

## Variations of drought hazard among small Wewa Agro-ecosystems in the North Central Province of Sri Lanka

### Extended Abstract

WKNP Wijesinghe<sup>1</sup>

#### Background

Drought is one of the most widespread natural hazards affecting human populations around the globe (Wilhite, 2000). Drought is different from the rapid-onset environmental hazard because droughts develop slowly and have a prolonged existence, sometimes over several years (Smith, 2004). Drought can be simply defined as a situation where human demand for water exceeds the available supply (Wanninayake, 2011). or lack of expected rainfall. However,

severity a drought depending on many factors such as degree of the deficiency, the time period, and the size of the area affected. In addition, timing is also a significant factor with the duration of drought affected. Drought creates many issues on the livelihoods of the people particularly among the rural communities. A small wewa system is a network of inter-connected cascading man-made water reservoirs, built in the drought-prone areas, in order to provide water all year round.

#### Objectives

There are micro scale variations in natural and societal environment of small Wewa agro-ecosystems in the North Central Province. Accordingly, level of drought hazard is expected to be different in various ecosystems. With this background, this study primarily aims to examine the heterogeneity of the drought hazard among the small Wewa Agro-ecosystems in the North Central Province.

#### Methodology

This study employed the constructive pragmatic approach facilitating drought management and analyses were performed using the data collected through an open ended questionnaire. The study was conducted with the samples of 540 covering eight Divisional Secretariat Divisions in the province. Perception data of the questionnaire were analyzed using Excel applications and presented as graphs, charts and tables.

#### Result

The data analyses reveal that within the province there is a huge variation in the level of drought hazard. Most of the respondents have expressed that they have not experienced any kind of drought in their environment. It can be concluded that those agro-ecosystems with minimal level of drought need further studies in order to introduce positive characteristics to other ecosystems. Perception of drought hazard is a physiological statement. Bellow chart shows the perception of drought hazard. According to the analyzed data, when considering the both indicators, it was found that the lowest level of drought hazard indicated in Kabithigollawa division and the highest level of drought hazard depicted in Mahavilachchiya DS division.

Table 1 Perception of the level of effect of drought

DS division	Horrowpothana	Kabithigollawa	Mahavilachchiya	Padaviya	Palugaswewa	Madawachchiya	Galenbindunuwewa	Tirappane
Drought is much relevant to us	4.1	3	4.4	3.3	3.9	3.9	3.6	3.5
Drought severely affect us	3.9	2.7	4.5	3	4.2	4.2	2.8	3.5

Source: Field data - 2016

#### Conclusions and Recommendations

The data analysis reveals that within the province there is a huge variation in the level of drought hazard. Small Wewa systems in Padaviya and Kabithigollawa divisions show the lowest level of drought hazard. Most of the respondents have expressed that they do not find any kind of drought in their environment. It can be recommended that those agro-ecosystems with lower level of drought need further studies in order to introduce positive characteristics to other ecosystems.

**Key words:** Socio economic effects, perception, adaptation, drought Management

<sup>1</sup> Department of Environmental Management, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.