

# VALUING AGROBIODIVERSITY FOR MAINSTREAMING INTO BLUEGREEN VILLAGE PROGRAMME : “FOOD MANDALA” AS A TOOL OF RECIPROCITY FOR ENHANCING RESILIENCE

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## Abstract

As an obligation to Paris Climate Agreement Sri Lanka pledged to develop 10,000 Bluegreen Villages by 2025, characterized by diverse landscapes and resilient communities to adverse climate change impacts. Mainstreaming agrobiodiversity is of high priority for meeting the programme outcome. However, with changing lifestyles locally available agrobiodiversity and its reciprocal sharing is often ignored making people more dependent on food being marketed. This research was conducted in a model blue green village to introduce food mandala as a tool of reciprocity for collective social action and participatory agrobiodiversity valuation. A discrete choice experiment was conducted to estimate the Marginal Willingness to Accept (MwTA) along with a questionnaire survey. Eight attribute levels were identified with three food mandala alternatives and nine choice cards were generated using SPSS software. Data analyzed in STATA econometric software using conditional logistic approach. Total of 207 households were interviewed. According to the results; 3 food items, from home garden, cultivated & uncultivated lands, 2 ½ Hours, 2 per month, 10 families, underutilized foods, supported by community based organization & a government institute and the monetary attribute imposed in to the logistic model were statistically significant with positive coefficients. Thereby community is interested in having diverse food items as well as highly interested in underutilized foods (Highest value: Rs. 1540.00). Statistically significant monetary attribute indicated that they assumed a cost reduction and 97.1% stated their willingness to engage in food mandala. As per the findings, introducing food mandala as a tool of reciprocity for mainstreaming agro-biodiversity proved a success. It was concluded that food mandala is an ideal participatory tool for popularizing locally available agro biodiversity, a useful event to motivate people on agro biodiversity conservation and benefit sharing including awareness creation on lesser-known, rare and underutilized agro biodiversity with culinary uses and recipes. Recommendations were made in the blue green village strategic guidelines for villages to apply tool by innovative ways.

## Objectives

Introducing Food Mandala as a tool of reciprocity is such considered strategy and this study was conducted in the blue green model village Siyambalangamuwa with the objectives of evaluating the willingness to accept it and showcase how it is important in popularizing locally available seasonal agro biodiversity and thereby promoting green entrepreneurship and for enhancing resilience.

## Materials and methods

- The study location Siyambalangamuwa blue green model village belongs to Polpithigama Divisional Secretary Division in Kurunegala District, North Western Province, Sri Lanka. It was selected for the study since it is one of the pioneer pilot model villages among others
- After preliminary survey, consisted with baseline surveys, focus group discussions and discussions with key informants, carried out to identify the most important attributes and attribute levels of Food Mandala, two hundred seven (207) households (total number of households in the village) were interviewed during the period, July to September, 2017 conducting a choice modeling experiment along with a choice based pre tested questionnaire survey using planned set of choice cards.
- Also the Food Mandalas were prepared with the community participation during focus group discussions and at mini workshops held in the village.
- Eight attributes were identified during preliminary survey as indicated in the Table 1. Considering these attributes and levels nine choice cards with three food mandala alternatives were generated using SPSS version 2.1 software and a discrete choice experiment was conducted
- Data were analyzed in STATA version 14, Econometric software using Conditional Logistic approach.

## Engaging in questionnaire surveys and focus group discussions



## Methodology

- Preliminary survey, consisted with baseline surveys
- Group discussions and discussions with key informants
- Identified the most important attributes and attribute levels of Food Mandala
- Conducted a choice modeling experiment along with a choice based pre tested questionnaire survey using planned set of choice cards.
- 207 households (total number of households in the village) were interviewed (July to September, 2017).
- Food Mandalas were prepared with the community participation during focus group discussions and at mini workshops held in the village.
- Eight attributes were identified during preliminary survey as indicated in below.
- Considering these attributes and levels nine choice cards with three food mandala alternatives were generated using SPSS version 2.1 software and a discrete choice experiment was conducted
- Data were analyzed in STATA version 14, Econometric software using Conditional Logistic approach.

For the population represented by the sample, indirect utility of the Food Mandala attributes take the form,  
 $X1$ -no. of food items,  $X2$ -supplied method,  $X3$ - time,  $X4$ - no. of mandalas,  $X5$ - cost reduced,  $X6$ - no. of families,  $X7$ - underutilized foods,  $X8$ - institutional support

