CHAPTER 1

Introduction

1.1 Background

Climate variability and change is one of the most serious threat to Vietnam as well as many other countries around the world. Hyoung Gun Wang and Munoz (2009) indicated that, climate change is projected continuous to cause many great damages to people in life and livelihood assets, and natural hazards cannot be regarded separately from climate change and its variability. Small changes in environmental factors such as temperature or rainfall, acting together or in isolation, may lead to a natural hazard event (Wachinger, 2010). Different climatic hazards (flood, drought, thermal extremes and storm events) affect most regions of the globe and in many their effects are likely to be exacerbated by the effects of climate change. The prospect of change in the extent, magnitude and distribution of climatic hazards compounds an already severe socio-environmental problem in many regions, especially in developing countries where the state's capacity to provide widespread protection measures is often limited and where poverty and vulnerability to hazards may have a cyclical relationship (Few, 2008).

According to Easterling (2000), an important aspect of climate extremes is related to drought. Drought has been a part of our environment since the beginning of recorded history, and humanity's survival may be testimony only to its capacity to endure this climatic phenomenon. It is considered by many to be the most complex but least understood of all natural hazards, affecting more people than any other hazard (Hagman 1984, cited by Erian *et al.*, 2011). Besides, drought is one of the most complex natural hazards, affecting agricultural production globally, triggering significant food and health insecurity and habitat loss through land degradation and desertification (Smakhtin and Schipper, 2006). The fact that, drought continues to have significant impacts in both developed and developing countries. The latter still suffer from droughts the most (Wilhite, 2005) and Vietnam is one of those countries. Most regions in Vietnam,

especially in the central to the south, were significantly affected by severe drought causing adverse impacts on livelihood and the national economy (Nguyen Dang Tinh, 2006).

Drought is one of the prime abiotic stresses in crops in the world. Crop yield losses due to drought stress are considerable. Crop failures and pasture losses are the two primary drivers of the direct economic impacts of drought in the agricultural sector (Kemper *et al.*, 2012). In a research about drought and its impact on maize production, Aslam *et al.* (2012) revealed that, drought effected on all growth periods of maize plant, from seedling establishment to grain yield. Drought was the most important environmental agent which decreases growth and development of plants among all the environmental stresses. Drought has been considered a serious yield limiting factor in developing countries, it develops slowly, is difficult to detect and has many facets in any single region.

Dakrong is a rain-fed highland district of Quang Tri province where it is located in a drought-prone area of Central Vietnam, considered as one of hottest areas in the country. The dry season last from April to August with the hottest daily temperature reaches 40 - 42^0C, and the rainfall is quite low, under 100mm per month at these months (Quang Tri Hydro-meteorological Center, 2013). The combination of dry southwest monsoon has made the land barren, water shortage, etc. That is why local people have perceived drought as the most severe climate hazard over the past years. According to Dakrong' Agriculture Department (2013), drought is the main factor making low productivity of these crops in which maize is one of the most affected crops by drought because it is grown on the mountainside where water resources are limited.

During the previous years, the lives of people in this area rely heavily on 4.38% agricultural land area, in which maize is considered as an economically important cereal crop of the district, assumed a role second to rice in the farming sector and macro-economy of the region. However, under the influence of drought, maize production here is facing many difficulties. The awareness limitation on drought of farmers (almost belongs to ethnic minorities who account for 82% population of the area) is leading to weakness in production adaptation, being the main cause of low productivity, low yield in maize production, etc. in the study area. This has contributed to creating the vicious cycle of poverty here. Therefore, this research must clarify issues from this situation

such as: “whether farmers are aware of the drought going on maize or not?”, “how are the farmers aware of drought and its’ impacts?”, “what are they adapting to cope with drought?”, and “which factors do impact on farmer’s adaptive ability?”. The study explored through these questions.

1.2 Objective

i) To assess farmers’ perception toward drought.
ii) To examine farmers’ adaptation in maize cultivated activities.
iii) To analyze factors having impact on farmers’ adaptation to drought in maize production.