
|   | Agree             | 14.5                         | 37.9             |                    |         |
|   | Don't know        | 2.2                          | 1                |                    |         |
|   | Disagree          | 2.6                          | 0.5              |                    |         |
|   | Strongly disagree | 0.9                          | 1.5              |                    |         |
| Accept training in good forest exploitation practices   | Strongly agree    | 60.8                         | 46.7             | 13.99              | 0.007   |
|   | Agree             | 36.6                         | 50.8             |                    |         |
|   | Don't know        | 2.2                          | 1                |                    |         |
|   | Disagree          | 0.4                          | 0                |                    |         |
|   | Strongly disagree | 0                            | 1.5              |                    |         |
| Use alternative cooking energy sources other than firewood and charcoal                                       | Strongly agree    | 53.3                         | 48.2             | 35.314             | 0.000   |
|   | Agree             | 30                           | 49.2             |                    |         |
|   | Don't know        | 8.8                          | 0.5              |                    |         |
|   | Disagree          | 7.5                          | 1                |                    |         |
|   | Strongly disagree | 0.4                          | 1                |                    |         |
| Use clean fuel efficient (Saving) cooking stoves.   | Strongly agree    | 46.3                         | 42.6             | 36.63              | 0.000   |
|   | Agree             | 37.4                         | 55.4             |                    |         |
|   | Don't know        | 12.3                         | 1                |                    |         |
|   | Disagree          | 4                            | 0                |                    |         |
|   | Strongly disagree | 0                            | 1                |                    |         |
| Plant more trees on farm and homestead.   | Strongly agree    | 63                           | 49.2             | 15.804             | 0.003   |
|   | Agree             | 33                           | 47.2             |                    |         |
|   | Don't know        | 3.1                          | 0.5              |                    |         |
|   | Disagree          | 0                            | 1                |                    |         |
|   | Strongly disagree | 0.9                          | 2.1              |                    |         |
| Diversify income by learning how to cultivate NTFPs such as bee keeping, mushroom production, and wild fruits | Strongly agree    | 50.2                         | 43.1             | 11.467             | 0.022   |
|   | Agree             | 40.1                         | 52.8             |                    |         |
|   | Don't know        | 5.3                          | 1                |                    |         |
|   | Disagree          | 2.2                          | 1                |                    |         |
|   | Strongly disagree | 2.2                          | 2.1              |                    |         |
| Engage in forest co-management with department of forestry  | Strongly agree    | 48.9                         | 43.6             | 5.53               | 0.237   |
|   | Agree             | 44.1                         | 51.3             |                    |         |
|   | Don't know        | 5.3                          | 2.1              |                    |         |
|   | Disagree          | 0.4                          | 1                |                    |         |
|   | Strongly disagree | 1.3                          | 2.1              |                    |         |