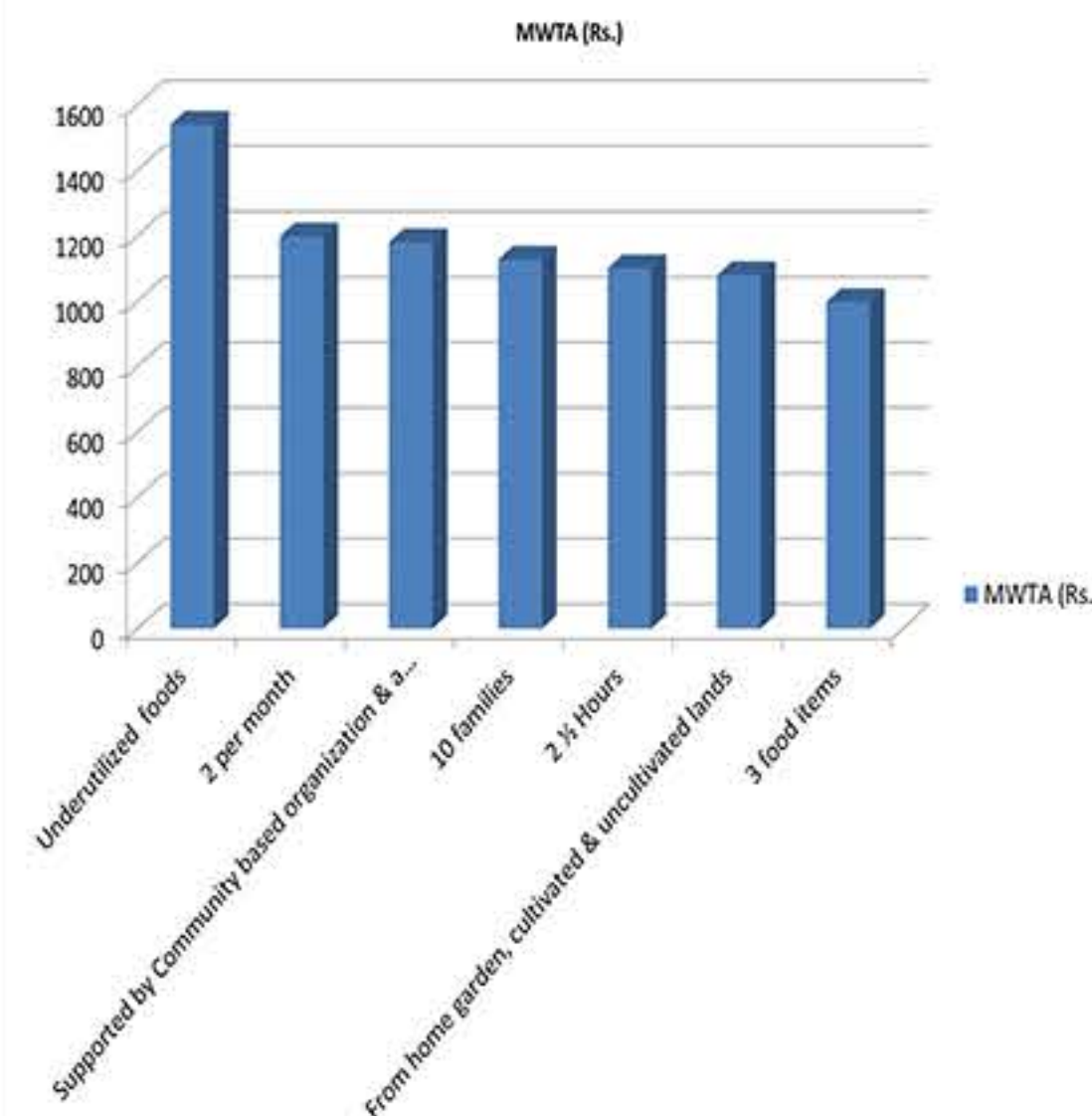
$$V_{ij} = \beta_0 + \beta_1 \ln(X1) + \beta_2 \ln(X2) + \beta_3 \ln(X3) + \beta_4 \ln(X4) + \beta_5 \ln(X5) + \beta_6 \ln(X6) + \beta_7 \ln(X7) + \beta_8 \ln(X8) \dots \dots \dots (1)$$

$$MWTA = -(\beta_{\text{attribute}} / \beta_{\text{monetary attribute}}) \dots \dots \dots (2)$$

## Attributes and their levels of food mandala that were used in the choice experiment

Attributes	Levels
Number of food items that can be provided	4, 3, 2
Supplied method	From the home garden, cultivated & uncultivated lands From the home garden & cultivated land only
Time taken to prepare	3, 2 ½, 2
Number of mandalas to	4, 2, 1
Percentage of the cost for food items reduced	40%, 30%, 20%
Number of families joined in preparing	15, 10, 5
Underutilized foods	Available, Not available
Institutional Support	Community based organization Community based organization & a Government institute

## MWTA on important attributes of food mandala identified by the community



## The major achievement



## CONCLUSION

The study revealed that still there are reciprocal sharing mechanisms related to food items in the village Siyambalangamuwa, even though they are not being practiced as in old times. Majority was willing to engage in an organized reciprocating mechanism in sharing food items and approved food mandala as such mechanism. But in considering Sri Lankan village level context comparatively villages have similar characteristics, values & norms, so that it can be predicted majority would respond similarly expressing their willingness to accept food mandala as a tool of reciprocity.

Furthermore it could be concluded that food mandala is a good participatory approach in popularizing locally available, seasonal agro biodiversity. Promoting food sovereignty becoming a burning need due to the vulnerability to climate change induced disaster risks being experienced increasingly. To trigger reciprocal sharing, economy-wide policies is a necessary condition. However, it is not sufficient for creating green investments and green jobs for sustainable outcomes. Therefore, it is recommended to incur reciprocity based green entrepreneurship package into each village of bluegreen village programme of the Ministry of Mahaweli Development and Environment. Food Mandala would be an ideal tool in the package.

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